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Demarcation as symbolic politics: insights from conservation territories expansion in Central Africa

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ABSTRACT

The expansion of conservation territories has become an important symbol for measuring the success of biodiversity conservation policies. However, overreliance on symbolic actions risks distorting policy decisions, overstating achievements while hiding inefficiencies. To ensure fair and sustainable conservation efforts, it is essential to critically assess whether prioritising territorial expansion represents the most effective response to the biodiversity crisis. In 2000, a transnational conservation organisation (WWF) organised an expert meeting in Gabon to map out conservation priorities in Central Africa, resulting in the virtual demarcation of vast forest areas. These areas became focal points for conservation efforts over decades. Using the Maiko Tayna Kahuzi-Biega (MTKB) landscape conservation in the eastern Democratic Republic of Congo (DRC) as a case study, this paper questions whether conservation expansion within these initiatives has led to symbolic or substantive outcomes in achieving fair and sustainable conservation. Our findings reveal that while conservation expansion attracts international donor funding, it remains largely symbolic. Legal designations and mapped territories create an illusion of progress, diverting resources from the substantive actions needed to achieve equitable and sustainable outcomes. Simply designating conservation areas does not ensure legitimacy or authority on the ground, nor does it address the social inequalities that undermine conservation efforts. The difficulties faced by conservation initiatives in the MTKB landscape cannot be attributed solely to the persistent conflict in the region. Even after years of instability, transnational conservation actors and donors remain engaged in the region, pursuing global agendas that prioritise the expansion of conservation territories. The concept of "symbolic politics", as developed by Edelman, provides a valuable theoretical framework to explain why conservation expansion policies persist despite significant evidence of their inability to achieve fair and sustainable outcomes.

INTRODUCTION

The creation of conservation territories is a complex and often contentious process, shaped by the competing values and interests of diverse actors (Corson 2011; Peluso 1993; Vuola and Simpson 2024). Drawing on Murphy's (2012) concept of territory, we employ the notion of conservation territories as intentionally demarcated areas designed to achieve various economic, social and ecological objectives (Murphy 2012, p.164). Historically, the establishment of such territories, during the colonial era in tropical forest rich regions, was rife with social inequalities and injustices. These practices have left a legacy of ongoing disputes over both existing and proposed conservation areas (Walters and Wardell 2023), perpetuating tensions in their creation and management.

Since the 1980s, efforts to address the coercive legacy of colonial conservation practices have led to the adoption of a "pro-poor" discourse in global strategies (Roe 2008). This shift seeks to integrate human rights and poverty alleviation into conservation efforts, promoting equity and sustainability (Ford-Learner et al. 2024). However, despite these reforms, challenges related to fairness (Zafra-Calvo et al. 2019) and sustainability (Coad et al. 2019) persist, undermining the effectiveness of many conservation initiatives.

Globally, conservation territories, categorised as protected areas (PAs) and other effective area-based conservation measures (OECMs), now cover approximately 18% of terrestrial and 8% of marine ecosystems[1]. The Global Biodiversity Framework, adopted at the Convention on Biological Diversity (CBD), continues to emphasise the expansion of conservation territories, with an ambitious target of conserving 30% of land and sea areas by 2030 (CBD 2022). However, assessments of the preceding Aichi target 11 reveal that while the number of legally demarcated conservation territories has grown, many fall short of being "ecologically representative", "well-connected" and "equitably governed" (CBD 2020, p.82-85). Deficiently crafted conservation strategies risk not only failing to halt biodiversity loss but also exacerbating it (Heino et al. 2015), while perpetuating social inequalities and injustices (Ramutsindela et al. 2022).

The extent and proliferation of legally designated conservation territories are often seen as a symbol of biodiversity conservation success (CBD 2020, p.133). However, from a conceptual angle, a symbol "stands for something other than itself" (Edelman 1964, p.6). In political communication, symbols are powerful tools for evoking emotional responses, encapsulating collective pride, anxieties, or aspirations into singular acts or images (Edelman 1985, p.5). Political actors often use and misuse

[1] Protected Planet data: https://www.protectedplanet.net/en/resources/september-2024-update-of-the-wdpa-wd-oecm-and-gd-pame

symbols to spread vague or unrealistic promises, employing them as smokescreens to distort perceptions of policy efficacy (Igoe 2010; Barry and Blühdorn 2018). This reliance on symbolic measures, such as the extent of legally demarcated conservation territories, is particularly susceptible to Goodhart's law, which cautions that "when a measure becomes a target, it ceases to be a good measure" (Hoskin 1996). Overemphasis on such symbolic metrics biases policy decisions, overstating achievements while hiding inefficiencies (Irland 2008).

In Central Africa, home to the second largest tropical rainforest after the Amazon, biodiversity conservation initiatives heavily depend on international aid (ECOFAC 2022; USAID 2022). This reliance coincides with a lack of domestic political interest in funding conservation (Ongolo 2015), and the presence of well-organised international non-state actors advocating for global conservation agendas (Reyniers 2022). Approximately 15% of Central Africa's territory has been officially designated for biodiversity and carbon storage, alongside addressing social and economic issues (Doumenge et al. 2021). However, despite sustained international investment (Liboum et al. 2019) forest and biodiversity loss persist both within and outside conservation territories (Tyukavina et al. 2018; Trefon 2023). Furthermore, the legitimacy and authority of many conservation territories remain fiercely contested, often leading to violent disputes (Marijnen 2022).

Building on this context, this paper assesses whether conservation expansion in Central Africa has become trapped in a systemic use of symbolic strategies, such as the virtual demarcation of conservation territories in poorly governed rural areas. A symbolic trap arises when symbols oversimplify and misrepresent complex realities, creating a facade of success that hinders the development of effective solutions and perpetuates systemic inefficiencies and injustices. Such traps obscure the informal interests of powerful actors who use symbolic strategies to distort perceptions of conservation achievements. To explore this hypothesis, we developed a longitudinal dataset using a mixed-method approach, including content analysis, semi-structured interviews, and field observations. This methodology enables an in-depth, empirically grounded analysis of how biodiversity conservation territory expansion initiatives have been designed and implemented in Central Africa.

ASSESSING SYMBOLIC POLITICS IN THE EXPANSION OF CONSERVATION TERRITORIES

The rush to expand conservation territories, according to Barnes et al. (2018), has resulted in several unintended perverse outcomes, such as waste of investment (Horning 2008), poor placement (Venter et al. 2014) and overstated achievements (Pressey et al. 2017). These outcomes are often disregarded or considered irrelevant because they do not conflict with the symbolic objectives of political actors. As a result, such issues become a set of consequences that are deliberately ignored rather than unforeseen. In symbolic politics, the primary concern of those promoting symbolic actions is to create the appearance of progress rather than ensuring substantive implementation or effectiveness of their interventions. The legal demarcation of conservation territories does not inherently establish the legitimacy (Ramutsindela et al. 2022) or authority of associated interventions (Gardner et al. 2018).

In tropical forest-rich regions reliant on international aid, such as Central Africa, biodiversity conservation interventions are predominantly driven by external funding and policy reform demands, often accompanied by economic and political conditions (Majambu et al. 2021). In response, domestic governments frequently engage in "gecko politics", a tactical behaviour aimed at skilfully avoiding undesired intervention while maximising their own profits to counter the influence of international actors (Ongolo 2015). This dynamic often renders the legal designation of conservation to a symbolic gesture, as domestic governments, which hold authority over these areas, are either unwilling to enforce regulations (Irland 2008) or dependent on ongoing international support for enforcement (Titeca et al. 2020). This phenomenon has been recognised by conservation practitioners since the late 1990s under the concept of "paper parks", defined as *"legally established protected areas (conservation territories) where current protection activities are insufficient to halt degradation"* (IUCN 1999, p.7). However, few studies in the scientific literature have examined how such "paper parks" as we refer to them in this paper, "symbolic demarcation of conservation territories", emerge and persist within conservation policies, despite their failure to achieve equitable and sustainable conservation outcomes (Bluwstein and Lund 2018).

Symbolic politics refers to a set of strategic actions where non-substantive or perfunctory policy interventions are employed as the most efficient and least costly approach to create the illusion that a complex societal issue has been addressed (Blühdorn 2007, Edelman 1964, 1971). This form of politics has two major dimensions: (i) the use of a symbol as a powerful communication tool to secure quick and easy political benefits and (ii) the instigation of an action (symbolic action) that is deliberately anecdotal or pointless to hide self-interest (Blühdorn 2007, Edelman 1964; 1971, Baudrillard 1981).

Symbols and symbolic actions enable powerful actors to shape policy processes in ways that advance both their formal and informal agendas (Barry and Blühdorn 2018, Trefon 2011). These actors often secure significant material and non-material benefits from policies, typically at the expense of marginalised groups (Edelman 1964).

Edelman's concept of symbolic politics (1964) outlines three contextual conditions under which a policy becomes a symbolic trap. First, well-organised individuals or organisations use symbols to create the illusion of action (symbolic reassurance) being taken to address the policy problem without tackling its root causes. Second, the symbolic policy endures over time, attracting continued investment despite failing to produce tangible results (persistence without tangible results). Third, marginalised or misinformed actors, negatively affected by the policy, remain poorly organised and unable to challenge or contest (weak opposition). Table 1 contrasts substantial and symbolic policies, highlighting that while substantial policies focus on real, evidence-based impacts (Ferraro and Pattanayak 2006), symbolic policies prioritise managing perceptions, often to hide informal interests (Edelman 1964, Eriksen 1987).

Table 1: A comparison of the differences and implications between substantial and symbolic policy (elaborated by the authors).

Policy dimension	Substantial policy	Symbolic policy
Nature of solution	**Evidence-based and outcome-focused:** solutions are developed through rigorous analysis of well-documented problems, with clear, measurable targets.	**Gesture-driven and simplistic**: solutions are primarily designed to create symbols or gestures that evoke emotional reactions, such as fear, hope, or national pride, often oversimplifying complex issues.
Technical approach	**Practical and impactful:** policies are designed to create real, measurable impacts and are flexible enough to adjust based on evolving circumstances and new evidence.	**Superficial and performative**: policies focus on appearances and public relations, delivering placebo actions that address perceptions rather than substantive outcomes.
Outcome visibility	**Transparent and measurable:** data-driven with clear, multidimensional metrics to assess progress, ensuring accountability and transparency to the public.	**Manipulable and superficial**: outcomes are represented through biased symbols or selective data, making it easier to control public interpretation and hide policy ineffectiveness
Longevity and Persistence	**Sustained by results:** the policy is continually refined or sustained based on the effectiveness of its outcomes, evolving as it meets its goals.	**Sustained by symbol:** the policy remains in place due to its symbolic appeal, even in the absence of measurable success, and is maintained through public narrative and perception rather than impact.
Opposition dynamics	**Organised and evidence-backed**: marginalised groups and those affected by the policy tend to be well-organised, using data and facts to mount effective opposition.	**Disorganised or passive**: those affected are often misinformed, manipulated, or disengaged due to symbolic reassurances, resulting in weak or non-existent opposition.
Beneficiaries	**Inclusive and widespread**: the benefits are broad-based, typically improving conditions for the public and marginalised communities through real action.	**Selective and elite-focused**: the main beneficiaries are often political elites or privileged groups, who gain more from the symbolic success of the policy than from any real improvements.
Impact on marginalised groups	**Avoid or minimises harm**: efforts are made to minimise negative impacts on marginalised groups, ensuring that the policy is equitable and beneficial for most.	**Harm obscured by symbols**: marginalised groups often face negative consequences despite symbolic reassurances, as the policy's gestures fail to address their real needs.

Debates on the best policy responses to the biodiversity crisis have yielded diverse proposals in the scientific literature. Some scholars advocate for further expanding conservation, even suggesting that half of the earth should be protected to meet global objectives (Wilson 2016, Wuerthner et al. 2015). Others critique this approach, arguing that it distracts from the underlying drivers of biodiversity loss, such as the overexploitation of natural resources, excessive consumption of unsustainable commodities, and the perpetuation of structural inequalities (Büscher et al. 2017). An alternative perspective emphasises the need to improve the management of the existing conservation territories before investing in new ones (Adams et al. 2019).

Among these differing views, the pro-expansion camp has gained traction internationally, with the adoption of 30% conservation territorial target (CBD 2022). However, in the race to meet this global target, marginal lands with little biodiversity value have been demarcated as conservation territories (Venter et al. 2018). Many existing conservation territories, both old and new, are contested, underfunded and inadequately managed to enforce restrictions or curb biodiversity loss (Coad et al. 2019). The current financial resources allocated by international donor communities or national governments remain insufficient to manage existing territories effectively (Lindsey et al. 2018) or to achieve the 30% goal equitably and sustainably (Waldron et al. 2020).

