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Co-benefits towards commitments

Successful examples of climate and social benefits that derive from national conservation actions may help to catalyse the development of other policies that are designed to maximize these synergies.

The intense deliberations during the United Nations Framework Convention on Climate Change (UNFCCC) and Convention on Biological Diversity (CBD) conferences have shown time and again that signing a multinational agreement on climate or nature is not easy. The long haul of national-level implementation takes things to a whole other level. Nations must embed and interlink policies for climate and nature in every portfolio if they are to meet their stated commitments and align these policies with the justice and equity aims of international frameworks, including the Sustainable Development Goals. The complexity of this risks paralysis, wasting time we do not have, or discordant actions, in which policies developed to meet one goal undermine progress towards another. Although we must monitor for such potential conflicts, it is empowering to consider the reverse situation — in which well-designed nature-based solutions can simultaneously contribute to meeting climate, nature and societal goals.

Two papers in this month's issue provide examples of how national-level conservation actions can provide climate and societal co-benefits. The two papers also showcase analytical and qualitative methods that can help to quantify such benefits and demonstrate how attempts to concurrently optimize these outcomes can be incorporated from the outset of policy development.

Lamba et al. show that an Indian government policy that is designed to conserve tigers in some national parks has been associated with reduced forest loss and increased carbon storage. Crucial to Lamba and colleagues' story, and to the synthetic-controls counterfactual approach they use, is that all of the sites were already protected areas — but the designation of some of them as official tiger reserves resulted in enhanced monitoring and enforcement of forest protection in those locations. The authors show that, on average, less forest loss occurred in these sites than in protected areas with similar characteristics and similar deforestation histories that were not tiger reserves. They estimate that the avoided deforestation in tiger reserves corresponded to net avoided emissions of 1.08 million tonnes of CO_2 equivalent — which the authors calculate to represent US $92 million of ecosystem services, on the basis of the social cost of carbon in India. As an alternative way of valuing the findings, the authors suggest this avoided deforestation could be worth US $6.24 million in carbon offsets.

In an accompanying News & Views, Sills & Kramer emphasize that this empirical analysis adds to existing studies that model the potential carbon co-benefits of biodiversity conservation. Sills & Kramer also discuss how the findings of Lamba and colleagues highlight some of the current logistical challenges of using biodiversity conservation to count towards nationally determined contributions (NDCs) — each country's 'action plan' on climate, reported to the UN. They point out the large discrepancy between Lamba and colleagues' estimates of the monetary value of the social benefits that derive from the carbon savings and the potential estimated revenue from carbon offsets, which they say highlights limitations of current voluntary carbon markets. They also discuss how protected-area conservation does not pass the additionality tests that are commonly applied to carbon offsets, which are designed to ensure that a project provides genuinely additional reductions in emissions or removal of carbon.

The Indian government's policy for tiger reserves was designed specifically for species protection, and the carbon co-benefits reported by Lamba and colleagues were determined retrospectively. In a second paper in this issue, Arkema et al. present a process of target setting that was conducted with the explicit aim of proactively optimizing carbon, conservation and social co-benefits.

Arkema and colleagues identify and quantify the co-benefits associated with 'blue carbon' targets in Belize — specifically, the protection and restoration of mangroves. The authors combined land-cover analysis with ecosystem services modelling to first identify sites where mangrove protection and/or restoration could be implemented, and then quantify the associated outcomes. Their analysis showed that protecting all remaining healthy mangroves across Belize would preserve an estimated 150 million tonnes of CO_2 equivalent, safeguard 800,000 pounds of spiny lobster catch worth $6 million BZD (approximately US $3 million), support continued tourism of at least 4,000 visitors to mangrove destinations and nearly halve the number of people at highest risk in 2030 from coastal hazards that derive from a lack of mangrove protection. The authors conducted the same assessment for mangrove restoration, and report some interesting contrasts, such as lower total organic carbon stock for restoration compared to protection, owing to smaller areas and time needed for restoration, but high benefits for tourism and lobster catch from restoration. This suggests that the most-valuable mangrove habitats in Belize, which may have already been lost, could be well worth restoring.

Arkema et al. did not look only at these best-possible, all-protection theoretical scenarios. The authors recognized that Belize has limited capacity to support protected areas and that there are many difficulties associated with effective restoration. By working with a group of policymakers, scientists and local people in Belize, Arkema and co-authors then embarked on a location prioritization exercise to understand where to invest in conservation and restoration of mangroves to achieve multiple climate and societal benefits. This evidence-based target setting approach contributed to informing the NDCs submitted by Belize to the UNFCCC in 2021. Writing in an associated News & Views, Sarah Lester discusses how Belize was a 'trailblazer' in pursuing this innovative approach, and how Arkema and colleagues' methods provide a useful blueprint for incorporating nature-based solutions into NDCs.

Although Lamba and colleagues' finding of serendipitous carbon benefits of a species-protection policy is encouraging and suggests that more such quantifications are warranted, Sills & Kramer point out that the reduced carbon emissions are small relative to India's NDC ambitions. Arkema and colleagues' study showcases the complexity of multi-objective planning using trans-sectoral inputs, but much more of this type of approach will be needed for countries to reach their climate and biodiversity goals.

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