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Perspective

Foregrounding ecojustice in conservation

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ABSTRACT

Justice for nature remains a confused term. In recent decades justice has predominantly been limited to humanity, with a strong focus on social justice, and its spin-off – environmental justice for people. We first examine the formal rationale for ecocentrism and ecological ethics, as this underpins attitudes towards justice for nature, and show how justice for nature has been affected by concerns about dualisms and by strong anthropocentric bias. We next consider the traditional meaning of social justice, alongside the recent move by some scholars to push justice for nature into social justice, effectively weakening any move to place ecojustice centre-stage. This, we argue, is both unethical and doomed to failure as a strategy to protect life on Earth. The dominant meaning of 'environmental justice' – in essence, justice for humans in regard to environmental issues – is also explored. We next discuss what ecological justice (ecojustice) is, and how academia has ignored it for many decades. The charge of ecojustice being 'antihuman' is refuted. We argue that distributive justice can also apply to nature, including an ethic of bio-proportionality, and also consider how to reconcile social justice and ecojustice, arguing that ecojustice must now be foregrounded to ensure effective conservation. After suggesting a 'Framework for implementing ecojustice' for conservation practitioners, we conclude by urging academia to foreground ecojustice.

1. Introduction

Scientists have now credibly established that anthropogenic extinctions began during the Late Pleistocene as *Homo sapiens* spread out of Africa into Eurasia and beyond (Harari, 2015), and there is now a broad consensus that we have entered the 6th mass extinction event in the history of Planet Earth (Cafaro and Crist, 2012; Ceballos et al., 2015). During the past five decades, scholars and policy-makers have been aware of this, first pending and now unfolding, global-scale crisis.

Despite the development of a large body of social and ecological literature, we are today further than ever from addressing and stopping this mass extinction. Worse, there is currently much debate about whether this mass extinction actually needs to be averted, or can be accommodated by letting supposedly non-essential species go extinct (Buckley, 2016; Vucetich et al., 2017). Academics seem to be increasingly pitted against one another on the key issue of whether conserving nature is worthy for its own sake, or only indirectly - to the extent it benefits people. In other words, debates continue about whether social (i.e. inter-human) justice trumps ecological justice (justice for the nonhuman). For example, the widely-accepted protected-area targets for biodiversity aim to protect 17% of terrestrial habitats and 10% of coastal and marine areas (CBD, 1992), but these have already been criticized as likely to be 'socially unjust' (e.g. Bennett et al., 2017). The recent realization that we may in fact need to *more than double* the earlier envisioned protected areas to achieve biodiversity protection (Dinerstein et al., 2017) has led to increasing tension between the respective advocates of social and ecological justice (Martin et al., 2016). In this article, we argue that ecological justice must now be foregrounded in order to avert a planetary collapse. Ecological justice is most appropriately based upon ecological ethics derived from an ecocentric worldview, a position that has been developed over the past 75 years (e.g. Taylor, 2010; Curry, 2011).

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We proceed by first summarizing the formal rationale in support of ecocentrism, which has received only minimal attention in the conservation literature. We then address the topics of social, environmental, ecological, and distributive justice, and how an ecocentric worldview coheres with ecological justice. We conclude with a discussion of how to reconcile social and ecojustice and propose an ecojustice framework for immediate use by conservation practitioners.

2. The formal rationale for ecocentrism and ecological ethics

An ecocentric worldview is one in which human and nonhuman organisms, species, ecosystems, and ecosystem processes are all understood to have moral value. Although there is robust discussion over how to label such moral value, ecocentric value systems are typically understood to view all natural entities as having 'intrinsic' or 'inherent' value (Curry, 2011; Rolston III, 2012; Callicott, 2013, 2017; Batavia and Nelson, 2017; Washington et al., 2017). By finding intrinsic value in nonhuman individuals and collectives, the concept of ecocentrism at first appears at odds with post-enlightenment Western ethics. Upon deeper consideration however, ecocentrism is supported by our current multi-level understanding of physical and biological sciences (Traulsen and Nowak, 2006; Callicott, 2013; Farine et al., 2015) and expands rather than opposes Western ethics (Nash, 1989). To consider individual humans (or even nonhumans) the sole locus of value goes against the basis of ecological and evolutionary theory. Clearly, no individual of any species can exist in isolation from conspecifics or other species, and we now recognize multi-level selection (genes, individuals, groups) as a key concept in evolution (Traulsen and Nowak, 2006). The knowledge gained over the past 150 years regarding the eco-evolutionary dynamics of the biosphere demands a re-assessment of the philosophical worldview that individual members of a single species, *Homo sapiens*, are the sole agents of moral worth (Rolston III, 1985; Washington et al., 2017).

It should be noted from the outset that our discussion comes from an ecocentric worldview that has been influenced by notions of biotic 'kinship' that have long been felt in many indigenous cultures (Knudtson and Suzuki, 1992; Deloria, 1994; Weaver, 1996; Berkes, 1999; Curry, 2011; Kimmerer, 2013). Many such cultures saw nature as kin and viewed themselves as part of nature (and many continue this belief). Both ecocentrism and indigenous kinship ethics see life as kin and worthy of respect and a duty of care (Neidjie et al., 1985), as they accept their intrinsic value. Anthropocentrism does not do this, seeing all of nature as just a resource for human use (Crist, 2012). For many indigenous cultures, the biotic community as a whole - nature - was their 'society' (Snyder, 1990). As Fisher (2013) notes for Koyukon Indians in Alaska, the environment is like a second society in which people live, governed by elaborate rules of behavior and etiquette, and the Koyukon saw their surroundings as aware, sensate and personified. Strang (2019) notes that Australian Aborigines considered the land to be a sentient landscape, inhabited by the totemic ancestral beings who created the world and its human and non-human inhabitants during the 'early days' of cosmogenesis, commonly called the Dreamtime. The ancestral beings remain, held in the land and its waters, as a source of the Ancestral Law that underpins every aspect of Aboriginal life, and as a continued presence that renders the landscape sentient, alive and responsive to human action. Strang (2019) concludes that for both Māori and for Aboriginal Australians, the non-human world and its material components contain the consciousness and agency of their ancestral spiritual beings.

Similar ideas have also been expressed and promoted by Western scientists and thought leaders, including Charles Darwin, who specifically alluded to the moral implications of a recognition that all living things share a common ancestor (Worster, 1994), an implication that Leopold (1949: 262) has also expressed:

> A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise.

