

Navigating equity in protected and conserved areas: a literature map of conceptualizations and practical applications

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ABSTRACT

Protected and conserved areas (PCAs) play a pivotal role in biodiversity conservation and are anticipated to contribute to human well-being by addressing poverty and adhering to principles of environmental equity. Despite these aspirations, achieving and measuring equity on the ground have proven challenging. The scientific literature offers various conceptualizations of equity, thereby obstructing the derivation of clear guidelines and synthesis for practical applications. To address this difference in conceptualizations, we mapped contemporary academic literature to interrogate the conceptualization of equity within protected area governance. Our focus encompassed dimensions of environmental equity, including recognition, procedural, distributive equity. The mapping revealed distributional equity and rights-based claims have remained the most prominent concerns throughout the 2002–2023 period, while attention to procedural and especially recognitional equity has markedly increased since 2017, with many recent studies integrating all three dimensions. Most reviewed articles considered equity for Indigenous and Local Communities in relation to PCA governance. Our literature map highlights the promotion of community involvement as a solution to align equity and ecological outcomes in PCA management, as well as a mechanism for recognizing the rights of Indigenous Peoples and Local Communities. However, recommendations for practice are often ambiguous and present challenges for practical application. Addressing the intersectional nature of equity by disaggregating stakeholder metrics and centering Indigenous ways of knowing and governance systems is essential to unveil connections between people and nature and to improve equity in practice.

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Introduction

Achieving biodiversity conservation and equity simultaneously is a complex challenge facing conservation practitioners and policy makers. This is especially true for Protected and Conserved Areas (PCAs), which are not only a cornerstone of biodiversity conservation but also (due to exclusionary practices) a primary source of inequity for Indigenous Peoples and Local Communities (IP & LCs), leading to adverse social and ecological outcomes (Dawson et al. 2024; Friedman et al. 2018; West and Brockington 2006). IP & LCs are rights-holding groups with their own separate cultural identities, customary governance systems, as well as unique traditional relationships to nature. Their knowledge and long standing governance systems are important for equitable and effective conservation (Borrini-Feyerabend and Hill 2015).

Historically, PCAs were established and governed without due consideration for the needs, livelihoods, and perspectives of the local populations (Brockington and Igoe 2006; Chipungu 1992; Gibson 1999). Many conservation initiatives deliberately excluded local communities from decision-making processes, leading to their displacement from areas crucial to their livelihoods (Brockington and Igoe 2006). The rationale behind this human-nature separation was the perceived necessity to achieve environmental protection goals as well as preserve exclusive rights of colonialists to extraction of natural resources (Chipungu 1992; Colchester 1997). Findings of a positive relationship between equitable PCA governance and conservation effectiveness (Dawson et al. 2024) have led to a shift in conservation policy and practice to reconcile the relationship between IP & LCs and conservation objectives (Bennett et al. 2020).

Recent conservation efforts have therefore aimed to achieve equitable conservation as a primary pathway to effective, long-term conservation of biodiversity by embedding both equity and conservation in broader policy and practice in relation to PCA governance. PCA governance relates to relationships among institutional structures that determine how power is exercised by stakeholders and how their views are included in decision-making (Dearden et al. 2005). PCA governance types were adapted from established governance categories used by the IUCN. These include: (1) state-led (governed by governments), (2) co-managed/shared (collaborative arrangements between government–community or private–community actors), (3) community-led (governed by Indigenous Peoples and local communities), and (4) privately governed (by individuals or NGOs) (Borrini-Feyerabend and Hill 2015). These categories represent the institutional arrangements through which authority, responsibility, and decision-making are organised in PCAs. PCA governance interventions are any deliberate actions that alter governance structures, decision-making processes, or resource-use rules. For example, transitioning from state-led to co-management through community-based conservation arrangements that facilitate benefit sharing and inclusion of local people (Adams and Hulme 2001; Armitage et al. 2020; Esmail et al. 2023). These interventions may bring about equitable outcomes at the beginning or long after the initial PCA is established. Equity considerations may include gender, socioeconomic status, ethnicity, and recognition of Indigenous governance institutions.

At a global level equity in PCA governance is underscored in the Kunming-Montreal Global Biodiversity Framework under the Convention on Biological Diversity which advocates the expansion of sustainably governed PCAs to 30% of the planet's land while

ensuring equitable participation of IP & LCs and respect for their resource rights (CBD, 2021; Raymond et al. 2022). At the local level, the operationalization of equity has taken the form of community-based conservation strategies which entail devolution of decision-making power and recognition of IP & LCs rights to PCA resources (Cook 2024; Gurney et al. 2023). How equity is conceptualised in the different contexts in which it is implemented significantly influences the effectiveness of protected areas (Dawson, Martin, and Danielsen 2018). Equity, defined as the multi-dimensional outcome of the three interacting dimensions distribution, procedure, and recognition (Boillat et al. 2018; Schreckenberg et al. 2016) is oftentimes used interchangeably with justice, encompassing fair resource distribution, inclusive political processes, and institutionalised recognition of communities for full human flourishing (Schlosberg 2013). In policy contexts and at project level, equity tends to be more frequently invoked (Pickering et al. 2022). We acknowledge, however, that others view justice as ethical and legal responsibilities that social institutions owe to human and non-human beings as an absolute right, while equity may denote a broader conception of fair, proportional nonarbitrary treatment (Pickering et al. 2022).

