















Synthesis, part of a Special Feature on [Learning from Doing: Closing Knowledge Gaps in Integrated Landscape Research](#)

Engaging with justice in integrated landscape approaches

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ABSTRACT. Climate and biodiversity crises, conflicts over access to land, water, or food, multiple and overlapping types of land management and livelihoods are some of the players that describe current landscape challenges worldwide. It has been broadly acknowledged that addressing interconnected social and ecological challenges needs integrated solutions at landscape scale. Integrated landscape approaches (ILAs) are governance strategies that deal with these complex social and ecological challenges. Yet, many of these governance strategies lack a nuanced attention to the injustices that manifest themselves in landscape governance, use, and management. These injustices influence the strategies chosen and how they can be reached. In this synthesis, we first identify the injustices that can appear in, and shape a given landscape, empirically illustrating how ILAs can relate to multiple dimensions of justice. We highlight methods suitable for studying injustices in landscapes from an academic perspective. Later, we share and reflect about our positionality, and our experiences of struggling, in harnessing a more transgressive science that engages with landscape justice. We argue that identifying, understanding, and reflecting on how to address injustice in landscape research should become a crucial step in implementing ILAs.

Key Words: *reflexivity; relations; landscape approaches; social-ecological interactions*

INTRODUCTION

There is increasing policy engagement toward achieving sustainable landscapes worldwide to tackle the current global biodiversity, climate, and environmental crises (Arts et al. 2017), and to achieve global targets as defined in the Sustainable Development Goals (United Nations 2015a), the Kunming-Montreal Global Biodiversity Framework (Convention on Biological Diversity 2022), and the Paris Climate Agreement (United Nations 2015b). In the frame of these policy processes, landscapes can be conceptualized as interdependent human and natural systems that can provide multiple contributions to the needs and quality of life of a diversity of people (Wu 2021). Interdependent human and natural systems are characterized not only by an inherent ecological complexity, but also by people's diversity of worldviews, knowledge, needs and interests, values and decision making powers, imposing trade-offs in decisions and challenges for governance, use, and management (Ellis et al. 2019).

Integrated landscape approaches (ILAs) offer important concepts and practices to deal with the complexity and diversity of interconnected natural and human systems (Carmenta et al. 2020). ILAs are understood as “governance strategies that attempt to reconcile multiple and conflicting land-use claims to harmonize the needs of people and the environment and establish more sustainable and equitable multi-functional landscapes” (Reed et al. 2020a). This definition broadly recognizes that people's engagement, institutional and political support, and good governance are critical for the success of landscape approaches (Reed et al. 2017). It also conceptually emphasizes the centrality of political dimensions of landscapes, such as governance, conflicts, and people's needs. The focus on the political dimensions frames landscapes as contested territories, shaped among others by social-ecological interactions and relations, everyday practices, and local customary rules and norms (Wylie 2007). It can reveal underlying injustices encoded in the territory (Olwig 2019) that may be the root of tenure and

other land-use conflicts. There might be diverse demands, preferences, and expectations regarding future land-use, management, and functions (Olwig and Mitchell 2009). It is therefore necessary to identify and navigate disagreements that emerge from different legitimate worldviews, values, and interests over the land (Mitchell 2023), promoting public participation and inclusive actor engagement, while accounting for power asymmetries between actors and allowing for dissent (Schlosberg 1999, Matulis and Moyer 2017, Cortés-Capano et al. 2022).

Despite the call for equitable multi-functional landscapes in ILAs and important efforts to advance research that deals with land-related conflicts, ILAs have rarely paid nuanced attention to injustices that manifest in landscape use, management, and governance (Meyfroidt et al. 2022). We aim to contribute to this research gap and provide inspirational and useful conceptual understandings and methodological approaches to make injustice more explicit in the science and practice of ILAs. In this synthesis, we illustrate how ILAs relate to multiple dimensions of justice and identify the injustices that can appear in, and shape, a given landscape. We provide examples of how injustices may be methodologically appraised, from an academic perspective. Finally, we share our own experiences of struggling with injustices in the landscapes where we work. We conclude suggesting some ways forward toward a research and practice of ILAs that can identify, assess, and contribute to address injustices.

INJUSTICES MANIFESTED IN LANDSCAPES

In the last 40 years, there has been an evolution of justice conceptualizations and methodologies (see Walker 2009, Agyeman et al. 2016), according to the need for understanding and studying different forms of injustices, related to a wide variety of issues (environmental but also climate or nature conservation), and happening at several scales in the landscape. Interest for landscape justice has appeared generally in land-system research in relation to environmental governance (Landauer et al. 2023), land use planning (Anguelovski et al. 2016, Venier-Cambron et

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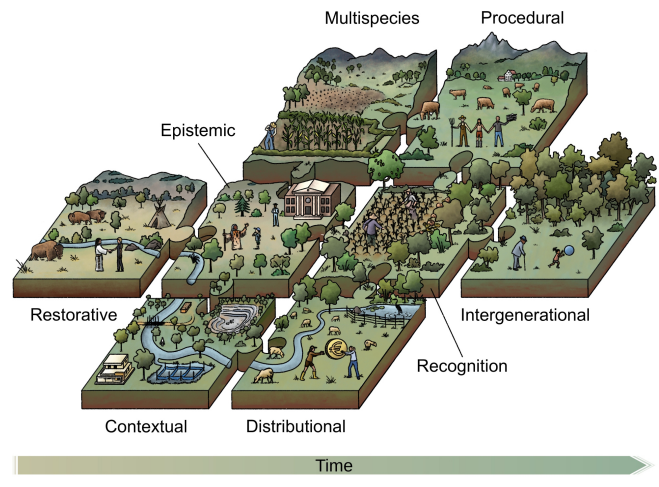
al. 2024), and in relation to telecoupling or distant interactions in land-systems (Corbera et al. 2019). People's right to landscape has also received attention in landscape planning, i.e., what kind of human rights are at stake and at risk when actors plan and make decisions in a given landscape (Wensing 2013). Justice and the view of landscapes as political and contested territory is critical, however, in the work of environmental justice, landscape architecture, and geography scholars (Mels 2023). Notably, it is essential to understand landscapes as relational places, defined by human-environment interactions and relations, and that these relations and interactions frame possibilities and challenges in stewardship and public participation in landscape governance (Stenseke 2018) or describe social struggle among multiple landscape claims (Setten et al. 2018). This vision has also been integrated in policy, for instance in the Council of Europe's Landscape Convention definition of landscape, as "an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors" (COE 2000).

Justice refers to removing the systemic barriers that cause disparities in a given reality (Friedman et al. 2018, Wijsman and Berbés-Blázquez 2022). Specifically, landscape justice can be understood as people's capacity to decide about, access, use, and manage a landscape in all its dimensions (land tenure, livelihoods, natural resources, culture and identity, etc.) that are critical to their survival and quality of life, i.e., to achieve and live the kind of life that each person values (Nussbaum 2002, Olwig 2022). In this context, quality of life refers to the multidimensional and plural opportunities for people to flourish and fully participate in their chosen form of life (Doyal and Gough 1984), while at the same time, it is constrained by the ecological capacity of the landscape (Brand et al. 2021). This conceptualization of quality of life also broadens to the inclusion of more-than-human beings, recognizing the multiplicity of nature-human interactions ultimately shaping landscapes (Tschakert et al. 2021, Kortetmäki et al. 2023).

Injustices can manifest across scale and places (e.g., contextual), and across time (e.g., restorative and intergenerational). Injustices can happen in a specific place (e.g., intragenerational such as distributional, procedural, and recognition; multispecies) and they can also be closely linked to worldviews, knowledge, values, relations, and interactions in decision processes (e.g., epistemic; Fig. 1). Identifying, understanding, and addressing these injustices could make it possible to reconcile multiple and conflicting uses, to tackle unsustainable management practices, and to foster decision processes that harmonize the needs of diverse people and other species.

Below, we use case examples to illustrate and explain the injustices that can happen in a landscape, and also suggest potential ways forward for ILAs addressing them. To do so, we selected a number of examples that originated from our place-based research, in landscapes where we work or we have worked, as a diverse group of social-ecological researchers. Thus, this synthesis does not stem from a systematic or comprehensive literature review. Rather, the collection of case examples emerges from a deliberative process of three months of lively discussion, conversations and targeted seminars about justice in landscape research by the co-authors. Additional illustrative examples found in the literature are in Appendix 1.