Many others around the world have embraced ecocentric moral (and often spiritual) sentiments in their own ways (Taylor, 2010), such as the founders of the Society for Conservation Biology (SCB) in 1986. Ehrenfeld (1978) wrote the classic 'The Arrogance of Humanism', and became Conservation Biology's first editor. Michael Soulé, who also played a leading role in the founding of the Society, invited the deep ecology philosopher Arne Naess to give the keynote at the Society's second conference (Taylor, 2005; Piccolo et al., 2018). Indeed, continued support by leading conservationists for ecocentrism has again been demonstrated recently (EC, 2017). Given this history, it is surprising (as well as troubling) that there is comparatively little discourse about ecocentrism in the scientific or philosophical literature. For example, the Oxford Handbook of Environmental Ethics (Gardiner and Thompson, 2016) lists the word 'ecocentrism' only 6 times in some 600 pages. The word does not appear at all in the index of the 2017 Routledge Handbook of Philosophy of Biodiversity (Garson et al., 2017); neither does 'intrinsic value'.

If the nations of the world have committed to the goal of protecting 17% of the Earth's terrestrial habitats (and there are serious proposals to protect 50%, Wilson, 2016), what values are we trying to preserve? Is the rationale that we need to protect such vast areas solely for *human* use and enjoyment (i.e. their utilitarian ecosystem services)? Conservation on that basis could thus be justified as a moral duty towards other humans, either currently living or unborn, under the concept of inter-generational equity (Treves et al., 2018). Alternatively, are there values outside of human preference that we have a moral duty to protect?

Leopold's Land Ethic was founded upon the recognition that *Homo sapiens* individuals are: "plain members and citizens of the biotic community" as understood through the lens of Darwinian evolution. There has been some discussion in philosophy over recent decades about anthropocentrism and its contrary, ecocentrism (e.g. Ehrenfeld, 1978; Shepard, 1982; Berry, 1988; Vilkka, 1997; Taylor, 2010; Curry, 2011; Rolston III, 2012; Vetlesen, 2015; Washington et al., 2017; Kopnina et al., 2018a, 2018b; Piccolo et al., 2018). Anthropocentrism still remains the dominant worldview in academia, yet an increasing number of scholars are speaking out against it, in recognition of the devastating impact it has on the Earth's ecosystems (e.g. Taylor, 2010; Curry, 2011; Cafaro and Crist, 2012; Fisher, 2013; Vetlesen, 2015). Philosophers have made strong cases for extension of ethical consideration from sentient beings through all life (e.g. biocentrism, Taylor, 1986) and more broadly to ecological collectives such as species (Rolston III, 1985) and ecosystems (Vilkka, 1997; Callicott, 2017). Indeed we suggest that ethical extensionism is an important part of how society progresses ethically.

Human individuals are themselves complex ecosystems of myriad microorganisms, so much so that we contain more bacterial cells than human cells (Wilson, 2016: 121–30). The upshot of this is that if we fail to attribute 'moral worth' to collectives - we are ourselves of no worth (Callicott, 2016). If we recognize the moral worth of collectives, we cannot fail to attribute worth to species and ecosystems. Attributing value to ecological collectives is called ecocentrism; upholding our moral duty to consider such value is called ecological justice. However, even though there has been some academic discussion of ecocentrism, there has been less of ecological justice (e.g. Bowers, 2001; Baxter, 2005), and such discussion has largely been ignored, and has not been foregrounded in regard to conservation. We also believe that the question of 'justice' is quite confused in regard to nature, and that many approaches are strongly influenced by anthropocentric bias. We propose to clarify this confusion through a discussion of a number of key terms and issues.

3. Justice for nature

We are concerned that 'justice for nature' has been ignored or denied, being something of a taboo that academia avoids. Further denial will only exacerbate the ongoing biodiversity crisis. We will discuss the confusion around justice, and consider the terms social, environmental, ecological and distributive justice.

3.1. Confusion created by the 'dualism' debate

It is worth noting that many in academia (especially postmodernists) dislike 'dualisms' (or dichotomies), to the extent they seek to deny or deconstruct them. There is no specific problem acknowledging that there are differences in nature, and contrasting two ends of a spectrum. More problematic is seeing the two poles of a dualism as totally separate, with nothing in-between. The real problem comes when we apply dualisms to humanity vs nature (or culture vs nature, or mind vs body), as if it is one or the other, with no middle ground. The question of whether humanity is 'part of nature' merits consideration. Any biologist who has studied evolution can explain that humanity evolved from nature, hence humanity is indeed part of nature in evolutionary terms. However, humans are also a sentient and self-aware 'nature' that has created culture and technology, and these allow our species to do what other species cannot: willfully change the planet.

An argument can be made that it is fully appropriate to speak of 'human nature' and 'nonhuman nature' – both are nature, but humanity is a specific (not better) case, as it has 'culture'. Gare (1995), Rolston III (2001), and Plumwood (2001) argue similarly on this topic – that humans and their culture are a part of nature, but we are a 'distinctive' part. We can thus recognise 'difference' without seeking to create dualisms. However, there is also the issue that, by removing the distinction between culture and nature, we may be ignoring that human interests often do not coincide with those of nonhuman nature. As Kopnina (2016: 417) argues:

> In deconstructing the dichotomy between humans and non-humans, we might be simultaneously erasing the issue of human chauvinism and speciesism. For example, if we were to reject the dichotomy between slaves and slave owners (because they are all humans, after all), we might also be de-politicising the necessity to critically address the institution of slavery itself.

Kopnina (2016) argues that nobody 'likes' dichotomies such as that between anthropocentrism and ecocentrism, or humans and nature. Yet, she notes (ibid): "practically and ethically speaking, they may be necessary, particularly where blatant discriminations against non-humans continue".

3.2. Is 'justice for nature' confused?

The key problem in this discussion remains anthropocentrism, especially in its 'human supremacy' approach (Crist, 2012). By explicitly privileging human welfare over that of all other living beings, anthropocentrism denies ecological justice (Eckersley, 1992; Schlosberg, 2004; Baxter, 2005; Strang, 2016) and the 'Rights of Nature' (Borràs, 2016), the case for legal recognition of which is argued by Earth jurisprudence (Cullinan, 2003; Burdon, 2011). If nature is ruled out as deserving any moral consideration, then justice for nature is similarly abandoned, as nature doesn't count, has no 'rights' and is not deemed to be a locus of intrinsic value.

We note that some scholars from the social justice area tend to have a focus on (human) society, but also have an aversion to dualisms. Rather than argue that humanity (and its culture) are part of nature, they take the surprising approach that nature is part of culture (e.g. Schama, 1995; Langton, 1998; Morton, 2007). Nature then just becomes window-dressing, an add-on to culture. Such an approach removes any agency from nature. Nature may be given some passing moral consideration, or even be granted some (occasionally mentioned) 'intrinsic value'. However, such an approach nevertheless subscribes fully to the 'Greater Value' assumption – nature has some intrinsic value, but wherever humans and nature conflict, *humans take precedence* (Curry, 2011). In regard to justice, this process has recently been operating in regard to 'social justice'.

