# MANAGEMENT SCHEMES AND RESOURCE ACCESS IN MULTIPLE-USE FORESTS IN THE CONGO BASIN

By

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# Preface

## Master's Thesis in Three Parts

With this master's thesis, I attempt to hone in on the notion of resource governance across scales and through time. I use three complementary and interlinked frameworks in effort to address the complexity of multi-functional forests in an era of heightened global connectivity, recognizing that current interventions are intimately tied to myriad entities and socio-ecological processes as well as historical contexts of these processes. In detailing how processes of governance draw from and shape systems of forest and wildlife ecology, and how those systems in turn shape governance strategies, I aim to begin to depict the interrelationship between humans and the Congo Basin environment in the form of a natural history.

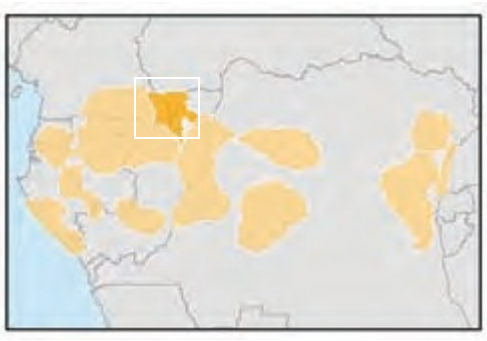
Part I depicts the schematic of hybrid resource governance that is designed to implement region-wide ecosystem scale conservation. I focus on socio-ecological system of broadleaf evergreen moist forests in Southeastern Cameroon. There, an influx of transnational actors including timber companies, safari hunting operations, and conservationist NGOs has been shaping the landscape over the past twenty years with resource-use zones and management plans that delimit the terms of partnerships, especially user rights and responsibilities. Based on interviews with a range of actors and analysis of management plans, I examine how local knowledge and decision making power factors into forest management.

Part II focuses on how resource access for local-level forest users are shaped by schemes of hybrid governance in multiple-use forests. It also identifies some potential drivers of agricultural transition and discusses the implications of the current forest zoning and management schemes on biodiversity. It begins with a literature review about land-use in the Congo Basin and drivers of agricultural conversion. Focus group and individual interviews with people in five villages The ecological outcomes of resource-use zoning are discussed in terms of landscape ecology, on which rests the tenets of the ecosystem-scale approach to conservation. This paper is thus an attempt to begin to connect spatial analysis with ethnographic methods.

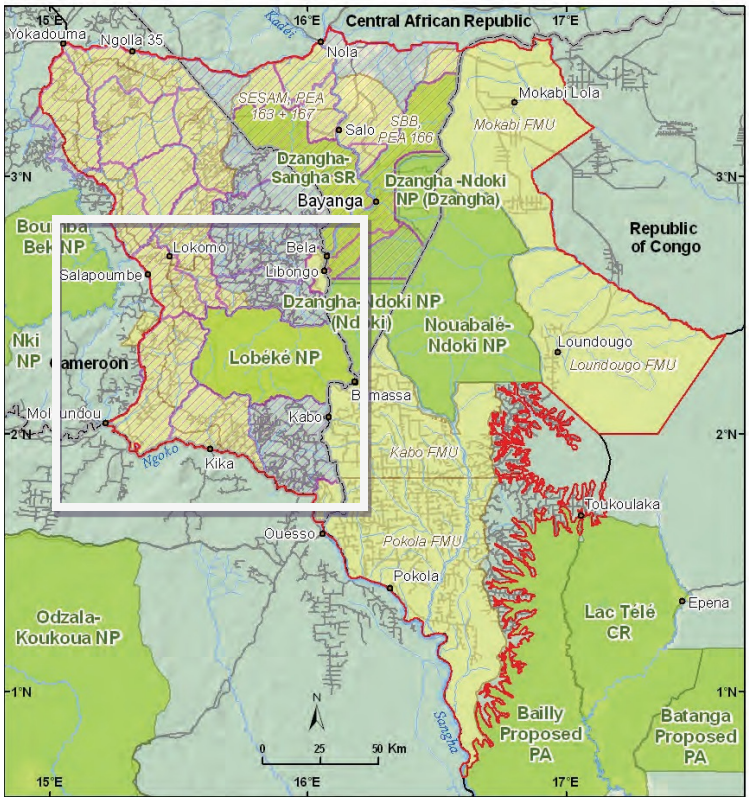
Part III focuses on the process of designing management plans, discussing the plans themselves as 'boundary objects'—focal points where multiple agendas and cultural conceptions come together in order for people from multiple social worlds to attempt to cooperate. I discuss the plans and their ensuing spatial organizations and delimitations of tasks as intimate spaces where myriad knowledges converge. Using the case study of interactions between various actors at various scales I examine how forests are becoming spaces of increasingly intimate linkages that transform resource use patterns and governance strategies, which are themselves important factors shaping the socio-ecological landscape. Drawing largely on frameworks of critical political ecology, discourse analysis and science and technology studies, this paper attempts to engage with environmental and institutional/cultural change as deeply entangled processes.

