

Author's preprint of "Restoration Prioritization Must be Informed by Marginalized People"

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Article text:

The maps and analysis of "Global priority areas for ecosystem restoration," produced by Strassburg et al.¹, should not be used by policymakers in their current form, due to the risk of displacing marginalized people, compromising food security, and undermining democratic processes. Strassburg et al.'s analysis was based on normative choices to value (i.e., optimize) relationships among biodiversity potential, carbon storage potential, and cost effectiveness, without consideration for the well-being and rights of people who live in areas identified as restoration priorities, nor the implementation costs of changing land use. While it may be informative to map the joint distribution of biodiversity, carbon, and commodity prices, the absence of important socio-economic values obscures both the costs and benefits to the indigenous, forest-dependent, and rural people who are directly affected by restoration interventions. We pose three cautionary questions that we believe must be answered before the maps produced by Strassburg et al. are used by decision-makers to motivate and implement restoration-promoting land-use policies.

Question 1: Who lives in places identified as restoration priorities?

Although restoration requires collaboration with local people as well as compliance with their laws and customs,² Strassburg et al. say little about the people living on land identified as restoration priorities. Many of the areas identified as high priority for restoration are currently used for crops or livestock, and are governed by complicated legal structures that include recognized and unrecognized rights of indigenous people.³ The number of people affected, and the impact on agricultural markets, is likely to be large: 295 million people live on land previously identified as “forest restoration opportunities.”⁴ Many of these people are indigenous and/or hold insecure land tenure.⁴

When restoration activities fail to consider existing land-use practices or legal rights of people, they risk undermining livelihoods and food security, displacing people from their lands, creating human rights abuses, and compromising long-term conservation benefits.^{5,6} Restoration might have sustained, positive impacts on conservation and livelihoods when implemented in concert with local interests to restore land that is not used for livelihoods, or when restoration involves approaches like agroforestry, which can maintain some elements of natural ecosystems while supporting livelihoods.⁶ Nonetheless, Strassburg et al. chose to compare the biomass and soil carbon stocks of “converted” lands to a model of “old-growth ecosystems” and “pre-settlement conditions.” This modeling choice implies that restoration involves removing people, whereas recent research shows that restoration goals can often be achieved alongside continued human land use.² For example, Strassburg et al. identified most of the Indian state of Kerala, famous for biodiverse and carbon rich agroforestry,⁷ as a priority area for restoration. It is unlikely, and not necessarily desirable, that Kerala’s 33 million people will abandon highly productive and biodiverse agricultural systems, and then wait centuries for old-growth tropical forests to develop.

Question 2: What are the costs of restoration and who pays for it?

The Strassburg et al. model maximized aggregate net benefits of biodiversity and carbon storage globally. Yet, it did not consider how to compensate people locally who might be displaced and lose food and livelihood security. Most of the priority areas fell in the Global South, where there is a long history of holding rural and indigenous people responsible for environmental degradation, while misinterpreting traditional ecosystem management as “degradation” and ignoring the political and social processes that make people vulnerable.^{8,9} Past efforts to compensate people displaced by conservation projects have often failed and are associated with large-scale human rights violations.^{10,11}

Strassburg et al. calculated the opportunity cost of restoration by analyzing the commercial value of agricultural commodities. This underestimates the true opportunity costs of restoration for four reasons. First, smallholder farming systems in the Global South rely on a diversity of crops and land uses, often for subsistence production, which are not accounted for in commodity prices. Second, a focus on commodities obscures the political and economic forces that determine agricultural output: poor farmers who lack access to capital are less likely to produce high yields of commercially valuable crops.⁸ Thus, Strassburg et al.’s analysis was likely to find that the land of poor farmers was more cost effective for restoration than the land of more capitalized farmers. Of additional concern, poorer farmers often lack secure land rights or the ability to seek legal recourse, which places them at greater risk of displacement if their livelihoods are threatened by restoration activities.⁸ Third, because small farms often have biodiversity and carbon benefits, restoring them to “pre-settlement conditions” and/or imposing land-sparing intensification will bring fewer net benefits than calculated by Strassburg et al.’s model. Further, the agricultural intensification required for land sparing has significant energy

costs and a wide variety of negative externalities.¹² Fourth, implementing policies that dramatically shift land use from farming to restoration may displace hundreds of millions of people, will require complicated changes to land rights and food systems that may not be politically feasible, and risk new losses of carbon and biodiversity when people are resettled in other places.¹³ These implementation costs likely dwarf opportunity costs of crop production, and may be especially pronounced in the Global South.¹⁴

Question 3: Who gets to decide restoration priorities?

A just and effective approach to restoration begins by working with people who live on and make a living from the land to identify their priorities for restoration.² Strassburg et al. promoted stakeholder involvement with a brief reference to “free, prior and informed preferences and knowledge of Indigenous peoples and local communities.” Similar promises were made in the context of Reducing Emissions from Deforestation and Forest Degradation (REDD+), including by institutionalizing “social safeguards,” but this has not prevented human rights abuses and dispossession of indigenous people.¹¹ Strassburg et al. argued that socioeconomic issues should be “appropriately addressed at local and regional scales through culturally inclusive decision-making and implementation.” We agree: apart from concerns about justice, active involvement from local people makes policy more effective.¹⁵ Yet free, prior and informed consent requires public involvement in shaping not only the local implementation of global plans, but also the global agenda. Postponing local involvement until after priority mapping exercises places an unnecessary burden on marginalized people to argue against decisions made by powerful actors in global decision-making fora.

Moving forward, land-use priorities could be better identified if scientists and policymakers work with organizations representing people who live on and manage lands. Top-down approaches to defining global restoration priorities create unrealistic targets and are less likely to succeed in the long-term. At the same time, they risk exacerbating injustice, food insecurity, and displacement. Restoration, like any land-management intervention, must ultimately be implemented by people in their distinct social and ecological contexts. Global models that ignore these contexts tell us little about when and where ecological restoration can succeed.

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All authors conceptualized the work and contributed to writing the manuscript. F.F. led the writing of the manuscript.

Competing interests:

The authors have no competing interests to declare.