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Winners, Losers, and the Implications of Inequality in Biodiversity Conservation Policies: Insights From European Development Aid to Central Africa

Alexandra Rasoamanana[1] | Max Krott[1] | Symphorien Ongolo[1,2]

[1]Chair of Forest and Nature Conservation Policy, University of Göttingen, Göttingen, Germany | [2]SENS/IRD-France, University of Montpellier Paul-Valéry 3, Montpellier, France

Correspondence: Alexandra Rasoamanana (alexandra.rasoamanana@uni-goettingen.de; alexandra.rasoamanana@gmail.com)

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ABSTRACT

International aid for biodiversity conservation is expected to provide alternative livelihoods for forest-dependent communities to offset restrictions on forest use. This aligns with the contemporary conservation discourse that promotes pro-poor, human rights-based, and sustainability principles. We used the Central Africa Forest Ecosystem Program (ECOFAC), the longest-running EU-funded initiative with nearly 200 million euros invested for about 30 years, as a case study to analyze how international aid, has attempted to achieve fair and sustainable conservation practices. Through a longitudinal study of the design of ECOFAC, we assessed its implementation arrangements, budget distribution, prioritized technical solutions, and target actors to identify to whom it has benefited the most (winners) and for whom it has not been beneficial or even harmful (losers). Our findings show that the EU biodiversity conservation program has prioritized the reinforcement of state administrations to strengthen their coercive power in protected areas. A co-dependency has developed between transnational actors, preferred by the EU as implementing partners, and state conservation actors. This relationship has become a barrier to meaningful reform within ECOFAC despite decades of policy learning. The pro-poor discourse and human rights concerns of the EU aid have not been reflected in the types of activities funded nor in the level of investments aimed at incentivizing forest-dependent communities to support conservation restrictions. EU policymakers need to pay more attention to how their interventions in biodiversity conservation policies create or reinforce power asymmetries and inequality, especially in Central Africa.

1 | Introduction

Tropical biodiversity and ecosystems are increasingly recognized as global public goods (Scales 2017), valued not only for their critical ecosystem services (Dargie et al. 2017; Lawrence and Vandecar 2015) but also for their vital role in advancing global sustainability (Bonan 2008; Lawrence et al. 2022). This recognition has led to a rise in international aid directed toward biodiversity conservation in tropical forest regions (Miller 2014; Reed et al. 2020). Despite this trend, biodiversity loss and deforestation remain alarmingly high (Mace et al. 2018). At the same time, persistent issues of social inequality and injustice continue to characterize many conservation initiatives (Kashwan 2017; Luoma 2022).

Much of the literature on biodiversity-related international aid has focused on the geographical allocation of funds to forest-rich tropical countries (Qin et al. 2022; Waldron et al. 2013), as well as on the effects of such aid on deforestation rates (Bare et al. 2015) and development outcomes (Waeber et al. 2016).

However, fewer studies have analyzed which actors benefit the most from specific technical solutions prioritized within these aid-funded policies (Corson 2018). This paper addresses this gap by analyzing how the design of aid-funded conservation policies empowers certain actors through access to resources, enhanced capabilities, and increased agency to pursue both formal and informal interests.

In many forest-rich and aid-dependent countries, conservation policies are often designed via technocratic processes led by experts from transnational organizations such as western consultancy firms, transnational conservation NGOs, and international multilateral and development agencies (Majambu et al. 2021; Sarrasin 2007). These actors are often in close collaboration with influential bureaucrats in the recipient countries to legitimize their intervention in the policy process (Diallo 2012; Ehrenstein 2013). These top-down approaches often lack meaningful democratic engagement and tend to favor actors with the strategic capacity to align with donor expectations while benefiting elite bureaucrats in aid recipient countries (Trefon 2011).

Using policy design theory, this paper analyzes the content and implications of conservation policy solutions to identify which actors have been advantaged or disadvantaged by implementation (Schneider and Ingram 1997). By interrogating the embedded preferences and exclusions within selected policies, the analysis sheds light on the power dynamics at play and enables discussion on the broader political and social implications for sustainability, poverty alleviation, and equity. This study adopts a Weberian conceptualization of power as the ability of an actor to impose their will despite resistance (Weber 1978), to explore how conservation policy design and implementation in aid-dependent settings reflect unequal relationships among involved and affected actors. In these settings, actors often mobilize various power-based instruments, such as coercion, economic capital, political influence, discursive frameworks, symbolic representations, and dominant information, to influence policies in ways that maximize their material and non-material gains (Karsenty and Ongolo 2012; Marijnen and Verweijen 2016; Poteete and Ribot 2011).

Since the late 1980s, the European Union (EU) has been a leading donor in efforts to reconcile biodiversity conservation and development in Central Africa, notably through the European Development Fund (EDF) (Landell Mills 2022, 5). The EU has financed numerous regional and national initiatives[1] to promote biodiversity conservation for both local development and global sustainability. Among these, the Central Africa Forest Ecosystem program (ECOFAC) stands out as the longest-running EU-funded program, with nearly 200 million euros allocated over 30 years of policy interventions. Across its six phases (1992–2024), the programme has consistently aimed to reconcile biodiversity conservation and development objectives in selected Central African countries. In a 2022 speech celebrating 30 years of the program-, Gilberto Da Piedade Verissimo, President of ECCAS (Economic Community of Central African States), referred to ECOFAC as an initiative contributing to the creation of a "biodiversity conservation economy" (ECOFAC 2022, 4), emphasizing its developmental aspirations. Using ECOFAC as a case study, this paper analyzes the distributional effects of international aid in conservation policy to identify those who have benefited the most (winners) and those for whom it has not been beneficial or even harmful (losers). This analysis provides insights into how biodiversity conservation strategies funded by international aid are designed and implemented in line with pro-poor approaches, human rights commitments, and sustainability objectives.

2 | Theoretical and Analytical Framework

Policy design theory posits that the deliberation process involved in formulating policy solutions is socially constructed (Schneider and Ingram 1997). The resulting technical choices, often reflect the power dynamics between actors who stand to benefit most (Cairney 2021). However, from the perspective of development practitioners with significant influence over policy design and implementation in aid-dependent countries, this process is typically seen as a technical, neutral and anti-politics exercise (Li 2007, 7). In practice, the selection of instruments or technical solutions is not always anchored in knowledge-based and truly participatory approaches (Ehrenstein 2013; Walters et al. 2021). It often fails to align goals, actors' interests and means toward long-term solutions jointly defined by all actors, undermining fair and equitable biodiversity conservation and development objectives (Corson 2017).