3.3. Social justice

The dominant meaning of social justice is justice for humans. The Oxford English Dictionary (OED) defines social justice as: "Justice in terms of the distribution of wealth, opportunities, and privileges within a society". By 'society', the OED defines this as: "The aggregate of people living together in a more or less ordered community". Other common definitions confirm that the overwhelmingly dominant meaning is that a 'society' is a group of people, and social justice is about justice within human society. However, recently some scholars writing about 'just conservation' and social justice have sought to redefine social justice as the 'fair treatment of others', where the others are left open, and may include nonhuman nature. This was recently argued by Vucetich et al. (2018). By widening the scope of social justice to include nonhumans, they seem to operate on the assumption they are doing something good. Vucetich et al. (2018: 23) define social justice: "broadly enough to encompass animal welfare" as well as supposedly being concerned with nonhuman 'others'. However, in an earlier article by some of the same authors, Vucetich and Nelson, (2013: 13) reflect on: "the ethical costs that action might incur on social justice, or animal welfare" and conflicts: "with social justice, human liberty, and concern for the welfare of individual animals" (Ibid: 19) – whereby social justice and animal welfare are seen as separate. In another publication, Vucetich et al. (2015: 10) reflect that: "the principles of social justice are a fundamentally important means of weighing and adjudicating competing claims among humans". Vucetich et al. (2018: 23) however propose new principles for just conservation: "If a significant and genuine conservation interest calls for restricting a human interest, that restriction should occur except when doing so would result in injustice". The key question however is: *injustice for whom*? Does it concern only humans, or individuals within species, or entire ecosystems, or all of these? Since the authors address issues that the critics of conservation put forth - financial costs and loss of cultural tradition - it seems that they are only talking about humans. Indeed, in their discussion of 'conservation conflict resolution' Vucetich et al. (2018) they do not include ecological justice as part of the mix.

Offering expansion of the social justice category to include nonhuman nature is similar to arguing that nature is part of culture, rather than the other way around. Nonhuman nature becomes an adjunct pushed into social justice around the edges of social justice's primary meaning: justice between, and for, humans (Kopnina, 2014). To see nature as being part of culture is both anthropocentric and denies the evolutionary reality that humans and their culture are part of nature. While we understand and appreciate that Vucetich et al. (2018) attempt to take a broadly ecocentric perspective, we believe that ignoring any concept of 'ecological justice' for nonhuman nature, and seeking to push this into social justice, is a mistake both ethically and strategically in terms of a holistic conservation strategy for life on Earth. Rather, society needs to foreground a concept of ecological justice.

3.4. Environmental justice

Social justice has also been applied to issues of environmental distribution of environmental 'goods' such as resources, and 'bads' such as pollution. This has mostly been defined by the confusing term 'environmental justice'. Some might think that 'environmental justice' is actually 'justice for the environment', i.e. for nature; however, that is not its common academic meaning. Rather, it is an offshoot of social justice. The United States Environmental Protection Agency (EPA, n.d.)

defines environmental justice as follows:

> Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. … It will be achieved when everyone enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn, and work.

Other definitions include: equitable distribution of environmental risks and benefits; fair and meaningful participation in environmental decision-making; recognition of community ways of life, local knowledge, and cultural difference; and the capability of (human) communities and individuals to function and flourish in society (Schlosberg, 2007). Apart from Schlosberg (2007) (who does argue that environmental justice should include natural systems), most definitions of the term are all about justice for humans. Hence environmental justice cannot properly be equated to ecological justice, as it expresses no concern for the nonhuman, per se, nor does it explicitly address the importance of protecting species or environmental systems. Essentially, this type of justice is anthropocentric (Cafaro et al., 2017; Washington et al., 2017; Kopnina et al., 2018a, 2018b; Piccolo et al., 2018). It is also self-defeating if long-term human flourishing is what we aim for, as society depends fully on nature to survive (MEA, 2005; Washington, 2013; Oliver et al., 2015).

3.5. Ecological justice (ecojustice)

Ecological justice (Schlosberg, 2004; Baxter, 2005) is distinct from and more inclusive than environmental justice, and is concerned with other species independent of their instrumental value for humans. It is associated with 'biospheric altruism', and extends concern beyond human beings (Shoreman-Ouimet and Kopnina, 2016). Given that it is proper to refer to human nature and nonhuman nature, there is similarly no ethical or philosophical problem with talking about 'ecological justice' – justice for nonhumans. This acknowledges what we see as a great moral crime that society has carried out for the last few centuries – ignoring that the nonhuman *also* deserves justice. Naess (1973) refers to ecological justice as justice between the human and non-human species. Low and Gleeson (1998) similarly define ecojustice as the relationship between people and the rest of the natural world. However, we consider its simplest definition is justice for nonhuman nature. Schlosberg (2001) notes that many authors who write about 'justice' fail to attempt to apply the same expanded framework of justice to nature. He points out that most theorists of justice, from Rawls (1971) to Barry (1999), ignore or dismiss the notion that justice can be extended beyond the human community. The common argument is that justice and injustice are only applicable to relations among creatures considered 'moral equals'. For Barry (1999), the questions regarding human treatment of nature are ones of right and wrong, but not of justice. However, Dobson (1998) notes that these sentiments of leaving nature and animals out of traditional theories of justice seem to come more out of a desire to exclude nature, and not from sound theoretical reasoning. These reasons usually centre around a fear of giving nature an *equal moral footing*. This demonstrates that for decades, an academia dominated by anthropocentrism has refused to consider that nonhuman nature also has a right to justice. We believe this denial is a major obstacle to reaching a viable concept of justice that encompasses both humans and nature, and hence achieving a holistic conservation strategy for planet Earth.

Ecocentrism has been labelled 'anti-human' (Smith, 2014), or as contrary to concerns for social justice. It should be clarified however that proponents of ecocentrism and ecojustice are not anti-human (Curry, 2011). Claims by Vucetich et al. (2018: 25) are mistaken that those who argue that 'conservation should trump social justice' are misanthropic. Indeed, given that ecological integrity is an indispensable prerequisite for human existence, let alone flourishing, true ecocentrism cannot be misanthropic or anti-human, even if, in some situations, ecojustice may need to be paramount. In that regard, we support the words of Rowe (1994):

> Ecocentrism is not an argument that all organisms have equivalent value. It is not an anti-human argument nor a put-down of those seeking social justice. It does not deny that myriad important homocentric problems exist. But it stands aside from these smaller, short-term issues in order to consider Ecological Reality. Reflecting on the ecological status of all organisms, it comprehends the Ecosphere as a Being that transcends in importance any one single species, even the self-named sapient one.