Although each of these papers is meant to stand on its own, with a discrete argument, the themes and contexts overlap extensively. Each paper presents a unique perspective on the same socio-ecological system, yet the approaches are meant to be complimentary.

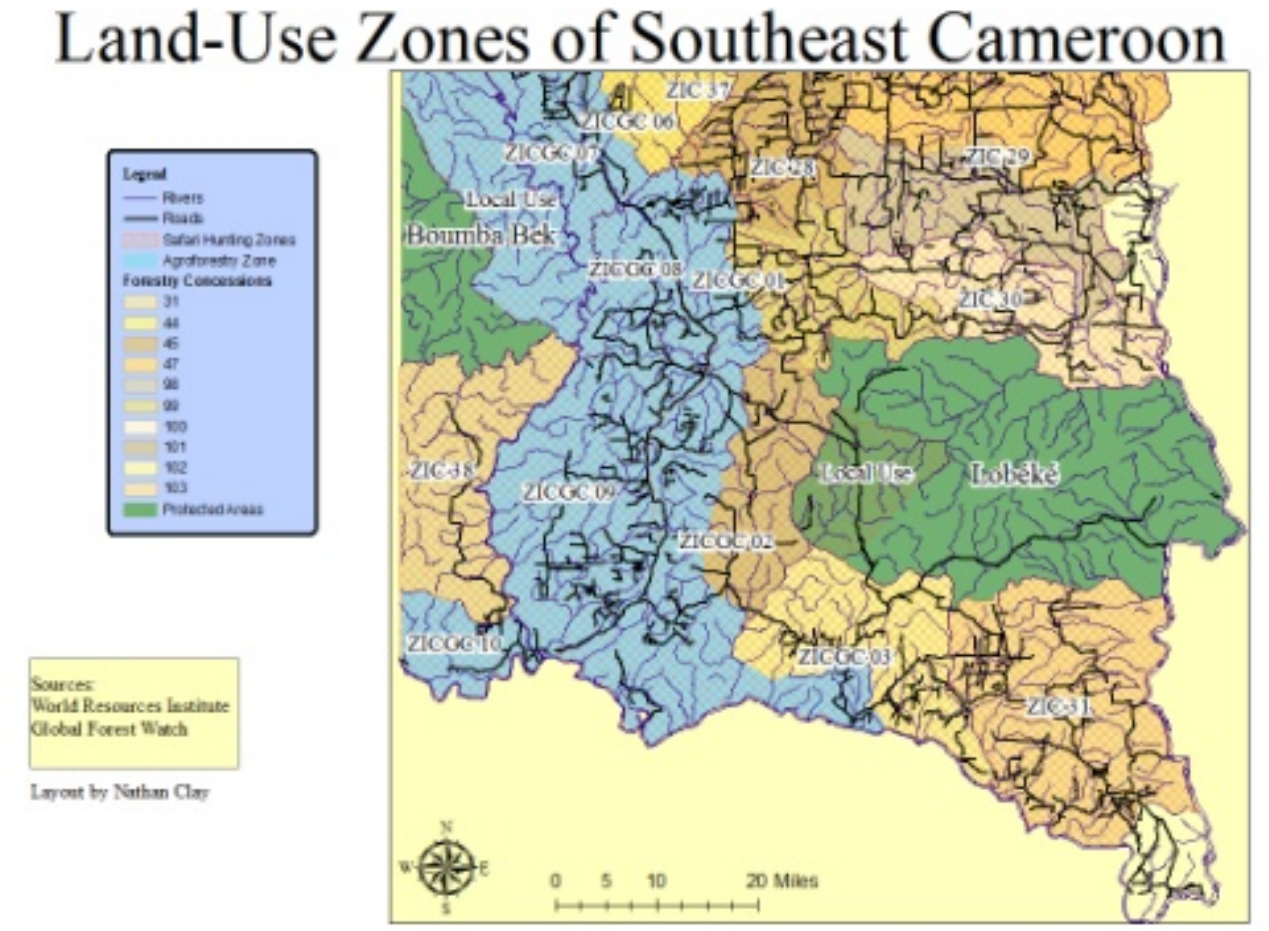
# Maps

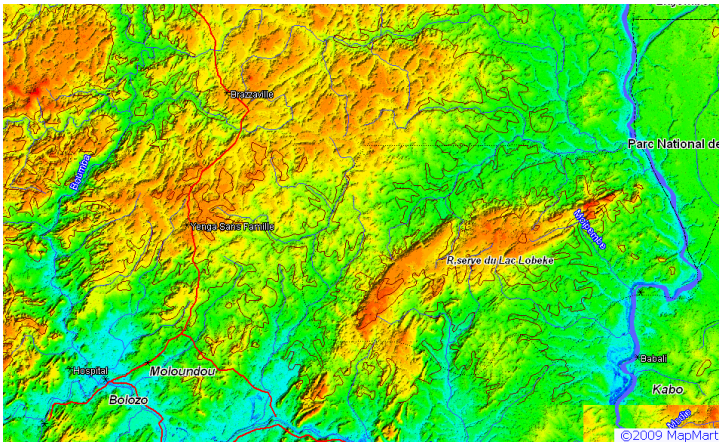


'Conservation landscapes' in Central Africa—from WCS




Tri-National de la Sangha Eco-region




Digital Elevation Model of Southeast Cameroon, from MapMart

# Part I

# Wildlife Conservation in Mixed-Use Forests: Loggers, Hunters, and Farmers in Southeast Cameroon

Nathan Clay

**Abstract**

*In this paper I look at wildlife conservation amidst the complex of land-use zonings that comprise the buffer zone of the Sangha Tri-National Park (TNS by French Acronym). A region with sparse governmental presence and extensive resource extraction, the TNS area has been the recent trial ground of governance strategies that purport to incorporate local people and transnational actors. This 'hybrid governance' is part of an agenda to decentralize wildlife management, through partnerships between communities, timber companies, professional hunting outfits, and international Non-Governmental Organizations (NGOs). Focusing on Southeast Cameroon, I argue that the terms of wildlife management are driven by these powerful international actors, which take the place of the state and re--concentrate decision-making power away from local Cameroonians. While these organizations jockey for power and draft compromises, local people are perceived as a hindrance to both conservation and resource extraction, something that must be educated and paid off. Rather than sincere involvement by local peoples, the panoply of land-use zonings and their frameworks of hybrid management are laced with bureaucracy and corruption that make it difficult for people to take ownership of conservation projects. Moreover, the land-use zonings remake boundaries and inhibit access to essential livelihood resources in a number of communities. Although the presence of international organizations is essential for implementing wildlife conservation schemes where the state fails to allocate resources, the passive role played by local people makes it unlikely for conservation outside of parks to have any lasting effects. I suggest that in this highly uncertain socio-ecological system, local people and their place-based knowledge are essential to the dual projects of conservation and development. I argue specifically that local knowledge (including that of both Bantu villagers and 'indigenous' Baka) could be used formally for conservation planning, where it is already used informally.*

## Introduction

The widely recognized failure of preservationist conservation and of conservation with development projects (Barrett & Arcese, 1995) is leading some in conservation to change their tune, espousing instead conservation 'where people live and work' (Miller & Hobbs, 2002). Efforts to de-centralize natural resource governance are altering the landscapes of conservation and development throughout Africa. And ecosystem scale conservation that emphasizes conservation corridors is becoming ubiquitous in conservation circles (Goldman, 2009). Co-management and hybrid management of resources—involving the state and local communities or NGOs and local communities—factor prominently into decentralization discourse. In the Congo Basin, where both conservation and resource exploitation are practiced on massive scales, hybrid-management linking powerful international organizations and local actors has arisen as a logical way to seek the dual goals of conservation and development (Oyono, 2004). Success of these governance strategies, argue (Lemos & Agrawal, 2006d), depends on cooperation among many actors across local, regional, national, and global levels. And (Ribot & Peluso, 2003)

