



Rooting Forest Landscape Restoration in Consumer Markets—A Review of Existing Marketing-Based Funding Initiatives

Ennia Bosshard^{1*}, Merel Jansen^{1,2,3,4}, Sara Löfqvist^{1,5} and Chris J. Kettle^{1,6}

¹ Department of Environmental Systems Science, Institute of Terrestrial Ecosystems, ETH Zürich, Zurich, Switzerland, ² Center for International Forestry Research (CIFOR), Lima, Peru, ³ Geoeology & Physical Geography, Institute for Environmental Sciences, University of Koblenz-Landau, Landau, Germany, ⁴ Center for Environmental Systems Research, Kassel University, Kassel, Germany, ⁵ Department of Humanities, Social and Political Sciences, Institute for Environmental Decisions, ETH Zürich, Zurich, Switzerland, ⁶ Biodiversity International, Rome, Italy

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*Correspondence:

Ennia Bosshard
ennia.b@hotmail.com

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Forest landscape restoration (FLR) is globally important to mitigate a wide range of social and environmental problems driven by landscape degradation and deforestation. Despite widespread recognition of the urgent need to restore biodiversity and ecological functioning across many forest landscapes, there is an apparent mismatch between political commitments and direct actions on the ground. Global markets and consumption patterns remain prominent drivers of land degradation. Alternatively, market forces could be transformed to have net positive rather than negative influence on land use change, offering innovative pathways to incentivise and finance FLR. Understanding current market mechanisms that finance FLR is essential for establishing best practices and effective policy. We reviewed 40 eco-marketing initiatives to provide an overview of the types of organizations involved in funding of FLR, and how they finance and enable FLR interventions. We identified three groups of initiatives: *for-profit business*, *certified social enterprise*, and *non-profit organization*. In total, 36 out of the reviewed initiatives collaborated with enabler-organizations to implement FLR activities. All initiatives promoted active tree planting, primarily in regenerative agroforestry systems. Only six analyzed initiatives included natural regeneration as a type of FLR intervention. This suggests that eco-marketing initiatives primarily focus on funding tree planting initiatives, possibly because tree planting is the easiest message to communicate to consumers. Strong safeguards and governance of FLR projects are necessary to ensure that tree planting projects do not overshadow other FLR interventions in areas where other approaches have more significant ecological, environmental, and social benefits.

Keywords: ecological restoration, sustainable finance, social enterprise, agroforestry, tree planting, forest restoration, eco-marketing, natural regeneration

INTRODUCTION

Every year, millions of hectares of forest are being cleared or degraded to satisfy global demand for food, land, mining, and forest products (FAO UNEP, 2020). This has led to large scale loss of ecosystem services (for example: Fugère et al., 2016; Tan-Soo et al., 2016; Celentano et al., 2017; Kasaro et al., 2019). FLR initiatives aim to not only

restore ecological integrity in deforested or degraded areas and enhance ecosystem services, but also to improve forest-based livelihoods (Chazdon et al., 2015; Mansourian et al., 2017; IUCN, 2018). Governments (partly in international agreements) have set ambitious targets to restore 350 million hectares by 2030 (Convention on Biological Diversity, 2013; IUCN, 2014). However, action on the ground falls short. As of 2019, only 18% of the land pledged to be restored by 2020 had been brought under restoration (NYDF Assessment Partners, 2019). Insufficient financing has been identified as a major constraint of restoration efforts (Brancalion et al., 2019; Chapman and Lindenmayer, 2019), it has been estimated that between USD 36–49 billion are required to achieve yearly FLR targets (FAO, 2015). As the scale of restoration efforts required to achieve worldwide targets is likely to go far beyond the financial capacity of governments and NGOs, it is necessary to mobilize new streams of finance from the private sector (Löfqvist and Ghazoul, 2019).