These inconsistencies raise a critical question: why do expansion strategies for conservation territories remain a priority for global biodiversity policies despite the challenges and controversies associated with their acceptance and implementation in forest-rich countries? Using the expansion of conservation territories in Central Africa as a case study, our paper explores whether such a policy has fallen into a symbolic trap. First, we hypothesise that the expansion of conservation territories promoted by major global biodiversity policies has led to symbolic demarcation of vast forest and biodiversity-rich areas in Central Africa. Second, we argue that symbolic expansion obscures the systemic failure of biodiversity conservation policies in the region while benefiting only a few pro-conservation actors.

EMPIRICAL CASE STUDY BACKGROUND AND METHODS

In 2000, a transnational conservation organisation (World Wildlife Fund, WWF) convened an expert meeting in Gabon to identify priority areas for conservation within the vast forests of Central Africa. This meeting led to the virtual demarcation of around 76 million ha of forest in Central Africa, delineated into 11 conservation landscapes (Kamdem-Toham et al. 2003). However, the initial

mapping missed a significant area on the eastern side of the Congo basin, which was later included by re-mapping the Virunga landscape, bringing the total to 12 landscapes (CBFP 2006, p.19). By 2016, the addition of the Garamba-Bili-Chinko landscape increased the total to 13 landscapes, covering around 80 million ha of forest (Annex 2). These landscapes were virtually defined by conservation actors to prioritise conservation efforts through donor-driven funding strategies across Central Africa. They were primarily funded through CARPE (Central African Regional Programme for the Environment)[2], the longest-running environmental programme supported by USAID (US-Agency for International Development) (Annex 3).

The landscape approach in Central Africa was conceptualised as a large-scale ecosystem management strategy, integrating land-use planning and multi-actor governance to prevent and mitigate conflicts. Each landscape is expected to be divided into three zones: (i) Protected Areas (PA) designated for strict conservation, (ii) Community-Based Natural Resource Management (CBNRM) zones, aimed at devolving management to forest-dependent land users for either conservation or sustainable resource extraction benefiting local communities, and (iii) Extractive Resource Zones (ERZ), allocated for large-scale logging, mining, or agricultural activities (USFS 2008, p.7). International donor investments focused on demarcating these zones, developing management plans and supporting various conservation enforcement activities (ECODIT 2010).

The processes of land-use demarcation and planning varied across landscapes due to socio-ecological, political, and institutional factors (Walters et al. 2021). Despite these differences, conservation territories within these landscapes consistently expanded through mapping and legal gazettement (e.g.: Mehlman 2010a, p.10-20). By 2010, around half of the landscapes reported management improvements following international donor investments (OFAC 2010, p.224). Due to resource constraints, we conducted preliminary content analysis and purposive interviews to select one focus landscape for a detailed study. This landscape needed to represent rapid conservation expansion while reflecting the complexities of achieving fair and sustainable conservation. This approach ensured that our case study could provide valuable insights into the circumstances under which conservation expansion efforts risk falling into symbolic traps.

An independent evaluation in 2010 identified the Maiko Tayna Kahuzi-Biega (MTKB) landscape as the only one to have completed all land-use plans, effectively regulating access and control across zones (ECODIT 2010, p.21 and 23). This conservation success stood out amid longstanding land-use conflicts within the Kahuzi-Biega and Maiko National Parks (NPs), established in 1970. The creation

[2] The United States Government to renew its enduring commitment to the Congo Basin, CARPE, USAID, Press Kit, 2022

of Kahuzi-Biega NP displaced forest-dependent communities, triggering ongoing violent contestation over the park's management (Flummerfelt 2022). Similarly, since its gazettement, Maiko NP has been dominated by rebel armed groups engaged in extractive activities (Hart and Sikubwabo 1994, Maindo 2017). The repeated civil wars in the Democratic Republic of Congo (DRC) since the 1990s have further weakened the authority of the Congolese Institute for Nature Conservation (ICCN) in managing state-run conservation areas.

Despite these long-standing conflicts, by 2015, the MTKB landscape was regarded as a success in conservation efforts, particularly through community engagement. A key figure in this success is Pierre Kakule Vwirasihikya, a former ICCN warden who received an international award[3] in 2005 for his contributions to conservation in the landscape. He played a crucial role in the demarcation and gazettement of state-run conservation areas co-managed with local Congolese conservation organisations, such as Tayna and Kisimba-Ikobo Nature Reserves (NR). He also facilitated the creation of two local conservation organisations: Tayna Gorilla Reserve (RGT) and the Union of Gorilla Conservation Associations for Community Development in Eastern of DRC (UGADEC)[4], a consortium of local conservation organisations, that continues to be instrumental in facilitating conservation expansion in the landscape (Mukulumanya et al. 2013).

After 2015, contested narratives emerged, questioning the legitimacy and authority of many conservation territories in the MTKB landscape (Luoma 2022, Maindo 2017, Simpson and Pellegrini 2022). Persistent resource conflicts and debates over territorial legitimacy have raised doubt on earlier reports of conservation successes to international investment in this landscape (e.g.: Melhman 2010a, p.10-20). These conflicting narratives made the landscape a compelling case for assessing whether conservation expansion has fall into symbolic trap. Despite decades of ongoing conflict within existing and proposed conservation territories, international investment in expanding conservation efforts has continued. The rapid expansion of conservation territories within the landscape has been widely reported in maps and documents, often to showcase the outcomes of significant international donors investments (e.g.: Melhman 2008, p.339, Mehlman 2010a, p.10-20), or raise public awareness (Vwirasihikya 2003, p.11) or provide technical information to decision-makers (Rainer et al. 2021, p.226). However, an unresolved question is whether the push for conservation expansion has become largely symbolic, with demarcated territories existing on legal paper and maps attracting continuous funding while obscuring inefficiencies in promoting fair and sustainable conservation efforts.

[3] Refer to: https://gorillafund.org/uncategorized/pierre-kakule-wins-conde-nast-award/

[4] UGADEC was initially composed of nine local Congolese conservation organisations. (Annex 4)

Drawing on critical cartography and political ecology theories (Harley 1988, Windey and Van Hecken 2019), we question whether conservation maps and gazettement accurately represent realities on the ground or obscure them. Using the theory of symbolic politics, we hypothesise that maps and legal acts of conservation territories reduce complex realities into simplistic symbols, potentially hiding inefficiencies or manipulations. We synthesised multiple maps guiding our longitudinal study (Annex 4). Our data collection focused on identifying the key actors driving conservation expansion and assessing whether these expansions have led to symbolic or substantial outcomes for fair and sustainable conservation. We conducted a longitudinal study of the MTKB landscape, spanning 2000 to 2024, tracking the evolution of conservation territories, funding sources, and legitimacy. This study assessed whether older and newly created conservation territories achieved meaningful conservation outcomes.

Four authors conducted fieldwork in Kinshasa and various parts of the MTKB landscape at different periods between 2021 and 2024. One co-author, a conservation practitioner, has been actively involved in conservation programmes and projects within the landscape. As the founder and leader of a local Congolese conservation organisation in the landscape since 2009, he provided valuable context and access to key actors through his extensive experience and insights. We carried out in-person and online semi-structured interviews with a range of individuals and organisations involved in the conservation, mining and territorial planning sectors in Central Africa, in the DRC and the MTKB landscape. These included government officials (22), local administrators (17), international donors (4), transnational conservation organisations (10), academic and research institutions (5), transnational Indigenous Peoples and Local Communities (IPLCs) organisations (6), as well as national and local Congolese conservation organisations (19). In addition, we visited villages within the landscape to conduct field observations and held key informant interviews with 39 households. To complement our fieldwork, we reviewed 142 documents, including scientific publications (journal articles and PhD theses), policy papers, financial agreements, as well as periodic, annual, and evaluation reports for various programmes and projects to continuously triangulate our desk and field information. Our data analysis followed a coding process grounded in Edelmann's theory of symbolic politics (Table 2).

Table 2: Variable observed to assess symbolic politics in an expansion of conservation territories (authors: elaboration based on Edelman symbolic politics theory).

Variable observed	Description	Guiding questions
Powerful actors behind symbolic actions	The increase in conservation areas often serves as a symbol of progress, which can overshadow actual conservation effectiveness	Which actors are driving and benefiting from the expansion of conservation territories? How does the expansion influence the allocation and prioritisation of financial resources for conservation? What discrepancies exist between the legal gazettement of conservation areas and their on-the-ground implementation and management? How does the expansion of conservation territories translate into measurable environmental and social outcomes?
Persistence of symbolic actions without significant outcomes	Demarcation and gazettement can serve as symbolic actions, offering the appearance of conservation success without contributing to fair and sustainable conservation efforts.	To what extent do the mapped and gazetted conservation areas align with their actual governance and management on the ground? Do symbolic actions such as demarcation and gazettement address or obscure the root causes of biodiversity loss? What mechanisms allow symbolic conservation actions to persist despite limited or negligible conservation outcomes?
Opposition dynamic	Marginalised communities and local actors struggle to contest symbolic demarcations, often due to limited resources and organisational capacity	Have affected communities successfully contested such policies, or do symbolic reassurances render their resistance ineffective? What obstacles do these communities face when opposing symbolic conservation measures?

To preserve the confidentiality of at-risk interviewees, all sensitive information obtained from interviews and observations was anonymised. Identifying details were removed, and each interview was assigned a random identifier (ranging from I1 to I122). Furthermore, the year of each interview has been included to provide a temporal context while maintaining participant anonymity.

ACTORS DRIVING THE EXPANSION OF CONSERVATION TERRITORIES IN MTKB LANDSCAPE

The MTKB landscape has long been a priority for conservation due to its biodiversity, particularly its gorilla populations, which have attracted scientific interest for centuries (Emlen and Schaller 1959, Hall et al. 1998, Hart and Sikubwabo 1994, Omari et al. 1999, Plumptre et al. 2015). Since the 19th

century, gorillas have become iconic symbols of global conservation, with their skeletons displayed in museums across the US and Europe and later in captivity in zoos. This symbolism has drawn significant attention from international donors and transnational conservation organisations, leading to active investments in demarcating and expanding conservation territories within the landscape known for hosting gorillas (Maldonado et al. 2012, Plumptre et al. 2015; 2021).

The landscape was formally designated as a conservation focal point during the 2000 Gabon meeting. In 2003, under CARPE, USAID selected a coalition of transnational conservation actors (CI (Conservation International), WWF and WCS (Wildlife Conservation Society) to implement land-use demarcation, planning and management. CI was appointed as the lead organisation, tasked with facilitating spatial land-use planning while balancing conservation and development objectives in a sustainable and equitable manner.

To address its limited experience in Central Africa, CI partnered with two experienced organisations in the area: the Dian Fossey Gorilla Fund International (DFGFI) and local Congolese conservation organisations (RGT and UGADEC). These organisations took on the ground-level implementation of participatory land-use spatial planning and conservation initiatives in the landscape. Over a decade, the conservation efforts, funded by CARPE, focused on three key objectives: *"(i) rehabilitating Maiko and Kahuzi-Biega National Parks infrastructure to reinstate ICCN authority over the park; (ii) expansion and continuation of a DFGFI programme to establish community-managed nature reserves strategically positioned in a corridor zone between the Maiko and Kahuzi-Biega National Parks; and (iii) development of a community participatory resource management initiative in the Itombwe Massif"* (Melhman et al. 2006, p.17).

Before CARPE funding, the region had only two state-run protected areas (PAs): Maiko National Park (1,000,000 ha) and Kahuzi-Biega National Park (600,000 ha), both managed by ICCN. However, ICCN's capacity was severely constrained by repeated civil wars and minimal government investment, leaving it underfunded, understaffed, and heavily reliant on international donors and transnational conservation organisations. During the spatial planning process, it became clear that ICCN lacked the capacity to independently expand conservation territories. At the same time, global conservation discourse increasingly emphasised involving forest-dependent land users in conservation efforts.

In response, transnational conservation organisations facilitated the formation of several local Congolese conservation organisations composed of traditional chiefs (Mwamis) and influential local figures from targeted areas (Katembo 2011, p.218). These efforts were formalised through an agreement between DFGFI and UGADEC. Under this agreement, UGADEC acted as an intermediary

for its member conservation organisations, while DFGFI became the central conduit for technical and financial support from external donors. As noted in a public report: *"all financial and technical support to Tayna (RGT) and UGADEC would be channelled through a single international partner, DFGFI."* (Mehlman 2010b, p.65).

The agreement aimed to facilitate the legal designation of conservation territories. As described in an independent report of the landscape: *"We (CI and DFGFI) have partnered with the mwami, traditional rulers with actual power to influence land-use allocation among local populations. These councils are resulting in voluntary easements over traditional land rights to allow for community-managed conservation areas, while concentrating economic activities in areas to be targeted by development projects."* (Keith and Nienaber 2007a, p.11). However, the involvement of these local elites in conservation efforts raised concerns among local land-users. Questions emerged about whether their traditional chiefs were "selling" land to foreigners for profit, whether national parks would be controlled by outsiders, and what immediate compensations would be offered (Mehlman 2010b, p.68).