The charge of misanthropy against ecocentrism has accordingly been soundly disputed (Rolston III, 1996; Curry, 2011; Callicott, 2013). Ecocentrists overwhelmingly support inter-human social justice; however they also support inter-species justice, or ecojustice for the nonhuman world (Baxter, 2005). In particular, ecocentrists do not consider that social justice needs to be universally achieved before ecological justice is given consideration, and deny that social justice ought to be pursued if it exacerbates ecological injustice. Just as environmental systems involve many interrelationships, environmental and social systems are entwined, and so social and ecojustice concerns are (and must be) as well (Washington, 2015). Ecojustice has been a taboo for academia for far too long. For an effective long-term conservation strategy, 'justice' must now foreground ecojustice.

3.6. Distributive justice for nature?

Social and environmental justice are commonly based on the idea of distributive justice (Schlosberg, 2001) looking at how 'goods' such as resources, or 'bads' such as pollution are distributed amongst society. However, the idea of distributive justice can also be applied to nature. Schlosberg (2001) notes that ecological justice - demands an 'extension of recognition' to nature. It requires that nature be seen as an 'other' that merits justice. Baxter (2005: 4) argues that nonhuman species have a moral right to distributive justice, which entails: "recognizing their claim to a fair share of the environmental resources which all life-forms need to survive and to flourish". For example, how much of the Earth's biological productivity should be controlled by just one species? Vitousek et al. (1986) estimated that about 40% of Net Primary Productivity (NPP) in terrestrial ecosystems was being co-opted by humans each year. Rojstaczer et al. (2001) argued this could be as high as 55%, while Haberl et al. (2007) estimated a figure of 24–29%. Whatever figure one picks, this is a huge percentage of the planet's productivity. How much is enough, and how much is too much? If it were to approach 100% of NPP, then natural ecosystems would collapse everywhere, as would our civilization which fully depends on nature (Cardinale et al., 2012; Washington, 2013). The fact that at least 60% of ecosystem services are now being degraded or used unsustainably (MEA, 2005) shows our current appropriation of NPP is too high, as do other environmental indicators (Wijkman and Rockstrom, 2012; WWF, 2016; GFN, 2018). Clearly, we are way beyond what could be considered 'equitable' in terms of our fair share, in terms of any conception of holistic distributive justice. The energy of all ecosystems cannot end up being just for *Homo sapiens*.

Of course, the application of distributive justice to conservation need not just be about the energy in ecosystems. As an alternative basis for conservation policy, an ethic of 'bio-proportionality' has been proposed by Mathews (2016). The goal of such an ethic would be: "not mere viability but optimization: it would seek not merely viable but optimal populations of all species" (ibid: 140). As Mathews (ibid) notes: "This has specific policy implications for human population and strengthens the case for increasing the extent of protected areas". In fact, if we applied bio-proportionality, it would need an absolute

commitment to visions of expanded reserves such as 'Nature Needs Half' (Wilson, 2016; Dinerstein et al., 2017). It would also require a rapid halt to human population growth through non-coercive means (Engelman, 2012), as demographic research has made clear, an endlessly growing population is impossible and unsustainable (Cafaro and Crist, 2012). It would require a viable strategy to reduce this to an ecologically sustainable level. Bio-proportionality would also require that society abandon the ideology of 'endless growth' (Rees, 2008) and instead adopt a 'steady state' economy (Daly, 2014). This would imply that society re-engineer itself from the current consumer society to the conserver society (Assadourian, 2013) and move away from industrialism (Kidner, 2014). The above strategies deserve strong support and can be considered feasible - if difficult - parts of a meaningful sustainability (e.g. Washington, 2015). However, none of these are likely to happen while anthropocentrism remains the dominant worldview. Like ecojustice in general, a bio-proportionality ethic remains blocked by anthropocentrism.

4. How can social justice and ecojustice be reconciled?

How then can one reconcile social justice (for our species alone) with ecojustice for the whole of nature? For several centuries, 'justice' in Western society (as practiced by governments) has side-lined nonhuman nature. Activist pressure has managed to create some legislation that provided some protection to nonhuman nature. Overall however, the nonhuman has had no voice, has been denied intrinsic value, and has been allocated no rights. As Curry (2011) notes the 'Sole Value' assumption has been in force, where humanity has the only value. More recently, some have argued that nature does have some intrinsic value, but we have then been confronted with the 'Greater Value' assumption, where in any conflict between humans and nature, humans are always paramount (Curry, 2011). For example, 'ecohumanism' sees value in nature, but also assumes humans have greater value (Vilkka, 1997). However, in a world where conflicts between humanity and nature are bound to increase (MEA, 2005; Kumar, 2010; Crist et al., 2017), the 'Greater Value' assumption will continue to mean that nature will always lose out. Effective conservation of nature thus cannot take place under the 'Greater Value' assumption.

However, we do recognize the difficulties in regard to how to arbitrate hard cases where individual organisms, species, and ecosystems interests do not align. This complex and ethically-fraught issue (given ecojustice applies to all of these) is beyond the scope of this paper to address. We do suggest however that the solution will be different in different places, and under different circumstances. Adopting a thesis of 'convergence theory' (pioneered by Norton, 1986) that the anthropocentric logic of environmental protection will suffice, as the majority of human and nonhuman interests supposedly coincide, will not get us far. This 'convergence theory' assumes that maintaining the environment for human material benefit is the strongest motivation for nature protection, postulating that anthropocentric self-interest is the best argument for maintaining the ecological systems on which we depend, ultimately converging on the same practical outcomes as ecocentric positions (Norton, 1984, 1991). However, many scholars point out that self-interest in fact has not operated well to protect nature (e.g. Rees, 2008). While informed self-interest may produce environmentally positive outcomes in situations where both humans and environment are negatively affected, anthropocentrism does not seek to protect nonhumans that have no utilitarian value, nor guarantee animal rights (Katz, 1996; Shoreman-Ouimet and Kopnina, 2015). Plumwood's (2002) critique of Norton's thesis is illuminating as she exposes Norton's hidden anthropocentrism. Plumwood notes (Ibid: 125):

> Norton calls for a unified approach, but his attempted reconciliation between 'anthropocentric environmentalists' and those who would challenge anthropocentrism is not a compromise but depends on finding ways to subsume or dismiss as unimportant just those environmental values…that challenge human-centredness.

We accept that social justice is by no means universally supported in Western society (Wilkinson and Pickett, 2010) and that the neoliberal focus on competition represents a key problem to advancing social justice. However, we believe it is an even bigger problem when 'justice' speaks only of social justice (and its offshoot environmental justice). If we continue to ignore ecojustice, we believe society is doomed to promote ongoing ecocide and the 'bankrupting of nature' (Wijkman and Rockstrom, 2012). A meaningful overall theory of justice must rank ecojustice as at least equally important as social justice. A meaningful justice will mean that at certain times and in certain places, ecojustice must supersede social justice in order to protect the remaining natural world, on which we all depend, humans and other species alike (Cardinale et al., 2012; Washington, 2013; Oliver et al., 2015). In fact, in the long-term, ecojustice superseding social justice may be a service to future social justice, as it protects the free ecosystem services that are essential for society (especially the poor).