Under the neo-liberal market system, consumption patterns have been one of the main drivers of deforestation and forest degradation (European Commission, 2013; Lawson et al., 2014), but markets could also offer pathways to finance restoration efforts (Gutierrez and Keijzer, 2015; Brancalion et al., 2017; Ceccon and Boucher, 2017; Faruqi et al., 2018). As consumer awareness around environmental impacts from the production of consumer goods has increased, especially in the Global North (Padel and Foster, 2005; Andorfer and Liebe, 2012; The Nielsen Company, 2015; Vlaeminck and Vranken, 2015; Nielsen, 2018), a range of eco-marketing mechanisms have been developed which enable consumers to directly finance FLR. Eco-marketing, also called green marketing, is a strategic business management concept, and can be defined as a branding strategy for companies aiming to create positive economic, social, and environmental impacts (Virdi and Gill, 2016). These strategies are based on the assumption that consumers not only select products and services because of attributes such as quality and price, but also consider what effects their consumption choices have on the wider society and the environment (Cusot and Falconi, 2012). Hence, with growing consumer awareness around the importance of restoration, eco-marketing mechanisms could increasingly become a lever to finance restoration initiatives.

The contribution of eco-marketing initiatives to financing global FLR targets will partly depend on how these initiatives are organized and which types of FLR initiatives they finance. FLR interventions can include both passive and active restoration practices, each with their own context-specific social, ecological, and financial benefits (Morrison and Lindell, 2010; IUCN WRI, 2014). Active restoration can include the planting of trees on degraded land to facilitate ecological restoration, and the planting of trees in agroforestry systems, for example by planting fruit trees. In this paper, we use the term “agroforestry” for regenerative agricultural systems which aim to promote diverse and multi-layered food production that restore degraded landscapes. Passive restoration (including assisted natural regeneration) does not include planting of seedlings or seeding, but assists the natural recovery of native tree species on degraded forested land through activities such as controlling