In aid-dependent contexts, policy design is often influenced more by the preferences of powerful actors, such as donors, state administration in the recipient countries, and international organizations, than by the needs of affected communities (Nago 2021). As a result, aid allocation and the selection of technical solutions tend to be driven by strategic and interest-based agendas (Rahman and Giessen 2017), rather than by equitable, needs-based considerations (Rasoamanana et al. 2023).

2.1 | Policy Design Theory and the Social Construction of an Unequal Conservation Policy Reform

Central Africa states are home to the Congo Basin forests, the second largest tropical forest after the Amazon (Vancutsem et al. 2021). These forests host a high level of biodiversity, including many endemic and charismatic species such as gorillas, elephants, lions, okapis, and bonobos (Grantham et al. 2020). This ecological richness has attracted international donors and transnational conservation NGOs, which have strongly encouraged the creation or expansion of state-run protected areas in the region (Proces et al. 2021). To date, about 15% of the Congo Basin forests fall within protected areas, with most restrictions affecting forest-dependent land users (Walters and Wardell 2023).

Despite increased conservation funding (Favada et al. 2025), biodiversity and forest loss persist both within and beyond protected areas (Tyukavina et al. 2018). These losses are often linked to the livelihood strategies of forest dependent land-users, which are influenced by both local needs and global market demands (Ladewig et al. 2024; Trefon 2023). Depictions of marginalized, apolitical forest-dependent communities as principal drivers of deforestation and biodiversity loss (Shapiro

TABLE 1 | Variables for assessing inequality implications in policy solution design.

Observed variable	Scientific questioning	Description
Implementation arrangement	Which actors decide on budget allocation and which technical solutions are prioritized? Who designs and executes technical solutions?	The bureaucratic rules structuring implementation, clarifying roles and determining who is involved in designing and executing policy solutions at various stages (Annex 1).
Budget distribution	How much funding is allocated to each actor and technical solution? What rules guide allocation?	The financial resources allocated to technical solutions and recipient countries. Budget distribution reveals which activities and actors receive the most or least funding.
Technical solutions	What technical solutions support biodiversity conservation and development objectives? How have these evolved to enhance impact?	Activities or processes designed to generate specific outputs expected to lead to desired outcomes. These solutions can be implemented at various levels (site, actor, scale) (Annex 2).
Target actors	Who were the target actors? Which actors benefited most from the technical solutions and why?	Various actors played different roles in designing, executing and benefiting from the selected technical solutions. The target actors may include state organizations, NGOs, or forest-dependent communities.

et al. 2023) contribute to their negative portrayal in conservation discourse and policy (Windey and Van Hecken 2019; Wong et al. 2022). This stigmatizing social construction can significantly influence policy decisions, particularly in determining who is considered eligible to benefit from a policy and who is expected to bear its costs (Schneider and Ingram 1993).

International conservation aid in the region is framed as supporting technical solutions that are just, sustainable, and inclusive (ECOFAC 2022; USAID 2022). These interventions aim to address conservation and development challenges without exacerbating poverty or inequality. However, achieving conservation outcomes that are simultaneously fair, locally beneficial, and globally sustainable remains a major challenge (Ramutsindela et al. 2022). A central question is how development practitioners are responding to these challenges through the bricolage of technical solutions integrated into aid-funded program-s and projects such as ECOFAC. In this context, bricolage refers to the use of theory of change (ToC) approaches, where time-bound desired outcomes are pursued through a combination of technical solutions (Cleaver 2012). These solutions focus on particular actors who, in turn, gain the capacity to influence behavio-r and actions aligned with policy goals. Drawing on policy design theory (Schneider and Sidney 2009), four variables are particularly useful in assessing the distributional effect of policy solutions, to define the winners and losers (Table 1): (i) implementation arrangement; (ii) budget distribution; (iii) technical solutions; and (iv) target actors.

2.2 | Method for Analysing Inequality and Policy Implications Within the EU ECOFAC Programme

This empirical study tests the hypothesis that EU-regional aid for biodiversity conservation has focused on reinforcing state control over protected areas while putting marginal investment in long-term solutions supporting forest dependent communities. This hypothesis draws on existing literatures which describes how the state administrations in Central Africa countries (Ongolo 2015) and elsewhere (Diallo 2015; Horning 2008), despite their negative constructions, remain in dominant positions in forest and biodiversity conservation governance, capturing the benefits of international aid.

To assess this hypothesis, we employed a longitudinal method to collect both qualitative and quantitative data over the 30-year period of ECOFAC. We reviewed policy documents such as financial agreements, reports, and evaluations (Annex 3), complemented by 48 interviews with consultants, government officials, and conservation NGOs (Annex 4). Snowball sampling allowed us to engage both current and former individuals and organizations involved in the program, offering deeper insights into the policy process.

Field observations were carried out in two long-supported ECOFAC protected areas: Lopé National Park (Gabon, July 2022) and Dja Faunal Reserve (Cameroon, February 2023) (Figure 1). A total of 68 forest-dependent land-users participated in interviews and focus group discussions within these protected areas. Our observations extended to regional political arenas by attending the 19th meeting of the Congo Basin Forest Partnership, held in early July 2022 in Libreville, Gabon. All data were coded and analyzed to identify patterns and shifts in ECOFAC implementation arrangements, funding distribution, technical solutions, and targeted actors across the 30-year period.