Fig. 1. Dimensions of landscape justice. Injustices are commonly interrelated and several of them can appear together in a given landscape. Addressing them is critical to successful integrated landscape approaches. Figure by Jagoba Malumbres-Olarte.



Restorative injustice

Current landscapes represent the social-ecological dynamics that have evolved over time, often spanning centuries. Acknowledging the history of social trauma within a landscape (e.g., colonization, war, slavery) and taking actions toward recovery is the focus of restorative justice (Aragão et al. 2016).

One example is bison restoration in North America. North American bison, also commonly referred to as buffalo in the English language by local Indigenous societies, were driven to near extinction in the 19th century as a form of colonial oppression (Hubbard 2016). The buffalo is a cultural and ecological keystone species for many North American Plains place-based societies and the animal is intricately intertwined within Indigenous paradigms (Crosschild et al. 2021).

The Buffalo Treaty (<https://www.buffalotreaty.com/>), first signed in 2014, is a treaty between sovereign primarily Indigenous nations and buffalo themselves (as possessing personhood; e.g., Deckha 2020), with the binding commitment to restore bison physically across the landscape as well as "buffalo consciousness" within North American societies (Crosschild et al. 2021). Treaty-making was (and continues to be) a method of governance between Indigenous–Indigenous nations long before colonial powers arrived in North America (Crosschild et al. 2021). In addition, treaty-making has been practiced between Indigenous–non-Indigenous groups, whether to assert colonial order (e.g., Numbered Treaties in Canada; Manore 2010, Starblanket 2019) or with the aim to restore historical injustices (e.g., modern treaties; Hobbs and Young 2021) since colonial settlement. Modern treaties are co-developed by Indigenous–non-Indigenous nations and have been shown to empower Indigenous People to exercise and protect (some of) their rights, such as rights of access to sacred spaces (Robinson 2020). The Buffalo Treaty is special because through its very existence it restores

Indigenous–Indigenous treaty-making practices (Crosschild et al. 2021), while also extending a hand to non-Indigenous parties as signatories. This example shows that Indigenous treaty-making can potentially pave a new way for restoring environmental and human rights injustices in North America.

Epistemic injustice

Epistemic injustice may take the form of marginalized local knowledge (Cummings et al. 2023) and lead to disputes among powerful and less powerful actors on what knowledge is considered credible, salient, and legitimate. Following the previous case example, not only were buffalo (in some cultures seen as teachers and kin) removed from the land, but youth were forcibly removed from the landscape to attend residential schools (de Leeuw 2009). The Buffalo Treaty can rebalance epistemologies of natural resource and land management (Crosschild et al. 2021, Shamon et al. 2022). Returning buffalo to the landscape is one step in reinstating the animal as a teacher from whom to learn (Hubbard 2016). Furthermore, the (re-)teaching of buffalo stories and culture and (re-)enacting “buffalo consciousness” across the North American Plains is the groundwork for developing a symbiotic relationship between humans and buffalo (Hubbard 2016). This exercise of epistemic justice can further meet the needs of humans (Shamon et al. 2022), local ecosystems (Tielkes and Altmann 2021), and other species (Deckha 2020).

Multispecies injustice

Multispecies justice seeks to understand the types of relationships humans ought to cultivate with more-than-human beings to produce just landscapes (Celermajer et al. 2021). Multispecies justice challenges the misconceptions that humans are separable from other species and inherently more important because they are sentient beings (Srinivasan and Kasturirangan 2016). It prompts rethinking of the complex web of interactions, interdependencies, and rights of existence for the thriving of all species, including subspecies that shape and depend on the landscape. This perspective opens debates on what is sustainable management and use in relation to other species, and about whose voices are being heard and who is invited into the decision-making process, as well as recognizing the traditional relationships between non-human beings and humans (Pineda-Pinto et al. 2023). It also acknowledges the interspecies relationships between humans, animals, and plants (Bracke et al. 2023).

We can find one example of multispecies injustice within the frame of just food systems and landscape stewardship, in the broken millennial relationship of care between humans and the maize plant in Mesoamerica. Maize is more than a crop; it is embedded in cultural, ecological, and spiritual landscapes (Benrey et al. 2024). The sacred value of this domesticated crop in many Indigenous cultures in Mesoamerica, where people believe that their flesh is made of maize (“hombre del maíz” in Mexico), exemplifies their deep relationship and helps conserve local maize adapted to specific environments and to foster practices that allow for its sustainable management focused on respect and care. The traditional *milpa* system, of which maize is the central element, exemplifies as well the reciprocal relationships between humans, plants, and animals. By maintaining biodiversity through intercropping maize, beans, squash, chili, and many other species, the traditional *milpa* system fosters resilience and enhances contributions to people, such as the conservation of genetic diversity and pollination (Romero-Natale et al. 2024). In places

where this relationship does not exist, the use of local maize adapted to local conditions and human needs is often marginalized and limited, and maize is intensively produced, leading to loss of traditional *milpa* landscapes and to an unjust and unsustainable use of land and management practices (Zimmerer 2014). As a form of resistance to pressures to intensify production and the promotion of commercial maize varieties, farmers in many places among Mesoamerica continue to conserve their own local varieties rather than completely neglecting them, while also integrating modern varieties, if considered suitable (Perales et al. 2003).

Contextual injustice

The broader current political, economic, social, and cultural structural context within a landscape that generally prevents people’s ability to fulfil their needs and gain quality of life is known as contextual injustice (McDermott et al. 2013). It is noticeable, for instance, in landscape structures that prevent already marginalized people from accessing or using natural resources and from participating in decision making about their management.

One example is the traditional water harvesting system in rural India (Chowdhury and Behera 2021). Community water tanks are managed by local informal institutions and committees, where most of the committee members come from historically privileged and politically powerful individuals or families. In the current economic situation, where increasing food demand driven by rapid urbanization is prevalent, committee members decided to adopt market-based or commercial aquaculture in many community water bodies. This shift aimed to maximize revenue and profit from the water resource. As a result, committees restricted the use of water for irrigation by the villagers. This restriction limited access to water for most of the villagers, effectively subordinating the needs of the many to the economic interests of the few (Sanabria-Rangel 2023). Limited access to water made villagers dependent on groundwater markets, mostly controlled by village elites who often set the price of water. Villagers have a very limited ability to fulfil their water needs within the current management and decision-making framework of the landscape where access to water is controlled by the powerful members and local elites. Furthermore, achieving sustainable water use and harmonizing the needs of several groups of people is undermined by illegal encroachment and corruption, compounding the challenges faced by the community. As another example, gender inequality in climate change adaptation and mitigation further exacerbates climate injustice in South Asia, particularly in Bangladesh. Despite the global emphasis on gender equality, traditional gender norms often obscure women’s roles, capacities, and experiences in coping with climate change, for example, excluding them from decision-making processes that affect their livelihoods (Castelo et al. 2024). Addressing contextual injustice is difficult because it entails fundamental changes in the structure and organization of the landscape in addition to, for example, changes in water governance, use, and management; or in addition to actions to promote capacities of women to adapt to climate change.

Contextual justice also accounts for cross-scale and cross-place injustices. For example, international mitigation strategies designed to combat global climate change can have substantial local impacts, highlighting how global policies can affect local

contexts unevenly (Boillat et al. 2020). Climate change and resource scarcity are increasingly perceived as exacerbating existing societal problems such as poverty, social insecurity, violence, terrorism, and civil war (Froese and Schilling 2019, Lèbre et al. 2020). Recent shifts in the mineral sector driven by global climate change policies have resulted in a decline in thermal coal production in some places, while increasing the extraction of critical minerals like lithium, cobalt, and nickel in others. These minerals are essential for green technologies such as wind turbines, solar photovoltaics, and electric vehicle motors. A complete phase-out of coal is estimated to affect a minimum of 33.5 million people, with an additional 115.7 million impacted if all critical minerals projects enter production (Svobodova et al. 2021). As mining companies search for new resources in environmentally and socially sensitive areas, often inhabited by Indigenous peoples or ethnic minorities, they frequently operate in contexts where there are already significant imbalances in political, economic, and cultural power (Lèbre et al. 2020, Kung et al. 2021, Owen et al. 2023). In Australia, disadvantaged areas host the highest number of critical mineral mines and deposits (Burton et al. 2024). Similarly, in Africa, the global rush for critical minerals is producing significant social-ecological impacts (Boafo et al. 2024). Companies operating in these landscapes can face numerous challenges in integrating their activities in just landscapes, reconciling multiple uses and conflicting activities, such as ensuring that local people can raise concerns when their rights or interests are violated, or injustices occur to extreme or violent means from companies and other powerful actors.