suggest that conflict often ensues from vague policies that fail to clearly delineate powers and rights. In fact, Peters demonstrates that in Africa social conflicts over land have increased in the wake of environmental decentralization reforms (Peters, 2004).

Although the principles of decentralization are manifest throughout the Congo basin, and Cameroon is often heralded as the leader of this march, some suggest that the weak institutions and rampant corruption make it difficult for either centralized or decentralized systems to succeed (Sayer, Ecosystem Conservation). (D. S Wilkie & J. F. Carpenter, 1999)argue that this difficulty in the Congo Basin context is at least in part due to the lack of effective wildlife management institutions above the household or the clan level. International organizations that attempt to fill the void of local and governmental capacity have been shown to marginalize local institutions in the process (Igoe, 2004). Yet, some argue that the critiques about lagging local capacity, technical expertise, and financial aptitude enable 'self-serving' agendas that impede the further enhancement of local democratic institutions in favor of emphasis on civil society (Ribot, Agrawal, & Larson, 2006e). The processes of management remain top-down, enforcing a [false] divide between local and scientific knowledges (Agrawal, 1995). This artificial divide between local and expert knowledges does further unproductive work in decoupling social and ecological processes. While the state has historically instituted this segregation of coupled processes and their intimate knowledges (Scott, 1998), under schemes of decentralized management, transnational actors take up these reigns. In this process, conservation schemes that involve 'local communities' are emphasized.

Social, economic, environmental and, political issues are increasingly being framed and addressed through management (Bavington, 2002). Among the institution-shaping co-governance strategies premised on decentralization is Community Based Wildlife Management (CBWM). CBWM has proved overwhelmingly unsuccessful, in spite of being recognized across Africa as a convenient way to accomplish the dual goals of relinquishing protectionist conservation strategies and top-down development (Hulme & Murphree, 2001). In discourse CBWM appears distinct from oppressive state-controlled conservation as it emphasizes 'inclusive' and 'participatory;' initiatives, where the community truly embraces the leadership role. In the Congo Basin, the UN State of the Forest suggests that "co-management initiatives have stimulated greater local community participation in and support for conservation work in the region" (State of the Forest 2010). And in Cameroon, the current forest policy (from 1994, and undergoing revision over the past three years) recommends that the local population be implicated in management of forest resources. Yet, some argue that communities remain only passively involved in resource management, that they still lack a say in how nature and conservation are perceived and managed in decentralization generally (Agrawal, 1999a) and specifically in CBWM (Naughton-Treves, 1999). And some Integrated Conservation and Development Projects (ICDPs) actually exacerbate illegal overhunting (Barrett & Arcese, 1995).