3 | Results

3.1 | Enduring Policy Priorities Despite Evolving Implementation and Budget Shifts

Analysis of the financial allocation within the ECOFAC program shows an uneven distribution of funding across four categories: (a) the formulation of objectives, (b) the technical solutions

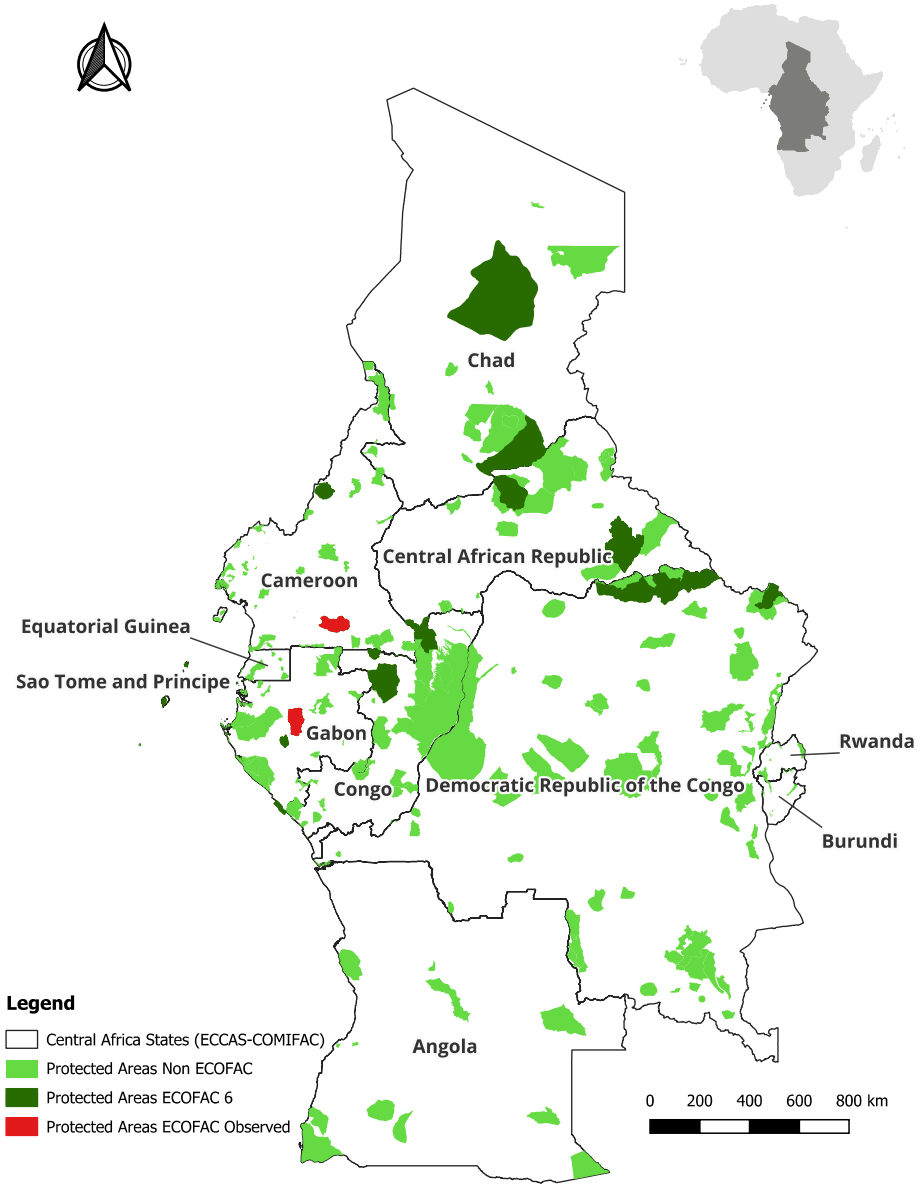

FIGURE 1 | Map of protected areas in Central Africa Member States highlighting protected areas benefiting from ECOFAC and non-ECOFAC phase 6 and protected areas of ECOFAC observed (database OFAC-COMIFAC 2022 and UNEP-WCMC and IUCN 2022).

supported, (c) the actors in charge of implementation and (d) the scales of interventions (Figure 2).

When grouping the technical solutions financed through ECOFAC, there is a clear prioritization of biodiversity conservation over community development. The latter received less than 10% of the total budget (Figure 2a). Over the course of three decades, the most frequently supported technical approaches were those that reinforced command-and-control mechanisms of state administrations in charge of protected areas, especially through financing operational management costs (Figure 2b). Regarding implementation arrangements, transnational non-state actors have consistently been favored as direct recipients of EU funding (Figure 2c). The allocation of funds across Central African countries has varied significantly across ECOFAC phases, shaped largely by political and diplomatic relations between national governments and the EU (Figure 2d). For instance, although the Democratic Republic of Congo (formerly Zaïre) has been included in the program since the early 1990s, political instability disrupted ECOFAC implementation. Equatorial Guinea was removed from the list of beneficiary countries after 2011, following its reclassification under the Cotonou Agreement in 2008.

Although implementation arrangements and budget allocations have evolved over time, these changes largely reflect underlying political power dynamics among actors involved in the program. Despite these shifts, the continued reliance on coercive-based conservation measures has kept forest dependent land-users in a marginal position, particularly when compared to the consistent support directed toward state administrations and the transnational non-state actors leading ECOFAC implementation.