In this paper, we define the three interrelated terms of environmental justice, equity and fairness as follows: Environmental justice generally refers to the ethical and legal responsibilities that social institutions owe to humans as their right, often with a strong emphasis on overcoming harms done in the past (such as those resulting from colonialism) (Schlosberg 2007, 2013). Equity describes fair outcomes achieved through multiple dimensions, which involve fairness in sharing of costs and benefits (distribution), inclusive decision-making processes (procedure), and respect for diverse identities, knowledge systems, and rights (recognition) (Schreckenberg et al. 2016; Sikor 2013). Fairness refers to the subjective perception by affected actors that a process is legitimate and acceptable. It varies across different cultures and contexts (Pascual et al. 2014). Although equity and justice are analytically differentiated terms, in this review we use them interchangeably because both equity and justice are related to fairness and impartiality and are therefore interrelated and act together to influence how justice is administered (Nwabuoku and Gasiokwu 2022). We therefore draw on the three core dimensions of equity and justice, that is, distribution, procedure, and recognition, to structure our analysis, as equity and justice jointly contribute to equitable and impartial environmental governance.

According to (Schlosberg et al. 2024) the theory and practice of environmental justice is at an epistemic and political intersection. While the fields of equity and justice have been expanding with regards to practical political and socio-ecological considerations to go beyond liberal frameworks (Schlosberg et al. 2024) practitioners and stakeholders find implementation challenging due to its subjective nature, lack of scientific grounding, and measurement difficulties (Gross-Camp et al. 2012; Zafra-Calvo et al. 2017). A comprehensive understanding of how equity, as discussed in scientific literature, translates into conservation success, including when and to what extent equity contributes, is therefore vital (Klein et al. 2015). Without an understanding of the reasons that local people are affected by PCAs as well as the relations and compromises that occur between different actors, policy makers are “shooting in the dark” as they design and implement conservation interventions (Gill et al. 2019, p. 349). Hence, conservation practitioners and policy makers need a better understanding of the range of social impacts resulting

from various conservation interventions. A shared understanding of and approach to environmental justice and equity offers political, intellectual and social benefits (Schlossberg et al. 2024). The purpose of our literature research was therefore to systematically investigate the conceptualization of equity within the governance of PCAs. The study aims to discern knowledge relevant for implementation by practitioners and stakeholders, exploring how equity is characterised, operationalised, and contextualised within PCA governance in the published academic literature by answering the following questions:

- (1) What dimensions of equity are discussed in the scientific literature on PCA governance?
- (2) Which types of PCA governance arrangements are examined in scientific studies addressing equity?
- (3) What are the consequences of PCA governance interventions on equity outcomes in practice?

Material and methods

To identify and analyze scientific literature relevant to our research objective, we conducted a literature mapping (James et al. 2016). In January 2024, we retrieved articles using the search string “(Environmental Justice* and Protected area*)” or “(Equ* and Protected area*)” in Scopus and the Web of Science. The search string was applied to all elements of each publication, that is, title, abstract as well as the main text. We selected relevant articles by following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol for systematic literature reviews (Moher et al. 2009), screening articles at the title, abstract, and full-text stages based on the following inclusion and exclusion criteria. At the title stage, titles indicating a focus on people, nature, and equity were included. At the abstract stage, abstracts that identified and applied equity considerations in the context of protected area governance were included. At the full-text stage, inclusion criteria encompassed articles with (i) explicit mention and examination of equity as a study objective; (ii) explicit relation of protected area governance to modes of equity, perceptions of fairness, and rights; (iii) presentation of an empirical case study on equity considerations, including recognition, procedural, and distributive dimensions and outcomes, in the context of protected area governance (Figure 1). We excluded papers that broadly mentioned equity implications without further analysis or that did not present an empirical case study of equity outcomes in the context of protected area governance.