Although WWF and WCS initially played secondary roles in land-use planning, they later proposed expanding the MTKB landscape boundaries to include the biodiversity-rich Itombwe Massif. This expansion increased the landscape boundary to approximately 10 million ha (Annex 3). The proposal was motivated by the WCS research findings from the 1990s (Omari et al. 1999) and the opportunity to redirect CARPE funding for its legal designation and conservation efforts (Melhman 2010a, p.17). In 2005, ICCN, through an agreement with WWF and WCS, led to the rapid legal designation of the Itombwe Nature Reserve (NR). By 2006, the Itombwe NR was legally established with estimated virtual boundaries of 1,500,000 ha.

By 2010, around 70% of MTKB landscape was targeted for conservation expansion, equivalent to 7 million ha of forestland (Figure 1b). A CARPE progress report highlighted that *"the MTKB Consortium's methodological approach for macro-zoning thus includes a number of large CBNRM zones in which communities are creating protected areas."* (Mehlman 2008, p.340). This strategic focus was further explained by an independent evaluation of CARPE: *"They (transnational conservation organisations) have more limited relationships with government agencies that have the legal authority to work in the landscape areas that are not protected areas (PAs), such as forest concessions. Some of the NGOs said that they only have agreements with governments to work with national park agencies in the protected areas and therefore have no mandate to work with other agencies, such as Eaux et Forêts, on land use planning outside the protected areas"*. (The Weidemann Consortium 2006, p.7).

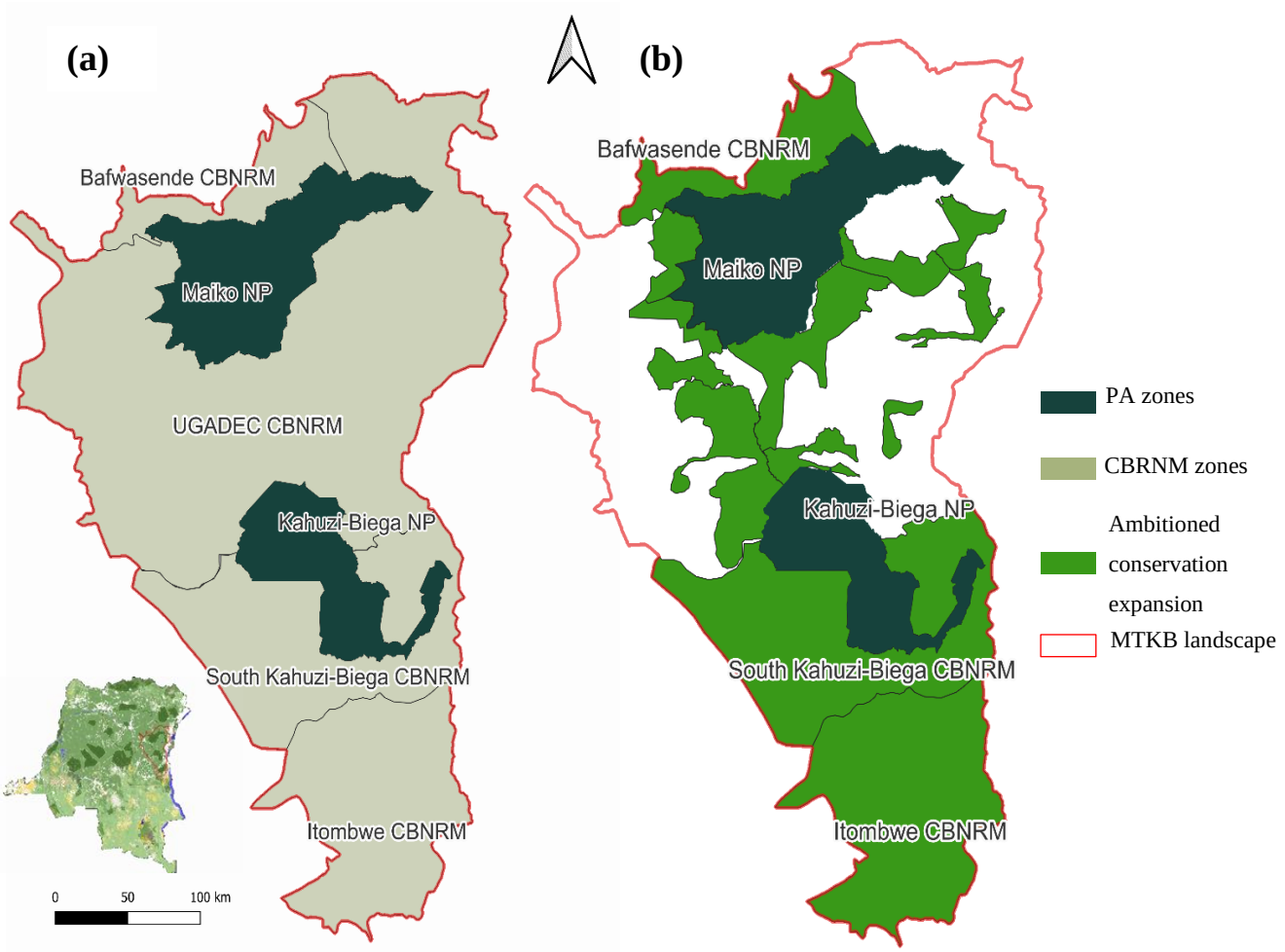


Figure 1: The spatial zoning of MTKP landscape (a) and the existing protected areas (PA) and ambitioned conservation territories demarcated for gazettement (b). Source: Authors collection of spatial limits from WRI-DRC-CARPE; OFAC)

In the rush to rapidly expand conservation areas, transnational conservation organisations primarily relied on their immediate allies, domestic conservation actors, to implement their expansion strategies. By forming coalitions with state conservation actors and local Congolese organisations, they largely overlooked the fragmentation, bureaucratic rivalries, and weak, contested state authorities governing forestland in fragile, aid-dependent countries like the DRC (Ehrenstein 2013, Reyniers, 2021). The CARPE landscape land-use planning approach, developed by the US Forest Service to integrate conservation priorities within broader land-use strategies (USFS 2008), was dismissed. Instead, the landscape land-use planning implemented was focused on creating vast conservation territories through short-term, project-based funding, leaving local state and non-state Congolese organisations without the capacity to sustain or effectively manage these areas. In vast, biodiverse forestlands like the MTKB, where multiple actors compete over authority and legitimacy, pro-conservation actors have

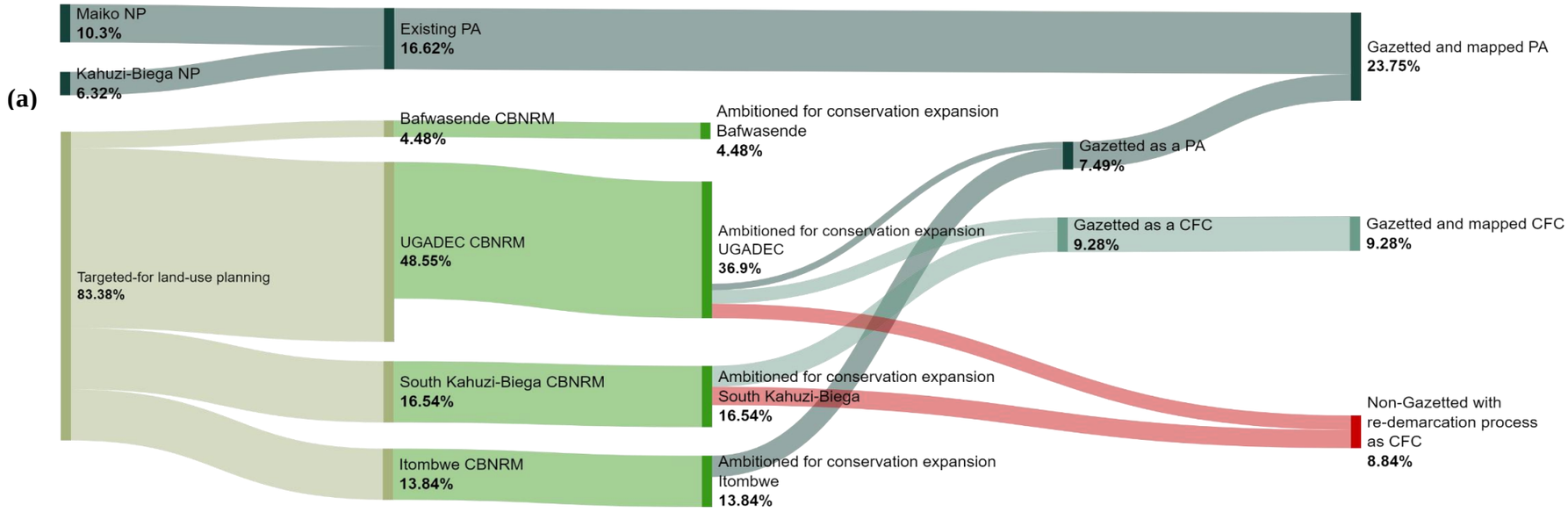
employed symbolic strategies through virtual spatial demarcation on maps to advance conservation initiatives and assert legitimacy over competing interests.

PERSISTENT EXPANSION: THE POLITICS OF CONSERVATION TERRITORY DEMARCATION

During the first decade of CARPE investment (2003–2013), transnational conservation organisations, alongside local conservation state and non-state actors, fell significantly short of the initial goal to gazette 7 million ha of forest. CI closed its offices in Central Africa and ended its collaboration with DFGFI and UGADEC following the termination of its USAID and other funding sources. Interviews revealed that CI's abrupt withdrawal from Central Africa and the DRC in the early 2010s was not only due to funding issues but also linked to poor conservation outcomes (I3, 2022). These shortcomings were evident in the discrepancies between public reports and ongoing conflicts in targeted conservation territories.

Following CI's departure, WCS assumed leadership of landscape planning under CARPE funding in 2013. Although initial gazettement efforts led by CI, DFGFI, and UGADEC largely failed, a presidential decree in 2014 and an application decree in 2016 marked a turning point. While Article 22 of the 2002 DRC forest code had permitted local communities to request concessions from state forests, the absence of implementation decrees delayed this process for over a decade. The 2014 and 2016 decrees finally established a legal framework for the gazettement of customary forestland by forest-dependent communities organised into local associations. This development enabled transnational conservation organisations to revive gazettement efforts, particularly within UGADEC member organisations that had previously failed to achieve legal designation as conservation areas (Figure 2a).

Despite leadership changes, such as WCS replacing CI and the dissolution of the centralised CI-DFGFI-UGADEC partnership, the focus remained on securing gazettement through technical (e.g., Plumptre et al., 2015, p.3) and bureaucratic processes (e.g., Maldonado et al., 2012, p.41) in the MTKB landscape. To date, approximately 3.5 million hectares of forest have been gazetted as either state-run protected areas (PAs) or community forest conservation (CFC) zones (Figure 2).



MTKP landscape: 10 640 773 ha | Ambitioned conservation expansion: 7 631 898 ha | Conservation expansion status: 3 515 304 ha

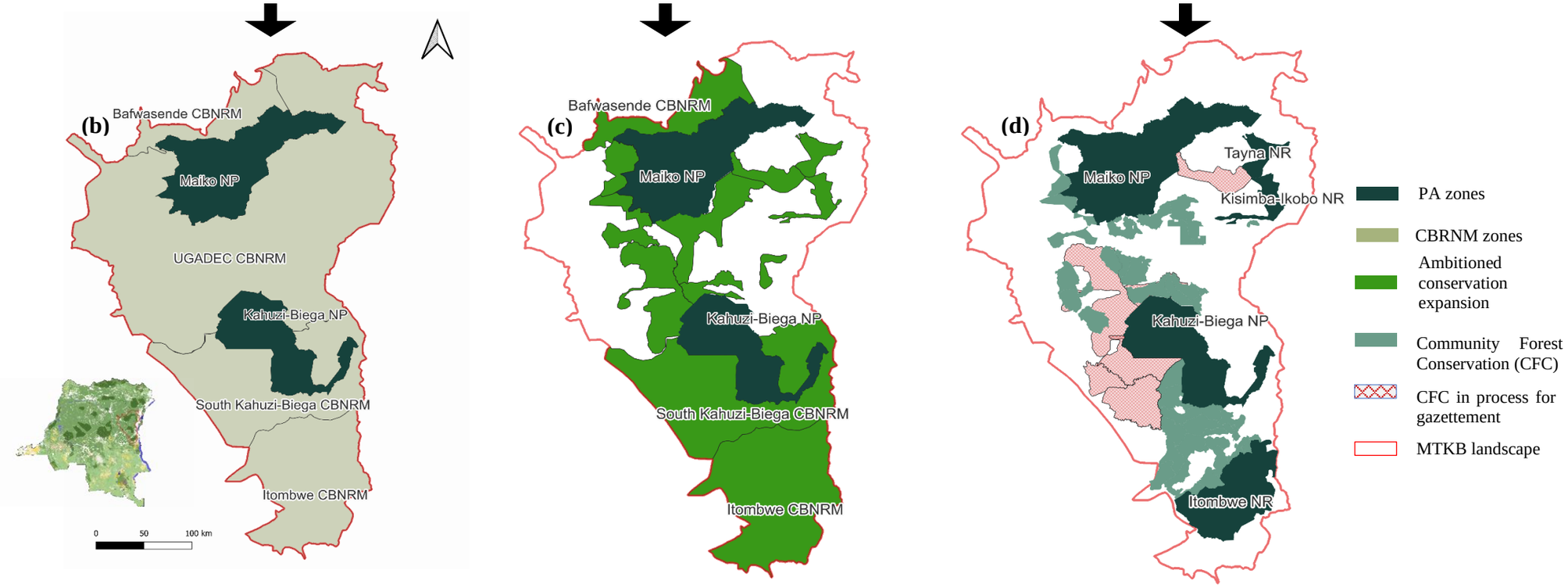


Figure 2: Progression of conservation territory coverage and boundary demarcation through spatial planning and gazettement in the MTKB landscape. Source: authors collection of spatial limits from WRI-DRC-CARPE; OFAC.

