Cost-effectiveness of public policy for the long-term conservation of private lands: What is the deal?

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Long-term strategies for private-land conservation are experiencing a surge in scholarly attention. This interest is timely and justified. Globally, many important biodiversity values occur on private lands and are therefore subject to private land use decisions that can threaten their persistence in the absence of protection. Public and private actors spend billions of dollars annually to ensure the long-term protection and enhancement of public ecosystem services on private lands. Many governments recognize and strengthen “privately protected areas” (PPAs) as part of long-term protection obligations under the Aichi Biodiversity Targets (Stolton, Redford, & Dudley, 2014). As public policy makers deliberate over the best strategies to enhance private-land protection, they need to understand how cost-effective these different policy options are, and how they compare to each other.

Although scholars have examined many aspects of private-land conservation in rich empirical detail, few studies provide rigorous empirical accounts of even the most fundamental costs and causal effects of widespread public policy strategies to enhance the long-term protection of private lands. This is a concern because costs and effects are often correlated in important but not immediately discernible ways, and ignoring either can make interventions appear more or less cost-effective than they actually are.

Synthesis is complicated due to substantial diversity in contexts and interventions. Protection can be voluntary or mandatory, perpetual or reversible, and affect full or partial land rights; involved landowners range from individuals and families to businesses and nonprofits, with substantial variation in interests and motivations (Kamal, Grodzińska-Jurczak, & Brown, 2015). These differences matter, but are rarely reported. We propose that future empirical studies pay greater attention to three dimensions of private-land conservation effectiveness.

1 | CLARIFY INCENTIVES AND INSTITUTIONS

Who protects private lands, against whom, and for whose benefit? Addressing these questions sheds light on underlying incentive structures and motivations that affect the choice, participation, and outcomes of institutional arrangements. For instance, officially sanctioning voluntary self-declarations of PPAs is a widespread policy tool that can boost local pride, recognition in tourism markets, and protection against third-party interests. However, interests of landowners joining such schemes might already be aligned with those of conservation, casting doubt over the extent to which declarations induce long-term behavioral change that is different from business-as-usual. Reversible arrangements are vulnerable to shifts in landowner interests: in South Africa, 6.2% of private reserves were degazetted between 1926 and 2018, almost triple the rate of state parks (De Vos, Clements, Biggs, & Cumming, 2019). Against whom were these areas protected in the long-term? Rigorous comparative examination of declared PPAs and
nondeclared lands with conservation-friendly landowners could clarify whether self-declaration increases long-term conservation, uncover the mechanisms behind those effects (e.g., emotional or reputational costs of degazettement), and estimate their magnitude.

If landowner interests conflict with those of long-term protection, policy makers can create institutional arrangements that cannot be revoked by landowners. Many countries now allow voluntary, permanent transactions of partial land rights in the form of easements, covenants, servitudes, or contract reserves, often incentivized with direct payments and tax breaks. Here again, cost and causal effect can be correlated, as landowners more likely to accept a deal, or to offer a bargain sale, are also more likely to have kept their land in conservation use. Once a deal is struck, it is the conservation actor (e.g., the easement holder) who protects the land against the behavior of current and future owners, raising questions of just how much “private” protection these areas receive.

2 | ACCOUNT FOR FULL LIFETIME COSTS

In the presence of pervasive budget constraints, conservation agencies might prefer low-cost strategies for private-land conservation over more expensive alternatives. In the United States, the use of conservation easements is rapidly expanding, not least because upfront costs of acquiring partial rights are below the cost of full land acquisitions. However, once recurring long-term cost components like management cost are factored in, easements can lose their economic advantage over fee acquisitions (Schöttker & Santos 2019). Similarly, social opportunity costs, such as benefits from alternative land uses, can constitute a major share of overall costs, but are easily ignored if current conservation-minded landowners offer low-cost protection deals. Estimating and comparing the full cost of conservation interventions over their lifetime will enhance transparency in comparisons, and highlight less visible trade-offs.

3 | ESTIMATE CAUSAL EFFECTS AND SPILLOVERS

After more than a decade of work, methods for estimating the causal effects of conservation interventions on social and ecological outcomes are now widely applied in the literature. However, effects of long-term private-land conservation interventions remain understudied (Nolte, 2018), and most conservation organizations continue to report success in terms of total area protected or species range covered, not in terms of causal effect. This is a concern. In Massachusetts, USA, differences in the causal effects of land acquisitions and easements on forest cover and avoided development were found to be more driven by differences in threat than by differences in land cover change on protected parcels (Nolte, Meyer, Sims, & Thompson, 2019). Because threatened parcels are often more costly than remote lands, ignoring threat can bias protection toward low-cost locations where protection makes little difference.

Studies of long-term private-land conservation also need to pay close attention to spatial spillovers and connections. Perpetual protection can increase prices of nearby properties and potentially increase land cover change. Yet empirical evidence on this effect remains inconclusive: in Massachusetts, spillovers seem to be less of a concern than often thought (Nolte et al., 2019), but whether these results hold in other contexts requires further research. Future studies should also consider that incentives might have different causal effects in different social-ecological contexts, and provide further evidence on the relative longevity and complementarity of private and public conservation arrangements (De Vos et al., 2019).

4 | WHAT IS THE DEAL?

The long-term conservation of private lands is an essential complement to existing protected area networks. Future empirical studies offering detailed accounts of diverse underlying incentives and institutions, full lifetime costs, and causal effects will be essential for building an insightful and representative global evidence base on the cost-effectiveness of public policy instruments for private-land protection.

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