Although wider justice-related terms such as “fairness,” “justice,” and “rights” were considered, they were not included in the search string because they would have produced a significantly higher volume of articles unrelated to equity and justice. This may have had a compromising effect on search precision. To maintain methodological rigour and ensure the number of articles generated was feasible, we instead required explicit engagement with equity, fairness, or rights in PCA governance at the abstract and full-text stages. Additionally, all 385 screened abstracts were compared to a targeted list of seminal empirical studies on equity and justice in protected area governance. This list included widely cited work in conservation social science, political ecology, and community-

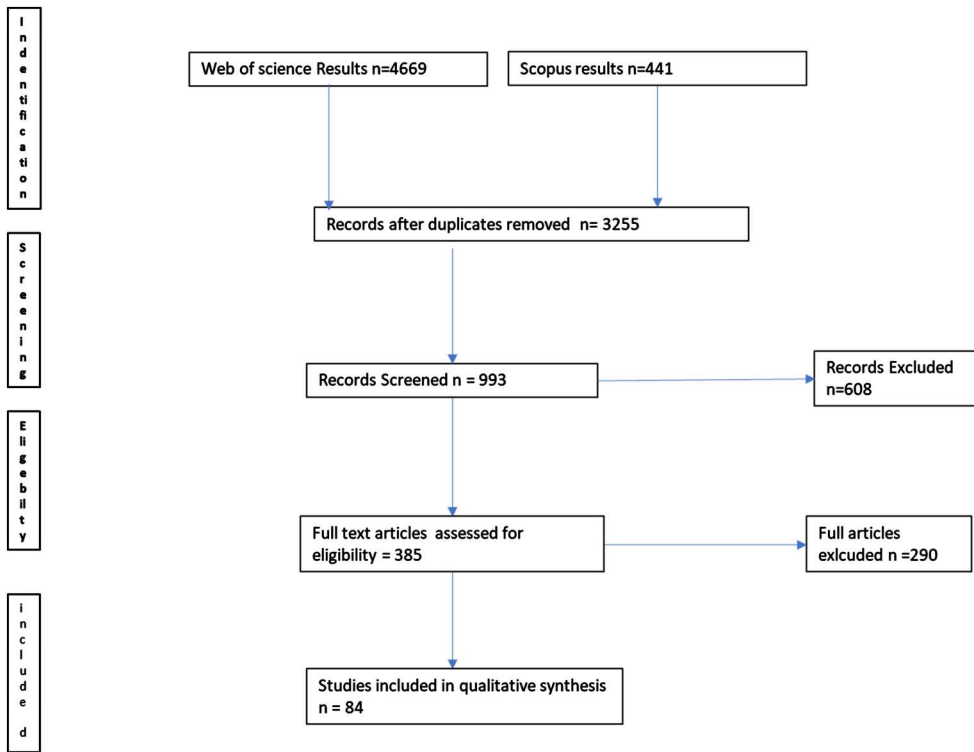


Figure 1. PRISMA flow chart illustrating the selection process of relevant literature for the mapping.

based conservation. This showed that the abstract pool had captured many of the core literature on protected area equity. In particular, papers by (Bennett 2018, 2019; Büscher et al. 2017; Gurney et al. 2015; Lunstrum 2014; Martin et al. 2016; Schreckenberg et al. 2016; Zafra-Calvo et al. 2017, 2019) were captured in our sample.

Coding and analysis

The coding process included a categorization of studies based on year of publication, geographical location, as well as methods used in the study. Coding and analysis used MAXQDA Analytics Pro 2022, a software designed for qualitative and mixed methods data analysis. The coding also identified themes and narratives that occurred in the studies and then linked them to dimensions of equity. Equity is a product of intersecting dimensions, which include distribution, procedure, and recognition (Schlosberg 2013; Schreckenberg et al. 2016). Recognition equity deals with respect for different identities, as well as social and cultural differences, including gender (Martin et al. 2016; Zafra-Calvo et al. 2017). Misrecognition in this context refers to dynamics documented within governance practices, that is, how institutions fail to acknowledge identities and knowledge systems, rather than misrecognition by researchers. Distributive equity deals with the equitable distribution of environmental goods and services, as well as costs related to nature conservation. Procedural equity seeks to establish participatory and inclusive decision-making processes that engender transparent and meaningful involvement of

relevant actors in environmental affairs that concern them (Schlosberg 2013; Schreckenberg et al. 2016).

In a first round of coding, we inductively created codes according to themes of equity that were perceived in the case study. In the next round of coding, a deductive approach was taken in classifying codes according to equity dimensions as described by Schreckenberg et al. (2016); and Schlosberg (2013).

Results and discussion

From the initial pool of 4,855 articles subjected to screening, our literature mapping identified a focused sample of 84 papers, over the period 2002–2023 representing 101 cases (Figure 2). Geographically, the cases were distributed as follows: 40% in Africa, 22% in Asia, 15% in Europe, 12% in South America, 6% in North America, and 5% in Oceania (Figure 3). Notably, a significant portion of the African cases originated from South Africa, reflecting the increasing concern for environmental equity in the post-apartheid era.