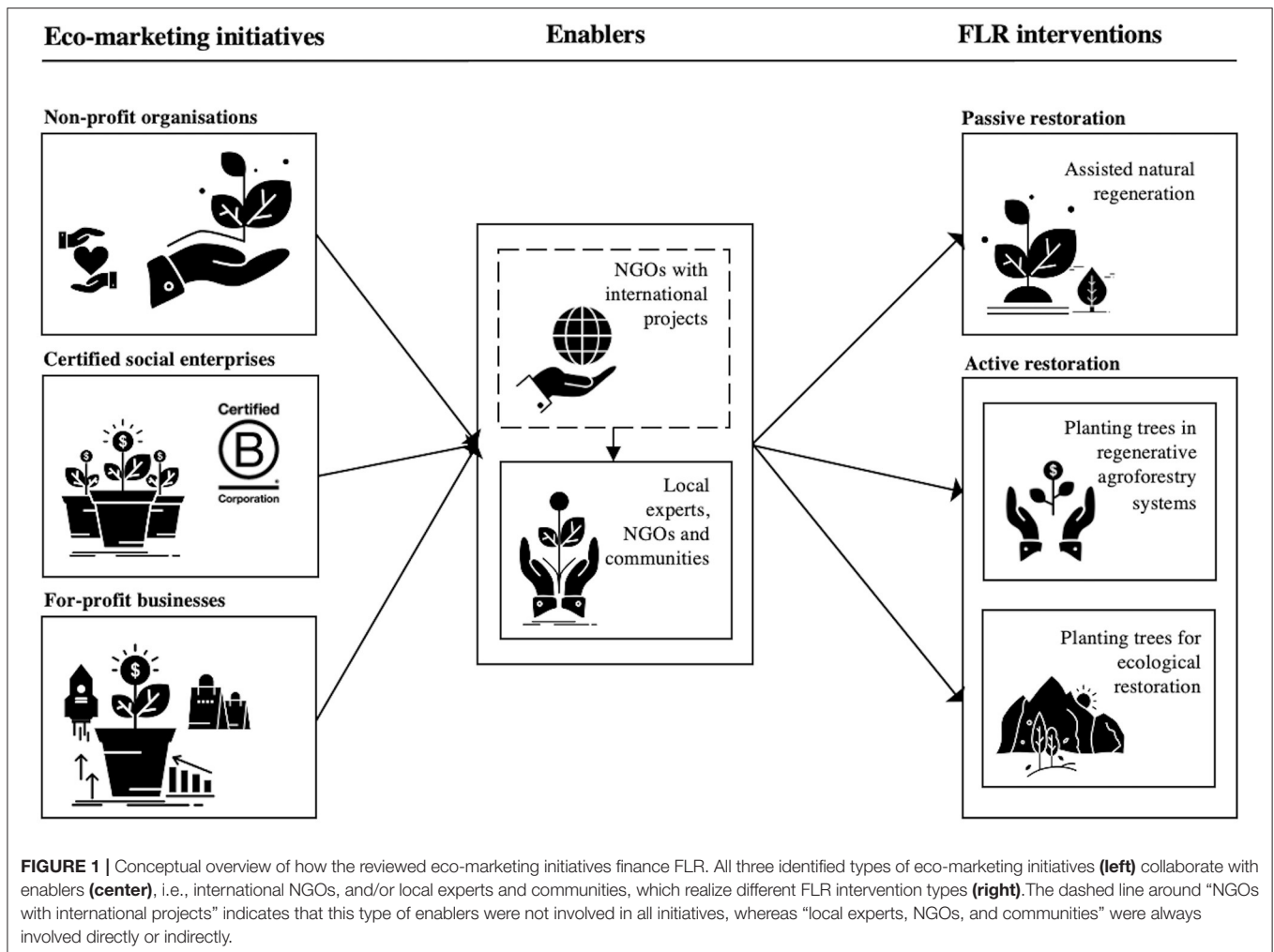
livestock grazing, weed growth, or fire protection (Crouzeilles et al., 2017). Assisted natural regeneration can, in specific contexts, be a low-cost method of forest restoration in areas where secondary forest is present (Chazdon, 2014; Crouzeilles et al., 2017; Reid et al., 2018), while active restoration typically is initiated within highly deforested landscapes (Reid et al., 2018). Assisted natural regeneration can thus be an effective approach in areas where there is no high opportunity cost of land use, while active restoration such as planting of valuable tree species can offer more direct local livelihood opportunities (FAO, 2017).

The funding mechanism behind a restoration project is likely to influence the type of intervention that is promoted. This can be problematic if funders favor interventions that do not align with what is ecologically, environmentally, and socially optimal (Löfqvist and Ghazoul, 2019). Thus, it is crucial to understand what type of restoration interventions can and should be funded through eco-marketing mechanisms, and in what regions. In this review, we conceptualize how eco-marketing mechanisms contribute to financing FLR and provide an overview of which FLR intervention types are financed and enabled based on 40 reviewed eco-marketing initiatives.

CONCEPTUALIZING HOW ECO-MARKETING INITIATIVES FINANCE FLR

To identify active eco-marketing initiatives, we conducted online searches using a list of relevant keywords including “plant trees,” “forest restoration,” “FLR,” “natural regeneration,” “buy one plant one,” “carbon offsetting,” “travel emissions,” “compensate,” “buy,” “company,” and “finance,” etc. Furthermore, a variety of initiatives were identified through the websites of the enabler organizations, and our own network of partners. This allowed us to identify a sample of 40 global initiatives. Our goal was not to provide an exhaustive overview of eco-marketing initiatives, but to provide a representative review of different types of organizations which are involved in FLR eco-marketing strategies. Selection criteria for the initiatives were that they (1) are private sector initiatives funding FLR activities in developing countries, (2) communicate their restoration activities directly to the consumers, either through the packaging of the products or marketing of a service and consequent impact, or through wider outreach campaigns, and (3) provide specific information on their FLR interventions on their websites.