What are some of the best ways to reconcile social justice and ecojustice? We need to promote the 'Rights of Nature, and 'Wild Law' and 'ecocide law' (Higgins, 2010; Borràs, 2016; Sykes, 2016) where laws specifically argue that nature has an existential right to exist. Part of this is Earth jurisprudence, a philosophy of law and human governance that is based on the idea that humans are only one part of a wider community of beings, and that the welfare of each member of that community is dependent on the welfare of the Earth as a whole (Cullinan, 2003, 2014). We also need a 'Planetary Declaration on the Rights of Nature' (Higgins, 2010). The development of a viable ecocentric democracy, or 'ecodemocracy', may also prove to be of great assistance (Eckersley, 2004; Baxter, 2005; Schlosberg, 2007). Ecodemocracy' has been defined by Gray and Curry (2016: 21) as:

> Groups and communities using decision-making systems that respect the principles of human democracy while explicitly extending valuation to include the intrinsic value of non-human nature, with the ultimate goal of evaluating human wants equally to those of other species and the living systems that make up the Ecosphere.

The groundwork for such decision-making processes is also described by Gray and Curry (2016), and spans deliberative processes, voting proxies for non-humans, juries of citizens, and statutes. As such, it draws on both the work on 'Rights of Nature' described above, and the less established principle of 'Representation for Nature'. This latter concept involves formally accommodating nonhuman nature as stakeholders in democratic processes, so that their interests are explicitly considered outside of the bounds of legal mechanisms (i.e. it complements Wild Law and ecocide law). An intellectual challenge that has been raised against this idea is that nonhuman nature cannot sensibly accept the moral obligations associated with the fairness-based underpinning of stakeholder processes (e.g. Phillips and Reichart, 2000). Gray and Curry (2016) counter this challenge by asserting that entitlement for stakeholder status should come not from the capacity to understand fairness (something which, in any case, can be easily covered by having human proxies) but instead from the potential to be subjected to unfair outcomes, such as going extinct. A more practical challenge is how humans can adequately represent non-human entities, such as a tree, a river or soil. Gray and Curry (2016) suggest that the methods of the 'Council of All Beings' workshops – a process designed to help participants step aside from their human identity and speak on behalf of another life-form (Macy and Brown, 2014) – could be drawn on, although some fine-tuning would be needed to adapt the application of such an approach to the more traditional political setting.

4.1. A framework for implementing ecojustice by conservation practitioners

We propose a framework for conservation practitioners to foreground ecojustice. Our framework is adapted from well-established

social justice frameworks that have been proposed for conservation (Franks et al., 2018). Working for ecojustice in conservation (and policies in general) implies engaging in critical self-reflection about the human-privileged position regarding 'justice', so we can see and challenge the mechanisms of the oppression faced by nature. Our ecojustice framework has three dimensions: recognition, procedure, and distribution, as Franks et al. (2018) have proposed for social justice. 'Recognition' in ecojustice means recognizing nature has its own interests. In particular, this assumes that populations, species and ecosystems have an interest in existing, persisting, maintaining, and regenerating their vital cycles, structures, functions and processes in evolution. It implies that conservation is no longer a process between people and about nature, but between nature and people, and justice has to be achieved between both.

'Procedure' in ecojustice means including nature in decision-making and dispute resolution processes. This inclusion is different from having the State nature protection authorities (or environmental organizations) involved in deliberating or adjudicating processes. State authorities and NGOs represent other human beings who care about nature, but do not represent nature itself. Refuting this point would logically mean accepting that only State authorities and NGOs are entitled to represent local human communities, without giving local communities themselves the right to self-representation. In practice, including nature in processes can be implemented by appointing a 'Human guardian' acting in nature's best interests (Stone, 1972). Human guardians could fulfil roles such as the voting proxies for non-humans described by Gray and Curry (2016) in their discussion of ecodemocracy. The same applies for dispute resolution mechanisms whereby nature must have access to justice, can sue human agents (including local human communities) and can be awarded court rulings in its favour, for example through acts of restoration (if its integrity has been violated) (Stone, 1972).

'Distribution' in ecojustice means allocating fairly the benefits and costs of decisions between nature and humans, and specifically reducing and mitigating the cost of human actions over nature. In social justice, Franks et al. (2018) have described three criteria: equality, merit need (see also Sikor et al., 2014). The same principles can be applied in ecojustice, where nature is awarded its share of benefits according to its own intrinsic value and rights, the costs it suffers from human activities, and its need to thrive.

Our ecological justice framework is intended to address the dynamics of annihilation of nature – the 6th mass extinction – and recognizes that the current state of the planet is the product of a strong hierarchisation between human life and nonhuman life, including ecological collectives. Conservation projects often – willingly or unwillingly – reproduce past patterns of ecological injustice. This is particularly true in the anthropocentric "new conservation" paradigm where conservation is cast as a tool for development (Kareiva et al., 2011). This discourse is increasingly spreading into conservation forums. Similarly, conservation is becoming more interdisciplinary and open to 'critical social scientists' that also come from an anthropocentric perspective (Kopnina et al., 2018a). In other words, conservation seems to increasingly be more about social justice than about conservation itself, and this amounts to committing an ecological injustice, reinforcing human supremacy. In that regard, we invite conservation practitioners to check their conservation practices against the three dimensions above, but also against three ecojustice criteria: privilege, internalized dominance and oppression also used for social justice (Sensoy and Diangelo, 2009).

Privilege pertains to the power, benefits and advantages that are systematically allocated to a particular dominant group and its members, without questioning this allocation (Sensoy and Diangelo, 2009). The discourse of that dominant group shapes norms and customs and carries a universal significance. Applying ecojustice in conservation requires identifying, questioning and deconstructing privileges that are systematically granted to humans over nature in conservation practices and literature.

Internalized dominance refers to the dominant group unquestionably assuming its superior position over other marginalized groups. It is often performed through rationalizing privilege as being 'common sense', natural, or earned or deserved (Sensoy and Diangelo, 2009). In an ecojustice perspective, we invite conservation practitioners to systematically challenge biases of human supremacy (Crist, 2012), and how such biases (even if hidden) shape decision-making.

Oppression pertains to discourses, policies and practices that systematically dominate, oppress and exploit a marginalized group by a dominant one (Sensoy and Diangelo, 2009). Such oppression can take the form of norms, institutions or direct violence. As ecojustice aims to fight the oppression of nature by humans, it is critical that conservation projects do not perpetuate it by – inadvertently or deliberately – considering that nature exists or is valued *only* to serve human needs or wishes.

