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The biodiversity crisis and global justice: a research agenda

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ABSTRACT

The biodiversity crisis should be a key issue within debates on global justice – but to date it has not been. This article aims to provide a stimulus to further engagement. First, it provides a brief introduction to the notion of a biodiversity crisis, and to its origins. Second, it distinguishes our various reasons for caring about the crisis. Third, it shows why the biodiversity crisis raises important – albeit hitherto neglected – issues of global justice. Fourth, it sketches some of the most important questions scholars of global justice should be in a position to engage with, in order to move the debate forwards and help ensure that collective political responses to the crisis are just ones.

KEYWORDS Global justice; biodiversity crisis; conservation; animals; exploitation

To date, political theorists and philosophers have done relatively little to think through the global justice dimensions of the biodiversity crisis. There is a notable contrast here with the extensive literatures on global justice and, for instance, migration, trade, and global health. But the contrast with climate change is perhaps the most arresting. Among other things, political theorists have thoroughly addressed problems of fair burden-sharing posed by the need to stabilise the earth's climate, the tensions and trade-offs between mitigation and pro-poor development, and many issues of policy and institutional design. Like climate change, however, biodiversity loss *also* represents a grave threat to our societies, calling the prospects of present as well as future generations into question. For that reason, the biodiversity crisis should be a key issue within debates on global justice, in exactly the same way as issues such as trade, migration, health, and climate change are. Nevertheless, some important recent forays notwithstanding (see Armstrong, 2019, 2024; Moore 2023; Tan, 2021; Wienhues, 2020),

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a comparably deep and broad literature on global justice and the biodiversity crisis has not yet emerged.

Meanwhile, scholars working in a whole variety of fields – from environmental studies, to conservation biology, to political ecology – have recognised that the crisis raises important questions concerning power and distribution on a planetary scale (Martin, 2017). A number of environmental scholars have therefore suggested that a more explicit discussion of the global justice dimensions of conservation policy is vital (Martin et al., 2015). The biodiversity crisis itself may intensify existing injustices, and so too might collective political responses to it. At the extreme, policies aimed at conserving biodiversity have been associated with violence, colonial-style dispossession, and the intensification of poverty (Armstrong, 2024). But what would *just* responses to the biodiversity crisis look like? That is a question to which political theorists and philosophers can surely contribute. That they have not engaged with the challenge more wholeheartedly is regrettable.

This article aims to provide a stimulus to further discussion, by mapping the territory and sketching some of the most important questions anyone interested in the global justice dimensions of the biodiversity crisis should want to address. First, it provides a brief introduction to the notion of a biodiversity crisis, and to its origins. Second, it distinguishes our various reasons for caring about the crisis. Third, it shows why the biodiversity crisis raises important – albeit hitherto neglected – issues of global justice. Fourth, it sketches some of the most important questions scholars of global justice should be in a position to engage with, in order to move the debate forwards and help ensure that collective political responses to the crisis are just ones. These include, for example, questions about fair burden-sharing, power and inclusion, epistemic justice, and the moral significance of place.

Facing up to the biodiversity crisis

We live in a time of massive ecological destruction. In recent decades what scientists call the Great Acceleration has seen rapid increases in the human population, global GDP, energy and water use, and the mass transportation of goods. At the same time it has brought about a step change in major ‘earth systems trends’ including the degradation of land, desertification, tropical deforestation, and ocean acidification (Steffen et al., 2015). The consequences for the other creatures we share the world with have been dramatic. According to the Dasgupta Review on the Economics of Biodiversity, populations of birds, mammals, reptiles and amphibians, for example, have plummeted by 70% in the last half century (Dasgupta, 2021, p. 375). Diverse wild animal populations have largely been replaced by much more homogenous human-reared animals and crops, in what Rowlands (2021, p. 185) has called a ‘massive biomass reallocation program’.