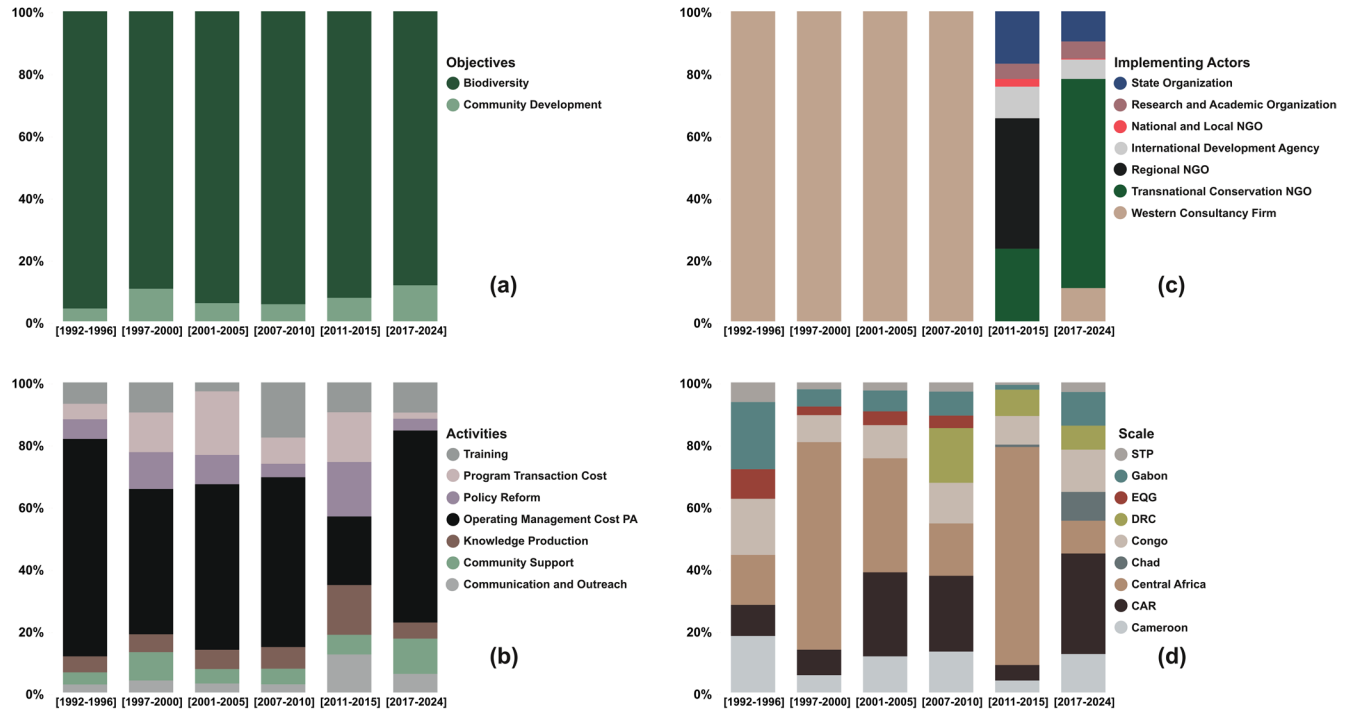

FIGURE 2 | Matching percentage of funds allocated through ECOFAC since 1992 until the mid-term evaluation report in 2021 based on objectives (a), activities (b), implementing actors (c) and scales (d).

3.2 | Navigating Dual Allegiances: The Political Strategies of Transnational Actors in Shaping Policy Priorities

ECOFAC began as a centralized program but gradually adopted a polycentric model involving a wider range of actors. Three actors influenced its design and priorities by shaping technical solutions and funding decisions (Annex 5). First were the signatories of financial agreements compromising EU officials (from the Commission and delegations) and elite bureaucrats from Central African states. Second were the organizations contracted by the EU mainly Western consultancy firms and transnational conservation NGOs to design technical solutions prior to the signatory of the financial agreements (EU 2016, 16–32). Third were the implementing bodies, including transnational actors, national administrations, and local civil society organizations registered in Central Africa.

From 1992 to 2010, ECOFAC followed a centralized model, with Western consultancy firms collaborating closely with national administrations for protected areas. During the 1990s, these actors framed conservation issues in Central Africa as resulting from institutional weaknesses, arguing that: "*While conservation policies have been implemented for several decades in various parts of Africa, it must be acknowledged that Central Africa's experience in this area is more limited. Often highly centralized and dramatically lacking in resources, the administrations in charge of protected areas have had few opportunities to implement conservation program*." (AGRECO 1996, 12). This framing justified reforms aimed at strengthening state structures, reactivating the management of protected areas established during the colonial era (e.g., Dja reserve, Odzala NP and Lopé NP) and creating new ones (e.g., Obo NP). Consultancy firms were granted considerable flexibility to develop technical responses tailored to state administration needs (AGRECO 1996, 12–14). EU bureaucrats, national bureaucrats, and consultancy experts collaborated closely, particularly in setting priorities. As one former expert observed: "*the power to set priorities was in the hands of those who managed the fund. It was about buying expensive materials abroad, providing sophisticated monitoring material to equip the forest administration to carry the surveillance of protected areas. There was not much left to do proper community development.*" (I25, former expert from non-state organization). Community development was further sidelined due to the absence of interdisciplinary teams in decision-making roles. An independent evaluation report stated that: "The academic profiles and expertise of the component managers, who are generally more specialized in biology than in sociology or community development, have had a decisive influence on the priorities established." (Earth 2003, 29).

A shift occurred during phase 5 (2011–2015), when the EU delegated implementation responsibilities to regional bodies such as ECCAS and RAPAC[2]. ECCAS led state-driven policy coordination, while RAPAC operated as a regional NGO for protected area management. Despite these structural changes, Western consultancy firms retained control over technical design and the selection of implementing partners (AGRECO 2011). These reforms aimed to align ECOFAC with regional frameworks, including the 1999 Yaoundé Declaration and the COMIFAC Convergence Plan (2005–2015). However, implementation was hindered by rigid funding structures and continued reliance on international consultants, which limited institutional capacity-building as impending ownership (Geotest and Particip GmbH 2015, 20–21). The expansion of the program across the region was not matched by proportional funding, leading to limited support for community initiatives: "*The level of investment for income-generating activities for local communities (1.5 million*

euros) is largely insufficient for a large-scale programme such as ECOFAC 5." (Geotest and Particip GmbH 2015, 14). The ongoing reliance on Western consultancies perpetuated a pattern of repetitive technical solutions and maintained inequalities established in earlier phases.

Phase 6 (2017–2024) introduced a polycentric funding structure (EU 2016, 9), in which grants were provided directly to private and non-profit organizations working under formal agreements with national administrations. These agreements took the form of delegated management arrangements lasting 10–25 years, co-management for up to 10 years, or short-term technical assistance contracts lasting 1–5 years (BRL ingénierie 2021, 13). Gabon was a notable exception. The government rejected the model involving intermediary organizations and received direct funding from the EU, channeled through the national park agency (ANPN) without participation by external non-state actors. In contrast, other countries in Central Africa faced significant pressure from donors to adopt governance models based on delegation to private or non-governmental actors. As noted in a program evaluation: *"the way in which ECOFAC evolved during this phase 6 can be misunderstood locally. Indeed, the program moved from a rationale of direct support to public administrations to one of supporting operators who, in principle, act on behalf of and under mandate from these public administrations. However, in Sao Tomé and Principe, the selected operator, BirdLife and its partners, does not benefit from total management delegation, as is the case for other operators of the program. Its contractual framework for intervention with the national authorities is based on the technical assistance model and consists of three memorandums of understanding (with the Ministry of Agriculture and the Ministry of the Environment for Sao Tomé, and with the Autonomous Region of Principe) which define BirdLife's mandate in a rather broad way, which can be a source of divergent interpretations."* (BRL ingénierie 2021, 32).

Despite shifts in funding structures and institutional actors, transnational organizations have consistently retained the mandate to design technical components (see Figure 2c). Gabon's ability to secure direct EU funding highlights how power dynamics enable certain states to bypass intermediaries. Most Central African governments lacked this leverage, underscoring how transnational actors strategically navigate their dual allegiance to both EU institutions and domestic bureaucracies (I11, civil servant, forest administration). This dual alignment has allowed them to secure privileged access to funding and shape the design of the program.