Since 2013, the collaboration model between transnational and local conservation organisations has evolved. Organisations such as JGI (Jane Goodall Institute), FFI (Fauna and Flora International), and WCS expanded community conservation programmes, decentralising the previously centralised partnership model established by CI, DFGFI and UGADEC. This shift allowed local conservation organisations to build direct partnerships with various transnational actors. A common pattern was the renaming, restructuring, or division of UGADEC local organisation members to restart previously failed gazettement processes (Annex 4). However, due to legal constraints limiting a community to request no more than 50,000 ha of customary forestland, transnational and local conservation organisations have been constrained to scale down their conservation targets (Figure 2a).

For instance, in the Punia and Utunda-Wassa forests, WCS aimed to gazette 500,000 ha with funding of 1 million USD from Rainforest Trust, working in collaboration with the local conservation organisation RGPU (Reserve des Gorilles de Punia), a member of UGADEC. However, securing local support proved challenging, and after consultations, only 150,000 ha across three communities were designated for community forest management. Once RGPU, later renamed as RCO (Ona Community Reserve), secured the gazettement, WCS did not provide ongoing funding to implement conservation activities (I34, 2022). Similarly, in the Usala forest, with funding of 2 million USD from Rainforest Trust, GRACE US and DRC collaborated with UGADEC as a consultancy service to restart the previously failed gazettement process in 2024. In 2011, after ending its partnership with UGADEC, DFGFI began working directly with local organisations such as REGOUWA (Réserve des Gorilles d'Utunda et de Wassa), RGPU, and COCREFOBA (Conservation Communautaire pour la Réserve Forestière des Bakano), shifting its conservation geographical focus after leaving Tayna NR. By 2012, some traditional chiefs within these organisations established a new entity, UTDPE (Union des Terriens pour le Développement et la Protection de l'Envrionnement) (I111, 2023). In 2022, UTDPE and DFGFI signed a 25-year co-management agreement for the Nkuba Community Forest Conservation, covering approximately 100,000 ha.

Despite opportunities for local conservation organisations to gain direct support from transnational actors, gazettement remained the primary focus. Interviewees frequently highlighted the disconnect between gazettement efforts and on-the-ground realities. One interviewee stated: "*Conservation area demarcation is often done on the table far from the forest in which it attempts to enforce. State conservation bureaucrats, conservation NGOs and donors negotiate a specific area to be set as a protected area and they only engage with forest dwellers and local*

administration to consolidate its gazettement." (I7, 2021). Once gazettement was achieved, transnational conservation actors disengaged, neglecting the funding and resources required for fair and sustainable management. This sentiment was echoed in a 2023 public report, which stated that: *"WWF withdrew from Itombwe NR at the end of the CARPE project, leaving no equipment or eco-guard uniforms since 2016"* (Ngoy and Kiyengo 2023, p. 5). An interviewee further emphasised: *"Donors and big NGOs focus on gazettement despite knowing that neither the state nor forest communities will have the resources to manage these areas. Demarcation under CARPE wasted money on the flawed assumption that gazettement and land-use planning ensure good management."* (I10, 2021). Transnational conservation organisations have regarded the legal designation of conservation territory as the endpoint of their responsibilities, transferring management to under-resourced governments or forest-dependent communities. The persistent push for conservation expansion, despite known management challenges, highlights the political dimensions of conservation territory demarcation, often resulting in the creation of "symbolic demarcation of conservation territories."

INTANGIBLE PROGRESS TOWARDS FAIR AND SUSTAINABLE CONSERVATION EFFORTS AMID WEAK OPPOSITION

Despite ongoing efforts to expand conservation areas within the MTKB landscape, fair and sustainable conservation remains largely symbolic. Existing NPs (Maiko and Kahuzi-Biega), newly gazetted state-run PAs (Tayna, Kisimba Ikobo, and Itombwe NRs), and CFCs suffer from chronic underfunding and poor management. Many rely on sporadic patrolling, covering less than half their boundaries with minimal enforcement (Annex 5 and 6). Many designated conservation areas overlap with state-issued mining permits and artisanal mining sites controlled by rebel groups, fuelling violent conflicts over land use and authority (Figure 3).

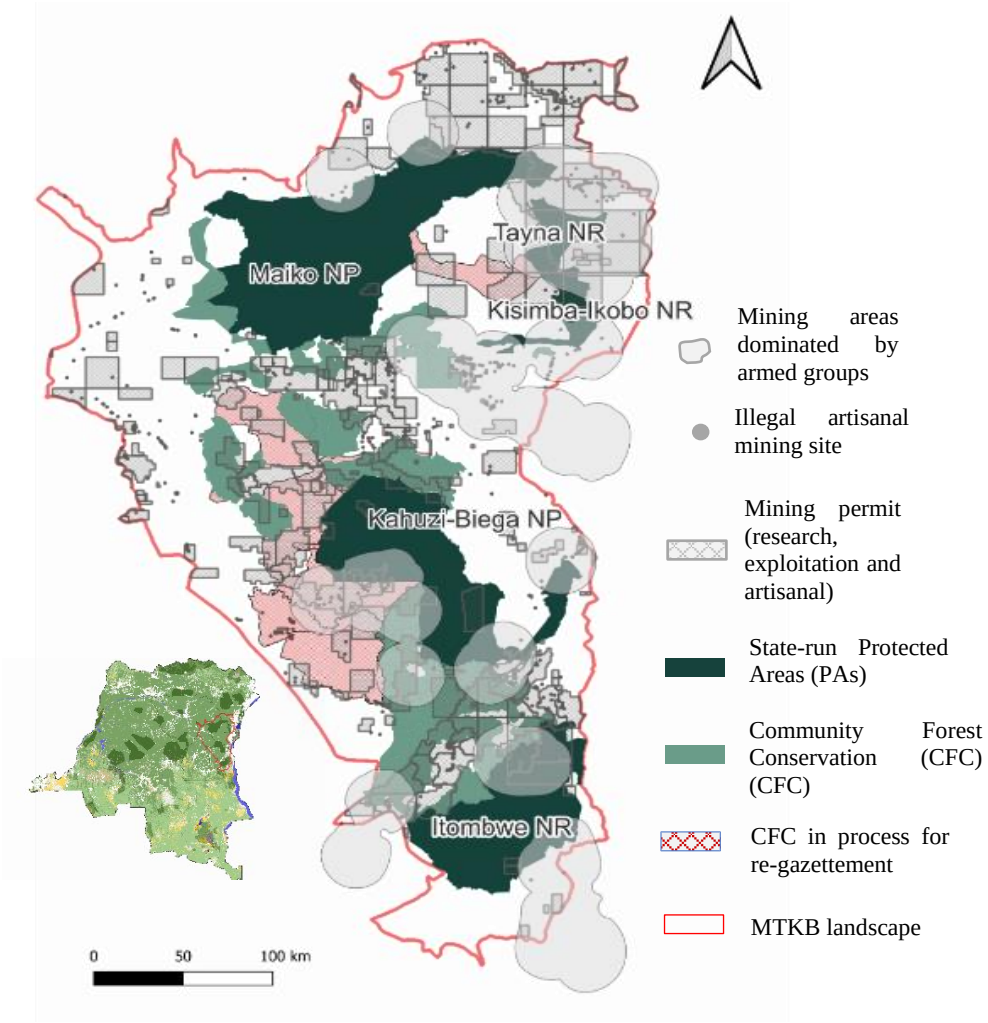


Figure 3: The current land-use conflict between extractive activities and gazetted and re-demarcated conservation territories inside of MTKP landscape

Opposition to the expansion of conservation areas from forest-dependent land users has been weak (Flummerfelt 2022, Keith and Nienaber 2007b, Simpson and Pellegrini 2022; 2023). Affected communities are often poorly organised (Katembo 2011, Keith and Nienaber 2007b, Tchoumba 2011) or have experienced little disruption to their livelihoods due to ineffective enforcement (I111, 2023).

In Maiko National Park, ICCN struggles with insufficient personnel and sporadic investments in livelihood programmes designed to incentivise compliance with conservation restrictions. Conservation efforts depend on small, irregular grants from transnational organisations such as BR&D (Berggorilla and Regenwald Direkthilfe), FFI, JGI, and GO (Gorilla Organization) (I9, 2022). Early attempts to re-establish ICCN authority, initiated in 2003 through CI funding under the CARPE funding, focused on rehabilitating infrastructure, training eco-guards, and facilitating biomonitoring and law enforcement activities (Mehlman et al. 2006, p.20). Additional initiatives,

such as a 2007 subgrant to IRM for promoting community-based conservation in Bafwasende CBNRM modelled through UGADEC, were prematurely terminated due to poor outcomes (Moju 2008, p.16). In 2010, FZS, with funding from BMZ, supported the construction of social infrastructure, species monitoring, patrolling, and dialogue with armed groups, recruiting former combatants as eco-guards. However, FZS withdrew once funding ended, leaving ICCN heavily dependent on external support (FZS 2014, p. 24). By 2013, WCS took over species monitoring but highlighted that conservation efforts remained severely constrained due to the park's continued occupation by armed groups (Plumptre et al. 2015, p. 21).

In contrast, Kahuzi-Biega NP, a UNESCO World Heritage Site, enjoys greater international visibility and larger external partnerships, attracting more funding than any other gazetted PA or CFC in the MTKB landscape. Despite substantial investments, mining activities persist within the park, with state-issued mining permits overlapping its boundaries. Conservation enforcement efforts often result in violent clashes with armed groups and local forest-dependent land-users, reflecting entrenched resistance to restrictive conservation measures (Flummerfelt 2022, Luoma 2022, Simpson and Pellegrini 2023, Spira et al. 2019). In 2022, WCS[5] signed a long-term contract with ICCN through a public-private partnership, aimed at *"designing equitable and culturally appropriate systems of natural resource management that address historical injustices as well as contemporary threats to stability and good governance"*. This contract was established to restore the international reputation of Kahuzi-Biega NP following a backlash over violent actions towards forest-dependent land-users, which minority rights groups highlighted and communicated to the international community to contest ongoing injustices hindering conservation objectives. However, despite this new management arrangement, Kahuzi-Biega NP remains underfunded, lacking adequate resources to adequately compensate affected communities or effectively enforce conservation laws (I14, 2023).

Tayna NR initially benefited from significant investment under CARPE funding, with various infrastructures established to support conservation. This included the establishment of the Tayna Centre for Conservation Biology (TCCB), a private university aimed at training local conservationists. However, when CI withdrew its programme and DFGFI shifted its geographical focus, the local conservation organisation lost access to USAID funding, leading to the abandonment of many conservation facilities. Exceptions include the Gorilla Rehabilitation and Conservation Education Centre (GRACE) and a community radio station, which remain active

[5] Refer to: https://newsroom.wcs.org/News-Releases/articleType/ArticleView/articleId/17462/New-Management-Agreement-Signed-for-Kahuzi-Biega-National-Park-in-the-DRC.aspx

through collaborations with the new transnational organisation such as GRACE-US with a local office represented by GRACE-DRC, focusing on gorilla rehabilitation, small-scale community livelihood initiatives and public awareness raising on conservation.