We categorized three different organizational types of FLR eco-marketing initiatives; *for-profit businesses*, *certified social enterprises*, and *non-profit organizations* (Figure 1). We selected certified B-corporations for social enterprises, as these certified businesses are legally required to meet rigorous standards of social and environmental performance, accountability, and transparency (Harjoto et al., 2018). Whereas, these businesses fund restoration alongside their normal profit-driven activities (which do not have to be related to forests or FLR), initiatives from non-profit businesses have restoration at the core of what



they work toward and have established products and services around this goal to finance restoration activities.

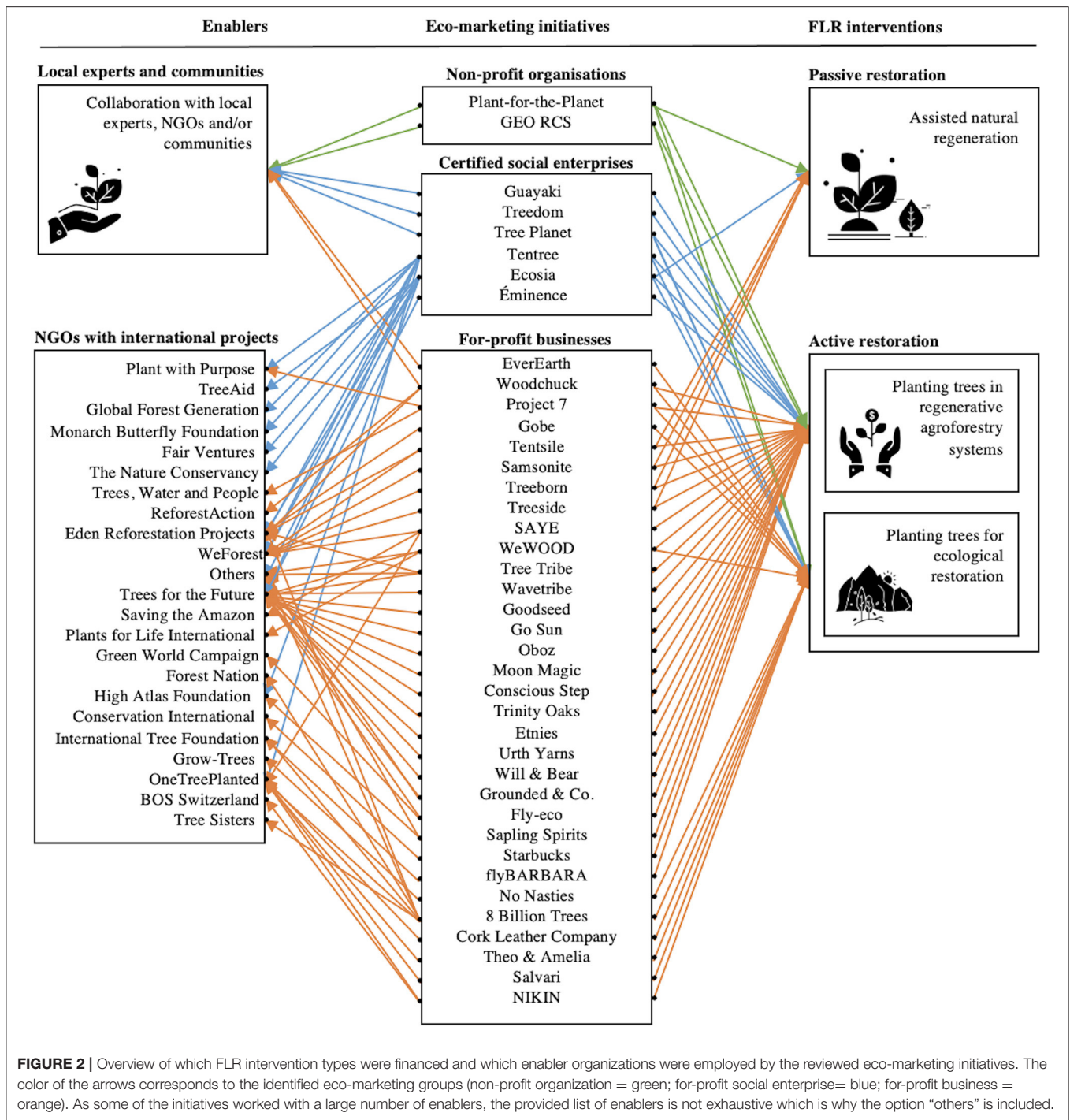
Most eco-marketing initiatives were not actively involved in restoration efforts on the ground and did not own the land on which the FLR interventions are conducted. Instead, they collaborated with so-called enablers, which can either be third party non-profits or NGOs who have international projects, or local experts and communities that conduct FLR activities (Figure 1).