Modes of equity in the PA governance in literature

Our literature mapping shows that the conceptualization of equity has evolved. Earlier studies primarily emphasised distributional equity and the rights of local communities, yet distributional equity and rights-based claims have remained the dominant concerns across the 2002–2023 period. Since 2017, however, attention to procedural and especially recognitional equity has markedly increased, with many recent studies (27 of 84) integrating all three dimensions explicitly (Figure 2). More recent papers have broadened the understanding of equity by incorporating procedural and distributional dimensions

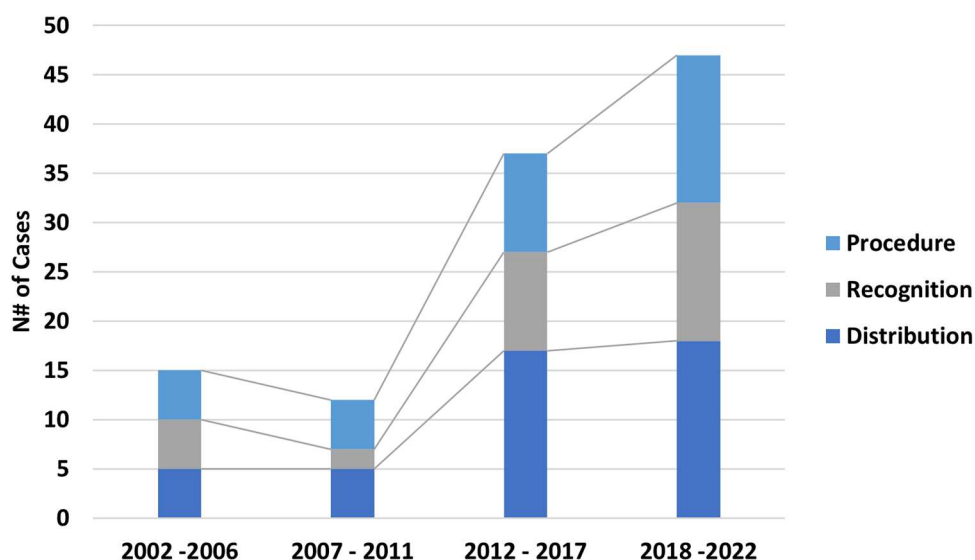


Figure 2. Equity and Justice literature 2002–2022.



Figure 3. Distribution of equity in PCA studies.

(Schreckenberget al. 2016; Zafra-Calvo et al. 2017) alongside recognition equity, and some have also adopted the capability approach (Schlosberg and Carruthers 2010; Svarstad and Benjaminsen 2020)

Our literature mapping identified distribution as the most frequently discussed source of inequity. Specifically, 80% of the instances mentioned are related to the loss of access to PCA resources or livelihoods. Importantly, this loss of access to resources did not occur in isolation, it was often the result of procedural inequity. Concurrently mentioned were the loss of decision-making power and rights over resources, which accompanied the loss of livelihoods (Dawson et al. 2021; Grimm et al. 2023; He et al. 2021). These studies show that restrictions on access to natural resources arose not merely from conservation rules but from communities limited decision-making power during the rulemaking process. Similarly, the misrecognition of Indigenous identities, as documented in Sikor (2013) and Martin et al. (2016), directly contributed to the exclusion of customary governance institutions, which in turn shaped inequitable distributional outcomes. This interplay between misrecognition and procedural injustice appears repeatedly in the literature, as evidenced by similar patterns reported by Hampton-Smith, Gurney, and Cinner (2024) in their review of equity perceptions in marine conservation. According to Hampton-Smith, Gurney, and Cinner (2024), procedural equity perceptions impacted other equity dimensions in that “inequitable processes fostered a lack of recognition and perceived inequity in the distribution of conservation costs” (4). Further, many PCA-related conflicts, for example, stem from misrecognition and power imbalances, especially in how divergent ontologies are acknowledged and institutionalised in co-management arrangements, an issue rooted in procedural injustice (Gambon and Bottazzi 2021). Further, our analysis reveals that interconnections between equity dimensions are not coincidental but often stem from systemic factors such as colonial legacies that result in power asymmetries, and institutional designs that prioritise conservation over social inclusion (Chipungu 1992; Cleaver 2017; Dressler et al. 2010). For instance, distributional inequities (the most common, appearing in 80% of cases) frequently arise as

downstream effects of procedural and recognitional failures which in turn produce compounding forms of marginalization.

Nevertheless, community-based conservation interventions often concentrate primarily on the distribution of costs and benefits, for example by seeking to reduce or offset the costs of forest conservation for the poorest households or increase their share of benefits from activities such as tourism (Martin et al. 2014). However, maldistribution and misrecognition are deeply intertwined, as the act of distribution itself confers recognition (Fraser 1999; Martin et al. 2016). The historical context of PCA creation, involving colonization, marginalization, and protectionism, meant that Indigenous Peoples and Local Communities (IP & LCs) were not initially recognised. This lack of recognition is a key reason they lost access to resources through eviction (Hill 2011; Murombedzi 2003). These insights emphasise the importance of looking beyond distributional equity alone, since it is frequently the result of deeper injustices, such as the lack of decision-making power or respect for cultural identities and customary rights.