In Kisimba-Ikobo NR, the local conservation organisation RECOPRIBA (Réserve Communautaire des Primates des Bakumbule) has struggled to secure new partnerships following the withdrawal of key CARPE actors. Although inactive locally, key RECOPRIBA leaders continue to participate in conservation meetings facilitated by transnational organisations (I33, 2023).

Itombwe NR, gazetted in 2006, initially faced strong resistance from forest-dependent communities (Gauthier 2016, Kujirakwinja et al. 2019). Advocacy from Indigenous Peoples and Local Communities (IPLCs) eventually led to negotiations that reduced the reserve size from 1.5 million ha to 570,000 ha. While the re-gazettement to reduce the NR boundaries has attracted funding, resources for fair and sustainable management remain inadequate (Ngoy and Kiyengo 2023, p. 5).

The same challenges facing state-run PAs persist in newly established CFCs, including the dominance of armed groups, insufficient investment, and inadequate management (Figure 3). In the MTKB landscape, conservation efforts continue to prioritise securing international funding to facilitate conservation expansion and persuading both state authorities and forest-dependent communities to support gazettement. However, these efforts remain largely symbolic, with pro-conservation actors focusing on legal designation rather than ensuring fairness and long-term sustainability of efforts.

DISCUSSION: EXPANSION OF CONSERVATION TERRITORIES AS A POLITICAL SYMBOL

The symbolic importance of expanding conservation territories became particularly evident during the 4th World Parks Congress in Caracas in 1992, where the adoption of a 10% conservation territory target marked a shift in conservation policy. This formalised territorial demarcation as a key metric of success (IUCN 1993). The trend was reinforced by the CBD, Aichi Target 11, which set a goal of protecting 17% of terrestrial and 10% of marine ecosystems by 2020. Global ambitions have since escalated, with current targets aiming to protect 30% of terrestrial and marine areas by 2030. The global conservation agenda has since evolved, with current ambitions targeting

the protection of 30% of terrestrial and marine areas by 2030. While these milestones are widely celebrated, the emphasis on symbolic targets often obscures the practical challenges of implementing and sustaining conservation efforts on the ground (Coad et al. 2019). These challenges include securing long-term funding, mediating competing land-use interests, and ensuring legitimacy and authority through continuous enforcement activities (Rasoamanana et al. 2023). Conservation territories are not merely ecological; they are deeply embedded in political and social dynamics (Hardin 2011, Rasmussen and Lund 2018). The negotiation of these spaces reflects power relations and competing interests, often reinforcing social inequalities and exclusion (Marijnen 2022).

The politics of conservation expansion: symbolism over substance

Symbols play a pivotal role in the conservation sector, shaping public perception and securing financial support (Clucas et al. 2008). By simplifying complex and socio-ecological issues, these symbols make biodiversity conservation accessible and emotionally engaging for the public. However, this oversimplification can mask underlying social inequalities and injustices, such as elite capture (Nchanji et al. 2021, Poudyal et al. 2016), and the legitimisation of conservation through militarised violence (Marijnen 2017).

Charismatic species, such as pandas, gorillas, and elephants, alongside maps depicting expanding conservation areas, serve as powerful tools to evoke public empathy. These symbols enable transnational conservation organisations to mobilise donations, attract corporate funding, and secure governmental aid (Kontoleon and Swanson 2003). While politically effective, such strategies often obscure the complexities of conservation politics and socio-ecological realities (Igoe 2010).

For instance, portraying the Congo Basin as a pristine wilderness and a global public good has been used to justify conservation measures that involve physical violence and the displacement of forest-dependent communities (Simpson and Pellegrini 2023). This illustrates how conservation, while framed as a noble cause, can also function as a political tool that reinforces power imbalances and marginalises forest-dependent communities (Weldemichel 2022, Wong et al. 2022).

The MTKB landscape exemplifies the symbolic nature of the conservation expansion policy. Over the years, transnational conservation organisations, in collaboration with domestic actors, have mapped and gazetted conservation boundaries. In numerous cases, conservation territories exist only on “symbolic paper”, awaiting further funding before any substantive action can be

implemented. This issue is not unique to the MTKB landscape but is found across many conservation areas in the DRC (Majambu et al. 2023) and elsewhere (Coad et al. 2019, Gardner et al. 2018, Lindsey et al. 2018).

Maps and legal acts as a symbol to obscure complex realities

Maps and legal designations serve as powerful symbols in conservation politics, providing a visual and formal representation of territorial expansion and donor investments. However, they often oversimplify the realities of conservation efforts, presenting a misleading picture of progress (Bluwstein and Lund 2018). In the MTKB landscape, for instance, gazetted conservation territories coexist with legal mining permits and areas controlled by armed groups, yet these complexities are often omitted from maps presented in many public reports of conservation donor investments (Annex 3). This highlights how maps can easily bias policy outcomes by selectively displaying information and presenting an overly simplistic narrative of conservation expansion success (Bluwstein and Lund 2018, Crampton and Elden 2006).

The establishment of conservation territories through maps and legal acts involves technical procedures such as species inventories, remote sensing, consultations with local authorities, and negotiations over access rights (Kujirakwinja et al. 2019). While these resource-intensive processes are designed to ensure equitable conservation and reduce conflicts, they are often co-opted to serve symbolic ends, advancing the interests of influential actors rather than addressing practical conservation needs (Corson 2011; 2012, Gauthier 2016). This results in a disconnect between formal commitments and on-the-ground realities, with conservation areas existing more as political symbols than as effectively and equitably managed spaces.

Fragmented state administrations further complicate these efforts, as inadequate cross-sectoral collaboration leads to inconsistent land-use planning. Sectors such as conservation, mining, and logging often operate in silos, engaging in blame-shifting rather than fostering policy coherence (Ongolo 2015). In the MTKB landscape, for instance, many mining permits predate conservation expansion initiatives, originating in the 1990s and being renewed or reissued in the 2010s. These permits were overlooked in early spatial planning due to the omission to better coordinate conservation and economic actors. Instead of addressing these governance failures, pro-conservation actors have engaged in symbolic expansion strategies to legitimise their intervention.

CONCLUSIONS

The expansion of conservation territories, driven by international targets and formalised through gazettement and spatial mapping, often prioritises visibility over tangible effectiveness. By applying symbolic politics theory, we demonstrate how conservation expansion policies can become symbolic traps. Our analysis of the MTKB landscape reveals the mechanisms that sustain symbolic conservation demarcation within policy spheres, as well as the disconnect between top-down initiatives and local realities. The recurrent shortcomings of conservation efforts in the landscape cannot be attributed solely to the ongoing conflict in the region. Despite decades of instability, transnational conservation actors and international donors remain active in the landscape, pursuing global conservation agendas centred on territorial expansion.

This paper provides a detailed analysis of the actors driving conservation expansion, their operational strategies, and the reasons why such efforts often fall into symbolic traps. Ensuring the stability of conservation territories is a multifaceted process that requires not only technical expertise and resources but also equitable land-use planning. However, conservation investments continue to prioritise territorial expansion over strengthening existing conservation areas, which remain contested, underfunded, and poorly managed. This persistent emphasis on symbolic expansion, rather than effective conservation management, stresses the urgent need for a paradigm shift.

While the legal designation of conservation territories on maps and official documents may yield political benefits, it often creates an illusion of progress without ensuring proper enforcement, adequate resource allocation, or meaningful local engagement. In the absence of these critical elements, conservation territories remain ecologically fragile and socially unsustainable. To address these challenges, conservation strategies need to move beyond performative expansion towards long-term sustainability, cross-sectoral collaboration, and genuine local inclusion. This entails addressing governance failures, securing sufficient funding, and promoting participatory approaches that align conservation goals with the rights and needs of forest-dependent communities alongside other competing interests. Only by tackling these structural issues can conservation efforts achieve, in a more realistic manner, lasting ecological and social impact.

CONFLICTS OF INTEREST

The authors confirm there are no conflicts of interest.

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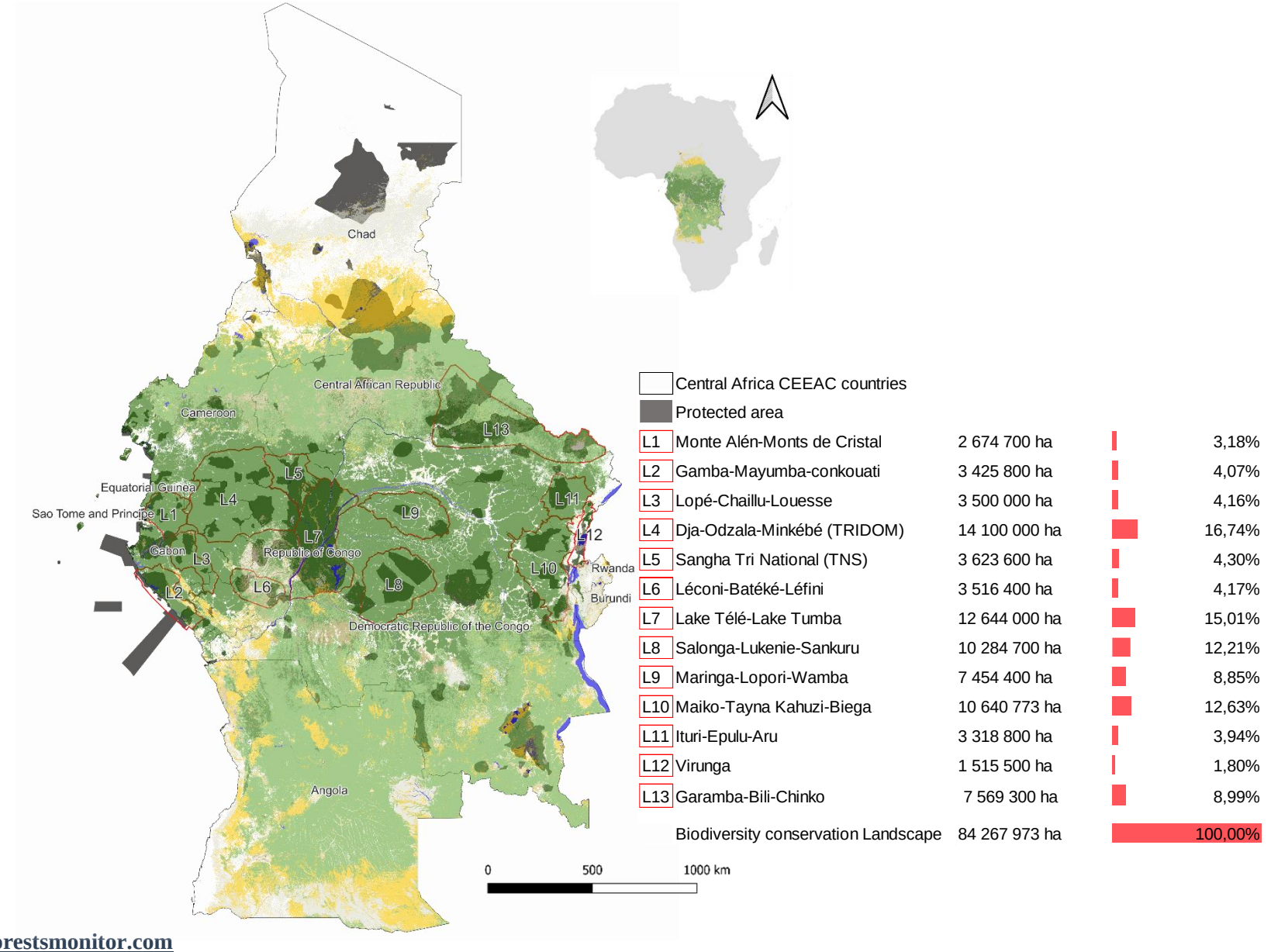
SUPPLEMENT MATERIALS

Annex 1 : List of acronyms

CACOPKB : Cadre de Concertation Communautaire pour la Protection du Parc National de Kahuzi-Biega
CARPE: Central African Regional Programme for the Environment
CBD: Convention on Biological Diversity
CBFP: Congo Basin Forest Partnership
CBNRM: Community-Based Natural Resource Management
CFC: Community Forest Conservation
CI : Conservation International
COCREFOBA : Conservation Communautaire pour la Réserve Forestière des Bakano
DFGFI: Dian Fossey Gorilla Fund International
DRC: Democratic Republic of Congo
ECOFAC: Preserving Biodiversity and Fragile Ecosystems in Central Africa
ERZ: Extractive Resource Zones
FFI: Fauna and Flora International
FZS: Frankfurt Zoological Society
GO: Gorilla Organization
GRACE: Gorilla Rehabilitation and Conservation Education Centre
ICCN: Institute Congolais pour la Conservation de la Nature
IPLCs: Indigenous Peoples and Local Communities
IUCN: International Union for Conservation of Nature
JGI: Jane Goodall Institute
MTKB: Maiko Tayna Kahuzi-Biega
NR: Nature Reserve
OECMs: Other Effective Area-Based Conservation Measures
OFAC: Observatoire des Forêts d'Afrique Centrale
PAs: Protected Areas
REGOLU : Réserve des Gorilles de Lubutu
REGOUWA : Réserve des Gorilles d'Utunda et de Wassa
REGOMUKI : Réserve de Gorilles de Mukingiti et Kingombe
RGPU : Réserve des Gorilles de Punia
RCO : Réserve de Communauté d'Ona
RGT : Reserve des Gorilles de Tayna
TCCB: Tayna Centre for Conservation Biology
UGADEC: Union of Gorilla Conservation Associations for Community Development in Eastern of DRC
UNESCO: United Nations Educational, Scientific and Cultural Organization
USAID: United States Agency for International Development
USFS: United States Forest Service
WCS: Wildlife Conservation Society
WWF: World Wildlife Fund

Annex 2: Map of the 13 demarcated conservation landscapes in Central Africa designed to guide large-scale conservation efforts.