This brings us to the concept of biodiversity. The term was coined in 1986 by the plant physiologist Walter Rosen, as a contraction of the term 'biological diversity.' To begin with it was very common to use the word biodiversity simply as a stand-in for the number of species in a given area (Youatt, 2015, p. 28). But scientists now tend to define it as an index of variation at three distinct levels: variation among genes, species, and ecosystems (see e.g. Barrett et al., 2011; Burch-Brown & Archer, 2017). It is this more complex usage that has pride of place within international law. In the 1992 Convention on Biological Diversity, biodiversity is defined as 'the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological systems of which they are part; this includes diversity within species, between species and of ecosystems.' Biodiversity *loss*, by contrast, is a reduction in the extent of variation across any, or all, of these three dimensions.

There is little doubt that the greatest *cause* of biodiversity loss on dry land has been habitat destruction (IPBES, 2019, p. 12; Maxwell et al., 2016), especially in the interest of agriculture (Corlett, 2020, p. 225). Scientists estimate that while a mere 15% of the earth's surface was 'used' by humans a century ago – though political theorists, of course, will approach the term 'use' with caution – that figure now stands at 77% (Watson et al., 2018, p. 27). Two-fifths of the planet's ice-free surface is currently turned over to agriculture and livestock production (Machovina et al., 2015). The logging industry has 'cleared' as many as 80,000 acres of rainforest per day (Hale, 2016, p. 211), with much of it used to feed cattle destined for export as beef. For many of the species with which we share the earth, this human expansion has been a truly catastrophic process. Although some animals have found a new liminal existence on the edges of our societies, many have found themselves out-competed for food, freshwater and living space.

Other key drivers of biodiversity loss include climate change, pollution, and the spread of 'invasive species,' each of which are putting serious pressure on many ecosystems (IPBES, 2019). In the ocean, meanwhile, it is fishing that has had the greatest negative impact on biodiversity, with habitat destruction, climate change, and pollution playing important secondary roles (IPBES, 2019, pp. 28–9). The growing human impact on the sea raises the spectre of an Anthropocene Ocean, dominated by large-scale fish farms and extractive industries, with its increasingly warm and acidic depths dominated by a few resilient non-domesticated species like jellyfish and squid (Armstrong, 2022, p. 223).

In this article I will talk, as a growing number of scientists do, of a biodiversity *crisis*. Scientists often describe, and attempt to explain, empirical trends, or shifts from one state of affairs to another. But to describe a trend as a 'crisis' is to move from purely descriptive language to a normative register, and to pinpoint *objectionable* or regrettable features of a situation.

As I will employ it, the idea of a biodiversity crisis rests on several key claims, which are, respectively, empirical, normative, and political in character. First, the idea picks out the fact that rates of biodiversity loss are accelerating very substantially beyond the expected or 'background' rate, on all three dimensions of biodiversity (i.e. loss of genetic diversity, loss of species, and loss of ecosystem variation). Second, it recognises that this accelerated loss of biodiversity threatens to have serious and objectionable consequences for human beings, and indeed for members of other species. These consequences, as I show below, include widespread threats to basic rights. Third, the idea suggests that political responses to date have failed to make a substantial impact on the rate of biodiversity loss, which is in fact accelerating despite those responses (IPBES, 2019). In that sense biodiversity loss represents both a moral crisis – in light of its very grave potential consequences – and a political one too, in light of the failure of collective institutions thus far to rise to the challenge.

Why should we care?

The claim that biodiversity loss represents a moral and political crisis is not uncontested (see e.g. Haring, 2020). For instance, some environmental scholars have attempted to debunk claims about the value of biodiversity, questioning whether biodiversity is *always* valuable to humans even in purely instrumental terms, or whether more diverse ecosystems are always more healthy or resilient (see e.g. Maier, 2013; Newman et al., 2017). Such accounts are a useful corrective, and highlight some of the empirical complexities involved in claims about the likely consequences of biodiversity loss. But these critical accounts do *not* show that biodiversity loss cannot have highly negative consequences. More importantly, they do not undermine the broad scientific consensus that the sheer level of biodiversity loss today is already threatening the well-being of many humans, as well as that of many other organisms that constitute it (IPBES, 2019). I am going to restrict myself to setting out four reasons for caring about biodiversity loss, each of which gives us at least pro tanto moral reasons for engaging in biodiversity conservation. Ultimately, accepting any of these suffices to make tackling the biodiversity crisis an important project. But to the extent that each of them has weight, a defensible conservation politics will have to pay heed to all of them.