We invite conservation practitioners to systematically screen their activities against our ecojustice framework and its dimensions and criteria, and engage in ecojustice mainstreaming - as is done for other causes (Pollack and Hafner-Burton, 2000; Rees, 2006). We recommend that organisations that fund conservation projects require that all projects explain how they will promote ecojustice, and stipulate that ecojustice training becomes part of overall conservation curricula.

5. Conclusion

Humanity is faced with a serious predicament it does not wish to acknowledge – the accelerating ecocide and the mass extinction of life on Earth – due entirely to human actions. Such denial has been aided by a dominant anthropocentric worldview that denies nonhuman nature any value, agency or justice. Much of academia has been slow even to mention the idea of ecojustice, focusing purely on social justice, and environmental justice (just for humans). Even those who acknowledge the intrinsic value of nature often fail to acknowledge the need to speak out for ecojustice (or to mention the concept). Instead, they seem to be attempting to push justice for nature into the periphery of social justice. We maintain this is both unethical, and doomed to failure as a strategy to protect life on Earth. Any meaningful long-term conservation strategy must overturn the 'code of silence' about ecojustice. We thus urge academia to foreground ecojustice.

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References

Assadourian, E., 2013. Re-engineering cultures to create a sustainable civilization. In: Starke, L. (Ed.), State of the World 2013: Is Sustainability Still Possible? Island Press, Washington.
Barry, B., 1999. Sustainable and intergenerational justice. In: Dobson, A. (Ed.), Fairness and Futurity: Essays on Environmental Sustainability and Social Justice. Oxford University Press, Oxford.
Batavia, C., Nelson, M., 2017. For goodness sake! What is intrinsic value and why should we care? Biol. Conserv. 209 (366-36).
Baxter, B., 2005. A Theory of Ecological Justice. Routledge, New York.
Bennett, N., et al., 2017. An appeal for a code of conduct for marine conservation. Mar. Policy 81, 411–418.
Berkes, F., 1999. Sacred Ecology: Traditional Ecological Knowledge and Resource Management. Taylor and Francis, Philadelphia.
Berry, T., 1988. The Dream of the Earth. Sierra Club Books, San Francisco.
Borràs, S., 2016. New transitions from human rights to the environment to the rights of nature. Transnatl. Environ. Law 5 (1), 113–143.
Bowers, C.A., 2001. Educating for Eco-justice and Community. University of Georgia Press, Athens, Georgia.
Buckley, R.C., 2016. Triage approaches send adverse political signals for conservation. Front. Ecol. Evol. 4, 39.
Burdon, P. (Ed.), 2011. Exploring Wild Law: The Philosophy of Earth Jurisprudence. Wakefield Press, South Australia.
Cafaro, P., Crist, E., 2012. Life on the Brink: Environmentalists Confront Overpopulation. University of Georgia Press, Georgia US.