UNPACKING ECO-MARKETING MECHANISMS FOR FINANCING FLR

Out of the 40 reviewed eco-marketing initiatives, 32 were for-profit businesses, six were certified social enterprises (B-corporations), and only two were non-profit eco-marketing initiatives with an FLR focus (Figure 2). Three of the for-profit businesses (Fly-eco, 8 Billion Trees and flyBARBARA) included carbon offsetting. The most frequently applied financing schemes

across the reviewed initiatives were a “one for one” method (where one or more trees are planted for every product sold or service provided), and a donation of a percentage of the profits from each sale to tree planting. In total, 36 out of the reviewed initiatives collaborated with enabler-organizations to implement FLR activities. We identified 22 enabler organizations which executed the FLR interventions, out of which Trees for the Future was employed most often, with 17 of the identified initiatives using them as an enabler (Figure 2). Eden Reforestation Projects and WeForest were employed by seven initiatives each. Only six initiatives did not mention collaboration with any of the identified enabler organizations, but instead stated that they collaborate directly with local NGOs, experts, and/or communities (Figure 2).

All reviewed initiatives focused primarily on active restoration, out of which 12 financed projects which pursue more than one FLR intervention type, and most of the reviewed FLR interventions aimed toward creating socio-economic as well as ecological benefits. Ecosia and Plant-for-the-planet were the only two initiatives that fund all three identified



FLR intervention types. In total, 32 of the initiatives finance the planting of trees in agroforestry systems, and 30 of these specifically stated on their website that this concerns regenerative agroforestry. Furthermore, 16 initiatives finance tree planting for ecological restoration, and 14 of these specified that this is achieved through the planting of native species in diverse systems. We conclude from this that none of these initiatives finance the establishment of exotic monoculture

plantations. Only six out of the 40 initiatives mentioned assisted natural regeneration as an FLR intervention that they support.

DISCUSSION

Our review of existing eco-marketing initiatives suggests that for-profit businesses are the most common type of organizations

to use eco-marketing to fund FLR. Enabler organizations, especially the international NGOs discussed, are playing a crucial role in realizing FLR interventions funded through these channels. Our review also suggests that planting trees in regenerative agroforestry systems is the most frequent FLR activity funded by market-based mechanisms. Possibly, many eco-marketing initiatives aim to not only support ecological restoration, but also to increase resilience in supply chains and enhance the livelihoods and food security of rural communities (Jansen et al., 2020). By incorporating regenerative agroforestry in FLR interventions, local communities, and farmers are often more directly involved into the restoration activities, which plays a crucial role in making FLR efforts successful in the long term (Upreti et al., 2012; IUCN WRI, 2014).