Biodiversity loss can be problematic because:

1. Biodiversity sustains vital ecosystem processes on which humans depend for their most basic rights

The UN Special Rapporteur on Human Rights declared in 2017 that 'the full enjoyment of human rights ... depends on biodiversity,' whereas its

degradation and loss undermines those rights (Human Rights Council, 2017, p. 3). Healthy ecosystems sustain large-scale biochemical processes such as the oxygen cycle, the nitrogen cycle, and carbon sequestration, without which it is difficult to imagine human life as we know it persisting. Crucially, scientists report that ecosystems exhibiting greater variation are healthier, more resilient in the face of change, and therefore more capable of sustaining these cycles (see e.g. Cardinale et al., 2012, p. 60; Shahid et al., 2012). There is unequivocal scientific evidence that the loss of variation reduces ecosystems' ability to produce biomass and cycle nutrients, and that these diminutions in ecosystem abilities are nonlinear, accelerating as biodiversity loss increases (Cardinale et al., 2012, p. 61; Dasgupta, 2021, p. 74).

It may well be, of course, that a good deal of biodiversity could be destroyed without causing the widespread collapse of ecosystems (this is a hypothesis the world's economies are already putting to the test). But even on such a view we will still, eventually, run up against limits to our ability to remove elements from ecosystems without seriously damaging their functioning. For instance, if ocean acidification were to cause a collapse in zooplankton populations, as many marine scientists fear, there would be dramatic implications for the food security of hundreds of millions of people. If it were to cause radical changes to phytoplankton populations, the results could disrupt major planet-wide biochemical processes and threaten ecosystems much more broadly (Sepúlveda & Cantarero, 2022). There are also well-known concerns that the loss in insect diversity already threatens the food security of millions of people, as pollination of food crops is undermined (de Sluijs et al., 2016). An estimated four billion people, meanwhile, 'rely primarily on natural medicines for their health care' (IPBES, 2019, p. 10), but those people could face dire need if biodiversity continues to be rapidly eroded. Genetic diversity often has informational value, which can be utilised by those seeking to develop medicines to combat illnesses that afflict humans (Moore 2023, pp. 486–7). Other things being equal, the more genetic information that is lost, the lower our chances of tackling such illnesses effectively in future (Deplazes-Zemp, 2019).

2. The ability to interact with a diverse living world is important for flourishing lives

The first point focused on the ways in which diverse ecosystems sustain human life, and the damage the destruction of biodiversity can do to the most basic human interests. But the ability to access healthy and diverse ecosystems is important to our well-being even when our survival is not at stake: it is an important constituent of a *flourishing* rather than a merely adequate life. In recent years there has been a wealth of empirical research into the benefits of access to healthy green and blue spaces for our mental

and physical well-being, and the harm that environmental destruction can do to it (see e.g. Britton et al., 2020; WHO, 2015). There is considerable evidence that the diversity of those spaces is a key determinant of any such benefits (see e.g. Aerts et al., 2018). The salience of diverse and healthy ecosystems for our well-being can be accounted for by a number of different views on the currency of justice. A defender of an objective list account of well-being, for instance, can readily accept that living within a healthy and diverse environment is an important component of well-being that everyone should be able to take for granted. Defenders of capability theories of justice, for their part, have argued that access to a healthy and diverse living world is an important capability that should be in place for everyone (Nussbaum, 2022). But biodiversity loss puts this capability in peril, for present and future generations (Wienhues, 2020, Chapter 6).