Cafaro, P., Butler, T., Crist, E., Cryer, P., Dinerstein, E., Kopnina, H., Noss, R., Piccolo, J., Taylor, B., Vynne, C., Washington, H., 2017. 'If We Want a Whole Earth, Nature Needs Half'. A reply to 'Half-Earth or Whole Earth? Radical ideas for conservation, and their implications'. Oryx—Int. J. Conserv. 53 (1), 400.
Callicott, J.B., 2013. Thinking Like a Planet: The Land Ethic and the Earth Ethic. Oxford University Press, Oxford.
Callicott, J.B., 2016. How ecological collectives are morally considerable. In: Gardiner, S.M., Thompson, A. (Eds.), The Oxford Handbook of Environmental Ethics. Oxford University Press, Oxford, pp. 113–124.
Callicott, J.B., 2017. How ecological collectivities are morally considerable. In: Gardiner, S., Thompson, A. (Eds.), The Oxford Handbook of Environmental Ethics. Oxford University Press, Oxford, UK, pp. 113–124.
Cardinale, B.J., Duffy, E., Gonzalez, A., Hooper, D.U., Perrings, C., Venail, P., Narwani, A., Mace, G.M., Tilman, D., Wardle, D.A., Kinzig, A.P., Daily, G.C., Loreau, M., Grace, J.B., Larigauderie, A., Srivastava, D., Naeem, S., 2012. Biodiversity loss and its impact on humanity. Nature 486 (7401), 59–67. https://doi.org/10.1038/nature11148.
CBD, 1992. Convention on Biological Diversity – Target 11. United Nations(see: https://www.cbd.int/sp/targets/rationale/target-11/default.shtml).
Ceballos, G., Ehrlich, A., Ehrlich, P., 2015. The Annihilation of Nature: Human Extinction of Birds and Mammals. Johns Hopkins University Press, Baltimore.
Crist, E., 2012. Abundant Earth and the population question. In: Cafaro, P., Crist, E. (Eds.), Life on the Brink: Environmentalists Confront Overpopulation. University of Georgia Press, Georgia, pp. 141–151.
Crist, E., Mora, C., Engelman, R., 2017. The interaction of human population, food production, and biodiversity protection. Science 356, 260–264.
Cullinan, C., 2003. Wild Law: A Manifesto for Earth Justice. Green Books, Totnes, Devon.
Cullinan, C., 2014. Governing people as members of the Earth community. In: Mastny, L. (Ed.), State of the World 2014: Governing for Sustainability. Island Press, Washington.
Curry, P., 2011. Ecological Ethics: An Introduction, Second edition. Polity Press, Cambridge.
Daly, H., 2014. From Uneconomic Growth to the Steady State Economy. Edward Elgar, Cheltenham.
Deloria, V., 1994. God Is Red: A Native View of Religion, updated edition. Fulcrum, Golden, Colorado.
Dinerstein, E., Olson, D., Joshi, A., et al., 2017. An ecoregion-based approach to protecting half the terrestrial realm. Bioscience 67, 534–545.
Dobson, A., 1998. Justice and the Environment: Conceptions of Environmental Sustainability and Dimensions of Social Justice. Oxford University Press, Oxford.
EC, 2017. Statement of Commitment to Ecocentrism. (see: http://www.ecologicalcitizen.net/statement-of-ecocentrism.php?submit=Read%2Fsign+ecocentrism+statement).
Eckersley, R., 1992. Environmentalism and Political Theory: Toward an Ecocentric Approach. UCL Press, London.
Eckersley, R., 2004. The Green State: Rethinking Democracy and Sovereignty. MIT Press, Cambridge MA.
Ehrenfeld, D., 1978. The Arrogance of Humanism. Oxford University Press, New York.
Engelman, R., 2012. Nine population strategies to stop short of 9 billion. In: Starke, L. (Ed.), State of the World 2012: Moving Toward Sustainable Prosperity. Island Press, Washington.
EPA (n.d.) 'Environmental Justice', US Environmental Protection Agency, (see: https://www.epa.gov/environmentaljustice (accessed 6 March 2018)).
Farine, D.R., Montiglio, P.O., Spiegel, O., 2015. From individuals to groups and back: the evolutionary implications of group phenotypic composition. Trends Ecol. Evol. 30 (10), 609–621.
Fisher, A., 2013. Radical Ecopsychology: Psychology in the Service of Life. State University of New York Press, Albany.
Franks, P., Booker, F., Roe, D., 2018. Understanding and assessing equity in protected area conservation: a matter of governance, rights, social impacts and human well-being. In: IIED Issue Paper. IIED, London. http://pubs.iied.org/14671IIED.
Gardiner, S.M., Thompson, A. (Eds.), 2016. The Oxford Handbook of Environmental Ethics. Oxford University Press.
Gare, A., 1995. Postmodernism and the Environmental Crisis. Routledge, London/New York.
Garson, J., Ptuynski, A., Sarkar, S., 2017. Routledge Handbook of Philosophy of Biodiversity. Routledge, London.
GFN, 2018. World Footprint. Global Footprint Network(see: http://www.footprintnetwork.org/en/index.php/GFN/page/world_footprint/).
Gray, J., Curry, P., 2016. Ecodemocracy: helping wildlife's right to survive. ECOS 37, 18–27.
Haberl, H., Erb, K., Krausmann, F., Gaube, V., Bondeau, A., Plutzar, C., Gingrich, S., Lucht, W., Fischer-Kowalski, M., 2007. Quantifying and mapping the human appropriation of net primary production in earth's terrestrial ecosystems. Proc. Natl. Acad. Sci. U. S. A. 104, 12942–12947.
Harari, Y., 2015. Sapiens: A Brief History of Humankind. Harper, New York.
Higgins, P., 2010. Eradicating Ecocide: Laws and Governance to Prevent the Destruction of Our Planet. Shepheard Walwyn Publishers Ltd, pp. 62–63.
Kareiva, P., Lalasz, R., Marvier, M., 2011. Conservation in the Anthropocene. Breakthrough J. 2, 26–36.
Katz, E., 1996. Envisioning a de-anthropocentrised world: critical comments on Anthony Weston's 'The Incomplete Eco-Philosopher'. Ethics Policy Environ. 14, 97–101.
Kidner, D.W., 2014. Why "anthropocentrism" is not anthropocentric. Dialect. Anthropol. 38 (4), 465–480.
Kimmerer, R., 2013. Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants. Milkweed Editions, Minneapolis, Minnesota.
Knudtson, P., Suzuki, D., 1992. Wisdom of the Elders. Allen and Unwin, Australia.
Kopnina, H., 2014. Environmental justice and biospheric egalitarianism: reflecting on a normative-philosophical view of human-nature relationship. Earth Perspect. 1, 8.
Kopnina, H., 2016. Nobody likes dichotomies (but sometimes you need them). Anthropol. Forum 26 (4), 415–429.
Kopnina, H., Washington, H., Taylor, B., Gray, J., 2018a. The "future of conservation" debate: defending ecocentrism and the Nature Needs Half movement. Biol. Conserv. 217, 14–18.
Kopnina, H., Washington, H., Taylor, B., Piccolo, J., 2018b. Anthropocentrism: more than just a misunderstood problem. J. Agric. Environ. Ethics 31 (1), 109–127.
Kumar, P. (Ed.), 2010. The Economics of Ecosystems and Biodiversity: Ecological and Economic Foundations. Earthscan, London.
Langton, M., 1998. Burning Questions: Emerging Environmental Issues for Indigenous Peoples in Northern Australia. Centre for Natural and Cultural Research and Management, Darwin: Northern Territory University.
Leopold, A., 1949. A Sand County Almanac, With Essays on Conservation from Round River. Random House, New York (1970 printing).
Low, N., Gleeson, B., 1998. Justice, Society and Nature: An Exploration of Political Ecology. Routledge, London.
Macy, J., Brown, M., 2014. Coming Back to Life: The Updated Guide to the Work That Reconnects. New Society Publishers, Gabriola Island, Canada.
Martin, A., Coolsaet, B., Corbera, E., Dawson, N.M., Fraser, J.A., Lehmann, I., Rodriguez, I., 2016. Justice and conservation: the need to incorporate recognition. Biol. Conserv. 197, 254–261.
Mathews, F., 2016. From biodiversity-based conservation to an ethic of bio-proportionality. Biol. Conserv. 200, 140–148.
MEA, 2005. Living Beyond Our Means: Natural Assets and Human Wellbeing, Statement From the Board, Millennium Ecosystem Assessment. United Nations Environment Programme (UNEP)(see: https://www.millenniumassessment.org/documents/document.429.aspx.pdf (accessed 19 Feb 2018)).
Morton, T., 2007. Ecology Without Nature. Harvard University Press, Cambridge MA.
Naess, A., 1973. The shallow and the deep: long-range ecology movement: a summary. Inquiry 16, 95–99.
Nash, R.F., 1989. The Rights of Nature: A History of Environmental Ethics. University of Wisconsin Press, Madison, WI.
Neidjie, B., Davis, S., Fox, A., 1985. Kakadu Man: Bill Neidjie. Mybrood P/L Ind, Australia.
Norton, B., 1984. Environmental ethics and weak anthropocentrism. Environ. Ethics 6 (2), 131–148.
Norton, B.G., 1986. Conservation and preservation: a conceptual rehabilitation. Environ. Ethics 8, 195–220.
Norton, B., 1991. Toward Unity among Environmentalists. Oxford University Press, New York.
Oliver, T.H., Isaac, N.J.B., August, T.A., Woodcock, B.A., Roy, D.B., Bullock, J.M., 2015. Declining resilience of ecosystem functions under biodiversity loss. Nat. Commun. 6 (10122).
Phillips, R.A., Reichart, J., 2000. The environment as a stakeholder? A fairness-based approach. J. Bus. Ethics 23, 185–197.
Piccolo, J., Washington, H., Kopnina, H., Taylor, B., 2018. Why conservation biologists should re-embrace their ecocentric roots. Conserv. Biol. 32 (2). https://doi.org/10.1111/cobi.13067.
Plumwood, V., 2001. Nature as agency and the prospects for a progressive naturalism. Capital. Nat. Social. 12 (4), 3–32.
Plumwood, V., 2002. Environmental Culture: The Ecological Crisis of Reason. Routledge, London.
Pollack, M.A., Hafner-Burton, E., 2000. Mainstreaming gender in the European Union. J. Eur. Publ. Policy 7 (3), 432–456.
Rawls, J., 1971. A Theory of Justice. Oxford University Press, Oxford.
Rees, T., 2006. Mainstreaming Equality in the European Union. Routledge, London.
Rees, W., 2008. Toward sustainability with justice: are human nature and history on side? In: Soskolne, C. (Ed.), Sustaining Life on Earth: Environmental and Human Health through Global Governance. Lexington Books, New York.
Rojstaczer, S., Sterling, S., Moore, N., 2001. Human appropriation of photosynthesis products. Science 294 (5551), 2549–2552.
Rolston III, H., 1985. Valuing wildlands. Environ. Ethics 7, 23–48.
Rolston III, H., 1996. Feeding people versus saving nature. In: Aiken, W., LaFollette, H. (Eds.), World Hunger and Morality, 2nd ed. Prentice-Hall, Englewood Cliffs, NJ, pp. 248–267.
Rolston III, H., 2001. Natural and unnatural: wild and cultural. West. N. Am. Nat. 61, 267–276.
Rolston III, H., 2012. A New Environmental Ethics: The Next Millennium for Life on Earth. Routledge, New York.
Rowe, S., 1994. Ecocentrism: the chord that harmonizes humans and Earth. Trumpeter 11, 106–107(Available at http://www.ecospherics.net/pages/RoweEcocentrism.html).
Schama, S., 1995. Landscape and Memory. Vintage Books, New York.
Schlosberg, D., 2001. Three Dimensions of Environmental and Ecological Justice. (see: https://ecpr.eu/Filestore/PaperProposal/5ef89598-7149-4b8d-82b3-567750b392f6.pdf (accessed 6 March 2018)).
Schlosberg, D., 2004. Reconceiving environmental justice: global movements and political theories. Environ. Polit. 13 (3), 517–540.
Schlosberg, D., 2007. Defining Environmental Justice: Theories, Movements, and Nature. Oxford University Press, Oxford.
Sensoy, Ö., Diangelo, R., 2009. Developing social justice literacy an open letter to our faculty colleagues. Phi Delta Kappan 90 (5), 345–352.
Shepard, P., 1982. Nature and Madness. University of Georgia Press, London.
Shoreman-Ouimet, E., Kopnina, H., 2015. Reconciling ecological and social justice to