3.3 | Coercive-Based Technical Solutions to Reinforce State Administration Authority Over Protected Areas

Biodiversity conservation efforts in Central Africa through ECOFAC have largely relied on two interlinked strategies: the expansion of state-run protected areas and the reinforcement of their operational capacities through technical and material support.

The first strategy focused on enlarging the network of protected areas where strict regulations on access and resource use were enforced. By 2017, the conservation areas receiving management funding under ECOFAC had increased twelvefold from 1,586,000 ha in 1992 to 20,109,800 ha (Figure 3). This expansion was supported by financial resources and technical expertise, facilitating the creation of new national parks such as Monte Alen National Park (NP) in Equatorial Guinea, Obo NP in Sao tomé Principe NP, Mbaéré Bodingué NP in Central African Republic in 2007 (Earth 2003, 172) and the contested[3] creation of Messok Dja NP in the Republic of Congo. Existing parks were extended. For instance, Odzala-Kokoua NP in the Republic of Congo grew from 28,300 ha in 1935 to 1,354,600 ha in 2001, a 45% increase (Earth 2003, 171). Program actors emphasized that "*ECOFAC is the first regional foreign aid in the forest sector to revive the management of former national parks and reserves implemented during the colonial period in the Congo Basin and to expand them to meet the land requirements for large iconic species such as the elephant and gorilla to thrive*." (I2, civil servant from a forest administration). Despite long-standing tensions with forest-dependent communities, ECOFAC played a pivotal role in supporting state-managed protected areas (AGRECO 2002, vi). Internal assessments claimed the program contributed to the management costs of 40% of protected areas in Central Africa and facilitated the legal designation or boundary expansion of 15% (ECOFAC 2022, 12).

The second strategy centred on strengthening the operational capacities of protected area management units. This entailed equipping eco-guards and managers with the necessary tools and infrastructure to enforce access restrictions. Financial, technical, and material inputs delivered across successive program phases enabled the construction and maintenance of access roads, life base camps, and eco-guard posts (e.g., in. AGRECO 1996, 11; Earth 2003, 172–173; Landell Mills 2021, 4). Surveillance equipment such as all-terrain vehicles, GPS units, and camera traps further enhanced monitoring capabilities (e.g., in AGRECO 1996, 15; BRL ingénierie 2021, 61).

Training initiatives targeted primarily on eco-guards and government officials, covering law enforcement, spatial analysis, and species monitoring (e.g., in AGRECO 1996, 20; BRL ingénierie 2010, 8; Landell Mills 2021, 4). Knowledge production was also supported, particularly in relation to species assessments and patrol system development. However, this research was criticized for being "more fundamental than applied," benefiting the research institutions more than on-the-ground park management (Earth 2003 171). Much of this data was centralized within the Central Africa Forest Observatory (OFAC) to archive policy documents and grey literature to support regional actors.

Beyond field-based interventions, ECOFAC contributed to biodiversity-related policy reform at both national and regional levels, primarily through funding expert consultancy services. For example, during the 2007–2010 phase, the lead implementing agency, supported the drafting of at least 12 implementing decrees for NPs in Gabon (BRL ingénierie 2010, 9). At the regional level, 11 policy decisions were endorsed by ECCAS in 2015, including declarations against poaching[4] and in support of the green economy[5] (Geotest and Particip GmbH 2015, 22). These legal reforms emphasized restrictive measures to enforce conservation through myriad statutory tools. As one civil servant noted, the program aimed to equip governments with legal mechanisms to assert control over forest resources: "*In*

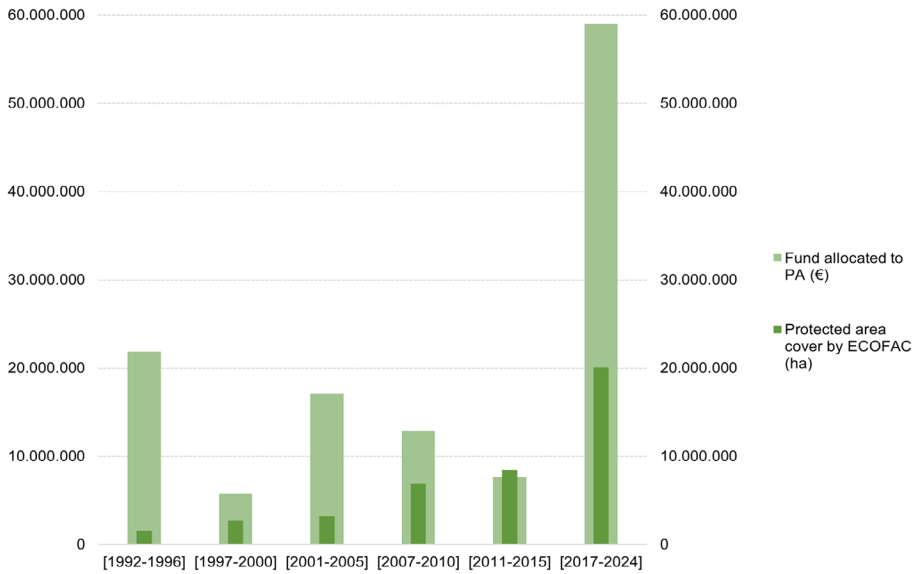

FIGURE 3 | Evolution of area covered by the ECOFAC programme and fund allocated to the protected areas.

the 1990s and early 2000s, ECOFAC, although conceived as a regional program, focused on the level of protected areas in the different countries. It worked on the adoption of legal means such as the protected area code, restriction on wildlife consumption and commercialisation. These regulations were mainly based on the idea of strengthening state control over the use of forest resources through legal means. In 2015, ECCAS played a key institutional role in transforming this national focus on regional policy reform that was expected to be easily adopted and translated into country law." (I9, civil servant from state organization).

