Restoration prioritization must be informed by marginalized people

Forrest Fleischman, Eric Coleman, Harry Fischer, Prakash Kashwan, Marion Pfeifer, Vijay Ramprasad, Claudia Rodriguez Solorzano & Joseph W. Veldman

Nature vol. 607, pages E5–E6 (2022)

DOI: 10.1038/s41586-022-04733-x

Arising from: B. B. N. Strassburg et al. Nature https://doi.org/10.1038/s41586-020-2784-9 (2020)

The maps and analysis by Strassburg et al.[1] should not be used by policy-makers in their current form, because of the risk of displacing marginalized people, compromising food security and undermining democratic processes. Their analysis was based on normative choices to value (that is, to optimize) relationships among biodiversity potential, carbon storage potential and cost effectiveness, without considering the well-being and rights of people who live in areas identified as restoration priorities, nor the implementation costs of changing land use. Although it may be informative to map the joint distribution of biodiversity, carbon and commodity prices, the absence of important socioeconomic 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.[1] are used by decision-makers to motivate and implement restoration-promoting land-use policies.

The first question we pose is to ask who lives in the 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.[1] say little about the people living on the 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 do not consider the 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 effects 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 such as agroforestry, which can maintain some elements of natural ecosystems while supporting livelihoods[6]. Nonetheless, Strassburg et al.[1] chose to compare the biomass and soil carbon stocks of 'converted' lands to a model of 'old-growth ecosystems' and ‘pre-settlement conditions’. This modelling choice implies that restoration involves removing people, whereas recent research shows that restoration goals can often be achieved alongside continued land use by people[2]. For example, Strassburg et al.[1] 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 would abandon highly productive and biodiverse agricultural systems and then wait for centuries for old-growth tropical forests to develop.

The second question we pose is what the costs of restoration are and who pays for it. The model of Strassburg et al.[1] maximized aggregate net benefits of biodiversity and carbon storage globally. Yet it did not consider how to compensate people who live locally and might be displaced, and who could lose food and livelihood security as a result of changes. 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]. Previous 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.[1] calculated the opportunity cost of restoration by analysing 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 that 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, the analysis of Strassburg et al.[1] analysis was likely to find that the land of poor farmers was more cost-effective for restoration than the land of farmers with more capital. Of further concern is that 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 the model of Strassburg et al.[1]. Furthermore, the agricultural intensification required for land sparing has substantial energy costs and a wide variety of negative consequences for people and ecosystems[12]. Fourth, implementing policies that 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 will probably highly exceed the opportunity costs of crop production, and may be especially pronounced in the global south[14].

The third question we pose is to ask who gets to decide on the restoration priorities. A just and effective approach to restoration begins by working with the people who live on and make a living from the land to identify their priorities for restoration[2]. Strassburg et al.[1] promoted stakeholder involvement with a brief reference to “the 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.[1] 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]. However, 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 policy-makers 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.

References

1. Strassburg, B. B. N. et al. Global priority areas for ecosystem restoration. Nature 586, 724–729 (2020).
2. Fleischman, F. et al. Restoration prioritization must be informed by marginalized people. Nature https://doi.org/10.1038/s41586-022-04733-x (2022).
3. Rights and Resources Initiative. Estimate of the Area of Land and Territories of Indigenous Peoples, Local Communities, and Afro-Descendants Where Their Rights Have Not Been Recognized https://doi.org/10.53892/UZEZ6605 (Rights + Resources, 2020).
4. Erbaugh, J. T. et al. Global forest restoration and the importance of prioritizing local communities. Nat. Ecol. Evol. 4, 1472–1476 (2020).
5. Schweizer, D. & Ghazoul, J. (eds) Forests for the Future: Restoration Success at Landscape Scale — What Will It Take and What Have We Learned (WWF Netherlands & Utrecht University, 2021).
6. Mappin, B. et al. Restoration priorities to achieve the global protected area target. Conserv. Lett. 12, e12646 (2019)
7. Brooks, T. M. et al. Global biodiversity conservation priorities. Science 313, 58–61 (2006).
8. Joppa, L. N., Visconti, P., Jenkins, C. N. & Pimm, S. L. Achieving the convention on biological diversity's goals for plant conservation. Science 341, 1100–1103 (2013).
9. Montesino Pouzols, F. et al. Global protected area expansion is compromised by projected land-use and parochialism. Nature 516, 383–386 (2014).
10. IPBES. Global Assessment Report on Biodiversity and Ecosystem Services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (eds Brondizio, E. S. et al.) (IPBES Secretariat, 2019).
11. Robinson, S. et al. The International Model for Policy Analysis of Agricultural Commodities and Trade (IMPACT): Model Description for Version 3. IFPRI Discussion Paper 1483 (IFPRI, (2015).

Acknowledgements

F.F., E.C., H.F., V.R. and C.R.S. were supported by NASA grant NNX17AK14G and Swedish Research Council for Sustainable Development (Formas) grant 2020-02781. F.F. and H.F. were supported by Swedish Research Council (Vetenskapsrådet) grant 2018-05875. J.W.V. was supported by USDA-NIFA Sustainable Agricultural Systems grant 2019-68012-29819, USDA-NIFA McIntire-Stennis Project 1016880 and the National Science Foundation under award DEB-1931232. M.P. was funded through BBSRC Global Challenges research grant no. BB/S014586/1.

Author information

Authors and Affiliations

Forrest Fleischman & Claudia Rodriguez Solorzano, Department of Forest Resources, University of Minnesota, St Paul, MN, USA

Eric Coleman, Department of Political Science, Florida State University, Tallahasee, FL, USA

Harry Fischer, Department of Urban & Rural Development, Swedish University of Agricultural Sciences, Uppsala, Sweden

Prakash Kashwan, Department of Political Science, University of Connecticut, Storrs, CT, USA

Marion Pfeifer, School of Natural and Environmental Sciences, Newcastle University, Newcastle-Upon-Tyne, UK

Vijay Ramprasad

Kangra Integrated Sciences and Adaptation Network, Centre for Ecology, Development and Research, Dehradun, India; Department of Environmental Studies, Ashoka University, Sonipat, India

Joseph W. Veldman, Department of Ecology and Conservation Biology, Texas A&M University, College Station, TX, USA

Contributions

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

Corresponding author

Correspondence to Forrest Fleischman.