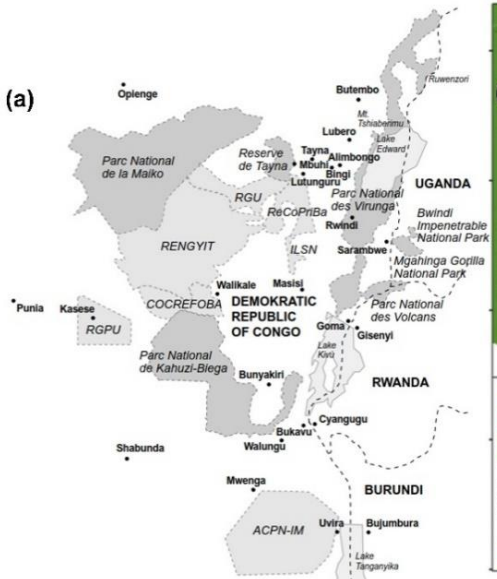


Annex 3: Brief description of CARPE programme.

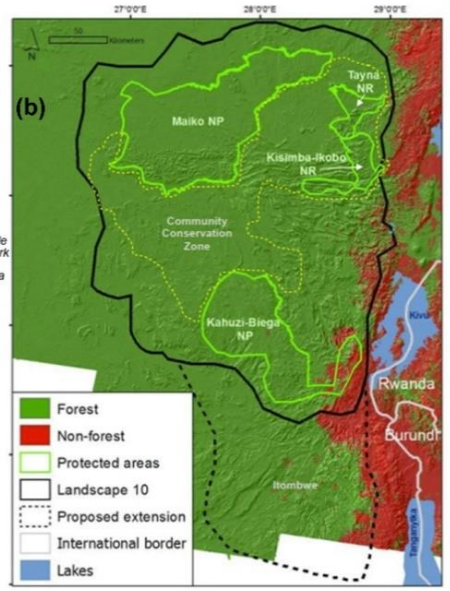
CARPE IV	[2021-2027]	USAID Central Africa Regional office	NGOs: WCS, RFUK, APN, Virunga foundation Companies: Tetra inc, BBOXX Capital, Adam Smith International Ltd. (ASI), TechnoServe, Inc. US federal agencies: USFS, University of California	200 million USD	± 25 million ha	State-run protected areas and their peripheries: - Community-Based Countering Wildlife Trafficking (Northeastern DRC and Southeastern CAR) - Garamba/Chinko (Protected Areas management Support) - Nouabalé-Ndoki Tourism Expansion - Liquified Petroleum Gas as alternative to charcoal (Virunga NP) - Forestry and Biodiversity Support Activity (training, policy reform, green enterprise (ecotourism)) - Okapi Wildlife Reserve management support (conservation and community livelihoods) - Community Forest Concessions (acquisition and production) - Poultry as an Alternative to Bushmeat (northern ROC) - Forest Resource Management in Central Africa (policy reform, capacity building, training and technical assistance) - Strengthening Conservation Management in Central Africa - Conservation through Economic Empowerment in ROC - Shade-grown cocoa (Peripheries Park Kahuzi Biega) - Virunga Development Activity - Gorilla Coffee Alliance - Garamba Alliance (health, agriculture and conservation)	A Congo Basin with healthy ecosystems and dynamic local leadership that supports stability and prosperity in communities.	- strengthening protected areas management in priority carbon-rich, biologically sensitive, and diverse landscapes across the Democratic Republic of the Congo (DRC), the Republic of Congo (ROC), and the Central African Republic (CAR) as hubs of peace, security, and sustainable development - reforming environmental policy and monitoring ecosystems in six Central African countries (DRC, ROC, CAR, Equatorial Guinea, Gabon, and Cameroon)

Annex 4: Reported expansion of conservation territories in the MTKB landscape (source: authors collection through various open access public reports).

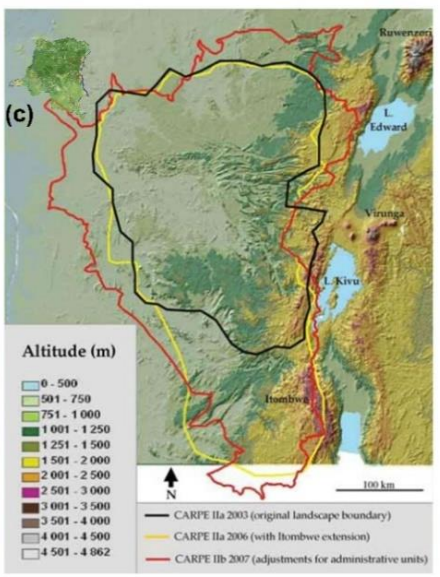
(a) *"Eight community conservation associations in eastern Democratic Republic of Congo want to pool their efforts to preserve gorillas and other rare species threatened with extinction and to promote the development of the areas under their control." (BR&D, 2003, p.8)*
"Existing parks and reserves (dark areas) and new UGADEC areas (light) (BR&D, 2003, p.11)



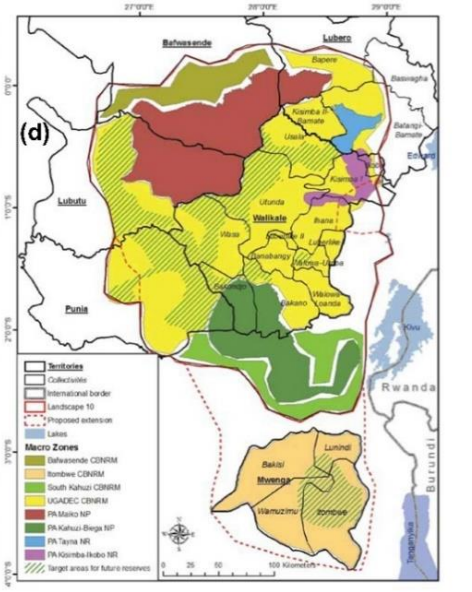
(b) *"The Itombwe extension to the Landscape is delineated by dashed line to the south. Two new protected areas, the Tayna Nature Reserve and The Kisimba Ikobo Nature Reserve, are shown to the northeast (green); these are sanctioned by the government and managed by local communities. The area in which community conservation like those of Tayna are being developed is delineated by dashed yellow lune. NP= National Park; NR= Nature Reserve." (CI, 2006,p.18)*



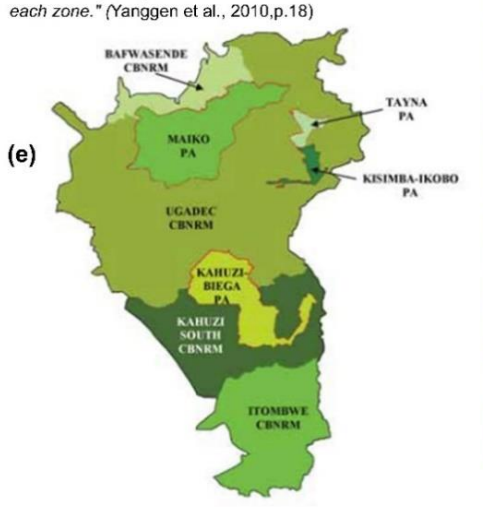
(c) *"Evolving modifications of the boundary for the Maiko Tayna Kahuzi-Biega Landscape, from the original boundary in 2003 (black) to its most recent configuration in 2007 (red)" (Yanggen et al., 2010,p.12)*

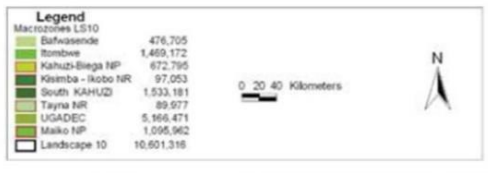


(d) *"In 2006, a more comprehensive series of macro-zones were developed that: 1) included the Itombwe CBNRM extension; 2) included the Tayna and Kisimba-Ikobo Nature Reserves as newly created protected areas (blue and lavender); and 3) expanded the boundaries of the UGADEC CBNRM to the communities involved (yellow) in developing nature reserves similar to that of Tayna (shaded green)" (Yanggen et al., 2010,p.16)*



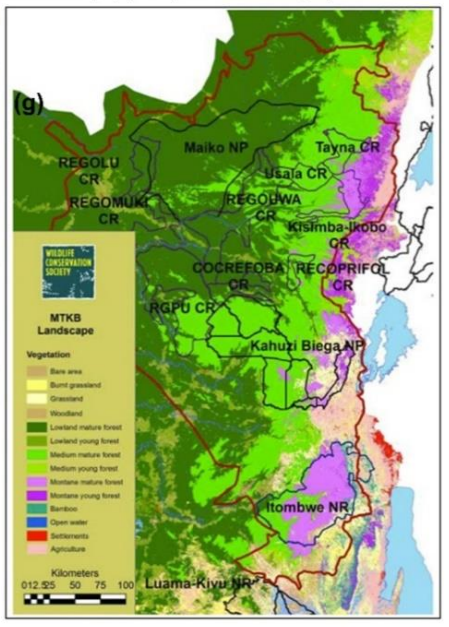
(e) *"The current (2007) configuration of eight macro-zones for the landscape. Figure below shows the sizes in hectares of each zone." (*Yanggen et al., 2010,p.18)



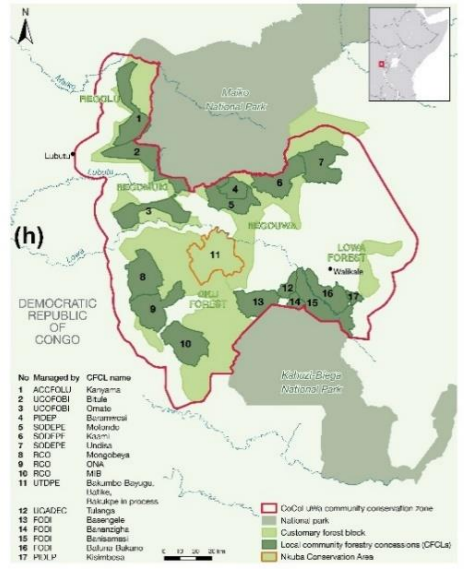


(f) *"Figure source: CI, UMD-CARPE, OSFAC, FORAF, IUCN, Tom Patterson, US National Park Service. Macro-zones in the Maiko-Tayna-Kahuzi-Biega Landscape "(Melhman, 2008, p.339).*

(g) *"Map of the MTKB landscape showing elevation and the locations of protected areas mentioned in this report. CR=Community Reserve; NR = Natural Reserve; NP=National Park."* (WCS carrying biodiversity assessment for identifying priority conservation areas in the landscape). *(Plumptre et al., 2015, p.6)*



(h) *"CoCoLuWa Conservation Zone...ACCFOLU is the Community Association for the Conservation of Forests in Lubutu; FODI is Forest for Integral Development; PIDEP is the Integrated Program for Endogenous Development of Pygmies; RCO is the Oku Community Reserve; SODEPE is Solidarity for the Development and Protection of the Environment; UCOFOBI is the Community Union for the Conservation of Forests of Bitule; UGADEC is the Union of Associations for Gorilla Conservation and Community Development in eastern DRC; and UTDPE is the Union of Landowners for the Development and Protection of the Environment.*
The managing organizations of some of the community forestry concessions are supported by other members of the Ushiriki Consortium: 1: Fauna & Flora International (FFI); 2 and 3: FFI/UGADEC; 5–7: Jane Goodall Institute: 8–10: Wildlife Conservation Society; 12–15: FODI; 17: Dian Fossey Gorilla Fund International...Source: shapefiles supplied by JGI". (Rainer et al., 2021, p.226&227).



