Forum

Biodiversity conservation in a post-COVID-19 economy

Chris Sandbrook, Erik Gómez-Baggethun and William M. Adams

Abstract The impacts of the COVID-19 pandemic extend to global biodiversity and its conservation. Although short-term beneficial or adverse impacts on biodiversity have been widely discussed, there is less attention to the likely political and economic responses to the crisis and their implications for conservation. Here we describe four possible alternative future policy responses: (1) restoration of the previous economy, (2) removal of obstacles to economic growth, (3) green recovery and (4) transformative economic reconstruction. Each alternative offers opportunities and risks for conservation. They differ in the agents they emphasize to mobilize change (e.g. markets or states) and in the extent to which they prioritize or downplay the protection of nature. We analyse the advantages and disadvantages of these four options from a conservation perspective. We argue that the choice of post-COVID-19 recovery strategy has huge significance for the future of biodiversity, and that conservationists of all persuasions must not shrink from engagement in the debates to come.

Keywords Biodiversity conservation, conservation futures, COVID-19, degrowth, Green New Deal, green recovery, political economy, transformative change

Introduction

The COVID-19 pandemic has caused huge global social and economic disruption. A rapidly growing literature on the coronavirus explores the many dimensions of its social, economic and environmental impacts (e.g. Monbiot, 2020; Zizek, 2020). There is increasing debate about the implications of the pandemic for global biodiversity and efforts to conserve it. Some commentators identify short-term benefits for biodiversity, such as less pollution as a result of reduced human activity, wildlife reclaiming human-dominated habitats, and enforced shutdowns making people more aware of the species and ecosystems around them, perhaps awakening public concern for the state of nature (e.g. Corlett et al., 2020; Helm, 2020).

The COVID-19 pandemic also has short-term downsides for biodiversity and conservation, linked to the severe global economic recession it has triggered. Firstly, subsistence crises in developing countries have increased the consumptive use of wild species, as people seek food or saleable commodities (Paxton, 2020). Although nature can play an important role as a safety net for well-being during difficult times, even established community-managed sustainable use systems risk failure under such pressures. Secondly, economic disruption has reduced the financial and human capital of conservation organizations. Problems include loss of income for conservation that is derived directly or indirectly from wildlife-based enterprises such as tourism, government tax revenues being reallocated to social benefits (e.g. for the many new unemployed), changing donor priorities to address the pandemic, and reduced funding from corporate or philanthropic donors (Sandbrook, 2020). Taken together these negative impacts may outweigh the immediate benefits for biodiversity from COVID-19 (Gardner, 2020).

Beyond the short-term impacts of the pandemic, there is growing debate on the shape of international and national policies for the world after (or with) COVID-19. Roy (2020) describes the pandemic as 'a portal, a gateway between one world and the next'. Governments and international institutions are now seeking to develop a route out of the portal of the COVID-induced global recession (Helm, 2020; International Monetary Fund, 2020). There are various potential pathways, each of which entails a very different relationship between human society and non-human life on Earth. Even as much of the conservation sector is embroiled in a battle for survival in the midst of the crisis, it is essential to look to the future and weigh the consequences of different post-COVID-19 economic scenarios for conservation.

Here we consider the conservation implications of four alternative future political and economic responses to the crisis. We identified the scenarios on the basis of options that have received wide attention before and during the COVID-19 crisis in policy, the media and/or academic debates, and named them according to their central objectives. These are: (1) restoration of the previous economy, (2) removal of obstacles to economic growth, (3) green recovery and (4) transformative economic reconstruction (Table 1). Each of these possible

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TABLE 1 Four possible future policy responses to the COVID-19 crisis and their implications for conservation.