3. Members of other species also have rights worthy of protection

Zoocentric views suggest that the demands of justice apply to all (or at least very many) animals (see e.g. Armstrong, 2023a; Donaldson & Kymlicka, 2011; Nussbaum, 2022). Such views can supply two reasons for caring about biodiversity loss. First, since biodiversity is *constituted* by individual living organisms, destroying it will typically involve harming such organisms, many of whom will be animals. This gives us a direct reason for concern about biodiversity loss. Second, concern for the interests of non-human animals gives us powerful instrumental or derivative reasons for caring about the biodiversity crisis. The *effects* of uncontrolled biodiversity loss will severely impair animals' ability to function, affecting their capacity to feed themselves, to drink, and to reproduce.

Consider some examples. The destruction of habitat threatens the ability of ecosystems to maintain healthy states, exposing the creatures that comprise them to malnourishment, as well as the stress incumbent on human incursions into their territories. When forests are razed, the diminution of breeding populations will lead individual animals to experience stress when attempting to find mates, and the collapse of food sources will threaten their ability to rear any offspring to whom they give birth. In the case of climate change, marine animals will be threatened by the collapse of oceanic food webs generated by ocean warming and acidification. Even if we endorse a hierarchical view of moral status – which (comparatively) discounts the interests of non-human animals simply because they *are* non-human – it is important to recognise that humans are *hugely* outnumbered by other animals (Sebo, 2022). When we come to assess our political priorities – whether to mitigate

biodiversity loss gradually or rapidly, how to weigh the biodiversity crisis against other political priorities, and so on – harms to animals should be seen as an important, indeed ineliminable, dimension of that moral reckoning.

4. Other elements of the living world possess intrinsic value

Our first three reasons for conserving biodiversity can all be said to draw on the idea of intrinsic value, inasmuch as they ground duties to conserve on the non-derivative importance of protecting the interests of humans and of other animals respectively. They suggest biodiversity has (very considerable) instrumental significance, insofar as its protection advances the interests of creatures which in turn possess intrinsic value. But it is also possible that things *other* than individual animals possess intrinsic value, and if so this may underpin a more capacious account of our reasons for engaging in biodiversity conservation. Entities which possess intrinsic value might include plants, as well as more complex phenomena such as systems, assemblages, or relationships, or indeed features or properties of states of affairs (such as diversity or complexity). That value would not reduce down without remainder to the value possessed by the individuals that make up those phenomena.

It is plausible to claim that, when things have intrinsic value, we have a *prima facie* reason to conserve them (Cohen, 2013, Chapter 8). It is more controversial whether the fact that an entity possesses intrinsic value grounds a *duty* to preserve it, still less a duty of justice. Regret might be an appropriate response whenever something of intrinsic value is destroyed (see Moellendorf, 2022, Chapter 8), but we cannot move straight from the identification of intrinsic value to a duty to preserve it in any particular case (O'Neill, 1992). Nevertheless, it appears likely that both consequentialist and deontological theories can endorse duties to preserve biodiversity in some cases, in virtue of its intrinsic value (Elliot, 1992, pp. 148–51), at least where this does not involve serious violations of individual rights. That would be a duty held in virtue of biodiversity's value, but it would most plausibly be construed as a duty owed to human others, and perhaps to non-human animals too. Those others would then have a *pro tanto* right that we take appropriate action to preserve biodiversity. If it is true that plants, species, and ecosystems have value in their own right, then this ought to make a difference to conservation practice. A conservationism which made no reference to them would be a relatively impoverished one, and it would at least sometimes make the wrong choices.

Why biodiversity and global justice?

To date, responses to the biodiversity crisis have tended to be rather piecemeal in nature. Many conservation programmes have focused, for instance, on the preservation of particular species in one habitat or another. Timely action has brought many small victories. But these represent the exception rather than the rule, and push against a tide of accelerating biodiversity loss (Armstrong, 2024). In recent years, policymakers have come to embrace more ambitious and synoptic goals – and conservation scholars and practitioners have urged them to aim still higher. The Kunming-Montreal Global Biodiversity Framework (adopted in December 2022) aims to protect 30% of terrestrial and marine ecosystems by 2030. Targets on this kind of scale, it is said, might help stabilize the loss of biodiversity by 2030, and perhaps even reverse it by 2050.

