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The conservation and ecological impacts of the COVID-19 pandemic

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Three lessons conservation science can learn from the COVID-19 pandemic: A call to action from ECRs

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Abstract:	

Early-career conservation researchers (ECRs) are burdened with an outdated academic system and institutional cultures of 'business-as-usual,' alongside urgent conservation issues. The globally coordinated response to the COVID-19 pandemic has prompted our reflection on what a meaningful response to a crisis entails: a rapid, concerted, and international mobilization of resources to change policies and behaviors, despite uncertainty. In contrast, political and social action remain slow to address the equally grave biodiversity and climate crises (e.g., Ripple et al. 2019). Moreover, despite repeated calls to increase relevance and public engagement in conservation science (Keeler et al. 2017), institutional reform remains lacking.

Many of the behaviors and measures taken in response to COVID-19 offer new, valuable insights for combating environmental issues. Moreover, the COVID-19 crisis has emphasized long-standing issues that weaken the impact of science on conservation policy and practice. As the world emerges from quarantine and adjusts to a 'new normal,' an opportunity exists to learn from the pandemic and catalyze the much-needed reform in conservation science to address rapid environmental degradation. We describe three key lessons for conservation scientists and decision-makers, which are particularly salient for ECRs who will shoulder much of the responsibility of revolutionizing conservation science to combat the worsening environmental crisis.

1. Optimize research-related activities

COVID-19 has forced the immediate re-prioritization of many research activities – including how we communicate, why we travel, and what we study. For example, the pandemic revealed just how much work-related travel is time-consuming and often unnecessary. Face-to-face

interactions that were previously an essential aspect of work-travel have moved online, supported by rapidly improving and innovative meeting and conference platforms. Many groups report a smooth transition to virtual collaboration, and that existing online tools are sufficient to exchange ideas, develop networks, and build relationships. Post-pandemic, these virtual options present a viable, emissions-free alternative to reduce workshop- and conference-related travel (Table S1, https://osf.io/pt697/).

Quarantine has forced many scientists to re-evaluate their research priorities. Although the COVID-19 lockdown is preventing new data collection (Corlett et al. 2020), many conservation scientists promptly adjusted, turning to backlogs of existing data, public data in online repositories, and evidence syntheses. While we recognize the value of new data collection and continued monitoring, COVID-19 forced careful consideration of when and if new data are necessary to address key conservation questions – a practice that would have benefits post-pandemic. Only a small proportion of the vast body of published literature is useful for policy or practice, attributable to the long-recognized research-implementation gap (McNie 2007). Many have urged the re-alignment of conservation science to deliver real world benefits for biodiversity, yet there is no evidence of a progression towards actionable science (Keeler et al. 2017). Given current momentum for cultural change in the scientific community and many resources to optimize how we do science (Table S1, https://osf.io/pt697/), the pandemic provides a tangible opportunity to re-prioritize meaningful conservation research (Corbera et al. 2020).

2. Convey the gravity of the situation

Scientists have played a large role in public discourse during the COVID-19 pandemic. Communicating scientific findings and projections has become vital, with misrepresentation of evidence having devastating outcomes (Londoño 2020), offering communication guidance for conservation scientists. For example, epidemiologists have employed user-friendly data visualization to communicate the outcomes of different public health policies (Table S1, https://osf.io/pt697/). The pandemic has also provided examples of risk communication and transparency, with governments effectively communicating uncertainty around model predictions – a complex concept that can be challenging to convey to the public (e.g., https://www.theglobeandmail.com/opinion/editorials/article-memo-to-the-rest-of-canada-how-dr-bonnie-henry-and-bc-are-getting/).

COVID-19 has also highlighted the important role of intentional social media campaigns to mobilize information about public health policy to broad audiences (e.g., social distancing, mask wearing). Several COVID-19 communication strategies can improve the influence of conservation messages on social media platforms, like using slogans and hashtags (e.g., #flattenthecurve), human-centered stories, and metaphors (Yammine 2020). COVID-19 has emphasized the risks of rapidly spreading misinformation online (i.e., the 'infodemic', Cinelli et al. 2020), which is also problematic for environmental issues (Treen et al. 2020). Fighting misinformation is actionable, and current efforts to tackle the infodemic (e.g., flagging content from bots and disinformation-news sites; Table S1, https://osf.io/pt697/, Yammine 2020) can guide conservation scientists (Caulfield 2020).

3. Improve metrics of merit

COVID-19 has highlighted inequalities within the science community, where many with care duties, lower incomes, or mental health issues have been unable to maintain productivity,

emphasizing that tackling environmental problems will require providing equal opportunities for everyone to be successful. Central to facilitating the uptake of the lessons outlined here will be redefining research excellence in conservation science. A scientist's publications remain central to career advancement, despite evidence that this evaluation system is flawed (Fischer et al. 2012). This incentive structure results in hyper-competition and a 'publish or perish' culture, which conflicts with the fundamental goal of conservation science. ECRs in particular are at a vulnerable career stage and often apprehensive to stray from the focus on publication output. The COVID-19 pandemic presents a much-needed opportunity to reflect on what constitutes research excellence and confront our obsession with publishing at the expense of supporting conservation action, public engagement, and equity. Emerging from this crisis can provide an opportunity to implement long-discussed alternative metrics for evaluating professional merit (Table S1, https://osf.io/pt697/).

Moving forward together

During the pandemic, billions of people across diverse cultures and political affiliations have made profound sacrifices to protect each other from harm. Although the pandemic is front of mind for many, even larger challenges lay ahead: climate change, biodiversity loss, and ecosystem collapse. The three aforementioned lessons from the global pandemic may provide seeds for change, so that conservation science can emerge from this crisis better prepared to face the next, which is right around the corner.

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