Social & economic policies	Environmental policies	Key investments	Key divestments	Key actors	Attitude to COVID-19	Impacts on conservation
Restoration of the previous economy						
Austerity, with welfare packages & stimulus to private & financial sectors	Mix of public policies & market-based instruments	As before COVID crises	As before COVID crises	Governments & private sector/markets	Temporary blip. We can get through this.	Existing conservation projects & areas will survive but biodiversity loss will continue
Removal of obstacles to economic growth						
Stimulus to private & financial sectors, flexibilization of labour markets	Sell off protected areas, environmental deregulation, opening up of natural capital to exploitation	Fossil fuels, aviation industry, mining & logging	Environment & welfare policies	Stronger market orientation	Blame nature: eradicate species harbouring disease	Increased funding available for conservation but likely to accelerate biodiversity loss, resource depletion, & increases in carbon emissions
Green recovery						
Welfare packages & government-led green job creation as an economic stimulus	Technologies for carbon capture & storage, renewables, use of green information & communication technology for raising energy efficiency, development of markets for ecosystem services, government-led green job creation	Renewables & other green technologies in search of ecoefficiency	Fossil fuels	Mix of public policies & market based instruments	Opportunity to launch Green New Deal	If decoupling achieved, climate change slows down, pollution & habitat loss may decrease
Transformative economic reconstruction						
Sufficiency, through basic income, max–min income ratios, progressive taxation, work time sharing & reduction	Adoption of alternative indicators of progress, work time reduction, deeper reforms in tax, fiscal & monetary policy, trade & finance, resource & emission caps	Basic income, care sector & essential services	Fossil fuels, military, aviation industry, advertising	Mix of public policies & grassroots movements	Decentralized production & less mobile society reduces pandemic risks, opportunity for transformative change	Climate change will slow down, pollution & resource depletion will decrease, habitat loss may increase

futures carries a different range of opportunities and risks. We explore these possibilities from a conservation perspective, drawing on a range of blogs and commentaries published during the crisis as well as on the peer reviewed literature.

Restoration of the previous economy

The first scenario is an attempt to restore previous forms and levels of economic activity. This return to something resembling business as usual is likely to be the most appealing for politicians, businesses and publics because it requires the least reform or disruption to existing institutions, legal systems or ways of life.

This scenario has some immediate advantages for conservation, because it would facilitate the restoration of previous sources of funding. Before COVID-19, international conservation organizations relied on tax revenues, corporate funding (using some spare profit to gift to NGOs), and donations from Trusts and high net worth individuals. Much on-the-ground conservation was dependent on wildlife tourism, whether through business–community partnerships (including direct wages, indirect economic contributions, dividend or lease fee payments), or in business–state

partnerships (taxation, jobs, fees). The grounding of international flights and the lockdown of booked and potential tourists have brought crisis to many wildlife tourism businesses and those dependent on their revenue (Paxton, 2020). A return to business as usual would allow these activities to resume, enabling conservation organizations to survive, continue to employ their staff and to implement their existing programmes of work.

On the downside, the pre-COVID-19 economic model was deeply unsustainable at a global scale (Adams, 2020). Shutdown has brought declines in CO_2 emissions (the Global Footprint Network placed Earth Overshoot Day 2020 on 22 August, three weeks later than in 2019, as a result of lockdown; Global Footprint Network Earth Overshoot Day, 2020). Present patterns of economic growth are key drivers of biodiversity loss (Otero et al., 2020), present and future climate change (Jackson & Victor, 2019), and resource depletion (Haberl et al., 2020). There are therefore strong reasons for conservationists to be concerned about a return to old ways, and some conservation writers have identified this moment as an opportunity to take a different path (e.g. Stafford et al., 2020).