Judging from existing national policies, the ‘30 by 30’ target is likely to be missed, as most previous targets under the Convention on Biological Diversity have been. But leading conservation scholars have argued that even a goal of 30% ecosystem protection is not bold enough to stem the tide of biodiversity loss (see e.g. Allan et al., 2022; Watson et al., 2021). According to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, key biodiversity goals ‘may only be achieved through transformative changes across economic, social, political and technological factors,’ and cannot be met via current trajectories (IPBES, 2019, p. 14). The wider literatures on conservation biology, political ecology, and environmental philosophy have all witnessed calls ‘to raise ambition and forge a new transformative global plan for biodiversity’ (Soto-Navarro et al., 2021, p. 935), and a focus on radical and transformative change has rapidly come to be central to these discussions (see e.g. Wyborn et al., 2020, Lundquist, 2021).

But what would radical and transformative visions for biodiversity look like? The most noteworthy proposals call for the protection of 50% of the world’s ecoregions, under the disparate banners of ‘Half Earth,’ ‘Nature Needs Half,’ or a ‘Global Deal for Nature’ (see e.g. Cafaro et al., 2017; Dinerstein et al., 2017; Kopnina et al., 2018; Wilson, 2016). Because extant biodiversity is geographically concentrated, protecting 50% of ecoregions might allow us to preserve up to 85% of species, for instance, and thereby stave off the extinction crisis (Locke, 2014; Wilson, 2016).

That such proposals have implications for global justice should be obvious, even if those implications have rarely been addressed by political theorists (though see Moore 2023, Armstrong, 2024). Half Earth proposals would involve placing large areas of the planet beyond the reach of human ‘development.’ If so, we should expect to see serious constraints on some people’s ability to escape from poverty or inequality. In fact *any* robust and large-scale conservation policies appear certain to impose

burdens – and probably very significant burdens – on the shoulders of some people rather than others. Rather than letting those burdens fall wherever they happen to fall, political theorists ought to be offering guidance on where conservation burdens *should* fall, and what *just* conservation policies would look like. Decades of conservation practice have demonstrated that there is a significant danger that conservation policies will in practice compound existing inequalities, visiting still more injustice upon the poor and excluded.

To put things a little more formally, we have, I suggest, three significant reasons for thinking about biodiversity conservation and global justice alongside one another. First, inequality appears to be a key determinant of biodiversity loss. IPBES reports that more unequal societies experience greater rates of biodiversity loss (IPBES, 2019), a finding which has been confirmed by many comparative studies (Hamann et al., 2018; Holland et al., 2009; Mikkelsen et al., 2007). Globally, meanwhile, processes which degrade biodiversity in the global South are often linked to unsustainable lifestyles in the global North. Much of the soy which is grown on razed rainforests is used to produce beef for export (Venter et al., 2016, p. 5). Mexican spider monkeys are endangered chiefly by a coffee trade oriented towards consumers in wealthy countries (Lenzen et al., 2012, p. 111). The overfishing of the world ocean is driven, to a significant extent, by the activities of relatively few keystone corporations (Österblom et al., 2015), which oversee a large net transfer of landed fish from the global South to the North (Swartz et al., 2010, p. 1367). Demand serviced by international trade has been connected to at least 30% of global species threats, with Northern countries the main net importers of most of the commodities linked directly to biodiversity loss (Lenzen et al., 2012). As a result, there are grounds for believing that tackling inequality will be crucial if responses to the biodiversity crisis are going to be effective.

Second, the biodiversity crisis is itself a cause of global injustice. Since they tend to have weaker adaptive capacity, there are abundant examples of the least advantaged being hit hardest by the degradation of ecosystems (Díaz et al., 2006, p. 1302). Environmental despoliation has been said to decrease the water and food security of the poor in particular (Hamann et al., 2018, p. 63). The loss of biodiversity has left many poor people in the global South more vulnerable to crop failures (Ebel et al., 2021). It also reduces the safety net enjoyed by poor people who will often fall back on ‘wild’ food sources in times of hardship (Timmer & Juma, 2005, p. 28). Biodiversity loss and habitat destruction have also been linked to the rising incidence of pandemics. As more and more forest or wetland is cleared, and more livestock animals are put in close proximity to it, the opportunities for viruses to jump the species barrier multiply (Lawler et al., 2021). Again, the poorest are most vulnerable. Caring about global justice therefore gives us further reason for seeking effective solutions to accelerating biodiversity destruction.