Further, the challenge in rectifying access rights is compounded by the fact that most PCAs represented in the case studies fall under the categories of national parks (50%) or strict reserves (10%), both of which, by law in many countries, do not allow human use. The status quo is likely to remain as meeting conservation targets such as the GBF incentivizes governments to expand PCAs. The GBF's "30 × 30" target is highly ambitious and will have the practical effect of increasing terrestrial PCA coverage by up to 50% and tripling coverage of marine areas within just eight years if achieved (Gurney et al. 2023). While the GBF emphasises expansion in tandem with safeguarding local people's rights, lessons from previous frameworks, such as the Aichi Biodiversity Targets, suggest that signatory nations often prioritise easily measured indicators like area coverage over governance quality or equity (Watson et al. 2023). According to Mushonga (2023) an expansion of protected areas and protection of wildlife at local people's expense will exacerbate equity challenges by centering ecological outcomes over local people's immediate needs. Mushonga further argues that local people are marginalised "because the environment is privileged with constitutional rights to be protected, and this right is then imposed on citizens" without their informed consent (2023, 1). Exclusion of local people from their land and resources via the creation of new PCAs or eviction of people from existing ones may have the unintended consequence of creating barriers for the rollout of new area-based targets under the GBF in the future (Watson et al. 2023).

Misrecognition was reported in 34% of cases, with the primary cause being a lack of respect for diverse identities, values, and knowledge systems. Misrecognition of Indigenous peoples occurred when indigenous groups were treated the same as local communities for example in (Dawson et al. 2021; Martin et al. 2016; Sikor 2013) highlight cases where one-size-fits-all interventions did not differentiate the needs of IP & LCS. Although many case studies treated community members as a homogenous entity instead of considering their multiple identities, the integration of multiple actor perspectives due to cultural differences was highlighted in a number of studies (Anaya and Espírito-Santo 2018; Ballet et al. 2015; Coombes and Hill 2005; Dawson et al. 2021; Lecuyer et al. 2018; Richmond and Kotowicz 2015; Sikor and Cam 2016; Thondhlana, Cundill, and Kepe 2016). Further, studies such as one conducted by (Baker-Médard et al. 2023) (Baker-Médard et al. 2023) centred the expertise and experience of Malagasy women leaders in their study of gender-inclusive community marine resource management network. In

particular, intra-community hierarchies of access and agency deeply affect who participates in resource management. They also shape the strategies people use to address social and ecological problems and who benefits from management decisions (Baker-Médard et al. 2023). Studies that aim to integrate Indigenous Peoples and Local Communities as key actors will diminish marginalization of IP & LCs in protected area governance (Nygren 2004).

Overall, evolution of equity from a focus on distribution and procedure to the inclusion of recognition and capabilities signifies a shift from a Rawlsian perspective of justice as fairness to an understanding of justice as an interplay between distribution, procedure, and recognition of diverse identities and ways of knowing and functioning (Huxham et al. 2023; Rawls 2001; Schlosberg 2004). Studies have also evolved to acknowledge the need to centre connections between people and nature (Martinez et al. 2023), as well as to facilitate self-representation of community advocates as co-authors (e.g. Baker-Médard et al. 2023), and to study the nature of equity as a feature of ordinary life (e.g. He 2023). By highlighting a plurality of equity perspectives, these types of research generated findings that unveiled connections between people and nature. These relationships are important for achieving more equitable community representation in decision making, as well as for overcoming the problem of misalignment among actors based on ways of being-in-place and social organization (Gambon and Bottazzi 2021; Salcido et al. 2023). Ways of being in a place, or attachment to place, help in the formation of positive bonds to physical and social settings, which in turn support identity and convey recognition (Brown, Perkins, and Brown 2003).

Governance types

Most studies (88%) concentrated on community level interventions, primarily situated in forest environments (57%). Other ecosystems examined included marine and coastal environments (23%), while grasslands and peatlands made up 20%. The case studies predominantly addressed local actors in the context of resource distribution and decision-making. Essentially, studies employed various methods to assess community-based conservation interventions. The primary goal of these interventions was to ensure equity by facilitating a fair distribution of benefits and meaningful involvement of all individuals, irrespective of race, national origin, or income, in the development, implementation, and enforcement of more equitable decisions (Dressler et al. 2010; Ferketic, Latimer, and Silander Jr. 2010). We identified six governance types being investigated by the reviewed research articles, with state-led governance constituting 35%, co-management 27%, and the remaining cases involving community or co-management in partnership with a non-governmental organization. Even in state-led governance arrangements such as those present by (Chen et al. 2022), efforts were made to include communities through participatory forums in individual parks, featuring representatives from surrounding communities (Coombes and Hill 2005; Grimm et al. 2023; Loveridge et al. 2023; Mollick et al. 2023; Turner et al. 2016). Co-management was often implemented to include all stakeholders in PCA governance and recognise the rights of IP & LCs (Oduor 2020). However, a lack of decision-making power was cited as the primary form of procedural injustice for local communities, evidenced by 74% of cases mentioning procedural injustices. For example, Dawson et al. (2017) reported that interviewees consistently articulated