Evaluation reports, narrative accounts, interviews with actors, and field observations reveal that ECOFAC invested considerable effort in legitimizing and institutionalizing the coercive authority of state bureaucracies and their non-state partners in protected area management. As Figures 2 and 3 illustrate, the majority of funding supported "fence and fine" strategies, whereby land use and settlement conflicts were primarily addressed through restrictive regulations. According to a former practitioner in ECOFAC: *"Protected area could not get out of the paper park problem without the resources provided by ECOFAC. Many of the investments of ECOFAC 1 to 3 have been the basis for having an operational unit of its own for the management of the park. Infrastructure was built, such as a life base camp, roads and patrol tracks. Financial resources have been given to support staff through per diems and bonuses because you know that salaries in administration cannot cover even your basic monthly needs."* (I10, civil servant from state organization). However, this coercive and resource-intensive model proved financially unsustainable (AGRECO 2005, iv; Earth 2003, 181; Landell Mills 2018, 39). A dependency on ECOFAC funding was established, and the experience of those working in these protected areas was: *"Every time ECOFAC is in transition from one phase to another, the site simply stops. We no longer have an operating budget to continue work properly, such as patrols, due to lack of fuel. But the worst is that the eco-guards are left without per diems which are for many their official salary as they were recruited under the ECOFAC project."* (I26, former expert from non-state organization). This statement was confirmed by the independent evaluation carried in 2006: "*The cessation or slowing down of field actions on ECOFAC sites in each country in 2003 has led to a deterioration in essential management structures (infrastructure, buildings, equipment, means of transport, administrative structures, etc.)*" (DRN et al. 2006, 133). Although each implementation phase of ECOFAC has exposed the limitations of an over-reliance on coercive enforcement, this approach continues to underpin dominant conservation practices.

3.4 | Marginalization of Investment in Incentive-Based Measures for Forest-Dependent Land-Users

In 1992, forest dependent land-users began contesting the presence of the ECOFAC within protected areas, as stated by a report: "*Furthermore, the implementation of ECOFAC at protected area level has also encountered numerous problems of misunderstanding with local populations, who often live in very precarious conditions, take little interest in conservation imperatives and are essentially looking for a material improvement in their living conditions*." (AGRECO 1996, 12). In response, ECOFAC implemented a community development approach intended to foster acceptance of land-use restrictions among forest dependent communities and demonstrate to state administrations the economic value of maintaining protected areas. Three strategies were developed depending on the ecological and social context of each protected area, as well as on the primary threats to biodiversity. These involved promoting tourism based on natural attractions, developing income-generating activities as alternatives to traditional practices, and building or renovating infrastructure in neighboring villages.

Between 1992 and 2005, ecotourism was promoted in protected areas such as Odzala NP in the Republic of the Congo, Obo NP in São Tomé and Príncipe, Monte Alén NP in Equatorial Guinea, and Lopé NP in Gabon. However, the limited economic impact at both local and national levels led

to skepticism among local communities and state authorities. Misunderstandings arose over expected financial benefits. "*[…] expectations regarding the benefits of tourism development: most of the time, revenues and profits are confused, and even the administrations in charge think that as soon as there are revenues, they must be redistributed to the State and the local population. However, they don't always realize the investments and costs involved in tourism development operations in very difficult access conditions.*" (AGRECO 2002, 155). The essential conditions for ecotourism development were lacking in many protected areas supported by ECOFAC such as essential infrastructure, political stability, and affordability: "*In terms of tourism development, the aim was to consolidate the potential of the Monte Alén, Odzala and Lopé sites, and to a lesser extent Sao Tomé, and to entrust the management of these activities to private operators. Unfortunately, this objective was only partially achieved, for a variety of reasons: socio-political unrest and the Ebola epidemic (Odzala), insufficient resources (directed to each protected area to promote ecotourism), lack of political will or response (Lopé) to privatization procedures for tourism management, etc.*" (AGRECO 2005, vii). Despite the unsuccessful attempt to stimulate thriving ecotourism in the early phases of ECOFAC, this activity remained supported in later phases (Geotest and Particip GmbH 2015, 15; Landell Mills 2021, 44). Where ecotourism succeeded, it remained accessible only to elite visitors[6]. For example, in Odzala NP, a 7-day visit including a gorilla trek cost around 13,000 euros per person. Despite the acclaimed success of Odzala NP[7], the fragility of ecotourism as a reliable income source was evident: "*In the wake of the COVID-19 pandemic, the halt to tourist activity has had an impact on business, as a percentage of the 5% tax levied on tourists is paid into the community development fund (FDC). This fund has not been supplied since the closure of the borders and the lockdown decreed in April 2020 in Congo, and although most control measures have been relaxed by the government, the park remains closed to tourists to this day.*" (BRL ingénierie 2021, 22).

In addition to ecotourism, alternative livelihood initiatives were developed in response to the specific needs and pressures of each protected area. These initiatives aimed to offer forest users new forms of employment and to promote practices compatible with biodiversity conservation. Based on document review and fieldwork, approximately 11 types of employment not previously available in the area were introduced. These jobs included positions such as eco-guard, eco-guide, field research assistant, housekeeper, luggage porter, temporary intensive labor for infrastructure construction or renovation, rural animator, field guardian, grocer, craftsman carpenter and brickmaker. However, access to these jobs often required basic education or specific competencies, such as literacy, knowledge of other languages, or physical endurance. For instance, in Mbaéré Bodingué NP (Ngotto Forest complex) in Central African Republic: "*the impact in terms of employment of the ECOFAC installation on the intervention sector was quite low due to the lack of qualified local labor.*" (AGRECO 1996, 121). Even when skills were present, job availability remained insufficient. For example, in Lopé NP in Gabon: "*25 eco-guards had their salary and training paid by the ECOFAC programme*" in 2017 (BRL ingénierie 2021, 16) compared to the number of potential applicants among the 1214 forest-dependent land users identified[8] in 2002 as living around the park. In other words, the number of jobs offered by ECOFAC in the case of Lopé NP provided only about 2% of the local inhabitants with an employment opportunity. In Mbaéré Bodingué NP in Central African Republic: "*18 eco-guards were trained but only 4 were recruited in the site.*" (AGRECO 1996, 110). Furthermore, as these roles were funded through temporary project budgets, employment opportunities fluctuated. Jobs would often disappear, reappear, or change in alignment with ECOFAC priorities and funding. An example of this situation was reported in the case of Mbaéré Bodingué NP (Ngotto Forest complex): "*In 1995, the ECOFAC team recruited and trained 6 local rural animators. In theory, these animators were to act as a link between the ECOFAC team and villagers. Unfortunately, this training led the animators to believe that they would be hired permanently by the ECOFAC team, which was never the case. This misunderstanding led to a host of subsequent problems. In 1998, the animator team was strengthened to 10 people, but the recurring problem of hiring remained unresolved. This highlighted the fact that the people chosen by the ECOFAC team to be the real "drivers" of development were in fact only interested in becoming employees.*" (AGRECO 2005, 200). Beyond job security, different conditions required for decent work were also questionable in terms of risk or proven situations of unfairness and inequity: "*One day, I was hit by a buffalo, and I was pregnant at that time. I had to be hospitalised. I did not ask for a medical certificate at the hospital as I was afraid to lose my job by complaining about the situation.*" (I20, forest-dependent land user).

