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LETTER TO THE EDITOR

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Conservation needs to evolve to survive in the post-pandemic world

Human activities have transformed Planet Earth to the extent that the functioning of its climate has been altered and a quarter of species face extinction (IPBES, 2019). These climate and biodiversity crises, which are interrelated and mutually reinforcing (Gardner, Struebig, & Davies, 2020), in turn have serious repercussions for humans, weakening the provision of ecosystem services and ultimately jeopardizing human civilization (Gowdy, 2020).

Conservationists have implemented a range of strategies to stem biodiversity loss, centered around the establishment and management of protected areas. Signatories to the Convention on Biological Diversity aim to incorporate 17% of land and 10% of oceans into protected areas by 2020 (Aichi Target 11); however, their effectiveness in conserving biodiversity is dependent on adequate funding, and existing funds are insufficient in most countries (Waldron et al., 2017). This is a great concern because increased conservation finance will be required in future as anthropogenic pressures grow, but funding in many countries has largely been static or declining over the last three decades (Echols, Front, & Cummins, 2019). In the United States, for example, the budget of the Environmental Protection Agency declined by 14% between 2010 and 2019 (Environmental Protection Agency, 2020), while central government spending in Finland dropped 25% from 2009 to 2018 (Eurostat, 2020). We suggest that the emergence of global change-driven human infectious disease, a growing threat thrown into sharp relief by the 2020 COVID-19 pandemic, may alter societal and political priorities to such an extent that conservation funding will collapse, unless conservationists are able to convince decision-makers and the public of its necessity in a time of rapid global change.

The COVID-19 pandemic, caused by the SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) virus, began in the Chinese city of Wuhan in December 2019 and likely originated from a bat or pangolin (Zhang, Wu, & Zhang, 2020). Within months, it had transformed the functioning of societies worldwide and contributed to a severe financial recession. By 21 May 2020, the disease had infected approximately 5 million people and caused the deaths of over 326,000, while governmental attempts at containment have restricted economic activity and placed an estimated one-third of the global population under lockdown conditions. The financial impacts of these restrictions have been severe, illustrated by the largest ever single day fall in the Dow Jones Index on 16 March 2020, and the addition of more than 36 million people to the number of unemployed in the United States in March–May (Cohen & Hsu, 2020). As a result, hundreds of millions of people around the world have been left with insecure access to basic resources such as food and clean water. In such a context concerns for the environment, the degradation of which forms a long-term and often intangible threat, is likely to be overshadowed by more pressing concerns.

Conservation funding is generated through a range of sources, including public spending by governments, charitable giving and philanthropy, and market-based mechanisms. However, non-market-based mechanisms in particular may be severely impacted by the COVID-19 crisis. Governments have been responsible for unprecedented public spending during the pandemic, including the costs of healthcare, social support payments for people unable to work, and bailouts to the private sector. In addition, their focus on minimizing the economic impacts of pandemic mitigation means the environment will be seen as a low priority both during the crisis and in the immediate recovery period: for example, environmental regulations were relaxed in the United States, China, and Brazil (among other countries) in March 2020, and the Czech Republic's Prime Minister proposed cancelling the European Green Deal, a policy framework to decarbonize the European Union by 2050. Therefore, public spending on the environment is likely to decline as a result of overstretched budgets and altered priorities. We suggest that charitable and philanthropic giving may similarly be affected, as occurred following the 2008 financial crisis (Charity Commission, 2010); however, the impacts may be more severe on this occasion because the COVID-19 pandemic also imposes a range of psychological impacts

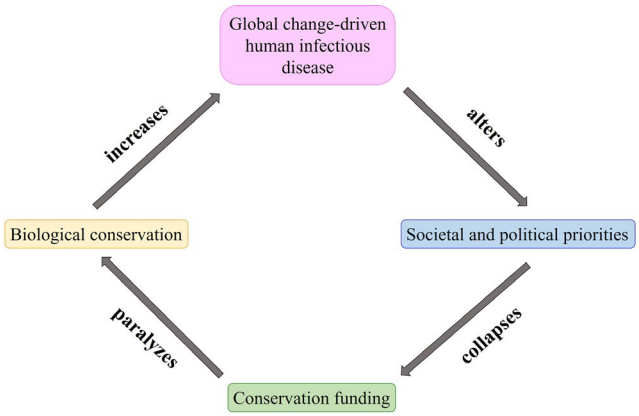

FIGURE 1 Simplified conceptual model showing potential impact of COVID-19 pandemic or other pandemics on the future of biodiversity conservation [Colour figure can be viewed at wileyonlinelibrary.com]

on people (such as depression and anxiety; Wang et al., 2020) in addition to direct financial impacts.

Thus, we expect public and private spending on conservation to show immediate declines, and these trends may be exacerbated over time as the growing cost of climate-related impacts (such as extreme weather events) increases financial pressures. However, to divert attention from conservation will not serve to protect global public health, because further environmental degradation and climate change are both expected to increase the risk of zoonotic disease transmission from wild animals to humans (Figure 1). This risk is a function of the frequency of human–animal interactions, and is thus heightened by drivers of biodiversity loss such as habitat encroachment and the legal and illegal trade in wild animals (Johnson et al., 2020). The threat will be exacerbated by climate change, which drives species range shifts and the development of novel biotic assemblages, facilitating disease transmission: such shifts are predicted to result in viruses being spread to novel mammalian hosts 3,000–13,000 over the next 50 years (Carlson et al. 2020). Moreover, climate change will also trigger mass human movements across the planet and altered interactions with biodiversity, potentially facilitating further zoonotic disease transmission, while extreme weather events and other climatic changes will reduce human capacity to prevent and manage new outbreaks (Wu, Lu, Zhou, Chen, & Xu, 2016).

Thus, the need to safeguard global human health provides further justification for investments in conservation, beyond the existing imperatives of maintaining biodiversity, mitigating and adapting to climate change, and generating other ecosystem services. However, while our scientific understanding of the importance of conservation to human well-being continues to grow, political and societal perceptions of conservation's value are likely to decline relative to other policy areas (i.e., public health). In order to maintain current levels of funding, conservationists will need to restate and demonstrate the importance of biodiversity and functioning ecosystems to the public and policymakers. This may require a realignment of objectives, from the current goal of preventing any extinctions (i.e., the maintenance of biodiversity per se) to a more utilitarian objective of maintaining human well-being in the face of accelerating climate and health crises. Such a shift would necessitate a refocused research agenda, the reframing of conservation messages, and the application of an adapted form of triage for investment decision-making (Bottrill et al., 2008). While this change would entail a shift from intrinsic to extrinsic biodiversity values in prioritization, and will strike many conservationists as a tragic admission of defeat, it has long been recognized that conservation funding is insufficient to prevent all biodiversity loss (Bottrill et al., 2008). As the discrepancy between conservation needs and society's willingness to pay for them grows, conservation will have to evolve to stay relevant in the age of global change-induced human infectious disease.

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CONFLICT OF INTEREST

We declare no competing interests.

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