Distributional injustice

Distributional justice refers to the fair distribution of benefits of nature's contributions and burdens to several groups of people, as derived from a given decision (Loos et al. 2023). Such fair distribution depends among other things on the capacity of the biophysical landscape to generate contributions to people (Langemeyer et al. 2024). It is also associated with a culturally specific idea of tolerable and morally acceptable differences in society, and it emphasizes the need for society and people to agree on the sharing of benefits and burdens.

One example is landscapes producing geographic indication (GI) products such as pasture landscapes in Southwestern Europe. Market prices paid to milk producers are too low to support extensive herding practices or traditional manual labor for processing raw milk into cheese in Spain and Portugal. In such landscapes, primary producers profit the least from premium market prices of labelled products, compared to other actors in the value chain (Flinzberger et al. 2024). The power to bargain for higher prices primarily lies with resellers and final distributors (e.g., supermarkets, or delicatessen stores). To secure fair prices for their contributions to a sustainable landscape, which are not fully rewarded by the market, many primary producers rely on agricultural support programs. These programs should reward farmers for the social-ecological benefits provided by their extensive production systems. They exist in the form of payments for contractual nature conservation or as agri-environmental measures within the Common Agricultural Policy of the EU. Direct marketing through farm stores, joining cooperatives, or engaging in producer-marketing networks with no or flat hierarchies are sensible options as well for tackling distributional

injustices. Producing GI products often require additional financial, intellectual, and time resources, but they are needed to maintain the current sustainable management of the landscape.

Procedural injustice

Procedural justice refers to how agreements about the distribution of benefits and burdens are made, encompassing both formal and informal arrangements. Transparency, accountability, access to mechanisms of justice for solving conflicts, and people's capacity for effective participation in decision-making are essential for achieving it (Zafra-Calvo et al. 2017).

EU agri-environmental and climate measures (AECMs), a voluntary policy tool for farmers to improve the environmental condition of agricultural landscapes, have been criticized for suboptimal ecological effectiveness (Batáry et al. 2015) and for not sufficiently addressing farmers' motivations (Brown et al. 2021). AECMs are usually implemented on the scale of a single farm, limiting the nature conservation benefits obtained at landscape scale (Pe'er et al. 2022; Le Provost et al. 2023). One new procedural approach to AECMs is the coordinated implementation of activities at landscape scale through cooperation of farmers (Westerink et al. 2017, Pe'er et al. 2022). On the one hand, farmers fear an increase in burdens through cooperative AECMs, such as required coordination effort with other farmers, reduced flexibility due to agreement processes, rising dependence from cooperating parties, and growing conflicts. On the other hand, they also expect an increase in benefits, such as more flexibility in the management of AECMs and reduced administrative effort through task-sharing (Huber et al. 2025). Full engagement of farmers and the possibility to achieve procedural justice through collective decision processes are critical. How processes of cooperation are designed and how procedural justice is approached, may thus hamper or promote sustainable agricultural management.

Recognition injustice

Recognition justice entails the recognition of all people who could have a say in decision-making processes, and the acknowledgement and respect for their views and values, cultural identities, customary rights, understandings and practices of management and traditional knowledge (Martin et al. 2016). Recognition also refers to the respect of identity and social and cultural differences in society. Recognizing the societal customs and land-use systems of multiple people (including minority and Indigenous groups) is essential for landscape justice.

Recognition injustice can be illustrated with reference to the Chin people, who have inhabited the "peripheral" uplands of Myanmar for centuries. Subsistence farming remains a livelihood pillar in most rural Chin communities (Kmoch et al. 2018), where farmers engage in a traditional land management strategy known as "swidden farming." Swiddening entails a land-use sequence of growing annual crops such as maize, rice, or beans for several years, followed by an extended period of low-intensity use, during which trees and shrubby vegetation are intentionally left to regrow. Eventually, these plants are cut and their remains burned, to initiate a new swidden cycle. Customary rules traditionally governed this land-use system (Aung 2019, Kmoch et al. 2021). By custom, land was controlled by the village community, and land sales to outsiders were prevented. Conflict arose when

Myanmar's government sought to attract investments, and to seize greater control over farmers' swidden land during the pre-coup transition period (Bastos Lima and Kmoch 2021). A series of strategic land-law changes failed to recognize the intricate cultural practices that underpin traditional swidden systems, in knowing disrespect of communities' customary land-rights. Much land in ethnic rural regions was declared "vacant, fallow, or virgin," and thus allegedly open for land concessions (Namati 2019). The Chin risked being criminalized if they failed to obtain land-use permits at short notice, or to lose their customary inherited land altogether, if they acquired land-use permits under the new national law, which need to be changed to address recognition justice.

Intergenerational injustice

Intergenerational injustice refers to current changes in policies, uses, and management practices, which may generate changes in the territory, such as prohibition of certain uses or traditional management practices that may affect future generations' capacity to get what they will need (food, water, recreation) from the landscape (Rockström et al. 2023).

In Morogoro and Dodoma regions (Tanzania), young smallholder farmers often lament the current exploitation of forest and land resources by the elderly. It reduces the forest cover and it fragments land, thereby limiting the access to benefits from forest to future generations. Similarly, ongoing economic development and population growth in these regions has led to competition in land-use types (e.g., built-up land vs. farming land) and degradation of soil fertility, water quality and quantity, which often decreases land-based livelihood, threatening future generations' opportunities to maintain their traditions and cultures (Armstrong 2012). Addressing intergenerational injustice entails present-day conversations, discussions, negotiations, and actions that can navigate and accommodate differences in how the future of the landscape or land is envisioned.

METHODS TO UNDERSTAND LANDSCAPE INJUSTICES

Although there is a wide collection of approaches, methods, and tools to apply and implement ILAs (Reed et al. 2020b, Waeber et al. 2023), understanding injustice in ILAs faces a gap between theory and practice. There is a large body of approaches and methods that can enhance our understanding of injustices happening in a landscape (Kinnebrew et al. 2021), and these can be used as initial steps for tackling the theory-practice gap and advance justice in ILAs.

Basic methods, such as stakeholder analysis, can allow the identification of the different actors that can participate and be engaged in research and/or in deciding/acting over an issue at stake in the landscape (Reed et al. 2009). Household surveys or in-depth semi-structured interviews are commonly employed for eliciting the plurality of people's beliefs, knowledge, and values (Young et al. 2018). Policy analyses can also be helpful to recall rights (McLain et al. 2021). Besides identifying rights, beliefs, and values, it is essential to understand the diversity of mental models (Topp et al. 2024) that people hold, and how they shape their conceptualization of a landscape challenge, particularly engaging marginalized voices in expressing their perspectives and experiences about the challenge. This last can be done through

photovoice, a tool that combines photography and dialogue, supporting people in reflective processes about their landscape concerns and priorities (Huber et al. 2023).

Participatory spatial tools can be broadly used to understand how to achieve higher inclusivity in decisions (see details in Ros-Tonen and Willemsen 2021). Specifically, when participatory reflective processes are assisted by physical maps (e.g., participatory mapping) or digital geographic information systems (e.g., Public Participation Geographic Information Systems, PPGIS), it can bring local knowledge about the landscape into geographic information systems (Svobodova et al. 2021), which can assist planning in the landscape (Polas et al. 2024) and negotiation of land-uses allocation trade-offs (Asubonteng et al. 2021), in places where it is critical to reconcile multiple uses or conflicting activities.