Various initiatives in agriculture, animal husbandry, and harvesting of non-timber forest products (NTPF) were introduced to reach a broader group of forest users. In 2020, a compensation scheme for crop losses caused by wildlife was also introduced in Odzala NP. These projects aimed to reduce reliance on hunting by introducing fish farming, poultry rearing, beekeeping, and goat husbandry, to discourage slash-and-burn agriculture through the promotion of cash and subsistence crops, and to link small-scale producers to markets (Geotest and Particip GmbH 2015, 15; BRL ingénierie 2021, 26). The limited success of these activities was linked to three issues. First, the alternative promoted was poorly designed to match forest-dependent land users' priorities, as for example in Monte Alen NP in Equatorial Guinea: "*Livestock activities were also initiated (grasscutters, snails, goats, etc.), but these practices did not fit with the local socio-cultural context, they did not gain the support of the local population. The activities were soon abandoned by the people responsible for them. The ECOFAC project also tried to revitalize agriculture by offering to subsidize a truck to take production to Bata. In most cases, the truck made the journey empty, and the experiment was stopped.*" (AGRECO 2002, 126). Second, the short-term support provided by the project failed to consider the long-term assistance needed to ensure the adoption of the alternative practices: "*During the 5 years of ECOFAC, there have been only two cycles of calls for projects for community development. All these projects have a maximum duration of 2 years. It is highly doubtful that this type of funding can produce sustainable results. No project promoter (except APN in Odzala-Kokoua) has been able to provide long-term support to communities in developing these income-generating activities.*" (Geotest and Particip

GmbH 2015, 14). Finally, the focus on market-oriented products (such as NTFP, cacao, coffee) in isolated areas facing unstable demand has been a failed strategy: "*I was one of the women trained in ECOFAC to be specialised in harvesting NTPF that we usually used for our daily consumption but rarely to target a market. I spent so much of my time in learning the skills and buying the materials to be a professional in NTPF harvesting, but it did not bring the promised income. The organisation that was supporting us to facilitate the access to the market lied to many of us who joined this project as they failed to buy our products that they asked us to harvest in a huge quantity that we had to throw away.*" (I45, forest-dependent land user).

With basic social infrastructure absent in villages surrounding protected areas, ECOFAC faced pressure to address a wide range of development needs: "*The choice between these actions was not easy as the population, which had never experienced any intervention, expected everything from ECOFAC (new school, hospital, maternity hospital, borehole, reconstruction of the town hall, mayor's private house, etc.), and systematically adopted an attitude of passive assistance.*" (AGRECO 1996, 122). However, the construction of social infrastructures was inconsistent, sporadic and dependent on each site priority. As providing broad development services was not a program priority: "*ECOFAC is designed for conservation despite coming from a public fund, it cannot be expected to substitute for the role of state or development organisation. The funding is mainly for biodiversity as a global public good and it is not in its mandate to build a school, health centre, etc.*" (I39, civil servant from a state organization). In response to escalating human-wildlife conflict, investments were made in electrified fencing to protect farmland, but these efforts also met with limited success. In Makoghé, a village near Lopé National Park, residents ultimately abandoned their homes and farmland despite the installation of fences. During our fieldwork in this village, the area was completely abandoned and most of the houses were ruined.

Drawing on the ECOFAC narrative and independent evaluation reports, coupled with interviews and field observations, there was a repetition of recommendations to pay greater attention to the livelihoods of and development support for forest-dependent land users. However, the technical solutions formulated and implemented remained symbolic and failed to generate the conditions needed for meaningful shifts in behavior toward biodiversity conservation among forest-dependent land users.

4 | Discussion: Distorted Policy Design in Biodiversity Conservation: Winners, Losers and Inequalities Implications

Analysis of the ECOFAC program reveals a persistent pattern of inequality. State conservation actors and transnational non-state actors have consistently emerged as the main beneficiaries, while forest-dependent land users have remained marginalized. These findings align with earlier studies indicating that aid-driven policy structures tend to shift accountability upward, toward international organizations and elite bureaucracies, rather than downward, to directly affected communities (Ribot 2013). Such arrangements have often supported exclusionary models of conservation enforced through coercive or violent means, particularly targeting forest-dependent communities (Luoma 2022). Although these strategies have failed to ensure long-term biodiversity protection or equitable outcomes (Titeca et al. 2020), influential actors have successfully obscured the resulting social injustices (Marijnen 2017) and operational deficiencies (Rasoamanana et al. 2025).

The pattern revealed by our empirical case is not new in the literature on international aid for biodiversity conservation (Corson 2018; Diallo 2012), but remains essential for understanding how international aid influences conservation policies and politics in forest-rich and aid-dependent countries. What is particularly concerning is that, despite bureaucratic and organizational shifts, ECOFAC continues to favor transnational actors and coercive technical solutions, despite their limited effectiveness in fostering equitable and sustainable outcomes. This persistence reflects structural inertia shaped by institutional biases and unequal power relations, which constrain meaningful reform. Our long-term policy analysis demonstrates how historical arrangements continue to influence outcomes, even within evolving policy structures and discourses. This is consistent with other long-term analysis showing that entrenched power imbalances between those affected by and those benefiting from policy priorities remain a significant barrier to reform (Bluwstein and Lund 2018; Rasoamanana et al. 2025).

Long-standing alliances among donors, state conservation actors, and international organizations have limited innovation in technical approaches within ECOFAC. These partnerships reflect a broader trend in many aid-dependent countries, where mistrust directed at local authorities (Ece et al. 2017), state bureaucracies (Rahman et al. 2021) and grassroots non-governmental organizations (Nago 2021) has hindered policy reform. The strategic positioning of transnational actors as intermediaries between donors and state administrations has reinforced top-down governance structures, easing the transfer of authority from state to non-state actors (Scholte et al. 2018). This dynamic contributes to the continued dominance of surveillance and punitive strategies as the preferred approach to biodiversity conservation under ECOFAC. Conservation-related violence, evident in several ECOFAC sites (Lombard 2016; Marijnen 2017), aligns with broader global trends (Blanc 2020) and is legitimized as necessary or effective (Simpson and Pellegrini 2023). However, such strategies escalate conflict, reinforce existing power imbalances between forest-dependent communities, state actors, and international organizations (Ramutsindela et al. 2022) and undermine local ownership and responsibility among state administrations, leading to dependency and opportunism (Ongolo 2015).