dissatisfaction with lack of influence over PA decisions. Ultimately, in much of the literature, what was described as co-management may have involved cases in which communities were participants but lacked real decision-making powers, a pattern also seen in small-scale fisheries, where co-management commonly remains consultative rather than fostering effective participation (Gammage et al. 2025).

Out of all the case studies, only five cases were described as community-led, with government experts playing only advisory roles (Hill 2011; Schreckenberget al. 2016; Yoder, Meitzner Yoder, and Yoder 2007). Yoder, Meitzner Yoder, and Yoder (2007), in particular, represented the only case studying a hybrid system of equity, illustrating the results of an effort to create a place for traditional institutions by formally recognizing both customary rights over land and forest control within the national system. This case, described as a successful example of “Hybrid Justice,” demonstrated a mutually dependent relationship between local communities and the state. While local communities had developed institutions for PCA management, a history of colonial rule and changes in economic contexts meant that local communities needed state action to provide legitimacy for customary law in the modern era. This highlights the need to explicitly include histories in studies of equity and environmental justice.

Different protected area governance arrangements relate to different equity outcomes in the reviewed empirical studies. State-led and co-managed governance structures are dominant and show the strongest associations with distributive and procedural equity outcomes. Community-led and NGO-led/PPP models appear less frequently but still demonstrate clear links to equity dimensions, particularly recognition and procedural equity as illustrated in Figure 4. Although some co-management arrangements were described as successful, as in the cases presented by Castro and Nielsen (2001) and Coombes and Hill (2005), it was clear that Indigenous communities were not satisfied with co-management arrangements. There was a desire for communities to regain full ownership of PCA resources, viewing co-management as a temporary measure leading to that goal. Furthermore, there were differences in the representations of co-management between Indigenous peoples and local communities. Ownership is explicitly mentioned as a desired outcome for Indigenous communities, whereas studies discussing local communities highlighted deficiencies in decision-making power rather than outright ownership (Chung, Gullett, and Rose 2019; Nygren 2004; Thondhlana, Cundill, and Kepe 2016). This denotes a difference between co-management among local communities (e.g. in sub-sahara Africa) vs indigenous communities (e.g. in South America). Unlike in Latin America, co-management in sub-Saharan Africa was initiated not as a result of social movements but rather by professional bureaucrats who carefully crafted legislation and championed Community Based Natural Resource Management Programmes (Child and Barnes 2010). This further emphasises the need to disaggregate stakeholders to address the diversity of interests based on their identities and capabilities (Loos et al. 2023).

Consequences of protected area governance interventions on environmental justice and equity outcomes

All examined studies explored the inequities arising from PCAs affecting local or Indigenous communities. Nearly all studies undertook post-implementation analyses of specific

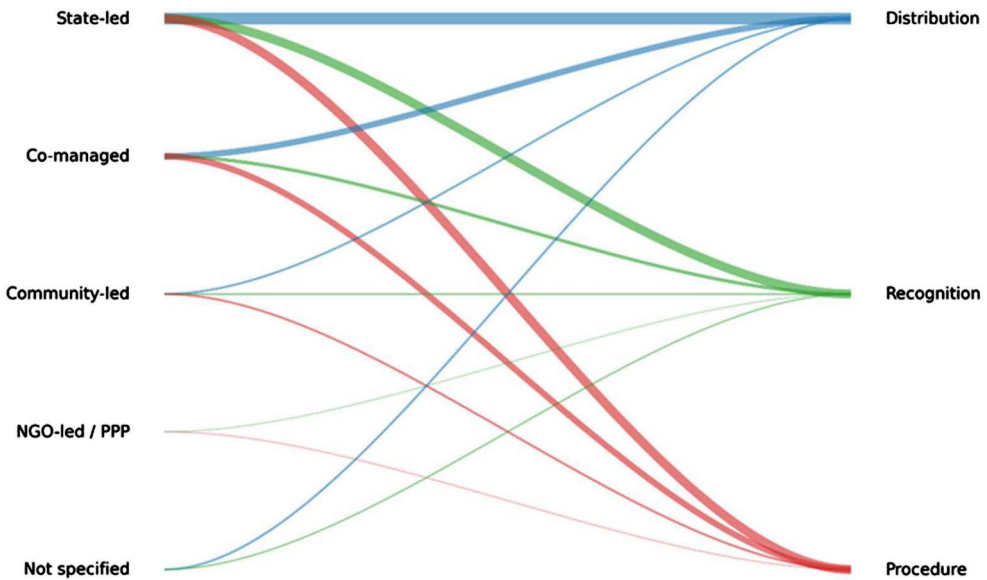


Figure 4. Sankey diagram linking governance types to equity outcomes in the reviewed studies. Flow thickness indicates the number of studies coded for each governance–equity relationship. NB: I used Generative AI tools to visualise my data in a Sankey diagram. I used Chat GPT 5.1. I was unfamiliar with Sankey diagrams and need help to produce them.