Understanding the collective experiences and relations with the landscape of people affected by land-policies through narratives and storytelling (Fraser 2004) can also support tailored and more just decisions about land-use planning (Ameel 2020, Davis 2022, Woodhouse et al. 2022). To understand how people make sense of complex relations and landscape dynamics and how this frames their reality, the diversity of discourses and collective imaginaries happening in the landscape can be analyzed by semi-quantitative methods such as Q-methodology (see details in Ros-Tonen et al. 2024). Especially important here is paying attention to the network and power dynamics between actors in the landscape, which may determine their capacity to influence decision-making processes and whose vision, values, knowledge, and perceptions are reflected in the result (Siangulube 2024). Power dynamics that are inherently created in decisions about planning, use, or management can be balanced by Delphi approaches (Escribano et al. 2018) or by designing games collectively in a process based on joy and creativity (Lankford and Craven 2020). Research about games has shown that having good quality and positive interactions with others in decision processes facilitates the sustainable use and management of natural resources, for instance, water (Brugnach et al. 2021).

Arts-based methods, such as poetic inquiry, can contribute to understanding the connections, emotions, and relational values embedded in landscapes (Heindorf et al. 2024). Participatory monitoring and evaluation (Andrianandrasana et al. 2022), where people decide what to monitor and how, can also be useful to appreciate how people understand and categorize the world around them, for instance in approaches such as the folk classification that allows us to know how Indigenous people classify plants, ecosystems, and land-uses (Riu-Bosoms et al. 2015, Heindorf et al. 2021). In this sense, transdisciplinary relational thinking techniques (Max-Neef 2005, Bird-David and Naveh 2008) and application of methods outside the Western research toolbox are also essential to include Indigenous knowledge in decisions about the use and management of the land or species.

With several approaches, methods, and tools available, it is important to gain an overview of not only the options, but the main advantages and disadvantages of the application of each of them. The most appropriate to use in each case depends on the aim of the research, available resources, and social-ecological characteristics of a given landscape. The diversity of situations in which several approaches, methods, and tools can be applied

require flexibility and creativity (Torralba et al. 2022). Appendix 2 provides a detailed overview of approaches, methods, and tools that may be used to study each of the injustices manifested in ILAs, their usefulness and limitations. These methods can be combined and integrated in their application as needed. Making injustices visible is the first step in opening the door to tackle them.

INDIVIDUAL STRUGGLES AND THE ROLE OF REFLEXIVITY IN ADDRESSING INJUSTICE IN LANDSCAPE RESEARCH

Place-based research in landscapes where injustices are clearly manifested entails a challenge to researchers. They need to decide how to relate and position themselves within the situation at hand and whether they engage with more transgressive science (i.e., “science that entails a deeper reflection on our roles as scientists and exploration of alternative engaged, post-normal and activist approaches to research,” see Temper et al. 2019), or open activism, in the places they work. Although attempting to address injustices (or not) in the landscape where researchers work is indeed a personal decision, it is commonly useful being aware of researchers’ own positionality in the research they do, in relation to the place they work and the people they interact with and relate to. The positions and roles adopted by researchers influence the ways in which research problems are framed, the components and boundaries of these problems, and the constraints and opportunities to address them (Bilgen et al. 2021).

Acknowledging that researchers’ positionalities are complex and dynamic highlights the importance of awareness and reflexivity as a critical practice in our research (Glover 2024). The most common use of the notion of reflexivity refers to the capacity of researchers to critically examine their identities, concerns, emotions, and practices and how they influence their research (Pienkowski et al. 2023). In this sense, reflexivity not only involves questioning researchers’ assumptions of their own positions but also how they are perceived by other participants, and how this impacts on research processes, navigating the tensions involved with researchers’ multiple roles, being both collaborative participants in the study systems, and critical observers (Bartels and Wittmayer 2018, Soedirgo and Glas 2020). Overall, recognizing that researchers always intervene and play a role in the landscapes they study has ethical implications in terms of their responsibilities and accountability regarding the consequences of their actions (and omissions) on the participants’ lives. Researchers of ILAs in place-based settings may face challenging situations regarding their role and the explicit or implicit expectations held by multiple actors, as well as funders and research agencies (Caniglia et al. 2023). Engaging in a reflective research practice entails considering our own positionality, but also the employed methodologies, in order to identify potentially extractive methodological approaches, as well as potentially useful concepts or tools that are easily accessible to not only researchers, but also the researched individuals, and communities at large (Waeber et al. 2023).

Positionality statements where researchers articulate how their race, ethnicity, social class, and gender may influence the ways they conduct their research are becoming increasingly common when publishing empirical studies. Although not exempt from exposing researchers’ vulnerability (Massoud 2022), positionality statements have contributed to increasing transparency regarding possible bias and the potential influence of personal characteristics on research processes (Holmes 2020) and outcomes. Examples of questions to

start reflexivity processes in research can be found in Jamieson et al. (2023) and Hill et al. (2024). Here, we share the personal journey and struggles of four of the co-authors of this synthesis about how the science we make can contribute to or reinforce injustices in the landscape (Box 1 and Appendix 3). The texts do not aim to be comprehensive accounts of the individual and collective reflexivity processes, but to provide different examples of ways, styles, and angles through which it can be possible to engage in reflexivity and report positionality in the research and practice of ILAs.

Box 1.

Reflexivity involves questioning researchers’ assumptions of their own positions and how it can impact on research processes (Soedirgo and Glas 2020). Examples of questions and reflections about our own positionality are below (details in Jamieson et al. 2023 and Hill et al. 2024). Full texts are in Appendix 3.

- Will this work add value or fatigue to the people engaged in it? “I realized that my co-generation research approach would add only more misunderstandings and fatigue to actors with a long story of opposite visions and interests, distrust, conflicts and confrontation.”
- Will this work increase or reduce people’s power and dignity, decision capacity, well-being, etc.? “In most cases, we were striving to accurately represent people’s perceptions on local problems as a way to contribute to amplifying their voices.”
- Can I be flexible and adaptive with the ontologies, epistemologies, approaches, and methods in my research? “My planned systems approach of applying 4 different methods (with associated models), quickly blended into a broad 1000 cups of tea “about bison.” I had conversations, always aware that I was taking valuable time from actors who, especially if Indigenous, were already stretched thin trying to collaborate and consult with other parties to confront other injustices.”
- Am I able to dedicate the time needed by the “researched” to build trust, relations and then deliver results? “Being present in the landscapes and building connections and trust with different actors greatly contributed to going beyond first impressions and stereotypes of the positions and roles of researchers and participants. This required working at a slow pace, respecting participants’ time and schedules, and being open to fluid feedback.”
- How do I feel developing genuine relations with the “researched”? “Yet, through my fellowship I was forced to apply something I had learned in university classrooms long ago - allyship. Being an ally is very context dependent; sometimes it may require stepping back, whereas other times you may assist in taking the reins (although in my opinion allies should never steer!) so that those you are supporting may take a much-needed rest or redirect their energies elsewhere.”
- Could my collection of methods be problematic? “The rules for obtaining my research permit (abroad) include an agreement to share all data with the respective country authorities, which means that I cannot guarantee full anonymity to my research participants.”

FURTHER CONSIDERATIONS ABOUT JUSTICE IN ILAs

Governance is about who makes decisions and how decision-making processes take place (Andersson 2021). Justice has been recognized as a key aspect of good governance in an effective landscape approach (Reed et al. 2016). Our central argument is that justice is essential to the success of ILAs, as it is necessary to fully understand the guiding principles of ILAs (Scherr et al. 2013) and to put them into use. For instance, these principles refer to negotiating shared management objectives and employing collaborative processes that engage actors (such as in, e.g., agri-environmental and climate measures in Germany, procedural justice); contributing to supportive public policies (e.g., recognizing Chin people tenure rights in Myanmar, recognition justice) and markets (e.g., upholding food-landscape systems producing geographic indication products in Spain and Portugal, distributional justice); or addressing inequalities in mineral global markets, contextual justice); achieving practices that can follow multiple objectives (e.g., Buffalo Treaty in Canada, restorative and epistemic justice, or agricultural management close to care and multispecies justice); and promoting synergies and mitigating trade-offs (e.g., forest management that can fulfil the livelihood aspirations of teens and elders in Tanzania, intergenerational justice).