"four are protected areas, and four are community-based natural resource management (CBNRM) areas (there are no extractive macro-zones in the MTKB Landscape). Two are National Parks (Maiko and Kahuzi-Biega),managed directly by ICCN...Two other protected areas, however, were created from within a CBNRM macro-zone by local communities. In an innovative approach, local NGOs used participatory mapping and a sensitization program based on gorilla conservation to reach consensus among local land users to effectively "cede" large integral zones in which flora and fauna are afforded 100 % protection. The local NGOs then applied to the government to transform these integral zones into nationally recognized protected areas, and in 2006, they were gazetted as nature reserves (Tayna and Kisimba-Ikobo) by a Ministry of Environment decree...UGADEC5 CBNRM is managed by a federation of eight local NGOs representing more than 14 Chefferies (Figure). Although it is currently being managed as a CBNRM macro-zone, six of its NGO members are currently seeking to create government-authorized Nature Reserves, modeled after the Tayna NR. By identifying this as a "macro-zone under development," the consortium and stakeholders can plan for the six additional protected area macro-zones that will exist within the UGADEC CBNRM, (number 1 to 6)..."(Melhman, 2008, p.340).

Annex 5: Overview of conservation efforts in MTKB landscape since CARPE funding in 2003.

Ambitioned conservation territories in MTKB	Initiator of demarcation	Current active organisations	Conservation evolution and effort status	Province	Gazettement status
Bafwasende CBNRM	CI_{INT}, IRM_{INT} later CI_{INT}, $DFGFI_{INT}$, $UGADEC_{LCO}$	Not available	IRM initiated various local meetings to engage forest-dependent land users, traditional chiefs, and local authorities in establishing a Congolese conservation initiative. Later, DFGFI and UGADEC continued these efforts; however, local communities remained unconvinced about creating a local organisation modelled on UGADEC members (I111, 2023). Plans were made to reinstate ICCN authority in the northeast of Maiko National Park and involve local communities in conservation, but these were abandoned due to the weak performance of the intervention (Moju, 2008).	Tshopo	No
Maiko NP	$ICCN_{SO}$	$ICCN_{SO}$	Prior to CARPE, Maiko National Park was a legally established state-run protected area but lacked functional management due to the prolonged lack of resources for ICCN and the presence of armed groups engaged in mining and various livelihood activities within the park. In 2003, CI-DFGFI hired 140 field staff to reinforce ICCN's authority, but their efforts were short-lived. In 2010, FZS became the park's lead partner until its programme ended following the completion of a BMZ grant. In 2013, under CARPE funding, WCS conducted species monitoring but was unable to access the park's centre due to the presence of armed groups. Maiko National Park continues to suffer from inadequate management, with sporadic funding provided by B&RD, FFI, and GO.	North Kivu, Tshopo, Maniema	Yes
UGADEC CBNRM — Tayna NR	CI_{INT}, $DFGFI_{INT}$, RGT_{LCO}	GRACE-US_{INT}, GRACE-DRC_{LCO}, RGT_{LCO}	RGT was the first local conservation organisation within the UGADEC CBNRM initiative, launched in 1998 after a research expedition confirmed the presence of gorillas in the Lubero forest. "The initiative for the creation of this reserve in April 1998 was the result of an awakening of consciousness by the elite of the area and had the support of two powerful traditional chiefs, Mwami Mukosasenge and Mwami Stuka, who mobilised their entire population to accept the project. The Chief Conservator, Pierre Kakule, who was born in the region, played a crucial role in the implementation of the project" (Kiyengo, 2003, p.10). In 2001, Kakule secured a grant from DFGFI to begin community consultations for the creation of the local association RGT (Réserve des Gorilles de Tayna). The following year, he and several Mwami (traditional chiefs) established UGADEC, a union for gorilla conservation composed of nine local associations: RGT, RECOPRIBA, COCREFOBA, RGPu, RGU, REGOUWA, RECOPRIFOL, REGOMUKI, and REGOLU. Each association was tasked with obtaining legal recognition of a Nature Reserve (NR) as a strictly protected area, modelled on RGT (Tayna NR) and RECOPRIBA (Kisimba-Ikobo NR). Under CARPE, CI, DFGFI, and UGADEC partnered to secure up to 1 million hectares as a strict protected area within the UGADEC CBNRM. However, they failed to obtain the necessary legal acts for land-use management, mapping, consultation, and formal recognition. In 2003, CI received a CARPE grant and partnered with DFGFI and RGT to process the site as a protected area. In 2005, JGI initiated health and conservation projects in Tayna NR. In 2006, a legal act formalised the gazettement of Tayna NR under a co-management framework involving ICCN, RGT, and DFGFI. In 2008, the Tayna NR community donated land for a gorilla rehabilitation centre (GRACE) in Kasugho, managed by DFGFI-RGT under CARPE. However, a 2009 REDD+ project by CI and Disney was cancelled in 2012 after both organisations withdrew. In 2011, CI closed its Central Africa and DRC conservation offices after losing its CARPE grant, and DFGFI ended its partnership with UGADEC, opting to collaborate with specific local members (RGPu, REGOUWA, and COCREFOBA) to work with communities in Walikale (Ngobobo, 2012, p.8-9).	North Kivu/territory Walikale	Yes

				In 2013, UGADEC provided limited funding for conservation efforts, but this ceased in 2016 when it lost access to USAID CARPE funding following mismanagement. That same year, GRACE registered as a US NGO and later as a DRC NGO in 2016, taking over DFGFI's gorilla rehabilitation project and establishing partnerships with RGT, international donors, and conservation organisations. Despite Tayna NR being classified as a state-run protected area, ICCN has not appointed any agents to oversee its management. Today, GRACE-US and GRACE-DRC continue conservation efforts in partnership with RGT. However, despite donor support, the area faces ongoing threats from armed groups and conflicts with mining permits issued by the DRC government.		
	Kisimba Ikobo NR	CI_{INT}, $DFGFI_{INT}$, $RECOPRIBA_{LCO}$	$RECOPRIBA_{LCO}$	In 2001, "RECOPRIBA was created by the intellectual elite, notables, and traditional chiefs of the region. RECOPRIBA's slogan is love, unity, and labour. The reserve does not cover the entirety of Kisimba and Ikobo but occupies the eastern part of Kisimba and western Ikobo (Lepia and Luchembe Valley). South of Kisimba, the reserve occupies the Osso and Mampi Valleys up to the border of Utunda (Makombo River). The eastern border in the south is the Mweso River, which is also the border of Masisi Territory" (Kiyengo, 2003, p.10). RECOPRIBA, a local conservation organisation, was established to support forest conservation near Tayna NR, which was officially gazetted as Kisimba-Ikobo NR in 2006. The area was later included in CI's REDD+ project in 2009, but following CI's withdrawal from DRC and Central Africa, RECOPRIBA lost its primary conservation partners. In 2013, WCS replaced CI as the lead organisation for MTKB landscape planning under CARPE funding, but efforts to conduct species monitoring faced resistance from local communities. Although RECOPRIBA no longer carries out conservation activities, its lead member continues to participate in conservation meetings (I22, 2023).	North Kivu/ territory Walikale	Yes
	Lowa developing NR	CI_{INT}, $DFGFI_{INT}$, $UGADEC_{LCO}$, $RECOPRIFOL_{LCO}$	$RECOPRIFOL_{LCO}$	In 2003, RECOPRIFOL was established by KALINDA SALUMU ALEXIS, Albert BAUMA NKUBA (I111, 2023) to support the gazettement of Lowa Forest, following the model of Tayna NR. A request for gazettement was submitted in 2011 (Mubonge, 2011, p.9), but it was not approved. Due to the absence of transnational conservation organisation as partner, RECOPRIFOL has been unable to restart efforts for gazettement and remains inactive.	North Kivu/territory Walikale	No
	Usala developing NR	CI_{INT}, $DFGFI_{INT}$, $UGADEC_{LCO}$, RGU_{LCO} later in 2013 FFI_{INT}	$GRACE\text{-}US_{INT}$, $UGADEC_{LCO}$, RGU_{LCO}	In 2002, "the Usala Gorilla Reserve (RGU) or the Usala Community Forest was created by a team of customary chieftains and local landowners under the leadership of Sultan Eric Mwaka Wa Eliba, who became the managers" (Kiyengo and Eustache, 2022, p.7). It was established to facilitate the gazettement of Usala Forest and create a corridor between Tayna and Kisimba-Ikobo NR. In 2007, a monitoring expedition confirmed the presence of gorillas in the area, and a request for gazettement was submitted to the state administration in 2011 (Mubonge, 2011, p.9), but it was not approved. Although FFI attempted to relaunch conservation activities in 2013 to support re-gazettement, they had to cease operations due to security concerns. In 2023, GRACE-US received $2 million from the Rainforest Trust to restart the gazettement process, with consultancy support from UGADEC, focusing on financing the technical and bureaucratic procedures required.	North Kivu/territory Walikale	No but in process
	Utunda-Wassa developing NR	CI_{INT}, $DFGFI_{INT}$, $UGADEC_{LCO}$, $REGOUWA_{LCO}$	$PIDEP_{LCO}$ with $CREF_{LCO}$ (accessing various multi-donor funding), $SODEPE_{LCO}$ with JGI_{INT}, $UTDPE_{LCO}$ with $DFGFI_{INT}$	In 2002, Ngira'Yitu RENGYIT renamed REGOUWA (Kiyengo, 2003, p.10). it was established to facilitate the gazettement of Utunda-Wassa Forest, with plans to submit a request to the state administration in 2012 (Mubonge, 2011, p.9). In 2011, some communities inside of REGOUWA have been approached by DFGFI to promote community conservation to replicate Tayna NR. Following the introduction of community forest delegation management in the DRC in 2014 and its 2016 application decree, REGOUWA split into three local conservation organisations: PIDEP, SODEPE and UTDPE. Each organisation has various line of funding sources and international partners to relaunch the gazettement of their respective conservation areas. PIDEP and SODEPE groups rely heavily on sporadic funding from transnational conservation organisations. Although for UTDPE, DFGFI established a field station in 2012 and collaborated with	North Kivu territory Walikale	Yes, but partially and divided into various local organisations

				UTDPE to create Nkuba Community Forest Conservation, signing a 25-year co-management agreement for approximately 100,000 ha in 2022. However, the small members of UTDPE that benefit from the initiative raise conflict and potential elite capture (I40, 2023).		
	Punia developing NR	CI_{INT}, $DFGFI_{INT}$, $UGADEC_{LCO}$, $RPGU_{LCO}$	WCS_{INT}, $RPGU_{LCO}$ and $DFGFI_{INT}$, $UTDPE_{LCO}$	In 2002, RGPU was created on the initiative of traditional chiefs and intellectuals from the Mbako, Banamea, and Banamukulu-Manya groups of the Babira-Bakwame collectivity in Punia Territory, Maniema Province, with its headquarters in Punia (Kiyengo, 2003, p.12). It was established to facilitate the gazettement of Punia Forest, submitting a request in 2011 (Mubonge, 2011, p.9), but it was not approved. In 2018, WCS secured up to $1 million from the Rainforest Trust to relaunch community forest conservation in parts of Punia, Bakano, and Lubutu territories under the name Oku NR, covering approximately 500,000 hectares. However, some local communities opposed the gazettement during consultations. WCS opened an office in Kasese but had to close it due to logistical challenges and a lack of community interest in conservation efforts (I26, 2023). The three communities gazetted under WCS funding, collectively named Ona Community Conservation, are struggling to secure support for conservation activities.	Maniema/ territory Punia	Yes, but partially
	Bakano developing NR	CI_{INT}, $DFGFI_{INT}$, $UGADEC_{LCO}$, $COCREFOBA_{LCO}$	$COCREFOBA_{LCO}$ with $UGADEC_{LCO}$, and $FODI_{LCO}$ (accessing various multi-donor funding)	In 2002, COCREFOBA was established to facilitate the gazettement of Bakano Forest, with a request planned for submission in 2012 (Mubonge, 2011, p.9). With support from UGADEC, COCREFOBA secured funding for the gazettement of two Community Forest Concessions for Local Communities (CFCLs), Babumbu and Tulanga. However, following their gazettement, local conservation organisations struggled to secure additional funding for conservation activities. In 2009, some members left COCREFOBA to form FODI. Portions of Bakano Forest were later gazetted under community forest management law into four CFCLs (Basengele, Kibu, Bananzigha, and Banisamasi) through funding secured by FODI. Since 2020, FODI has been a partner of PPI, which financially supports the project Integrated Conservation of Gorillas and Promotion of a Sustainable Oil Palm Sector on the Northern Outskirts of Kahuzi-Biega National Park. FODI continues to receive small grants from various CARPE funding sources (I111, 2023).	North Kivu	Yes, but partially
	Lubutu developing NR	CI_{INT}, $DFGFI_{INT}$, $UGADEC_{LCO}$, $REGOLU_{LCO}$	FFI_{INT}, $ACCFOLU_{LCO}$	In 2004, REGOLU was established to facilitate the gazettement of Lubutu Forest, with a request submitted in 2011 (Mubonge, 2011, p.9). In 2018, the organisation rebranded as ACCFOLU to relaunch efforts for the gazettement of parts of Lubutu Forest. Between 2018 and 2021, FFI, with $170,000 in funding from the Turing Foundation, supported the technical and bureaucratic processes for the gazettement of Lubutu and Mukingiti-Kingombe Forests. FFI also opened a local office in Lubutu to facilitate conservation activities, focusing on biomonitoring and patrolling. However, efforts to implement alternative livelihoods for forest-dependent communities have faced significant challenges (I15, 2024).	Maniema/territory Lubutu	Yes, but partially
	Mukingiti-Kingombe developing NR	CI_{INT}, $DFGFI_{INT}$, $UGADEC_{LCO}$, $REGOMUKI_{LCO}$	FFI_{INT}, $UGADEC_{LCO}$, $UCOFOBI_{LCO}$	In 2004, REGOMUKI was established to facilitate the gazettement of Mukinti-Kingombe Forest, with a request for gazettement submitted in 2011 (Mubonge, 2011, p.9). In 2018, the organisation was renamed UCOFOBI to relaunch the gazettement of parts of Mukingiti and Kingombe Forests through the community forest management law. However, the organisation has not secured sufficient support to continue the implementation of conservation activities.	Maniema/territory Lubutu	Yes, but partially
Kahuzi-Biega NP		$ICCN_{SO}$ (later a long collaboration with GTZ_{INT} (renamed GIZ))	$ICCN_{SO,}$ WCS_{INT} (with multiple international donors)	Prior to CARPE, Kahuzi-Biega was already a state-run protected area. Since 1959, WCS has been active in the region. In 2003, with CARPE funding, CI, WCS, and WWF developed various projects to reinforce ICCN's authority over the park. These projects included policing activities, infrastructure development, equipment provision, species monitoring, and staff training, along with incentive activities aimed at securing the buy-in of displaced, forest-dependent land-users (Maindo, 2017; Simpson & Pellegrini, 2023; Spira et al., 2019).	North Kivu, Maniema, South Kivu	Yes