Removal of obstacles to economic growth

As lockdowns end, governments will be desperate to reboot their economies to get money into pockets and into their treasuries. As a result, they may push beyond the restoration of the previous economy (described above) by removing all obstacles to short term economic growth. After the 2008 economic crash, many governments selectively removed environmental regulations to boost return on private investment and promote growth and employment, and downgraded protected area designations (Apostolopoulou & Adams, 2015). In the face of an even greater global recession caused by the pandemic, governments are likely to feel a similar temptation to take any steps necessary to maximize economic growth. This could include bailing out polluting industries such as aviation, relaxing environmental standards, and opening up natural resources to exploitation—in effect spending down natural capital reserves to pay for COVID-19 debt. Several countries have already allowed new mining concessions in protected areas since the crisis began (e.g. Ecuador and India; Sandbrook, 2020), and the media are reporting ongoing or planned dismantlement of environmental regulations in high biodiversity countries such as Brazil and the USA (Holden, 2020; Spring, 2020).

Maximizing economic growth would have some benefits for certain conservation actors. It would enable governments, philanthropists and citizens to start donating to, investing in and purchasing from the conservation sector more quickly than under our alternative scenarios. It could also offer a short-term livelihoods social safety net for the poor, if reduced environmental regulation allowed increased natural resource use, although such benefits would be short-term and unsustainable.

Unfortunately, any such economic benefits would be at the expense of biodiversity. Maximizing growth would in effect entail accelerated biodiversity loss (Otero et al., 2020) and further commodification of nature to generate profit (Gómez-Baggethun & Ruiz-Pérez, 2011). At its worst for conservation, this scenario could even include the deliberate extermination of species deemed to harbour potential future zoonotic diseases, such as pangolins or bats (Zhao, 2020), or even ecosystems.

Green recovery

A hope of many conservationists is that recovery should aspire to deliver the same level of economic activity (with all its potential in terms of wealth creation and poverty alleviation), but based on technologies with radically reduced environmental impacts. This idea of green recovery has some political traction (e.g. Harvey, 2020).

This is a classic ecomodernist vision, a familiar part of the debate about sustainable development since the 1970s (Adams, 2020). It lay at the heart of the Rio + 20 Conference, under the name of a Green Economy. The report *Towards a Green Economy* envisaged growth in global income and employment driven by both public and private investment (UNEP, 2011). It argued that the Green Economy could 'deliver improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities' (UNEP, 2011, p. 16). This shift implies an economy that is still capitalist, but cleverer and greener, where growth, markets and corporations are turned into conservation allies and where biodiversity conservation becomes an agent of green economic development (Gasparatos & Willis, 2015).

Within this perspective, the idea of so-called green growth is the dominant policy response advocated to address the environmental crises by the European Union, United Nations, the Organisation for Economic Co-operation and Development, and the World Bank, among others. The core premise is that continued growth is compatible with conservation because increased efficiency from technological progress and market signals will facilitate the substitution of natural resources, leading us to a dematerialized and decarbonized economy in which growth is decoupled from resource use and pollution. The related notion of a Green New Deal gained traction in the aftermath of the 2008 recession (Barbier, 2010) and now again in discussions around economic recovery after COVID-19 (e.g. Mace, 2020). The Green New Deal involves a wide wide-ranging set of goals, often emphasizing green job creation and public investment in the energy transition to decarbonize the economy. The USA version includes proposals for 100% clean and

renewable electricity by 2035 and zero net emissions by 2050, while creating 10 million jobs to build and install energy infrastructure (Whyte, 2018). Goals of the European Green Deal include boosting the efficient use of resources by moving to a circular economy, restoring biodiversity and cutting pollution (European Commission, 2019).

The idea of green growth is popular among so-called new conservationists, who make the case for biodiversity conservation as a key driver of economic development (Kareiva et al., 2011). The expectation is that intensive use of technology will allow land to be spared for rewilding and the recovery of biodiversity (Asafu-Adjaye et al., 2015). Conservationists would partner with corporate power to integrate the value of nature's benefits into the economy. Instead of pursuing the protection of biodiversity for biodiversity's sake, a new conservation based on enhancing natural systems that benefit people would reduce conservation conflicts (Kareiva et al., 2011).