conservation interventions, and it is worth noting that the original interventions may not have explicitly prioritised equity. Earlier studies in particular primarily focused on outcome equity, with less emphasis on input equity, often only examining the final equity impacts of conservation interventions (Dawson, Martin, and Danielsen 2018; Klein et al. 2015; Sikor and Cam 2016). Input equity considers socioeconomic factors, education, occupation, and intersectional metrics such as gender and age, race, and ethnicity (Klein et al. 2015). Intersectionality is crucial for understanding power dynamics within and between relevant actors (Baker-Médard et al. 2023). Many conflicts surrounding PCAs are rooted in recognition and power asymmetries and thus representation of different ontologies enacted by involved actors in the way co-management is formalised and implemented. In Gambon and Bottazzi (2021) Bolivian co-management arrangements failed due to misrecognition of Indigenous relational ontologies, causing procedural breakdowns (e.g. non-inclusive forums) and distributional inequities (e.g. uneven benefit-sharing from ecotourism). In particular, risks of inequity persist, through top-down, blueprint approaches lacking sufficient adaptation to diverse contexts (Dressler et al. 2010; Ostrom and Cox 2010), if dominant actors control institutional formation (Cleaver 2017).

This persistence of procedural inequities reflects entrenched institutional dynamics in which co-management reorganises, rather than transforms, pre-existing governance structures. Martinez et al. (2023, 2) exemplifies alternative approaches by proposing a return to “Indigenous relationality and kincentricity,” a conservation model that expresses a futurity beyond merely avoiding current environmental crises. Centring Indigenous ways of knowing and governance systems has the potential to disrupt institutional path dependencies that powerful actors use to further their interests over those of less powerful groups (Kiwango and Mabele 2022).

Path-dependency as a result of systems of entrenched institutional practices that serve the interests of powerful actors was discussed by a number of authors who implicate international environmental policies and power disparities between local actors and Western donor countries as causes for inequitable outcomes. (Rambaree 2020) reported that de facto British rule over conservation interventions continued on the island of Chagos to the detriment of the Chagossians and the country of Mauritius. In another case from Southeast Africa, Wynberg and Hauck (2014) state that conservation objectives are often preferred over the social, cultural, and economic needs and rights of fishers and coastal people as a result of international pressure to expand marine protected areas. Further, rather than analysis that included how project finance impacted equity outcomes, sampled articles only mentioned NGOs, bilateral and multilateral donors without stating how conditions set at the international level impacted equity outcomes for local people in PCAs. It is crucial to consider that PCAs in the Global South heavily depend on financial flows, including aid for biodiversity, which channels money from cash-rich to biodiversity-rich countries for implementation and management (Boillat et al. 2018). PCAs in the Global South also rely on flows of information and ideas, as well as on global conservation priorities set by institutions such as the CBD and other multilateral organizations (Boillat et al. 2018; Choquez-Millan et al. 2024). The path-dependencies described by Wynberg and Hauck (2014) and Rambaree (2020) explain how recognitional exclusions (e.g. prioritizing Western science) connect to procedural and distributional harms; in the first case, global MPA expansion pressures excluded coastal fishers' cultural practices, causing procedural disenfranchisement and uneven cost-bearing while the latter case de facto colonial control linked misrecognition of Chagossian rights to procedural eviction processes and distributional displacement, perpetuating cycles of marginalization.

The tension between conservation and equity underscores the pressing need for a more critical examination of trade-offs between these two goals. While several cases acknowledged the necessity of trade-off thinking, only two cases delved explicitly into trade-off situations in considerable depth (Gross-Camp et al. 2012; Krüger et al. 2016). Krüger et al. (2016) presented a particularly intriguing case in which control of the PCA was entirely relinquished to local communities. So, while equity objectives were achieved through ownership, access, and decision-making power, the local community still faced challenges due to a lack of education and capacity to maximise livelihood opportunities from sustainable PCA resource utilization. However, these factors affecting local communities go beyond the purview of the PCA governance into the realm of national policies for rural areas in the global south because whether or not they are adjacent to protected areas rural communities are still subject to high poverty levels and low opportunities (Castañeda et al. 2018).