Third, if they are not formulated extremely carefully, collective responses to the biodiversity crisis can produce significant global injustices in their own right. The challenge is made especially acute by the fact that much of the world's remaining biodiversity lies in the global South. Although they make up only 6% of the world's land surface, tropical forests, for instance, contain between 50 and 90% of all species (Youatt, 2015, pp. 32–6). Many of these species are endemic (meaning that they are found nowhere else on earth). Poverty, however, is *also* highly concentrated in the tropics, producing an extensive overlap between poverty and biodiversity (Barrett et al., 2011; Maron et al., 2020). Insisting that tropical ecosystems such as rainforests are preserved intact could therefore have serious ramifications for hundreds of millions of people desperately trying to escape from severe poverty. It will also have outsized implications for indigenous communities. More than a third of terrestrial areas with 'very low human intervention' are owned or occupied by indigenous groups (IPBES, 2019, p. 14), and biodiversity is declining less rapidly in those areas than elsewhere (ibid: 31). As a result, their members are likely to be disproportionately affected by coercive conservation policies.

Crucially, large-scale conservation proposals arise in a background context shaped by colonialism and territorial dispossession. Colonialism (and the emergence of plantation economies) brought about massive biodiversity destruction in the global South, but colonisers nevertheless repeatedly presented themselves, however improbably, as biodiversity's saviours, and locals who were dependent on subsistence harvesting as its greatest threat. Reflecting on the London Conventions on flora and fauna of the first half of the twentieth century, Rachele Adam usefully reminds us that 'International biodiversity law did not start out as law between or among sovereign states addressing the biodiversity of all. Rather, it was originally colonial law imposed on Africa by colonial conquerors' (Adam, 2014, p. 10). The depiction of poor locals as the real threat to biodiversity – conveniently deflecting attention from the consequences of Northern over-consumption – has roots at least a century old. In the current day, conservation politics continues to raise the spectres of territorial dispossession and neo-colonialism. Since the 1990s, a self-proclaimed 'war for biodiversity' has been 'used to justify highly repressive and coercive policies' in the global South (Duffy, 2014, p. 819). It has involved the widespread use of private military companies and the adoption, on occasion, of shoot-on-sight tactics targeting 'poachers' (ibid: 832). At the same time, in many places in the global South, conservation policies have empowered and enriched unrepresentative leaders.

The lesson to draw from this is that we cannot assume that biodiversity conservation and global justice are complementary projects which can be pursued together without any danger of conflict. To the contrary, policymakers need to work hard to *ensure* that global

conservation policies are justly designed and implemented, as well as just in their effects. One rather simplistic counter-move would be to assert that conservation policies must be just in order to be effective (see Martin et al., 2015, p. 167). If so, any apparent tension between effectiveness and justice dissipates. Certainly proposals which load conservation burdens onto the shoulders of the poor have often turned out to be self-defeating, since given the choice between escaping poverty and preserving biodiversity, many poor communities opt for the former (Sanderson & Redford, 2003). Unjust conservation decision-making has often sparked conflict, undermined trust, and hampered biodiversity preservation (Pickering et al., 2022, p. 164). Nevertheless, unjust conservation policies – which have excluded locals from participation, and even removed them from their traditional homelands – have on occasion been effective in practice (Brockington, 2004). Participatory management approaches may be effective more often than exclusionary ones (Oldekop et al., 2016), but exclusionary policies do sometimes deliver on their goals. Rather than being inevitable features of effective policies, fairness and inclusion need to be argued for, and need to be designed into conservation policy from the outset.