A commitment to enhancing justice is an ethical imperative to respect quality of life and safeguard the dignity and autonomy of all participants in ILA research and practice. Attention to justice can overcome the main challenges in implementing ILAs, which are also what is required for its success: actor engagement, interactions such as collaboration in participatory processes and governance structures, as well as adequate institutional arrangements and policies (Carmenta et al. 2020, Vermunt et al. 2020). In addition, relations and interactions happening in the landscape need to navigate differences, power asymmetries, and conflicts and avoid reinforcing existing exclusions and injustices (Loos et al. 2024). This requires creating the conditions for legitimate disagreement to be part of decision making in ILAs (Cortes-Capano et al. 2022).

Several types of injustices and power asymmetries can inevitably appear in landscape governance and shape decision processes and outputs when actors are engaged, and there are participatory structures in place and multi-level institutions that aim for policy change (Ros-Tonen et al. 2018, Meyfroidt et al. 2022). We identify one by one some of the injustices and actions to reinstate justice as a first step to support ILAs to achieve just and sustainable landscapes (Reed et al. 2020c). In this sense, it is rare to find a dimension of justice in isolation in a landscape. Initial attention to one of the potential injustices in a landscape can open the door to identify and have the opportunity to address several of them. For example, in the case regarding bison restoration, concerns to tackle restorative injustices through the Buffalo Treaty can also promote further engagement with epistemic, recognition, and multispecies injustices happening in the landscape (i.e., recognizing the knowledge and values of Indigenous people and the personhood of the buffalo). We encourage ILA researchers and practitioners to start studying one of the dimensions of justice and be open to digging in others as they can appear or be visible in the landscape.

One of the main challenges we face as place-based researchers is how to engage with several dimensions of injustice in global or

remote analyses that aim to provide evidence to global or national policy processes and that can be far from what is happening in specific places. In that case, we suggest to scale up the analysis of injustice to the appropriate level of analysis (such as planetary level in Rockström et al. 2023). It is also important to keep in mind the significant limitations of global or remote analyses to inform local action and practice (Cash and Moser 2000, Wyborn and Evans 2021), as well as to address the further challenge of making decisions at global or national scales that rely on multi-scale data and a plurality of evidence (Chaplin-Kramer et al. 2022, Cole et al. 2023).

The combination of multiple scales of analysis and complex dynamics in human and natural systems presents problems for the conventional assessment of ILA effectiveness (Waeber et al. 2023). It has been argued that theory of change can help in overcoming these problems (Sayer et al. 2017, Reed et al. 2023, Reed et al. 2024). The approaches, methods, and tools suggested here are useful to understand injustices occurring in the landscape and advance justice, which can be incorporated in a more general theory of change framework to assess the effectiveness of ILAs. For instance, participatory processes, such as photovoice or participatory mapping, can support actor engagement, negotiation, connection to policy processes, and good governance. It is important in participatory research that researchers collecting, gathering, sharing, disseminating, and using data ensure that data is used fairly (Floridi and Taddeo 2016) and assess the foreseen consequences that research might bring about, aiming to enhance human and non-human quality of life (Martela 2015, Wienhues 2020).

We also invite researchers to increase their reflexivity, discussing explicitly and iteratively their identities, held values, and positions and how they might change along ILA research and implementation processes. We recognized the importance of reflexivity not only for researchers but for all actors engaged in the research and practice of ILAs. Mainstreaming collective processes of reflexivity can foster mutual learning about values, assumptions, and understandings (Popa and Guillermin 2017), enabling more just management. We conclude that iteratively understanding, assessing, reflecting, and acting on justice issues in landscapes should be considered an integral part of ILAs, contributing toward socially relevant and impactful research and practice.

Author Contributions:

NZ-C conceived the idea; all authors contributed to the manuscript design and outline, collected the case examples and methods, and wrote the first draft manuscript. Subsequent versions involved collaborative input, comments, and edits from all authors. The final manuscript was reviewed, read, and approved by all authors.

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Data Availability:

Data/code sharing is not applicable to this article because no data and code were analyzed in this study.

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APPENDIX I.

Table 1. Forms of injustices, its definition, examples and references. They illustrate the injustices happening in landscapes that may be addressed by ILAs.

DIMENSION OF INJUSTICE	DEFINITION	EXAMPLES	REFERENCES
Restorative	It happens when history of social trauma within a landscape (e.g. colonization, war, slavery) and actions taken towards its recovery are deny.	(1) Historical trauma associated with environmental diseases transmission in Indigenous and First Nations People; (2) Nationalist politics as a form of colonial exploitation of the country's natural resources.	Vickery and Hunter 2016; Milbourne and Mason 2017
Epistemic	It entails disputes among powerful and less powerful actors on what knowledge (and how it is generated) is considered credible, salient and legitimate, normally decisions about landscape use, management and governance are taken based on the knowledge of powerful actors.	(1) Land disputes between tenure rights and rights to food/means of subsistence; (2) Interventions on Indigenous ancestral lands (recognized by settler states or not) that do not center relational ethical approaches for land-based design practices and ground efforts in Indigenous worldviews, values and knowledge.	Murphy et al. 2017, Tomateo and Grabowski 2024
Multispecies	It implies to reject the rights of existence and to thrive of all species in a landscape.	(1) More-than-human agency is invisible and therefore not accounted for, in the unsettling and resettling of property relations and the law-space nexus in a given landscape; (2) Need of recognizing that unequal vulnerabilities impact humans as well as species and ecosystems and how it can be integrated across a range of nature recovery projects.	Brown et al. 2019; Stanley et al. 2025
Contextual	It is the broader current political, economic, social, and cultural structural context within a landscape that generally prevents people's ability to fulfil their needs and gain quality of life.	(1) The capitalist political economy has geopolitically isolated Indigenous people who has struggled to pursue self-determination through the retention of sovereignty and Goshute identity; (2) Uncover dominant drivers leading to the current state of agricultural land use and its impacts on livelihoods; (3) All-level integration of markets (commodity, labor, finance), urbanization, governance, and technology are often disadvantageous to smallholders.	Ishiyama 2003; Nakalembe et al. 2017; Zimmerer et al. 2018

Distributional	It refers to the unfair distribution of benefits of nature contributions and burdens to several groups of people derived from a given decision about the use, management or governance of the landscape.	(1) Distribution of outcomes of people's participation in the implementation of payment for ecosystem services; (2) Unequal distribution of benefits between women and men in obtaining assistance and participation in training for capacity building in the implementation of state social forestry programs.	He and Sikor 2015; Anugrah et al. 2022
Procedural	It refers to how agreements about the distribution of benefits and burdens are made, encompassing both formal and informal arrangements in the landscape.	(1) Top-down approaches to sustainable development in which power and decision-making are in the hands of external development professionals instead of local people; (2) Marginalization in decision-making processes regarding future use of the landscape.	Atampugre et al. 2023; Padiaditi and Moquay 2021
Recognition	It entails the recognition of all people who could have a say in decision-making processes, and the acknowledgement and respect for their views and values, cultural identities, customary rights, understandings and practices of management and traditional knowledge in a landscape.	(1) Misrecognition of weaker participants and malrecognition of community attempts to engage democratic rights of public participation that they were hindered by strategic and deliberate actions of both industry and government; (2) Land grabbing by foreign investors of customary urban agricultural land used by local people.	Kennedy et al. 2017; Mkwela 2021
Intergenerational	It refers to certain uses or management practices that may affect future generations' capacity to get what they will need (food, water, recreation) from the landscape.	(1) Common-pool groundwater resources contestation; (2) Young need of out-migration in Mexican community forests.	Dobbin 2021; Jurjonas et al. 2023

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APPENDIX II.

Table 1. Approaches, methods and tools that may be used to study injustices in ILAs, their main advantages and limitations.

