

REFRAMING THE SHARING VS SPARING DEBATE FOR TROPICAL FORESTRY LANDSCAPES

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Humans now manage the majority of land on earth. It is no surprise that a debate about how to mix people and nature has resurfaced. That debate, now dubbed ‘land sharing vs sparing’ asks: *How do we achieve the greatest conservation outcomes in a landscape given demands for food, fibre and fuel?* Should we intensify production in one part of the landscape so that we may strictly protect (spare) the remainder? Or should we integrate (share) production and conservation in the same areas?

Recent conservation studies (Phalan et al. 2011) tend to conclude that sparing is the best way to maintain agricultural yields while protecting biodiversity. Support of the intensification–sparing approach comes about because in tropical frontier landscapes, the amount of native ecosystem area converted to agriculture is usually more predictive of ecological impacts than the intensity of production within the area lost.

For organisations and individuals who do not expect to change the demand for global commodities but can influence landuse decisions, it seems reasonable to assume that intensification in one place will take the pressure off of production in another place. Since even low intensity agricultural production usually involves conversion of forests and other native ecosystems, why not maximise production per hectare in order to spare native ecosystems in other places? This logic is a response to criticisms that conservation programmes are limited in the scale of their success if they do not address the fundamental needs of society for food, fibre and fuel.

This intensification–sparing logic breaks down when applied to tropical forestry systems,

which differ from agriculture because working native forests under low-intensity management maintain the lion’s share of biological diversity and carbon storage (Putz et al. 2012). Moreover, the link between intensification and sparing may not translate well to specific geographies. Basic economic theory tells us that intensification will raise land rents per hectare and thereby increase the pressure to convert forests to other landuses (Kaimowitz & Angelsen 2008). In other words, rather than assuming that intensification leads to sparing, the opposite may occur, i.e. intensification can be expected to increase local pressure to convert native ecosystems. If we are to promote intensification as part of conservation efforts within high conservation value geographies such as most tropical forest ecoregions, the question we must confront is can we limit the expansion of the intensification business models that we promote?

Meanwhile, new analyses are changing our assumptions about the relationship between deforestation and shared forest management activities in the tropics. Logging can catalyse deforestation due to the construction of logging roads that create access to remote forests. However, there is mounting evidence (now with proper statistical design) of the opposite effect: tropical production forests can be nearly as effective or even more effective than protected areas at resisting deforestation (Gaveau et al. 2013, Blackman 2015). Thus, in tropical forestry landscapes, sharing (managing natural forests) could be more effective at sparing than intensification (conversion to exotic species plantations). This logic seems to apply particularly well when local communities own

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and manage forests—perhaps because local communities tend to have a long-term investment in their land.

There are two forms of conservation benefits from working with tropical loggers, whether they be communities or large corporations, namely, (1) reduced forest degradation through improved forest management and harvest methods, and (2) reduced deforestation through sustainable sharing business models that create a commercial constituency for maintaining native forests. Of course, loggers do not necessarily offer ideal conservation allies, especially in low governance frontier landscapes. Moreover, for maintaining maximum ecological integrity of forests, there is no substitute for full protection. Nevertheless, in the bulk of forests (where full protection is not under consideration), we believe there is a large potential for conservation organisations to form alliances with good loggers who are interested in a sustained business model. Such forester managers share a common interest to protect native forests from conversion. This potential for working forest conservation alliances is huge as the area of forests zoned for long-term logging concessions is more than twice that of fully protected forests in the tropics (Nelson & Chomitz 2011). An opportunity to realise this potential may be arriving in the form of emerging payments for ecosystem services such as carbon storage.

Despite the large near term potential for conservation organisations to form alliances with good loggers to resist deforestation pressure across a huge portion of tropical forests, such alliances alone cannot halt forest conversion. In particular, low-intensity logging of natural forests cannot supply the growing global demand for all wood products. Tropical fibre plantations are attractive because they often have much higher yield than managed natural forests.

Stemming the tide of conversion of tropical forests to plantation forestry monocultures is daunting. Forestry plantations are the largest driver of deforestation in the subtropics (Hansen et al. 2013) as well as in the moist tropical forests of Indonesia (Abood et al. 2015). Plantations will be an expanding part of the landscape and the conservation community needs to further engage intensive wood producers to apply the mitigation hierarchy to this intensive landuse in order to avoid, minimise, restore and offset

impacts (Kiesecker et al. 2010). First and foremost, natural forest conversion should be avoided by establishing intensive fibre production plantations in already cleared and/or degraded areas. Degraded pasture lands represent the most widespread agricultural land cover type but offer the lowest agricultural yields. Thus, fibre (and other tree crop) plantations can be a vehicle for restoring the productivity of degraded soils while sequestering carbon and generating global commodities. The challenge is to encourage the success of fibre plantations on degraded lands, yet constrain the successful businesses that emerge from expanding into nearby forests with more fertile soils.

Some actors in commodity agriculture sectors such as oil palm are making ambitious claims to pair intensive management with sparing or zero deforestation associated with new plantations. This effort represents a positive development, but much work remains to establish the institutions that can verify such claims. The timber sector, including native forest management and intensive fibre plantations, already has the institutions to verify such claims of legitimacy. Independent timber certification bodies such as the Forest Stewardship Council have well respected independent chain-of-custody tracking and pre-existing zero deforestation requirements. Ideally, full transparency of zero deforestation claims by companies in the forestry sector would be confirmed through independent remote sensing-based online tools such as Global Forest Watch.

Triad forest management is one approach that incorporates all three landuse elements associated with sharing and sparing—an extensive, multi-use (shared) zone—a smaller intensively-managed zone—and a strictly protected conservation (spared) zone to meet multiple conservation, economic and even social goals. It has been fairly successful in the northern USA and Canada where very large tracks of land are managed by single owners (Tittler et al. 2015). The situation will be more complex in the tropics where land tenure and governance are less defined and biodiversity and conservation values are more heterogeneous across the landscape. Nonetheless, this conceptual approach has the potential to meet multiple goals and directly pair intensive management with forest sparing or conservation of high value forests.

We see no universal truths about the role of high vs low intensity production systems in tropical forestry landscapes. We do see that studies supporting the intensification of agricultural production do not translate well to forestry. Each geography and each set of stakeholders will need to explore alternative conservation-smart forestry systems, which will likely require a suite of strategies depending on the specific context. Thus, there is an urgent need for analyses in tropical forestry landscapes to determine what balance of land use intensity and best practices are conservation smart. This urgency is highlighted by the pledges many tropical countries are making to reduce forest emissions in the midst of rising demand for tropical timber.

In any case, it is time that we reframe the debate about sharing vs sparing as applied to tropical forestry landscapes. It is not an either-or proposition. We will need a mixture of sharing, intensification and sparing to meet conservation goals in a world with a growing demand for fibre, other forest products and ecosystem services.

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