This also means we should resist any claim that projects of biodiversity conservation and global justice ought to be pursued separately or in isolation. According to Kinzig et al. (2011, p. 604), for instance, the urgency of dealing with the biodiversity crisis means that ‘social’ objectives, including poverty alleviation, ought to be placed to one side. Though important in their own right, such objectives are best dealt with separately, they suggest – because hardwiring them into conservation policies will only lead to further delay. One problem with this view is that unjust conservation policies are often counter-productive. Another is that side-policies will not always represent an adequate response to the injustices that conservation policies can engender. People are often deeply attached to the places where they live, the distinctive ecosystems they share their lives with, and the specific pursuits that support their livelihoods. Uprooting them from those places and attempting to remedy their losses by way of financial compensation, say, may be a – distinctly second-best solution, if it is a solution at all. To uproot people from their homes and disrupt their most cherished projects, when there are accessible and effective policies which would not have that outcome, could represent an unjustified assault on their autonomy. It could also show disrespect for the life-plans to which they are committed (Moore, 2020; Stiliz, 2013). If mainstreaming a concern for justice from the policy formulation stage means that such outcomes can be avoided, then they ought to be. Thinking through what just conservation policies might look like ought to be a priority.

Sketching a research agenda

In what remains of this article I will identify some of the most important issues that political theorists and philosophers can help to address. The aim here is to raise questions rather than providing answers, in the hope of inspiring others to pick up the baton.

Fair burden-sharing

The Convention on Biological Diversity has long emphasised the importance of burden-sharing. But it has left the question of who ought to bear which burdens, and why, surprisingly open (Pickering et al., 2022, p. 167). The Kunming-Montreal Global Biodiversity Framework suggests a minimum spend on biodiversity conservation of \$200 billion per year. This is a large sum of money, which far exceeds current conservation spending. Who should contribute to this funding, and on what basis? Worldwide, an estimated 94% of all conservation funding is spent within upper-income countries – despite the fact that approximately 60 to 70% of the world’s biodiversity is to be found in lower- and middle-income countries (Stark et al., 2021, p. 2). Should the inhabitants of rich countries fund conservation in the global South instead? If so, should this be on the basis of their capacity to bear costs, or their contribution to biodiversity loss, or both? Is the fact that people in the global North often benefit from biodiversity protection overseas relevant, and if so how? Or is biodiversity conservation in at least some cases best seen as a ‘local’ problem? Do the burden-sharing approaches that have been applied to climate change apply well to the case of biodiversity loss, or are there morally salient differences between the two problems?

Exploitation through conservation?

In many cases, conservation schemes involve the inhabitants of poor but biodiversity-rich areas being ‘compensated’ for the loss of livelihood opportunities. When a protected area is established, for example, subsistence farmers or indigenous groups are often required to stop using that site for material sustenance, and go on to receive some monetary or other form of livelihood assistance in lieu of lost opportunities. How should we evaluate such payments? Are monetary payments likely to fully compensate for the loss of livelihood or the severing of attachments to place, or is there likely to be some residue of injustice? Even to the extent that monetary payments are appropriate, what is the appropriate ‘baseline’ for calculating what is owed? Some widely-used baselines could be said to lock locals into poverty; might they even be said to exploit the poor (Armstrong, 2023b)? If so, what would fair forms of assistance for those affected by conservation policies look like?

Land, attachment, and belonging

In the context of climate change, it is sometimes suggested that the location of emissions does not matter: the effects of greenhouse gases emitted at two different parts of the earth will, after all, be much the same. This fact has been thought to make the argument for emissions trading or offsetting easier to make. But when it comes to biodiversity, geographical location seems to matter in a whole series of ways. Because of the importance of larger-scale ecological assemblages, the same quantity of biodiversity, in two different places, may well not have the same ecosystem effects. Moreover, people are often highly attached to *particular* segments of biodiversity, factoring continued access to them into their most cherished life-plans (Moore, 2023). What would it mean to take location seriously in responses to the biodiversity crisis? In cases of conflict, how should located life-plans be balanced against general interests in protecting biodiversity? Conservation scholars often argue that we should prioritise the conservation of biodiversity in the global South, because that is where conservation is cheapest or most efficient (see Youatt, 2015). How should we unpack the assumptions embedded in that view? Might it contribute to the phenomenon of exploitation by conservation (see above)? If people in the North often have important personal connections to biodiversity, might such an approach be unfair to them too? What are the implications of all of this for practices like biodiversity offsetting, which treats biodiversity at different sites as in some sense fungible?