			Kahuzi-Biega NP has faced, and continues to face, significant conflict and contestation between pro- and anti-conservation actors within the park. In 2022, WCS entered into a 10-year delegation management agreement with ICCN.		
South Kahuzi-Biega CBNRM	CI_{INT}, $UGADEC_{LCO}$, $CACOPKB_{LCO}$	Strong $Roots_{LCO}$ with funding from multi-donors	In 2013, CACOPKB, a consortium of local conservation organisations, initiated the gazettement process for 13 community forests, modelled after UGADEC, to link Kahuzi-Biega NP with Itombwe NR. Later, Strong Roots secured funding from various international donors to revive the demarcation process for gazettement under the community forest management law, with a total of 23 CFCLs.	South Kivu	Yes, but partially
Itombwe NR	WCS_{INT}, $WWF_{INT,}$ $ICCN_{SO}$	$ICCN_{SO}$ with various small grant funding from $BR\&D_{INT}$	Planned as a CBNRM initiative to be co-managed with forest-dependent land-users, *Action Communautaire pour la Protection de la Nature Itombwe Mwenga* (ACPN-IM) was established by the traditional chiefs of the area (Mwami Charles Kalenga Lwango, Mwami Kisali Malekani Wilondja, Mwami Longangi Ali Byemba, and Mwami Mubeza Nalwindi Bugoma IV) along with intellectuals from Itombwe and Mwenga, including Pastor Ushindi Kyalondawa (Vwirasihikya, 2003, p.11). This initiative was modelled after UGADEC but did not last long. In 2005, WWF and WCS, through CARPE funding, began partnering with ICCN to initiate a new state-run protected area in Itombwe Forest. In 2006, Itombwe was gazetted as a nature reserve covering 1,500,000 hectares. By 2008, forest-dependent communities began organising into local associations and partnering with international organisations like RFN and RFUK to downsize the reserve. In response, WCS, WWF, and ICCN called for conflict resolution, and after six years of processes, Itombwe Reserve was re-mapped and downsized to around 570,000 hectares through a provincial order in 2016. In 2019, WWF closed its programme in Itombwe NR after completing its CARPE grant. Despite these efforts, Itombwe continues to face deficit management.	South Kivu	Yes, but partially

X_{INT}: international organisations, $X_{LCO:}$ local conservation organisation, X_{SO} : state organisation

Annex 6: Longitudinal data of conservation territories demarcated and enforced under CARPE funding.

Variable observed	**Sub-variable observed**	**CARPE (II) 2003-2010**	**(CARPE III) 2011-2020**	**Situation (2021-2024)**
CARPE fund awarded to implementers	Budget (USD)	8 896 346 USD	13 570 000 USD	7 00 000 USD
CARPE scale intervention	Focus site	L10 (Figure 2a)	L10 but withdrew activities in Bafwasende CBNRM	CARPE withdrew its funding towards landscape approach and focused on periphery Kahuzi Biega-NP (2021-2027)
Actors	Lead implementers and subgranted international organisation	CI, DFGI, IRM, WWF, WCS	WCS (replacing lead starting 2013), WWF, JGI and CI (replaced lead after withdrew) and DFGFI (withdrew) until 2013	Techno server (lead), WCS, Olam international, Eastern Congo Initiative (2021-2027)
	Local partners subgranted from international organisation or from awarded local partner	ICCN UGADEC (RGT, RECOPRIBA, COCREFOBA, RGPu, RGU, REGOUWA, RECOPRIFOL, REGOMOKI, REGOLU)	ICCN, UGADEC and members, AFRICAPACITY, CACKOP.	Forest dependent land-users household living in periphery of Kahuzi Biega (2021-2027) was the main targets.
Enforcement conservation territories	Land-use planning, expansion conservation territories, status management of the territories (figure 3a)	The land-use and management plans for the landscape were elaborated and validated, dividing the area into two zones: PA (Protected Area) and CBNRM (Community-Based Natural Resource Management). Georeferenced data was used to map conservation territories virtually. The Kahuzi-Biega NP management plan for 2009-2019 was validated, with a draft status prepared for the remainder of the plan. In 2006, the legal act was promulgated, gazetting three state-run protected areas, which were co-managed with local NGO-UGADEC: Tayna (RGT), Kisimba-Ikobo NR (RECOPRIBA), and Itombwe NR. UGADEC's CBNRM initiatives completed participatory mapping in seven areas, with three of them requesting gazettement as Nature Reserves.	In 2012, DFGFI was revoked as a CARPE implementer and moved to Walikile territory, launching a new project under different funding to support the promulgation of the Nkuba Community Conservation Reserve, covering approximately 100,000 ha. This reserve was granted CFCL status in 2021. That same year, DFGFI entered into a 25-year co-management agreement with forest-dependent land-user representatives. In 2012, CACPKOP was created, bringing together 9 local communities to conduct land-use planning for South Kahuzi, covering an area of over 1 million ha. The initiative received a subgrant from UGADEC until 2016, but none of the planned CBNRM activities under CACPKOP were promulgated as CFCLs. In 2013, CI was replaced as the lead CARPE implementer in the landscape by WCS. Following mismanagement, CI closed all its local and country offices in DRC and its regional office for Central Africa after being revoked from CARPE funding. An independent evaluation report noted: “In the Maiko-Tayna-Kahuzi Biéga Landscape, the management was highly problematic until taken over by WCS. But there is little or no evidence of the claimed activities in years one and two.” (Integra, 2017, p.60)	In 2022, WCS has signed a 10-year delegation management with ICCN under the contract PPP.

Enforcement conservation territories	Land-use planning, expansion conservation territories, status management of the territories (figure 3a)	In 2007, the Bafwasende CBNRM initiative, led by IRM, faced challenges in progressing. In 2009, DFGFI-UGADEC took the lead in carrying out these activities. In 2008, local contestation in Itombwe led to a demand for the down-gazettement of the reserve.	Also in 2013, WCS conducted a survey and monitoring to re-elaborate the landscape land-use plan, due to doubts on the previous plan: "the CARPE Landscape Plan under phase II of CARPE was developed for the landscape by CI and DFGFI (Conservation International, 2010), but WCS and ICCN had some reservations about the contents. Notable was the small number of species of conservation concern identified in the landscape and the fact that at least 30% of the mammals listed were not found in the landscape, along with similar errors for other taxa." (Plumptre et al., 2015, p.5) In 2015, GRACE-US was registered as an international NGO and continued to support Tayna Reserve. In 2016, GRACE DRC was registered as a local NGO, continuing the gorilla rehabilitation project previously managed by DFGFI and RGT, and later evolving into the new organization, GRACE, which continues to protect gorillas in the reserve and at the rehabilitation center in Kasugho. In 2016, a legal act was passed to modify the boundaries of Itombwe Reserve. WCS, WWF, and local partners temporarily worked with local associations (RACCOMI, AFRICAPACITY) to conduct community consultations, participatory mapping, and facilitate the administrative processes. After six years, a provincial order was issued, reducing Itombwe NR from 1,500,000 ha to 571,790 ha. In 2017, UGADEC's CARPE grant was frozen following reports of fund mismanagement (Integra, 2017, p.60 & 71). According to interviews, UGADEC has not received CARPE funding since being revoked from their grant (I22, agent of local non-state organisation, 2022). In 2018, with the release of a decree to acquire CBNRM legal contract management, UGADEC's CBNRM was divided into multiple CFCLs (Figure 2). Under CARPE funding, 3 CFCLs led by RGPu were funded by WCS (a UGADEC member), and 5 CFCLs were managed by UGADEC under JGI's bureau. These areas required reprocessing of community consultations, delimitation mapping, and administrative procedures. In 2019, WWF withdrew its support for ICCN regarding training, equipment, and patrolling activities after completing its funded project in Itombwe NR. However, in 2020, WWF supported the promulgation process for 12 CFCLs in Uvira, focusing on their main activities in the landscape, which were in the old Itombwe CBNRM area (Figure 2).	
	Policing activities by ecoguards	A total of 120 ecoguards were hired, trained, and equipped to patrol 35% of Maiko NP. In Kahuzi-Biega NP, 35 ecoguards were trained, equipped, and patrolled 40% of the park, with seven patrol posts constructed. Additionally, 150 local field staff were hired, trained, and equipped to support UGADEC	No information is available linked to CARPE funding, but in 2018, a series of violent incidents were reported after forest-dependent land-users entered the park to claim their land, from which they had been evicted (Flummerfelt, 2022). From 2014 to 2018, WCS received a subgrant from the US Forest Service's EMAPS program, amounting to $1,946,300. The funding was used to combat wildlife trafficking, provide equipment for patrolling, and support the salaries and costs for ecoguards.	B&RD, the GO and FFI support small grant to Maiko NP and Itombwe NR. Different donors remain active in Kahuzi-Biega NP (Luoma 2022).

		activities, including ecoguards, trackers, and research assistants.		
	Species monitoring and research (survey, tracking,etc)	Several site survey and monitored in the landscape leading to an estimation of 400-600 gorillas.	In 2013, forest-dependent land-users contested the survey conducted in the Kisimba-Ikobo reserve: "WCS made a short visit to Kisimba-Ikobo Community Reserve in 2013, but our teams were attacked by people antagonistic to the reserve, and we were only there for a few days" (Plumptre et al., 2015, p.21). Due to the presence of armed groups in Maiko NP, the WCS team was unable to carry out monitoring activities in the park's central area (Plumptre et al., 2015, p.21). More than 200 ICCN staff, including ecoguards and park managers, were trained in species monitoring. Additionally, 15 ICCN and local partner staff were trained in environmental filmmaking.	N/A
	Construction or renovation management infrastructure (patrol post, research station)	In Maiko NP, 49 km of roads were renovated, and 25 bridges were repaired. Additionally, 7 patrol stations and 2 research stations were renovated.	No specific information is available linking this to CARPE funding, but from 2014 to 2018, WCS received a subgrant aimed at improving site management. This funding supported infrastructure renovations and construction, which enhanced patrolling capabilities and species monitoring efforts.	N/A
Incentives to forest dependent communities	Social infrastructure	In Tayna NR, the Tayna Center for Conservation Biology was established for academic training at higher degree levels, along with a community radio station, a small hydroelectric power station, and a gorilla rehabilitation center. In Itombwe NR, 2 primary schools and 1 health center were built.	No information available to link with CARPE funding	For a long time, the Tayna Center for Conservation Biology (TCCB) moved to Goma and the construction in Tayna reserve was abandoned.
	Livelihoods activities	Livelihood projects were implemented, focusing on farming and livestock, along with improving access to medical services and family planning.	1,400 micro-credit projects were funded to improve farming and livestock activities. Over 900 individuals were informed about global climate change and REDD+. More than 1,200 people were trained in species monitoring and equipped for community patrolling efforts.	Not observed since the project is still implemented and in its early stage.