NAME (REFERENCES)	DESCRIPTION	USEFUL FOR ASSESSING JUSTICE	ADVANTAGES/LIMITATIONS
Stakeholder analysis (Reed et al. 2009)	Identify the different actors who should participate and be engaged in the research and/or in deciding/acting over an issue at stake. It is key to inform the ways in which participation spaces should be designed in just ways. It usually involves characterizing actors according to their legitimacy, power, interests and relations of conflict and cooperation.	A practical tool to identify actors that need to be engaged in the research and/or decision at hand (recognition justice). This may lead to adequately identifying vulnerable actors and their claims, to achieve a more equitable research and decision-making processes (procedural justice), and to improve the legitimacy of policy or management recommendations that result from the research (epistemic justice).	+ It can be an important starting point for actors to get to know each other if it is to make it in a participatory process with the actors, initiate dialogue and collaboration among them, build trust and engagement. - Poor actor mapping processes that do not sufficiently consider and balance power asymmetries or exclude from the beginning some relevant or already marginalized actors, can contribute to injustice, as well as reinforcing existing power hierarchies and narratives about potential solutions of the issue at hand.
Fuzzy cognitive and mental maps (Topp et al. 2023)	People develop detailed mental models of a given system on a card/board/paper and discuss how its components interact and influence one another.	This method facilitates interactive actor engagement, contributing to shared worldviews, negotiation, consensus building and social learning (epistemic and procedural justice).	+ Good model to uncover commonly hidden injustices that appear in relation to procedural justice, such as recognition and epistemic. - It takes a long time to elaborate the mental models. - Difficult to include multiverse perceptions, because the model can grow too complex.

<p>Photovoice (Huber et al. 2023)</p>	<p>Photovoice is a participatory research method that combines photography and dialogue. The process is led by the participants, who take photos of the issues that reflect their community's concerns and priorities and embed them in their context through discussion of the photographed.</p>	<p>Albeit being applicable for many different research purposes, photovoice is particularly useful for engaging marginalized groups to visually document on their issues of interest and how these affect their personal lives. The method elevates marginalized voices by facilitating the expression of local perspectives, knowledge, and experiences, aiming to include them in decision processes (recognition and procedural justice).</p>	<p>+ Photovoice balances power between the researchers and the researched. The process is participant-led and local people have shared ownership of the research subject. Participants are encouraged to share their perspectives on their concerns and requirements. By that, vulnerable groups experience empowerment.</p> <p>- Ethical challenges. Images are sensitive data, as the anonymity of the people portrayed is challenged. In some cultures, people are opposed to having their picture taken, which can limit the photographers' choice of motives.</p> <p>- The method is also sensitive to bias triggered by participants' self-censorship, hidden agendas, or personal security risk.</p>
<p>Public Participation Geographic Information Systems (PPGIS) (Svobodova et al. 2021; Polas et al. 2024)</p>	<p>Public Participation Geographic Information Systems (PPGIS) combine the power of local knowledge and geographic information systems, providing place-specific information about where the bonds between people and places are. Outputs of this method offer suitable guidelines for community development and planning.</p>	<p>PPGIS methods and tools aim to ensure that mapped values accurately mirror the unique perspectives of local communities. It helps decision-makers by answering questions like, "where are the places important to local communities?", "what makes these places important, and why do people care about them?" PPGIS allows us to understand the significance of places to communities and individuals to inform decisions about the distribution of benefits and burdens spatially, appreciating the characteristics that make each place special (contextual and distributional justice).</p>	<p>+PPGIS promotes inclusive practices that prioritize a multitude of perspectives and introduce detailed geospatial data into the planning.</p> <p>- Due to the technical requirement of the PPGIS approach, it may infer some part of the community's opinion in the management and planning process.</p>

<p>Participatory spatial scenario building (Asubonteng et al. 2021)</p>	<p>It helps visualize the perceived plausible changes and desired future landscapes by a diversity of actors, it also triggers discussions on actions needed to achieve these desired futures.</p>	<p>It may increase actors' negotiation power to reach their desirable future (intergenerational justice) through their participation in the process (procedural and distributional justice).</p>	<p>+ Useful to also visualize values, knowledge and visions of actors engaged.</p> <p>- It requires dedicated funding to be applied, political will to negotiate, and capacity to monitor the intended and unintended consequences of applying desired changes over time.</p>
<p>Narrative analysis (Fraser 2004, Ameen 2020, Davis et al. 2022, Woodhouse et al. 2022)</p>	<p>Narratives provide a psychological viewpoint to effectively understanding, documenting and analyzing the collective experiences of individuals which were affected by a given policy. The interest in landscape narratives centers around personal storytelling, closely linked to a growing recognition that landscape planning should consider the collective experiences and narratives of individuals and communities regarding their connection to the landscape.</p>	<p>This method helps to understand the relationship between the built and the unbuilt form of a landscape and its evolution. More specifically, which actors interact, when and how, with the landscape, and who is excluded (restorative, recognition and intergenerational justice).</p>	<p>+ Easy to identify the conditions that are necessary for successful land management activities, and gather information to determine whether or not a community shows those conditions.</p> <p>+ When individual stories are shared with other community members, narratives help in building trust and understanding among community members.</p> <p>- Due to relying on personal stories and experiences, this method can introduce biases for both the participants and the researchers, such as the ones derived from what participants choose to tell or not.</p>
<p>Q-methodology (Langston et al. 2024, Bayala 2024)</p>	<p>It helps understand how actors perceive the landscape through analyzing language (frames), imaginaries, discourses.</p>	<p>It can act as a way of communicating and negotiating meaning and perceptions of the landscape by a diversity of actors (epistemic justice).</p>	<p>+ It can reveal common or conflicting entry points for several actors to negotiate trade-offs between competing land uses.</p> <p>- It needs to pay special attention to engage all actors' ways of knowing the landscape (e.g. Indigenous People) so none is left behind in the solutions reached.</p>

<p>Network and power dynamics (Siangulube et al. 2023)</p>	<p>Identify the power of several actors to influence, negotiate or determine the result of a given decision and their process.</p>	<p>Power dynamics are essential to analyze decision and social spaces: who is included and excluded from a decision and why; how the decision process addresses the concerns of all actors involved, who gain and who lose with the final decision made and how (recognition, procedure and distributional justice).</p>	<p>+ It can be essential to balance new decision spaces.</p> <p>- It needs to be developed over time according to the needs of the case, actors and dynamics studied (e.g. every year), as preferences, influence capacity and social dynamics can change over time as well.</p>
<p>Delphi (Mukherjee et al. 2015, Flinzberger et al. 2020)</p>	<p>The Delphi method helps to create consensus among actors with different levels of power or influence through an anonymous multi-round survey that is moderated/facilitated by the researcher.</p>	<p>In the multiple rounds of a Delphi survey, participants can answer questions anonymously (mostly online). Thus, they are not influenced by the presence of more powerful actors, and there is less pressure to give socially desired responses. The results of the previous survey rounds are provided back to the participants before the next round for discussion. This process is moderated (it includes providing explanations for particular answers), and ideally continues until a true consensus is reached (procedural and distributional justice).</p>	<p>+ It enables researchers to gather unbiased information and answers to research questions.</p> <p>+ It reduces peer and social pressure, and power imbalances during the survey.</p> <p>+ It generates consensus among actors of very different types, roles, and power-levels.</p> <p>- No direct interaction during the survey phase.</p> <p>- Limited possibility to check if consensus is understood by all participants, or if it is understood in the same way</p>
<p>Rapid Games design (Lankford and Craven 2020)</p>	<p>People together design a game that represents a social ecological system of interest. By playing games, participants widen their understanding of an issue of interest and it can change their behavior.</p>	<p>Designing games removes boundaries among people, it creates a space of joy and creativity where power imbalances of the real world disappear while designing together (contextual justice).</p>	<p>+ It provides an expression of how participants understand multiple models of the system, perspectives on its success and interpersonal relations and dynamics between participants.</p> <p>- It is difficult to track behavioral changes in participants after the application of the method.</p>

