



Buying forests for conservation: contours of a global trend

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Acquisitions of private forest rights have become a widespread conservation instrument. Over the past two decades, voluntary transactions have legally protected millions of hectares of private forestland in several countries, notably in the Americas. Limited evidence exists on the overall global magnitude and distribution of acquisitions, the factors driving site selection, and resulting ecological and social impacts. Improved behavioral models of landowners and conservation organizations might help steer acquisitions towards more efficient and equitable outcomes. Opportunities for building such models now exist owing to rapid advances in data, methods, and computing capacity.

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Introduction

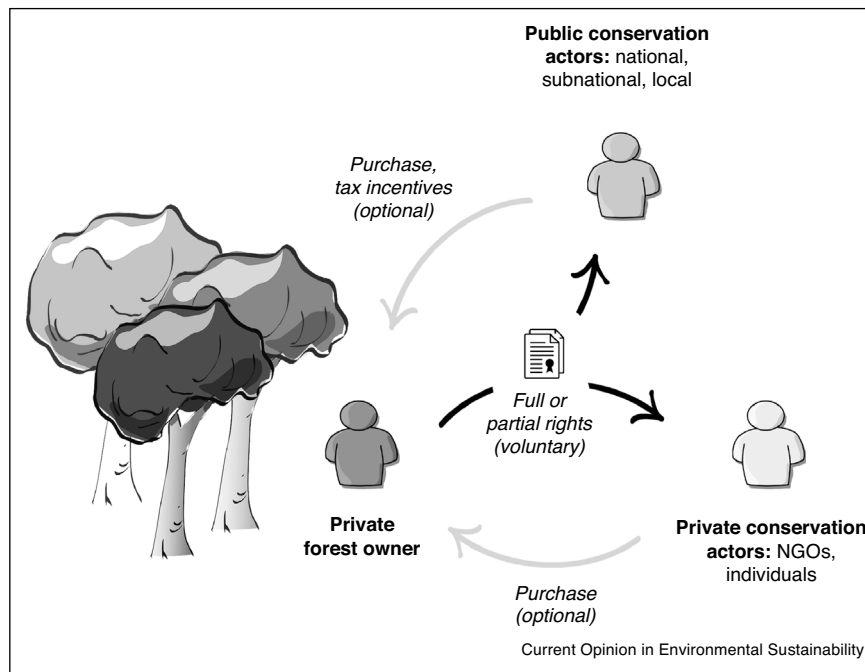
Protecting forests from anthropogenic influence has long been a core goal of conservation advocates around the globe. In the 21st century, concerns about climate change and mass species extinctions have renewed global efforts to reduce global forest loss and degradation [1]. Researchers have joined policy makers and environmental organizations in the search for conservation strategies that are politically viable and deliver desired environmental and social outcomes [2,3]. Their efforts led to a rapid growth in empirical studies on the choice, allocation and impact of forest conservation interventions, fueled by advances in rigorous impact assessment methodologies and long-term, large-scale observations of forest change [4,5].

Private forests play a crucial but underappreciated role in this effort. Approximately 10% of the world's forests are privately owned [6]. Private forests are common in high-income countries across the Americas, Europe, and Oceania [7], and the predominant form of forest tenure in more than 50 countries [8]. Ownership type can vary from small-scale 'family forests' to large-scale investment holdings [9,10]. Private forests rights also exist in the absence of full ownership, such as in timber concessions on public land, non-possessory rights of traditional forest users, and many other arrangements [11]. Within countries, private forests are often located in priority areas for threatened biodiversity [12,13*] and face high risks of forest loss and fragmentation [14,15]. The protection of private forests can thus make important contributions for avoiding carbon emissions, species extinctions, and the loss of forest ecosystem services.

A rapidly expanding conservation instrument for private forests is the voluntary permanent transfer of property rights. Over the past two decades, rights to tens of thousands of private forest properties have been permanently transferred to public agencies or conservation non-governmental organizations (NGOs) [16–18]. Scholars have begun to engage with this phenomenon; their contributions are diverse in scope and come from a wide range of disciplines, including environmental science, conservation biology, forestry, law, economics, and geography. Little systematic evidence exists on the global extent and distribution of forest right acquisitions, the factors driving site selection, and the long-term ecological and social impacts. As a result, it is difficult to assess whether, where, and how forest acquisitions contribute to the conservation of forest values.

Here I synthesize the current literature on acquisitions of private forest rights for conservation. I define those as 'voluntary permanent transactions of private rights to forestland that occur with the intention to conserve ecological values in perpetuity'. My definition covers acquisitions and donations of full (e.g. ownership) or partial rights (e.g. easements, covenants, and servitudes), as long as the recipient has either the legal obligation or the declared core mission to conserve ecological values forever. I also consider declarations of private protected areas if they involve permanent transfers of rights. Excluded from the scope of this review are temporary transactions (e.g. payments for environmental services), regulatory approaches (e.g. land use zoning), or transactions between non-private entities (e.g. REDD+) which

Figure 1



Forest right acquisitions for conservation (schematic representation).

have been treated more extensively elsewhere [19–21] and in other contributions to this special issue (Figure 1).

Scale and actors

Efforts to characterize the global scale and distribution of forest right acquisitions are complicated by the absence of comparable statistics. However, in terms of broad patterns, two assumptions seem plausible. First, forest right acquisitions will be more widespread in countries with large privately-owned forests. Globally, the U.S. and Brazil have the largest forests under private ownership. The tenure form is also predominant in several countries across the Americas (e.g. Argentina, Canada, Chile, Paraguay), Europe (e.g. Germany, Finland, France, Italy, Spain, Sweden), and Australia [8,22]. Second, conservation actors are more likely to choose forest right acquisitions as a conservation instrument if the main alternative — regulation — is perceived as unfeasible or unlikely to protect ecological values to the extent desired by those actors. Fertile ground for acquisitions will thus exist in localities whose political culture has historically favored private property rights over regulatory approaches to landscape conservation.

Insights from the literature appear to corroborate these assumptions. Land acquisitions for conservation are widespread in the U.S., where 1363 active land trusts protected more than 15 million hectares through transactions of full or partial rights [17], public spending for conservation

acquisitions exceeded \$40 billion over the last two decades [16,23], and tax incentives for charitable donations of land rights can be generous [24••]. The activity is widespread across forest landscapes [25,26•,27] and includes funding programs specifically dedicated to forest conservation [28]. Significant country-level activity in conservation-oriented acquisitions of forest rights has also been reported from Australia [29–31], Brazil [32], Canada [33], Chile [18], Colombia [34], Denmark [35••] and Finland [36]. International transactions occurred in at least 20 tropical countries [37]. In addition, many countries have developed frameworks for the creation of ‘privately protected areas’ (PPAs), which, in some instances, also involve the permanent abandonment of private land rights [38–40].

Forest acquisitions involve actors with diverse constituencies and interests. Public agencies, NGOs, and private individuals have acted as funders, deal makers, or post-deal stewards. Acquisitions in the U.S. and Australia involve a strong interplay of public and private conservation organizations [16,29,41]. In other countries, studies have focused either on publicly (e.g. Colombia, Denmark, Finland [34,35••,36]) or privately funded acquisitions (e.g. Brazil, Canada, Chile [18,32,33]). Funding for acquisitions of forest rights can come from local [42], subnational [16], national [28], and international sources [18,37]. Organizational interests in forest conservation are diverse, ranging from the conservation of species,

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