Rather than being recognized as resource users that make decisions, local people are given the binary role of beneficiary (Agrawal, Smith, & Li, 1997c). Goldman (2003) critiques this dividing of landscape management as privileging expert knowledge and viewing local communities as mere tools or commodities of conservation rather than as active knowing agents.

Furthermore, (Agrawal Clark & others, 1999) show that relying on 'community'[1] can overlook the power relations inherent therein—connecting outside actors and institutions, and shaping the distribution of benefits. Where communities are often defined as small, homogenous units, tend to be heterogenous within and across households (Agrawal et al., 1997c). To better understand how which social actors gain access to and control over local resources requires looking at the relationships among the range of institutions across scales (M. Leach, Mearns, & Scoones, 1999). Moreover, where current institutions represent past political alignments, Agrawal suggests looking at existing institutions in effort to understand how they are contested in order to envisage future institutions (Agrawal, 2001b).

In this article I follow Ian Scoones's suggestion to look to interaction of structure and agency across scales for a more dynamic understanding nature-society relationships . I look to the concept of resource governance as a pattern for structure and agency and specifically to policies and practices of wildlife management within the buffer zones of national parks, that include logging concessions, agroforestry zones, and community-managed hunting zones. In this way, I also follow Ribot's call to scrutinize policies masquerading as decentralization (Ribot, 1999). By analyzing content of management documents I demonstrate how decentralization fails largely as it is premised on 'rigid ecological territories and lockstep temporal management' (K. S Zimmerer, 2000b). Based on interviews and focus group discussions with local community members, government employees, conservation workers, and timber company employees I discuss how structure and agency dictate the specifics of wildlife conservation from international conservation models to the village level. I will attempt to show that the processes of wildlife management do work to decouple linked social and ecological systems, and fail to account for the important role that local knowledge can play in the fight against poaching.

With emphasis on wildlife management in overlapping zones of land-use, I suggest that local knowledge and agency are key aspects of decentralization and analyze how local knowledge factors into hybrid governance strategies as they are envisaged and implemented. I argue that, despite rhetoric of community inclusion in hybrid governance, conservation planning and monitoring remain top-down in essence—although management protocols are contracted out to international NGOs (Robillard, 2010) and timber companies, which fill in for the state's absence. This is similar to what Agrawal and Ribot (1999) call 'deconcentration'—or the devolution of power only in form of administration, rather than a true devolution of central power strived for by decentralization. Throughout history, the modernizing central state has relied on manageability and scientific expertise construct the landscapes, with local knowledge, context, and concerns pushed to the margins (Scott, 1998). Yet co-governance can be a challenge to this status quo where it recognizes non-linear ecological processes and exonerates complex local knowledge systems (Barrett, Gibson, Hoffman, & McCUBBINS, 2006a; Goldman, 2003).

[1] The complex social histories and relations of 'communities' in Congo Basin forests are not included in the scope of this paper. I recognize community to include multiple tribes of those practicing primarily agriculture and those practicing hunting and gathering, including two indigenous groups: Baka and Bagweli as well as various Bantu groups; thorough depictions of these ethnic groups and their interactions can be accessed in work by S. Rupp, Joiris (Cameroon); Bachuet, Hardin, and Gilles-Vernick (CAR); and Gami and Lewis (Congo).

**Changing Natural and Human Landscape**

While the tropical forests of West and East Africa now occupy only 8-12% of their former range, Central African forests still occupy around 60% of their original extent (Naughton-Treves, Weber, White, & Vedder, 2001). Yet, human use of the Congo basin forests is rapidly expanding (Perez et al. 2005), with forests becoming host to an influx of powerful transnational actors that are dramatically altering land-use and livelihoods opportunities (S. J Wright, 2005). Timber extraction and its accompanying population booms are decimating plant and animal species across the region and some predict that large-scale plantation agriculture will follow timber extraction, further threatening biodiversity and ecosystem services (Fitzherbert et al., 2008). Logging concessions occupy 30% of forest area (Laporte, Stabach, Grosch, Lin, & Goetz, 2007b).

Logging concessions bring with them an influx of infrastructure, such as logging towns, sawmills, and even hydroelectric power stations, and with that, thousands of people immigrating to find employment (Poulsen, Clark, G. Mavah, & Elkan, 2009a). Industrial logging in the region stands to expand and an understanding of how it impacts wildlife use will be essential for conservation (Butler & W. F Laurance, 2008). The confluence of various types of anthropogenic change stand to combine to create much more stress on tropical forest ecosystems and specifically on mammalian species (M. J Remis & Hardin, 2009; S. J Wright, 2005). For example, habitat degradation and fragmentation, road networks, and hunting could act together to rapidly decrease species abundance. At forest frontiers, the only resource that makes sense to exploit is wildlife (Poulsen, Clark, G. Mavah, & Elkan, 2009b). People rely on bushmeat as an important protein source (Fa, Currie, & Meeuwig, 2003), yet 60% of the 57 species hunted are done so unsustainably (Fa, Ryan, & Bell, 2005).