Much recent conservation practice is consistent with new conservation thinking, but conservation's growing dependence on private sector actors and market-based initiatives (rather than relying on state action) looks vulnerable in the light of the limited capacity of businesses to sustain public action during the current crisis without direct state subsidy. There are also risks in commoditization and little evidence that market-based instruments can bring effective conservation outcomes (Gómez-Baggethun & Muradian, 2015). Another drawback of green growth is that there are few or no signs of decoupling of growth and environmental impact at the pace needed to reach sustainability targets (Jackson & Victor, 2019; Haberl et al., 2020).

Economic arguments for large-scale public investment in green technologies will face competition from other pressing claims for direct social investment, and subsidy and investment in other sectors such as primary extraction of raw materials or transportation (Helm, 2020). There is a risk that the slogan of green recovery will be co-opted to camouflage traditional strategies of large-scale infrastructure development (Harvey, 2020).

Transformative economic reconstruction

The last of our four visions of the future economy reflects the numerous calls (e.g. Stafford et al., 2020) for a substantial change in conventional growth-based models, that 'reward *more* instead of *better* consumption, *private* vs *public* investment in [hu]*man-made* vs *natural* capital' (Martinez-Alier et al., 2010, p. 1741, emphases in the original). There have been many alternative visions of post-growth economies over the last half century (Adams, 2020). The term post-growth encompasses a spectrum of perspectives, ranging from those that adopt an agnostic stance towards growth (van den Bergh, 2011; Raworth, 2017), to those that explicitly aim at stabilizing or reducing the scale of the economy (D'Alisa et al., 2014; Jackson, 2016). Socio-ecological transitions to reduce economic metabolism (flows of energy and materials) down to a level compatible with planetary boundaries have been long advocated by ecological economists, often in the form of a steady state economy (Daly, 2014). For wealthy industrial economies this idea is increasingly thought about under the label of degrowth. Degrowth advocates a sustainable and equitable downscaling of production and consumption. In contrast to what is often assumed, degrowth is different from recession (negative GDP). The focus of downscaling is on the physical (not monetary) size of the economy (Kallis, 2018).

Once a marginal proposal, the idea of post-growth has gained leverage as mounting research has revealed a lack of empirical support to the thesis of decoupling sustained by green growth advocates (Jackson & Victor, 2019). Although cases of decoupling between growth and environmental impact at national or regional level bring some hope (Le Quéré et al., 2019; Marques et al., 2019), globally growth remains highly coupled to carbon emissions and resource use (Haberl et al., 2020), as well as to biodiversity loss (Otero et al., 2020). The idea of post-growth has also gained renewed attention as COVID-19 has shown that large-scale economic changes can happen fast if there is political will for it (Everingham & Chassagne, 2020).

Proponents of transformative ecological–economic reconstruction advocate radical reorganization of the economy, including reforms in national accounts (to account for the environmental costs of growth), green tax reforms (shifting taxes from labour to resources and pollution), subsidy reforms (from nuclear and fossils to renewables), reforms in finance (divestment from fossil fuels) and trade (green tariffs), reduced working time (to stabilize consumption and combat unemployment), and resource and pollution caps (at levels compatible with the Earth's regenerative and assimilative capacities); for an overview see Daly (2013). In a manifesto on the future after the COVID-19 crisis, degrowth advocates demand divestment from fossil fuels, military and advertising to liberate resources for healthcare, education, renewable energy, ecological agriculture, and a basic income (Barlow et al., 2020).

The critique of growth has been linked to the debates around biodiversity conservation (Büscher & Fletcher, 2020). Conservationists critical of growth argue that to stop biodiversity loss, the metabolism of the world economy needs to change. Because growth and biodiversity loss are linked via a set of mechanisms triggered by increased resource use (Czech et al., 2012; Marques et al., 2019), proponents suggest that a post-growth economy would bring large benefits for conservation (Otero et al., 2020). COVID-19 has revealed the brittleness of extended just-in-time delivery chains, the health risks of globalized hyper-mobility and the implications of a model of conservation (especially in the developing

world) that is built around a global tourist industry, corporate investment and wealthy donors. A post-growth world offers an alternative path for conservation as well as the economy.