Only a few of the reviewed eco-marketing initiatives included assisted natural regeneration, and no initiative focused solely on this intervention. A possible explanation for the strong focus on tree planting rather than assisted natural regeneration might be that tree planting is a more straightforward narrative to communicate to consumers. It might also be that there is an imperative to support community activities and incomes, which is harder to do with natural regeneration. However, it might be that some of the identified initiatives who apparently only finance tree planting, also support other FLR approaches but chose to not specifically mention this on their website to simplify communication. The disproportionate focus on tree planting in eco-marketing initiatives may be problematic in situations where other FLR interventions have higher potential to lead to ecological, and/or socially beneficial outcomes (Brancalion and Holl, 2020). Especially in ecosystems where trees are already present, assisted natural regeneration can be a more effective strategy from both a financial and biodiversity perspective (FAO, 2015; Brancalion et al., 2016; Chazdon and Guariguata, 2016; Crouzeilles et al., 2017). Furthermore, the information provided by the eco-marketing initiatives did not always disclose if trees are planted in monoculture plantations or not. If trees are planted in (exotic) monocultures, the establishment of tree plantations might replace native forests or cultural lands where forests might have naturally regenerated, and lead to overall negative environmental impacts (Lewis et al., 2019; Brancalion and Holl, 2020; Heilmayr et al., 2020). This issue is enhanced by the way our global targets are designed, namely in numbers of trees planted (e.g., the Trillion Trees Campaign) or hectares restored (e.g., the Bonn Challenge). With these types of targets, countries, companies, and eco-marketing initiatives can, in theory, realize their FLR commitments through massive monocultures, which could be environmentally and socially detrimental. Further, if socio-economic contexts are not accounted for, there is the risk that local communities are marginalized as a result of ill-designed restoration interventions.

The funding of FLR through eco-marketing initiatives could potentially make a very significant contribution to reaching global landscape restoration targets. For example, in 2019 alone, Ecosia financed the planting of 35.9 million trees (Ecosia,

2019). This momentum can be leveraged in a way that could have strong positive impact on ecosystems, our climate, and livelihoods, but it is important to emphasize the potential risks that come with large financial flows being channeled to tree planting specifically. For this reason it is necessary that strong safeguards are in place to promote tree planting in places where it is socially, environmentally, and ecologically beneficial, and to make sure on-the-ground context is understood before a restoration project is executed (Brancalion and Holl, 2020). In addition, for successful restoration, it is essential that not only the tree planting itself, but also follow-up maintenance (e.g., tending and irrigation) is facilitated to prevent high mortality rates in the first years after planting (Kettle, 2009).

Using eco-marketing initiatives for FLR funding might be dangerous if it promotes increased consumption that offsets part of the environmental benefits created through the tree planting activities. Eco-marketing may lead to the belief by consumers that the products and services marketed have low environmental impacts, but simply planting trees for every commodity sold does not imply that the wider supply chain is sustainable. To safeguard against such “greenwashing,” certification of products or corporations which facilitate FLR could be used, such as the B-corporation certification presented in our review. Simultaneously it is also important to increase consumer awareness around the merits of natural regeneration and different types of FLR interventions. With increased awareness, other types of FLR interventions will be easier to communicate, which can leverage more funding from eco-marketing initiatives.

CONCLUSION

Eco-marketing initiatives provide new funding pathways for FLR, which can support the implementation of global FLR targets. Our review of 40 eco-marketing initiatives highlights that tree planting is a key restoration focused activity of eco-marketing initiatives, likely because this a straightforward and convincing message to communicate to consumers. As these funding streams are leveraged, it is important that safeguards are in place to decrease the risk that tree planting is executed in places where it has negative social, environmental, and/or ecological consequences. Should consumer awareness around the benefits of other types of restoration increase, market-based mechanisms such as eco-marketing could potentially be a lever for funding for a wider variety of restoration interventions. Some of our reviewed initiatives use restoration as a branding strategy to promote consumption, and it is important that these type of funding streams do lead to “green washing” that encourages unnecessary over consumption, which is a key issue in keeping society within a safe and just space (Raworth, 2017). It is important to acknowledge that though market-based mechanisms can be one stream of funding for FLR, the wider solution to environmental degradation and climate change lies in societal shifts toward an economic system that acts within planetary boundaries.

AUTHOR CONTRIBUTIONS

EB conducted the online research and wrote the first draft of the manuscript. All the authors contributed critically to manuscript revisions and approved the submitted version.

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SUPPLEMENTARY MATERIAL

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