International NGOs are responding to these global concerns by implementing region-wide mechanisms for improving resource management, livelihoods, and human-rights (Scherr & Gregg, 2005). Increased funds for NGO-led monitoring of extractive industry are channeled through the USG-led Congo Basin Forest Partnership, which is becoming prominent along with other international institutions (D. Brown, 2009). Conservation in the forests of the Congo basin has lagged behind other areas of the world due to negative international perceptions of the region and conservation challenges due to intense logging, overhunting, insufficient funding for conservation initiatives, and decades of political instability and war (Kamdem-Toham et al., 2003; Noss, 1997). Under pressure from the World Bank and other international organizations, Cameroon radically revised its forest policy in 1994. This law and subsequent decrees concerning wildlife take steps to decentralize power to regions and communities and to formally solicit support of timber companies and conservation organizations in wildlife management, advocating community involvement in natural resource management (Oyono, 2004; Jeffrey. Sayer, Ndikumagenge, Bruce Campbell, & Usongo, 2005).

And in 1999, the heads of state of Central African countries met in Yaounde, Cameroon to support proliferation of protected areas throughout the region. Many of the protected area expansions were simply increases in land area from what had been declared national park in the colonial era, and protected areas now occupy around 12% of land area (Laporte, Stabach, Grosch, Lin, & Goetz, 2007a). However, with protected areas increasingly recognized as

inadequate to protect against biodiversity loss ((Myers, R. A. Mittermeier, C. G. Mittermeier, da Fonseca, & Kent, 2000) and CBWM recognized as unsuccessful in both conservation and poverty alleviation (Oates, 1999), conservation organizations are turning to ecosystem-scale conservation[2], what Zimmerer calls 'a substantial reworking of conservation geographies (K. S Zimmerer, 2000b).

WWF and WCS are moving towards structuring their policy and project efforts at the regional and landscape level, or 'ecoregion,' which includes 11 priority landscapes for conservation, a total of more than 700,000 $km^2$. Linking timber companies, NGOs, state agencies, and local communities, these landscapes of conservation employ hybrid-governance arrangements[3] seeking to conserve biodiversity in landscapes where people live and work (Miller & Hobbs, 2002). The Sangha River Tri-national Park (TNS) and surrounding area is a crucible of such multi-stakeholder interaction. Created in 2000 the TNS landscape consists of 4.5 million hectares in three national parks and 3.7 million hectares of multiple use zones among tropical forests of Cameroon, the Central African Republic, and the Republic of Congo. The multiple use zones surround the national parks and comprise 23 timber concessions, 11 safari hunting zones, 6 community-managed hunting zones, a handful of community forests, and agriculture zones along roads (Usongo & Nzooh, 2009).

These zones operate under the same framework of conservation guidelines, with the various actors working in partnership. This conflux of zonings is thus mobilized as ecosystem scale conservation—an effort to both 'extend the conservation estate' (Clark, Poulsen, Malonga, & ELKAN, Jr., 2009) and to incorporate the needs of the array of stakeholders—with the management planning processes of each individual zoning unit defining the TNS land use plan'(Usongo & Nzooh, 2009). Wildlife and forest management agencies as well as international conservation organizations are beginning to accept the importance of people in what have long been considered 'natural ecosystems.' Contrary to what is often assumed, many large mammals are found in the same or even greater density in forest areas that have been selectively logged (Clark, Poulsen, et al., 2009). The idea that logging and mammal abundance could be complimentary has many arguing for the integration of logging concessions into conservation areas.

In implementing the ecosystem approach according to the Convention on Biological Diversity, Forsyth argues that different institutions 'pick and choose' from this approach to suit strategic goals, enabling a 'negotiable and culturally sensitive' management approach that can be adopted in diverse locations (Forsyth, 2005). But there is also risk that basing spatial projects on 'standard territorial blueprints', where buffer zones and transitional zones are 'common containers of land use', to which Zimmerer (1999) attributes failure of many Integrated Conservation and Development (ICDP), could be a downfall of ecosystem approaches (K. S Zimmerer, 1999a). Conservation corridors are similarly appealing to conservation biologists and resource managers as they make for an easily transposable assembly of ideas, in spite of their unproven successes (Goldman, 2009). Moreover, Scoones (1999) suggests that there could be

[2] Ecosystem-scale conservation, as defined by the Convention on Biological diversity, considers the importance of area around protected areas to the project of conservation, particularly for migratory species who regularly move between protected areas and the surrounding human-dominated landscapes.

[3] See Lemos and Agrawal, 2008 for a thorough explanation of hybrid governance.

negative consequences of ascribing particular functions of ecosystems on people, for example 'notions of a forest, of overgrazing, of wilderness—derive from particular views of ecology that construct local people in particular ways' (Scoones, 1999).