On the downside, the case has been made that whereas degrowth can be appealing among an educated middle class for which frugality is a choice, it is less likely to appeal to those in lower-income social groups, for whom frugality is a social condition (Muradian, 2019), and who account for larger parts of the population in biodiversity-rich developing countries. The question also remains of how much wild nature will survive in a degrowth scenario of decentralized, less intensive production. It would bring a greener and more just world, but most likely one of intensively used landscapes. Moreover, increased food production in the global North to replace imports from the global South would be likely to re-intensify rural land use, and reduce current opportunities for ecological restoration. Many northern conservationists would see this as an unacceptable outcome. On a more practical level, it is challenging to imagine a new financial model for conservation in a post-growth, and potentially post-carbon world.

Discussion

The four scenarios we have outlined offer both advantages and disadvantages for conservation. Each suffers from its own limitations and represents different hopes that may include a dose of wishful thinking. For example, post-growth advocates criticize green growth advocates for excessive technological optimism, and these in turn criticize post-growth for its political idealism (Gómez-Baggethun, 2020). Some of the policy responses discussed here are shared by different scenarios. For example, although usually connected to notions of green growth (e.g. UNEP, 2009; European Commission, 2019), the Green New Deal offers some flexibility and room for engagement with both green growth and degrowth perspectives, both of which overlap in some proposed policies such as carbon taxation and investment in energy efficiency and renewables (O'Neill, 2020).

Our personal view is that only the transformative economic reconstruction scenario offers a truly sustainable future. However, conservationists have dissimilar beliefs on a wide range of topics (Sandbrook et al., 2019) and many will disagree with our perspective, and legitimately so. Whichever scenario one may favour, we believe that we are living through a unique moment at which fundamental change in the relationship between nature and society is possible. Conservationists of every hue agree that the prognosis for biodiversity was poor before the advent of COVID-19, and it is important to think clearly about which pathway they would prefer to see taken, and what they could be doing to make this more likely to happen. We believe this should entail serious engagement with the deep-rooted political and economic structures that are the ultimate drivers of biodiversity loss.

A key constraint on new thinking is that current conservation depends on funds from sources originating in rich industrialized countries whose economies are inextricably dependent on unsustainable resource and energy use. This creates a set of perverse incentives for conservation organizations. Although they may wish to see transformative changes to the pre-COVID-19 economic system, in many cases their short-term survival depends on a return to that same system. Success in re-establishing existing economic arrangements (and the reforging of powerful partnerships within the corporate sector) would restore systems of resource consumption that are unsustainable and are driving accelerated biodiversity loss (Otero et al., 2020). This paradox can be dealt with locally using various spatial or temporal fixes, such as ignoring the broader contradictions of long-haul nature-based tourism so long as it produces short-term benefits for particular species or ecosystems. This has been the dominant approach taken in the past (Pascual et al., 2017), but COVID-19 has revealed its limitations.

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services states that 'goals for conserving and sustainably using nature [. . .] cannot be met by current trajectories [. . .], and may only be achieved through transformative changes across economic, social, political and technological factors' (IPBES, 2019, p. 5). The COVID-19 crisis opens a unique window of opportunity to push for deeper change, towards transforming the metabolism of the economy such that it does not continue to erode biodiversity and ecological life-support systems. This involves adopting a long term vision and assuming short term costs. It might mean the loss of some conservation funds, projects, and even organizations that are dependent on unsustainable aspects of the pre-COVID-19 economic model.

Whatever form of conservation they believe in, the choice of post-COVID-19 recovery by national governments and international organizations has huge significance for the future of biodiversity. These choices are highly political, but conservationists of all persuasions must not shrink from engagement in the debates to come. They have already started, and will shape the diversity of the biosphere into the 22nd century and beyond.

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