promote biodiversity conservation. Biol. Conserv. 184, 320–326.
Shoreman-Ouimet, E., Kopnina, H., 2016. Culture and Conservation: Beyond Anthropocentrism. Routledge, New York.
Sikor, T., Martin, A., Fisher, J., et al., 2014. Toward an empirical analysis of justice in ecosystem governance. Conserv. Lett. 7, 524–532.
Smith, W., 2014. The War on Humans. Discovery Institute Press, Seattle.
Snyder, G., 1990. The Practice of the Wild. North Point Press, New York.
Stone, C.D., 1972. Should trees have standing–toward legal rights for natural objects. South. Calif. Law Rev. 45, 450.
Strang, V., 2016. Justice for all: inconvenient truths and reconciliation in human-non-human relations. In: Kopnina, H., Shoreman-Ouimet, E. (Eds.), Routledge Handbook of Environmental Anthropology. Routledge, New York, pp. 263–278.
Strang, V., 2019. The rights of the river: water, culture and ecological justice. In: Kopnina, H., Washington, H. (Eds.), Conservation: Integrating Social and Ecological Justice. Springer, New York (in publication).
Sykes, K., 2016. Globalization and the animal turn: how international trade law contributes to global norms of animal protection. Transnational Environ. Law 5, 55–79.
Taylor, P., 1986. Respect for Nature: A Theory of Environmental Ethics. Princeton University Press, Princeton, New Jersey.
Taylor, B., 2005. Conservation biology. In: Taylor, B. (Ed.), Encyclopedia of Religion and Nature. Continuum International/Bloomsbury, London and New York, pp. 415–418.
Taylor, B., 2010. Dark Green Religion: Nature Spirituality and the Planetary Future. University of California Press, Berkeley.
Traulsen, A., Nowak, M.A., 2006. Evolution of cooperation by multilevel selection. Proc. Natl. Acad. Sci. 103 (29), 10952–10955.
Treves, A., Artelle, K., Darimont, C., Lynn, W., Paguet, P., Santiago-Avila, F., Shaw, R., Woods, M., 2018. Intergenerational equity can help to prevent climate change and extinction. Nat. Ecol. Evol. 2, 204–207.
Vetlesen, A., 2015. The Denial of Nature: Environmental Philosophy in the Era of Global Capitalism. Routledge, London.
Vilkka, L., 1997. The Intrinsic Value of Nature. Rodolpi, Amsterdam.
Vitousek, P., Ehrlich, A., Matson, P., 1986. Human appropriation of the products of photosynthesis. Bioscience 36 (6), 368–373.
Vucetich, J.A., Nelson, M.P., 2013. The infirm ethical foundations of conservation. In: Beckoff, M. (Ed.), Ignoring Nature No More: The Case for Compassionate Conservation. University of Chicago Press, Chicago, pp. 9–25.
Vucetich, J.A., Bruskotter, J.T., Nelson, M.P., 2015. Evaluating whether nature's intrinsic value is an axiom of or anathema to conservation. Conserv. Biol. 29, 321–332.
Vucetich, J.A., Nelson, M.P., Bruskotter, J.T., 2017. Conservation triage falls short because conservation is not like emergency medicine. Front. Ecol. Evol. 5, 45.
Vucetich, J., Burnham, D., Macdonald, E., Bruskotter, J., Marchini, S., Zimmerman, A., Macdonald, D., 2018. Just conservation: what is it and should we pursue it? Biol. Conserv. 221, 23–33.
Washington, H., 2013. Human Dependence on Nature: How to help solve the Environmental Crisis. Earthscan, London.
Washington, H., 2015. Demystifying Sustainability: Towards Real Solutions. Routledge, London.
Washington, H., Taylor, B., Kopnina, H., Cryer, P., Piccolo, J., 2017. Why ecocentrism is the key pathway to sustainability. Ecol. Citizen 1, 35–41.
Weaver, J. (Ed.), 1996. Defending Mother Earth. Orbis, Maryknoll, New York.
Wijkman, A., Rockstrom, J., 2012. Bankrupting Nature: Denying our Planetary Boundaries. Routledge, London.
Wilkinson, R., Pickett, K., 2010. The Spirit Level: Why Equality is Better for Everyone. Penguin Books, London.
Wilson, E.O., 2016. Half-Earth: Our Planet's Fight for Life. Liveright/Norton, New York.
Worster, D., 1994. Nature's Economy: A History of Ecological Ideas, second ed. Cambridge University Press, Cambridge, MA.
WWF, 2016. Living Planet Report 2016: Risk and Resilience in a New Era. World Wide Fund for Nature(see: http://awsassets.panda.org/downloads/lpr_living_planet_report_2016.pdf. (accessed 17/8/17)).