In the following two sections, I explore how the policies and institutions of ecosystem-scale conservation have been conceptualized for Cameroon's dense forests and how they are being implemented. As (Hardin, 2002) suggests, it is only around these zones and their precise management prescriptions that partnerships are now being attempted, with local negotiations taking place under the umbrella of globalized management. Local knowledge is often silenced by the supposedly universal knowledge that is the base of conservation biology, wildlife ecology, landscape ecology, and resource management discourse (Goldman, 2003). While much of the paper does detail what is not working, I attempt to follow Berkes's guidelines to sophisticate conservation science by developing a more nuanced understanding of social-ecological interactions by looking specifically to cross-scale conservation, adaptive comanagement, incentives and multiple stakeholders, traditional ecological knowledge, and cross-cultural conservation ethics (Berkes, 2004).

**Rules and Boundaries in Multiple-Use Forests: Narratives of Management**

*"The difficulty lies not so much in developing new ideas, as in escaping from the old ones."*

Recognizing the limited understanding that comes from framing environmental problems in terms of aggregate population pressure on limited resources (Mitchell, 2002), it is worth considering the roles of diverse institutions in different actors and ecological components (M. Leach, Mearns, et al., 1999). The institutions that dictate control over natural resources are operating within increasingly transnational moral and political economies (Tsing, 2005). Yet, within these frameworks, boundary-making continues to prioritize the control of people and criminalizes local resource users, with boundaries serving the functions of policing and containment (K. S Zimmerer, 1999a).

Biodiversity conservation has shaped social, political, and economic geographies the world over (Karl S. Zimmerer, 2006). In Cameroon, land-use zones—the majority of which are forest management units given to logging concessions—were drawn up in 1994 by a group of Canadians who delineated zones based on what they saw from aerial photos to be less dense areas of human settlement. What the Senior Forestry Officer at the World Bank called "simple but not bad"[4] has fundamentally re-shaped the landscape. The boundaries, although apparently neatly demarcated on maps, remain rather ambiguous on the ground, with signs and markers in places that are convenient.

Forsyth argues that a key mechanism for restricting peoples' resource use is continuing to use historical framings of ecosystem function—the 'scientific basis' of forest zoning in ecosystem management—that legitimize marginalization of certain actors (Forsyth & Walker, 2008). Along these lines, Sayer suggests that ecosystem approaches in the Congo basin have been slow to take

[4] From personal communication with the author, Yaounde 6/16/10

hold[5] as resource management plans were largely divided between extraction and conservation. These forest management strategies were regulated by the central government, who owned both national parks and logging concessions, and local populations were excluded from management decisions. And the acute segregations into protection and production zones were abated little by international donor support even into the late 1980s, with management plans drawn up with the sole objective of enhancing timber production into the future through improved silvicultural techniques. The assumption was that environmental benefits would be 'by-products of sustainable forestry practice' (Jeffrey. Sayer, Cléto Ndikumagenge, et al., 2005). Zimmerer argues along these lines that landscapes such as this of 'second-nature' conservation are designed to manage biogeophysical impacts and to enhance the expansion of markets (K. S Zimmerer, 2000b).

In Southeast Cameroon, the rapid proliferation of environmental NGOs is further rapidly re-defining the spaces where people can hunt and practice agriculture (D. Joiris, 1999; Robillard, 2010; Rupp, Stephanie, 2001). These projects create new conceptions of how forests are spatially arranged, drawing new boundaries. At the same time, human rights movements and sustainability movements throughout the developed world are influencing the agendas of NGOs in Central Africa, further complicating the patterns of transnational environmental governance (Hardin 2010). WWF, for example, has responded to criticism of their lack of compassion for local people by increasing their focus on the 'indigenous' Baka[6]. WWF's Central Africa regional program identifies the Baka as caretakers of the forest, and their project is called *'Jengi'*, a Baka word which means the oneness with nature.[7]

Although the invoking of global funding sources for conservation of charismatic large mammals is bringing services and money into these communities, the asymmetrical power structure and emphasis on management makes it difficult for policy initiatives in environmental protection to gain any traction, undermining decentralized governance and provoking social conflict and over-exploitation of resources (Hardin, 2002). Zimmerrer sees the conservation boom as 'a reworking of capitalist moderninty', whereby the state is hollowed out at intermediate points, with transnational companies and their funding structures acting as these intermediaries? Karsenty says on Cameroon that the capacities for forestry and wildlife legislation are disparate from those of implementation. He argues further that there is no framework for the harmonization of various support projects and that international support is 'scattered and ill-appropriated by national institutions' (Topa, Bank, Megevand, & Karsenty, 2009).

Wildlife management in the TNS ecoregion is defined almost entirely in terms of 'poaching' or illegal harvesting of protected wildlife species. Hunting animal species illegally for their meat and for valuable products such as ivory is deemed the most severe threat to wildlife populations

[5] These projects have also been difficult to implement as the surrounding countries off Republic of Congo, Central African Republic, and Democratic Republic of the Congo have been suffused with conflict and economic difficulties transboundary innovation at that scale difficult.