<p>Poetic inquiry (Heindorf et al. 2024)</p>	<p>Poetic inquiry is an arts-based method. Based on interview transcripts, participant-voiced poems are created. Key informants can directly write poems about an issue or challenge of interest.</p>	<p>It allows the transmission of especially non-material values to a broader public through the lens of the local people. Poems are an ideal medium to express people-landscape connections, emotions and relational values concerning the topic of interest. These values are often neglected or overlooked (recognition and multispecies justice).</p>	<p>+ Communication of results is facilitated, especially communicating the intangible value of landscapes. + It allows one to listen to the voices of locals, for example land managers and residents affected by land-use changes, presenting plural values through poems. - The inherent nature of poems presents a potential limit which could provoke subjective interpretation, a common challenge among other methods as well.</p>
<p>Participatory monitoring and evaluation (Thapa et al. 2017, Andrianandrasana et al. 2022)</p>	<p>In this method actors are the ones who identify their challenges in obtaining their goal and decide on what should be monitored/evaluated, which data should be collected and how this should be done. It also promotes (collective) action to overcome the challenges and attain the goal.</p>	<p>Multiple actors with different preferences and goals could potentially involve inequitable distribution of power and resources. However, keeping track of progress/action via monitoring and evaluation of a particular project encourages collective action and learning (distributional justice).</p>	<p>+It improves management practices and fosters positive group dynamics and functioning. -Long term commitment is needed.</p>
<p>Folk classification (Riu-Bosoms et al. 2015, Heindorf et al. 2021)</p>	<p>This tool shows how local people understand, categorize, and classify their natural- and non-natural environment, as for example folk classification of plants, ecosystems and land-uses.</p>	<p>It complements scientific classification, which often overlooks folk taxonomies. For example, standardized Western methods do not sufficiently integrate other ways of conceptualization, understanding and classification of the living and nonliving (multispecies and epistemic justice).</p>	<p>+ It complements scientific knowledge and enriches knowledge in general. - Indigenous languages are under threat of extinction, often this knowledge is only transmitted orally, sometimes tacitly.</p>

<p>[Indigenous] Transdisciplinary relational thinking (Max-Neef 2005, Bird-David and Naveh 2008, Crosschild et al. 2023)</p>	<p>Transdisciplinary “on-the-ground” relational-thinking actively engages with and between sovereign entities to make commitments. This approach is also used to characterize the multiplicity and complexity of historical and contemporary relationships within the landscape.</p>	<p>When conducted by diverse transdisciplinary actors, the method highlights other paradigms outside the classical Western political, cultural, and academic scope, allowing for their critical evaluation within their own merit (trans-Indigenous). It actively breaches the Western-Indigenous binary to allow for multiplicity within research (restorative, epistemic and multispecies justice).</p>	<p>+ It actively practices justice while providing “on-the-ground” outcomes for communities.</p> <p>- Culture and capacity specific; it requires multiple and diverse Indigenous actors and researchers.</p>
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APPENDIX III.

Full texts corresponding to reflexivity processes in research made by four co-authors of this synthesis: Noelia Zafra-Calvo, Gonzalo Cortés-Capano, Laura Kmoch and Brianne Altmann respectively. The texts respond to some of the questions suggested in Jamieson et al. (2023) and Hill et al. (2024) and they do not aim to be comprehensive accounts of the individual and collective reflexivity processes, but to provide different examples of ways, styles and angles through which it can be possible to engage in reflexivity and report positionality.

My journey describes the reflections, experience and learning I get from working in a project related to the forestry sector in the Basque Country (Spain, Europe). I was part of (and I was in fact leading) the project work package in charge of actor engagement. I arrived at this new research project full of social-ecological paradigms and ideas about how to elaborate useful knowledge in a cogeneration process to foster more sustainable forestry practices in the region, while fostering justice in the (potential) implementation of the research results in policy and practice. My ambition and determined courage were proportional to my ignorance of the social reality that I needed to study and hopefully change.

The challenges I encountered along the research pathway help me to reflect about my own positionality in research. First, I realized that my co-generation research approach would add only more misunderstandings and fatigue to actors with a long story of opposite visions and interests, distrust, conflicts and confrontation. For most of the forestry sector actors in the Basque Country, I was an(another) outsider who had no idea of the day-to-day real problems of the sector. In addition, I was a researcher, who meant to them, someone who would misinterpret the information they would share to provide recommendations that will be translated into future burdens to them (e.g. unfitting legal frameworks such as plans or rules). I reflected and I seriously questioned myself whether the planned research was adequate in approaches and methods to actually foster justice and sustainability in the forestry sector of the Basque Country. Due to the current tensions, it was not. Fortunately, I could be flexible to adjust the approach and methods of the research so, I did that: the approach would be suited to the current situation of conflict and confrontation; and respectful of the social reality and dynamics. Research results could not be co-generated in a few workshops and the research would need to carefully consider whether it actually would have some further results that could impose some burden on some of the most vulnerable actors (such as expropriation of small forest landowners or abandonment of traditional sustainable forestry practices).

One initial challenge was to get actors that would like to talk with me, which I only solved when I started a snowballing approach. I contacted an actor when other actors, in which they trust, provide me their personal contact. I interviewed a comprehensive number of plural actors starting with interviewing the dad of a close friend of my partner (regional and local government technicians, rangers, private companies, forest plantation landowners, conservationists NGOs, consultancies advising the management of common use forests, academia, forestry and business associations, ...). From there, it was my responsibility to listen carefully and not to waste the initial trust granted to me, starting to build a genuine relationship with each of them. This was an extremely emotional and insightful personal journey. The standard scientific questions designed as a questionnaire were broadened and transformed into in-depth semi-structured interviews focused on the basic urgent questions most of the actors needed to reply to (e.g. what species to plant in forest plantations). Questions were carefully adjusted almost in each of the interaction according to who I were interacting with, as I needed to be completely conscious and sensitive during the interview to the body language, any signal of discomfort, or directly dealing with discussion about whether what I was asking to them to reply to, would be helpful to foster justice in the forestry sector of the region.

Language was a barrier sometimes, as I did not speak Basque, but the fact of being a middle-aged woman interviewing normally middle-aged or elderly men, and having no decision power and not-known position to place me in the role of “the enemy” of their interests and values, opened me many doors. When a personal relation was built, there was the time to explain to them my own position in relation to the challenges the sector faced (a researcher working in nature conservation with a personal background of having grown in a farmer ' family) and how I interpreted what they said, which in some cases were contested by them and reworded. This practice could make some researchers think that could decrease the accuracy of the research results, but it was actually balancing power dynamics. From an initial position in which a researcher observes and takes notes, interpreting what is said based on their own background and experiences, with no further discussion with actors, it changed to a position of deeper understanding from where actors were responding the way they did. There were also cases when actors preferred to talk with me but not to include in the research analysis and results what they say, and it was respected. It is a difficult situation itself because it forced me to a position in which even if this conversation would not take part in the data analysis, it was almost impossible to forget about what that person has told me, when I was making sense of the research results and their implications for a just and sustainable policy and practice.

The last challenge was to come to scientifically make sense of the experience and learn to fulfil the requirements of the funders of the project. In two years, the only results that I had were the trust and relationship built and a lot of participant observation style notes of the interactions. Fortunately for the point of view of scientific Western standards, a network and content qualitative analyses could help to organize the results to produce (I am consciously saying “produce”) a scientific publication. I was also able to share with the actors some initial research results and recommendations that it was not co-generated, but at least, they were the base to continue working and the starting point to frame a minimum common ground for the future, respecting differences and accepting dissent.

Parallel to working on this article, I am planning fieldwork aimed at developing Nature’s Contribution to People (NCP) assessment approaches for tropical forest restoration landscapes. One of my objectives is to understand which beneficial and detrimental contributions arise from restoration landscapes, for the study regions’ rural residents. I expect that people experience positive contributions from restoration to their livelihoods, such as enhanced access to fuel and other tree-derived materials, fodder grasses, and reduced soil erosion on newly established terraces. Yet, restoration frequently entails land-use changes in degraded and fragile landscapes, in which various land-use objectives overlap and compete. Hence, interventions in the study region may also have given rise to contestation, and created losers of land use changes, who experience burdens and hardships from restoration such as lost access to valued forest resources, restricted access to former pastures, and even resettlement from danger zones or newly gazetted conservation areas - without communities’ unambiguous consent.

The approach through which I plan to engage the research participants in reflections on beneficial and detrimental contributions from restoration, is photovoice. This is a participatory research approach, aimed at empowering people to share their insights and personal reflections about their everyday livelihood realities, and to enact social change. In the context of my upcoming research project, I expect the photovoice approach to aid in opening-up conversations with local people, by enhancing their agency to tell stories through visual media, about how restoration affects their everyday lives. Yet, I also anticipate that my first engagement with this research approach will not fully live up to its socially transformative potential, i.e., by forefronting power differentials and surfacing justice concerns in societies and forest landscapes in which large-scale restoration takes place.