Power and inclusion

From the ‘White Saviours’ of the colonial period – possessed of self-proclaimed moral superiority and astonishingly cavalier about imposing terrible burdens on local populations – through to the armed ‘fortresses’ of recent decades, the history of conservation practice is in many respects deeply troubling (Adam, 2014). Conservation politics is still dominated by governments and NGOs from the North, who have finance, technical expertise, and celebrity endorsements at their disposal (Ocampo-Ariza et al., 2023). People engaged in subsistence activities have often been unfairly portrayed, meanwhile, as the chief enemies of biodiversity, and subjected to coercive and hugely disruptive treatment as a result. That portrayal has served to deflect attention from the environmental impacts of Northern affluence. As the indigenous scholar Cristina Mormorunni has put it, ‘Conservation’s origin story is finally starting to be told, exposing the fault lines of systemic racism and injustice at its roots, thereby creating the opportunity for equitable and enduring conservation to grow.’¹ But what would a more inclusive conservation politics look like? What principle or principles ought to determine who should be consulted about particular conservation policies?

Proximate and distant causes of biodiversity loss

The most prominent conservation tools are ‘area-based’: they involve, that is, constraints on biodiversity destruction in a given locale, such as a Marine Protected Area. To what extent is this focus either wise or just? If it is Northern consumption which ultimately drives many threats to biodiversity (Lenzi et al., 2023), is it likely to be both ineffective and unjust to focus on proximate solutions to biodiversity loss? What would a more global approach to biodiversity conservation, which kept the environmental impacts of Northern affluence centre-stage, look like? If, as many scholars believe, global inequality is itself a key driver of biodiversity loss (see above), then what are the prospects for a biodiversity politics which embeds a concern for biodiversity within broader movements for global justice?

Epistemic justice

In 2008, Elizabeth Garland observed that ‘There is not a single African who has achieved the kind of global fame from working with African animals that dozens of Western conservationists have attained [. . .] Rarely are they represented as heroic actors on the stage in their own right’ (Garland, 2008, p. 59). That claim still resonates today. The academic field of conservation biology continues to be dominated by men from a few countries in the global North (Maas et al., 2021). Researchers from such countries hold a virtual monopoly on science about the deep past of biodiversity (Raja et al., 2022), and wield outsized influence within discussions about its future (Chaudhury & Colla, 2021). This suggests, as Kok-Chor Tan has pointed out, that conservation politics is characterised by profound epistemic injustices: all too often ‘local knowledge is ignored or disparaged as scientifically invalid,’ even in cases where it is reproduced, without acknowledgement, in scientific studies (Tan, 2021, p. 7). What kinds of policies would be required to overcome this epistemic injustice? What are the implications for the practices of political theorists and philosophers working on the biodiversity crisis?

Conclusions

The biodiversity crisis has often been seen as the ‘poor cousin’ of climate change: both threaten to undermine the material foundations of our civilisations (and to impact seriously on non-human animals), but one crisis has been far more effective at securing public and media attention than the other (Legagneux et al., 2018; Youatt, 2015). To a significant extent this inequality in attention is also borne out within political theory and philosophy. Motivated by the belief that this is regrettable – and that theorists do have important

contributions to make in thinking through just responses to the biodiversity crisis – I have attempted to provide a stimulus to greater reflection. Much no doubt remains to be said. Some may disagree with the way I have framed key issues, or believe that I have left out key dimensions of the problem. My hope is that they will be inspired to say so, and that, having mapped the terrain here, other scholars will enter the fray and go on to create the vibrant discussion of global biodiversity justice that is urgently needed.

Note

1. <https://www.pbs.org/wnet/nature/blog/indigenous-led-conservation/> (December 1, 2021).

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