[6] The Baka 'pygmies' are traditionally nomadic and semi-nomadic hunter-gatherers who have traditionally spent a majority of their time in the forest.

[7] *Jengi* has been interpreted as a complex word that roughly translates to an intimate connection between people and the forest. It is also the name of the Baka peoples' coming of age ritual, which involves killing an elephant. For more information see Joiris or Bachuet. Ironically, the Baka people must go through an intensely bureaucratic process to gain authorization from WWF to practice their ritual Jengi.

in policy documents, management plans, and in conversation with administrators. As such, the mechanisms for wildlife management overwhelmingly involve criminalization and subsequent control of illicit hunting activity. This control is enacted directly (through arrests and subsequent jailing) as well as indirectly (through *sensibilisation* programs, which purport to inform local people of the hunting laws and the importance of wildlife conservation, and often end up just paying people a *per diem* to attend a meeting).

> "There are a lot of 'sensibilisation efforts from WWF and GTZ, but people are actually just waiting for money. People are *bien sensibilise*, however they are still not changing their practices. We need more anti-poaching missions, or else the animals will disappear"[8].

> 'There has always been sensibilisation. Poaching is the real problem. Some hard-heads resist sensibilisation and people do not know the laws…the manner of conservation, where the politics are concerned, is good...the problem is the management of people'. You don't make omelets without breaking some eggs'[9].

Human rights abuses in the name of biodiversity conservation have become normalized in African parks (R. P. Neumann, 2004). In Cameroon, although these changes to conservation are supposed to be radical still involve the training of 'ecoguards', which are essentially paramilitary forces that patrol for poachers within the various zones. While the necessity of anti-poaching patrols across Africa and in the Congo Basin specifically is debateable (Gibson, 1999; R. P. Neumann, 2004), it is certainly practiced in full force in the transboundary region of TNS. Actors in the various land-use zones are entreated to work together to accomplish the goal of policing for poachers. It is to these arrangements—both their ideal states and their shortcomings—that we now turn.

**Integrating Conservation among Land-Use Zones: Where is the Community?**

*"To study Africa is to appreciate the long-term importance of the exercise of power across space and the limitations of such power." (Frederick Cooper)*

*"Once knowledge can be analysed in terms of region, domain, implantation, displacement, transposition, one is able to capture the process by which knowledge functions as a form of power and disseminates the effects of power" (Foucault: Power/Knowledge p69)*

With an understanding of the overarching political processes that delineate how the ecosystem approach to conservation is practiced at a regional level, we now turn to the local, to the land-use zones themselves, their unique rules as well as their integrative connections. For five main land-use zones the frameworks of wildlife management are described first in terms of the management plans and then in terms of the ways the actors who come to represent the various zones are

[8] Conversation with WWF employee by author, Mambale, others argue that 'we need better *sensibilisation* so people can better understand" the benefits of conservation' (conversation with *conservateur* de *parc Lobeke*, 7/22/10)
[9] Chef de Poste, Salapumbe, there for three years, ex-Ecoguard, 8/13/10

working together to manage wildlife on a day to day basis. In doing so, I aim to elucidate how 'imaginative obstacles' are made to compromise decentralization, blocking local authorities from real decision-making power (Ribot et al., 2006e). Those powers, and the limits to them, should not be seen as simple technocratic or scientific judgments, but rather recognized as political decisions (Bazaara, 2003). Centralized attempts to address problems of resource degradation by implementing management strategies, (Western & Gichohi, 1993) argue, fail as they uncouple the socio-ecological systems. And Nadasdy (2003) calls for a more thorough assessment of co-management of natural resources between governments and indigenous peoples (Nadasdy, 2003). The idea of uncoupled systems is explored here through the lens of hybrid management.

*'Le Grand Chapeau' (The Big Hat)*

The overarching management structure that is meant to guide the processes of conservation inventory and monitoring is housed with in the *Unite Technique Operational (*UTO), an office based in Yokadouma, the largest town and administrative center in the Southeast province of Cameroon (about 180 km North of the Parc Lobeke study site). The UTO approach was suggested and initiated by WW. In addition to the *délégué* (a ministry appointed official who leads the UTO), WWF holds a place in this administrative center of the Southeast. Yokadouma also houses the prisons where convicted poachers are said to go, and in which the former governor of Yokadouma now resides, after found guilty of massive embezzlement of forestry tax proceeds[10]. WWF, according to one employee of the Cameroonian *Ministère des Forets et Faune* (MINFOF) employee, provides support as the government is not accountable[11].

The *délégué* recognizes that things are not perfect in this region of Cameroon but argues that the 1994 law has done a lot for participatory management. He expresses that it would be great to have a text that makes clearer the tasks of the various actors that operate within the UTO, and especially between the foresters and the professional hunting guides and finds it problematic that hunting and forestry are in different departments when they are quite complimentary and he complains that there are not nearly enough MINFOF employees in the Southeast, just himself and two others. The *délégué* is adamant that each management plan is designed with the ideas of microecology and dynamic flux of ecosystems in mind. He argues that ensuring good governance is the primary concern, and that while checks for 60,000,000 CFA go to the communities, most of the money from community operated hunting zones is funneled towards this, and insists that the fight against poaching is expensive, and that people cannot play a role in this fight[12].