The reason for my dampened expectations is that I am aware just how difficult and fraught with ethical concerns it will be to ask the research participants all too directly about detrimental contributions of restoration to their everyday lives. At least with respect to all contentious situations that arise from social- and governance-related restoration dynamics (e.g., decisions to enclose land for restoration); rather than more ecologically-driven ones (e.g., tree-crop competition through tree planting on farmers' land). Ideally, my study participants could freely share examples of 'all the good things' happening in their lives because of restoration, as well as of 'things that go wrong'. The latter would be important, as stories of 'failure' may hold just as many (or even more) lessons about how to improve current restoration approaches than focusing on bright spots does. Thus, research could help to pave the way for righting the wrongs of restoration interventions that have caused undue harm; helping to bring restorative justice to people already affected by negative restoration consequences, and avoiding similar outcomes for those, who will be part of future programs.

Obstacles in the way to realizing such 'ideal' justice-oriented landscape research include the political setting in my study region that likely neither welcomes forthright critique from foreign researchers nor local residents' accounts of land-change processes that they experienced as unjust. If I encouraged research participants to give full particulars of restoration that hinders their wellbeing, I may de facto put them at risk of unpleasant repercussions or worse. The project's ability to positively affect the conduct of restoration in the future could also be undermined, if my research reports were to be perceived as unduly critical of past restoration initiatives. Opportunities for constructive dialogue with influential policy makers, institutions, and restoration donors in the region could thus be foreclosed. Finally, the rules for obtaining my research permit include an agreement to share all data with the respective country authorities, which means that I cannot guarantee full anonymity to my research participants.

Of course, my research will come with an 'open ear' to justice concerns that may dwell below the surface of my focal themes. Yet, my intention with this positionality reflection is to share why landscape researchers with justice interests may self-restrict their research approach. For instance, by adapting their interview questions' phrasing from asking about 'bad restoration experiences' to inquiring about 'things that could be improved'.

Here, I share some reflections emerging from my experience in different projects working with people nature relations in cultural landscapes in Uruguay. Along the research processes with the research team, we found ourselves playing different roles, from scientists aiming to understand social-ecological dynamics, to process facilitators trying to enact change and influence policymaking, enhancing landscape justice. Similarly, people interacted with us according to their interpretations of our roles and expectations. For example, at times we were perceived as highly educated university experts who could provide solutions to problems, other times as privileged urban people which were "foreign to the place", thus with poor locally relevant experience and understanding of rural life and related challenges. Navigating these situations required permanent attention and discussion between researchers and participants to be transparent on our roles, expectations and on the scope of research and its limitations. In this sense, being present in the landscapes and building connections and trust with different actors, greatly contributed to go beyond first impressions and stereotypes of the positions and roles of researchers and participants.

This relational and critical approach helped us produce a more socially legitimate and relevant knowledge, acknowledging a more nuanced view of our multiple identities and positions. In our experience, this strongly depended on the leadership of local actors and in nurturing relations in institutional and informal (e.g., people's farms, dinners, rural schools) settings. This required working

at a slow pace, respecting participants' time and schedules, and open to fluid feedback. However, our research team had limited funding and time available, given deadlines for reports to funders, so we often perceived the need to advance quickly with fieldwork which contrasted with the slow pace of building long lasting trust and accountability. In some cases, we discussed this issue openly with participants, who appreciated the opportunity to understand our precarious job positions as students and early career researchers, contributing to the research process.

In addition, cultivating an open mind when conducting fieldwork was fundamental since many times we were surprised by finding that the situation on the ground was very different to the ones we were expecting. For example, in a case study where an attempt to create a protected area had failed due to social conflicts, we were expecting people to have mainly negative attitudes towards nature and nature conservation. On the contrary, people were deeply connected to nature through their everyday practices (cattle ranching). They showed concerns about problems such as rural exodus and low profitability which, in their view, could have been exacerbated by the protected area project.

Finally, in most cases, we were striving to accurately represent people's perceptions on local problems as a way to contribute to amplifying their voices. However, when discussing this aspect with some participants one mentioned that, although that was important and appreciated, the real contribution we could bring as researchers was to work with them to co-produce knowledge at the intersection between local knowledge and academia. In their view this would have contributed to enhancing understanding of problems and even if they would disagree or find it difficult to relate it to their knowledge and everyday experiences, it was better to challenge our own assumptions than to remain unchanged in a rapidly changing world.

I am an international researcher affiliated at institutions far from my home country, researching within a discipline and contexts that do not deeply affect me. There is a simple answer to why: I can apathetically [some might say objectively] apply methods, interpret results and quickly write up brief interpretations without the interference and burden of personal reflection, responsibility, and relationships. As an individual who overthinks everything, especially social interactions, I feel less exhausted, and overall, just more comfortable on a day-to-day basis in such a workplace; research is my job, not my life. This allows me to publish more quickly, as I avoid endless cycles of contemplating who may interpret my words, and what if my words are interpreted against what I believe to be ethical and moral. I chose to escape to this easy life after 7 years dedicated to studying and researching injustices through the lenses of Indigenous studies and environmental sciences linked food systems. I am privileged in that I can choose to escape. I am a 30-something white academic working internationally. I am privileged to have been taught how to read and write formal English from a young age – English is my mother tongue. Although I may not have thought it at the time, I am privileged to have grown up in rural (middle of nowhere) Canada in a community who nurtured my education and never did anything else but believe in what I would accomplish. Fast forward nearly 20 years and I know I am still benefiting from this privileged upbringing.

So, what does this all have to do with my academic journey with justice? It sounds more like avoiding than confronting injustices. Well, once I felt that I had gained enough academic experience and knowledge (e.g. methods toolbox was filling up), I wrote an application for a fellowship project. This was my first chance to write something for me, and not for a call from National governments or based on industry priorities. I decided to go all out. I wrote my “dream research project” or at least a version of it. The idea had steeped in my brain starting in my teen years with expeditions to the Canadian and Russian arctic and seeing how vastly different food systems were structured between regions and nations. My “dream” project focused on what Western researchers might call “high nature value

agriculture”, “agricultural rewilding” or “agroecology”; i.e., producing food based on local (extreme) ecosystem resources for culturally-appropriate (and diverse) foods. Yet, for me it has and will always be about “food systems,” period. My fellowship project focused on American buffalo as a food source in Indigenous and non-Indigenous societies. My journey here is just starting. I knew even when writing the fellowship application that the allowable project length of 18 months would be nothing to establish relationships with necessary knowledge-keepers and actors. It would be nothing to learn from American buffalo themselves. I worried and wondered if anyone would want to talk to me about buffalo – it turns out everyone regardless of background did. I listened. My planned systems approach of applying 4 different methods (with associated models), quickly blended into a broad 1000 cups of tea “about bison.” I had conversations, always aware that I was taking valuable time from actors who, especially if Indigenous, were already stretched thin trying to collaborate and consult with other parties to confront other injustices. Even when asked to contribute to this paper, I did not think I should be the one contributing. I am a Western scientist from an epistemological culture that has created so many injustices for others in the landscape I grew up in. The authors I cited are worthy to write such an article.

Yet, through my fellowship I was forced to apply something I had learned in university classrooms long ago – allyship. Being an ally is very context dependent; sometimes it may require stepping back, whereas other times you may assist in taking the reins (although in my opinion allies should never steer!) so that those you are supporting may take a much-needed rest or redirect their energies elsewhere. Using the examples of this article, the reality in academia is that things need to be published to be on the scientific agenda and that there are often deadlines to meet with limited hours in a day. I was thanked many times by many people for actively maintaining a conversation of bison restoration, and it is for this reason alone that I agreed to contribute here – to keep the conversation going. Whether I am known as the “bison restoration researcher” [I don’t feel prepared for that] or I slide back into more methodical studies, I do not think this is so important. As an ally (inside and) outside the ivory tower, I hope to lessen epistemic injustice through active listening and continuing important conversations.