The recognition of complex trade-offs between human well-being and biodiversity conservation goals, as well as between conservation and other economic, political, and social agendas, is inevitable and occurs across multiple scales (Boillat et al. 2018; McShane et al. 2011). The key question is not whether trade-offs are made, such as those between distributive justice and conservation, but rather the extent to which conflicts of interest are acknowledged, recognised, and addressed in participatory and transparent ways, rather than being concealed within unrecognised legacies of past protectionist ideologies (Dahlberg, Rohde, and Sandell 2010)

Implications for policy and practice

Most cases described were not specifically targeted at practitioners or policymakers (95%). While authors did provide recommendations on achieving equity, practical suggestions were often broad, especially, in cases which were focused on using practical cases to establish conceptual ties between frameworks such as tele-coupling and equity (Boillat et al. 2018) and cultural heterogeneity and capability approaches (Ballet et al. 2015). Nevertheless, some publications dealt directly with practice and set out detailed proposed plans for practical implementation (e.g. Chung, Gullett, and Rose 2019; Gurney et al. 2023; Hill 2011). Attempts to link to practice were also visible in the workings of internal government bureaucracies' and its impact on restorative justice in a Chinese protected area highlighted in (Zhu and Lo 2021) and the decolonial approach taken by (Vehrs and Zickel 2023) to advocate for restorative justice for displaced people. While such concrete implementation and outcomes of these recommendations may lead to greater clarity for practitioners and policy makers, these may also be limited to the respective social-ecological contexts under investigations. Nevertheless, the lack of concrete recommendations in most publications may arise from the conceptual challenges that implementing equity poses, particularly due to the practical impossibility of reaching a consensus on what constitutes a good empirical outcome, given the multiple conceptions of equity (Martin et al. 2016).

The subjective nature of implementing equity in practice adds to the challenges implementing conservation. It is not evident from the literature that fulfilling the parameters of equity in an "objective" way would necessarily lead to a sense of equity among local actors. However, advocates for expanding PCAs often present conservation as an equitable aspiration aligned with the desires of indigenous peoples to return to traditional ways of living in harmony with nature (Mushonga 2023). This perspective may mask potential issues of further marginalization and exclusion (Büscher et al. 2017). For instance, the creation of a Swiss park, as described by (Michel 2019), failed despite clear benefits, recognition, and a highly democratic participatory process. Despite meeting the criteria for equitable creation of a PCA, surrounding communities felt that the creation of the PCA would lead to inequity and should not proceed (Michel 2019). According to Mushonga (2023) the right to have the environment protected may be an insidious threat to human rights particularly because it comes hidden in desirable social aspirations and transformative rhetoric. In practice, few governance approaches that were described as community-led were actually governed by the Local People. Rather, a majority were cases in which governance structures remain structurally led by the state or by NGOs with the participation of Indigenous or local people highly dependent on their facilitation. In the case of Michel (2019), the failure to create the PCA did not imply a failure of conservation. However, celebration of protected areas often overlooks the ways in which conservation may be exclusionary and thus mirror development, as extractive industries, agribusiness, and conservation all encroach into community and indigenous lands, hindering local people's ability to manage and sustain their lands and contribute to biodiversity (Orozco-Quintero, Burlando, and Robinson 2015). These linkages underscore the need for policies that address root causes, such as integrating historical factors and taking the intersectional nature of equity into consideration through gender-disaggregated forums in co-management (e.g. Baker-Médard et al. 2023), in order to enhance equitable outcomes.

Conclusion

A growing body of literature seeks to explore various forms of equity and their connections to conservation success. There is a consensus among conservation scientists that it is crucial to identify prevailing notions of equity associated with ecosystem governance and assess their appropriateness in the diverse contexts where conservation efforts are implemented. However, the conceptualization of equity in practice often remains unclear. Recommendations on how to achieve equity are often ambiguous, which presents challenges for practical implementation. Addressing the intersectional nature of equity by disaggregating stakeholder metrics and centering Indigenous ways of knowing and governance systems is essential to highlight a plurality of equity perspectives that unveil connections between people and nature. These relationships are important for achieving more equitable community representation in decision-making, as well as overcoming the problem of misalignment between IP & LCs and governance actors based on ways of being-in-place and social organization. Further, acknowledging power relations beyond state actors is crucial. Particularly, a deeper assessment of equity interconnections shows that while distributional issues dominate, their ties to procedural and recognitional dimensions may often be driven by exclusions like disregarding cultural identities.

The reviewed literature, whether explicitly or implicitly, often hinted at solutions that did not involve changing PCA status to achieve equity. This may lead to conservation policy that overlooks the ways in which expansion of PCAs excludes IP & LCs and hampers local people's ability to manage and sustain their lands and contribute to biodiversity. The moral implications of ecosystem governance become apparent only when studying the impacts of governance practices in specific contexts. Nevertheless, there appears to be movement towards centering IP & LCs' worldviews and relations to nature as an important aspect of PCA governance going forward.

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