Conservation narratives continue to rely on the idea of untouched wilderness, despite historical evidence showing that many protected landscapes have long histories of human use and cultural meaning (Walters et al. 2019). Technocratic interpretations often frame tropical forest regions, such as the Congo Basin, as idle or underutilized spaces suited for conservation, extraction, or development (Wong et al. 2022). Such narratives characterize

forest-dependent land users as threats to economic productivity (Windey and Van Hecken 2019) and ecological integrity (Shapiro et al. 2023). Such simplified representations obscure the complex political and economic forces that drive both violent resource extraction and exclusionary conservation practices in forest-rich and aid-dependent countries (Simpson et al. 2025).

Since ECOFAC's inception, forest-dependent land users have often been unable to comply with imposed restrictions in protected areas due to the absence of meaningful community development support. Where such support has been provided, it has tended to be minimal, inconsistent, and short-term. Such outcomes tend to arise when local actors are only superficially involved (Corson 2012; Samndong 2018) and when technocratic rationales are used to justify their exclusion from decision-making processes (Lund 2015). For decades, efforts to balance biodiversity conservation with local development have been a long-standing but underachieved goal for international donors, consultancy firms, and both national and international conservation and development organizations (Pollini 2011). Many conservation policies in forest-rich, aid-dependent countries continue to neglect the substantial social and economic costs imposed on forest-dependent communities (Poudyal et al. 2018). Without integrating these costs into the policy design phase, conservation efforts will continue to fall short of achieving equity or long-term viability.

Incentive-based interventions are widely regarded as essential for gaining support among forest-dependent communities for biodiversity conservation (Oldekop et al. 2015; Rakotonarivo et al. 2021). However, to generate lasting behavioral change, such incentives must be sufficient in both scale and duration. In practice, implementation remains inconsistent and poorly aligned with long-term development needs (Rasoamanana et al. 2023). Despite well-known limitations of small-scale alternative livelihood projects, they remain the default strategy (Sommerville et al. 2010; Wicander and Coad 2018). Without aligning conservation strategies with the interests and priorities of state administrations and forest-dependent communities, conservation policies will continue to perpetuate inequality, exclusion, wasted investment, and ecological failure (Horning 2018, 5).

5 | Conclusion

From a policy design analysis, ECOFAC has chosen to invest more in coercive measures to induce "positive" behaviors in forest-dependent land users who rely the most on forestland resources for their subsistence. By focusing on investment to restrict use in state-run protected areas, the program did not align with its pro-poor discourse and human right concerns. The livelihoods of forest-dependent land users were neglected due to the focus on extending conservation territories through "fence and fine" strategies as a way of reinforcing state command and control. The EU's preferred implementation arrangements package with respect to the funding allocation process of ECOFAC program, has resulted to strategic alliances between state administrations, western consultancy firms and transnational conservation organizations. These powerful actors have focused on designing technical solutions to promote conservation objectives with short-term impacts while neglecting long-term measures that would contribute to meet the livelihood needs of forest-dependent communities. However, without permanent funding needed to maintain a coercive approach based on a regular deployment of force to control access to and use of protected areas, these coercive efforts are likely to fail. This failure trap has been often observed in numbers of forest-related policy reforms and programs in Central Africa which rely heavily on foreign donors' support while neglecting bottom-up initiatives. The EU decision-makers has ignored the political contexts characterized by rent seeking behaviors by recipients or policy entrepreneurs with high transaction and overhead costs. A spirit of co-dependency between these powerful actors was already to some degree inked into the management of central African protected areas via an array of facilitators or brokers funded by international aid. This has resulted in less emphasis on, and relatively marginal sums being invested in, supporting the livelihoods of forest-dependent land users. A detailed analysis of the EU-funded programme scrutinized in this paper shown that forest-dependent land users, such as small-scale farmers, have benefited the least from ECOFAC. In contrast, those marginalized actors bear most of the conservation costs, including negative externalities of protected areas: physical and economic displacements from selected conservation zones, daily oppression, permanent pressure to change their forest-linked livelihoods, strong restrictions in land access for agriculture, deterioration of ancestral practices, and so forth. Long-term forest development aid such as ECOFAC tends to empower actors to design innovative restrictions on existing or future zones of protected areas or empowers those who can impose such restrictions, using coercive measures rather than improving the livelihoods of forest-dependent communities. EU policymakers need to pay more attention to how their interventions in biodiversity conservation policies create or reinforce power asymmetries and inequality, especially in Central Africa. Despite long-standing support for biodiversity conservation through aid programs, evidence suggests that coercive approaches have failed to deliver long-term conservation outcomes.

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Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Endnotes

[1] In 1995, such as APTF (Avenir des Peuples des Forêts Tropicales) and MIKE (Monitoring of Illegal Killing of Elephants), in 2017,

FORETS project (Forêt, Recherche, Environnement dans la Tshopo) and Programme Agricole Rural et de Conservation du Complexe de la Salonga (PARCSS) and in 2022, RESSAC (Recherche appliquée en écologie et sciences sociales en Afrique Centrale).

[2] RAPAC (the Network of Protected Areas in Central Africa) was established in 2000 during ECOFAC Phase 2 to enforce regional approach in managing protected areas and ease transboundary conservation governance between Central Africa states.

[3] The European Commission withdrew its support for the creation of the latter after allegations of rights violations:https://www.lemonde.fr/afrique/article/2020/06/02/l-union-europeenne-reduit-son-soutien-au-wwf-accuse-de-bafouer-les-droits-des-pygmees-au-congo_6041555_3212.html.

[4] Decision No. 22 CEEAC/CCEG/XVI/15 approving the Declaration of Ministers on the Fight against Poaching in Central Africa.

[5] Decision No. 25 CEEAC/CCEG/XVI/15 approved the Declaration of Ministers on the Development and Promotion of the Green Economy in Central Africa.

[6] https://classic-portfolio.com/home/members/kamba/.

[7] State of protected areas in Central Africa 2020, Chapter 8: Ecotourism and protected areas in Central Africa: a future in common, p. 321.

[8] Conseil National des Parcs Nationaux, Gabon 2011, 22.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section.