Others argue, however, that the UTO controls everything, including the community operated hunting zones, which are 'under the big hat of WWF'[13]. For example, any movement of persons needs to be formally enabled with the signature of the *sous-prefet*, who sends an '*ordre de mision*,' about a week ahead of any personnel movement, including for example poaching

[10] According to the 1994 forestry law in Cameroon, 30 percent of proceeds from taxation on timber extraction are to be given to the communities from which they were taken. The Southeast district, although home to the largest per acre timber extraction in the country remains the most impoverished region in Cameroon.
[11] Conversation with author, 8/15/10, Yaounde
[12] Meeting with Delege of UTO 7-15-10
[13] Meeting with the Conservator of Parc Lobeke 7-22

patrols[14]. And some suggest that it is a problem that funds from various forest-use groups have to go through the UTO, with both timber companies and safari hunting guides paying dues directly to the office in Yokadouma rather than to the communities. And if there is ever a problem or conflict between hunters and loggers or local communities, the hunters call directly to Yokadouma rather than dealing with the problem locally. Although safari guides NGOs and timber companies give material things like motorcycles and petrol, financial support comes from the UTO[15]. And in spite of the arguments by the *délégué* that he lacks the human assistance, he is able to give authority to the park warden to arrest poachers but he has not yet, which is different from the north of the country[16], and in spite of the support from numerous parties for such autonomy.

The UTO approach, by centralizing control of resources in the administrative center of the Southeast, grafts an inherent weakness to subsequent attempts at building on the local level. Rather, the UTO—heavily backed by the do-gooder clout of international NGOs, and operationalized with tax revenue from timber concessions—becomes something like the state within the state. A go-to point for re-centralizing control. This setup is seen by local people as well as by actors within the networks of institutionalized conservation as being both inefficient and corrupt.

*Agroforestry zone*

Designated to local people for both subsistence and cash crop agriculture activities, the agroforestry zone extends about 8 km on either side of the main North-South logging road. As nearly all villages are located along this road, this zone corresponds to where people's houses a majority of people permanently reside. The agroforestry zone is known as the people's zone, the place in which they can practice agriculture and hunting. Yet it has no management plan, formal or informal. When asked about this, a director for WWF in Mambele said that "there are no management plans for the agroforestry part of the agroforestry zone because there is no plantation agriculture here yet"[17]. The national forest domain is classed as non-permanent, and is largely secondary forest and the Cameroon government does not recognize traditional land tenure arrangements within this zone even though much of the land is held by individuals, families, and clans. As a result, areas of the national forest domain are easily sold by the state to agro-industrial plantations.

Before the Agroforestry zones were created many people had their agricultural plots further into the forest. It is argued that people will continue to lose rights and access to land as the government intends to increase the area of permanent forest. Most smallholders have not gone through the process to procure a legal title to their land and as a result villagers and forest dwellers have lost access to their traditional territories or seen them degraded by extractive industry (Ashley & Mbile, 2005). By requiring people to fill out documents to formalize their

[14] Sous-prefet, Salapoumbe, 8/13/10
[15] Meeting with the Chef de Poste of ALPICAM Kika 7-18-10
[16]Conversation with author, WWF employee
[17] WWF Regional Director (Conversation with author, 8/9/10)

land titles, the government is actually gaining more rights over land and nullifying traditional land tenure systems, essentially recentralizing in the name of decentralizing (Ribot et al., 2006e). The fact that there are no permits for agroforestry zones would seem to indicate that these are the most tenuous of zones and capable of being taken away from people at any moment, and the fact that this is the only area that does not have any sort of management plan indicates the lack of concern for local people and the only zone that is truly theirs.

People surveyed in this study are consistently upset about the lack of space to practice agriculture and especially hunting in the Agroforestry zone. They complain that while they barely have enough land for long fallow periods now, the prospects for their children to have land are very slim. And they argue that the animals that they used to hunt have fled further into the forest. Although they are essentially powerless to alter this zoning arrangement, some people are taking measures against this, and it was noted that there were people residing on homesteads within timber concessions. A ministry official suggested that people moved to areas and set up agroforestry after finding out they were going to be made into UFAs to make sure that they would be compensated[18]. Furthermore, safari hunting zones overlap with the agroforestry zone, and in these zones people are forbidden to practice agriculture and subsistence hunting[19].

People are not even farming or hunting according to subsistence laws as they are afraid of the *ecoguards*[20]. The failure of Agroforestry zones to institute land-tenure rights means that wildlife is largely still considered an open-access resource in these zones[21]. And local people are constantly afraid that their zones will be further encroached upon and altered by the nearby logging zones and the safari hunting zones. This lack of recognition of ownership by the very people who are meant to control this zone has negative implications for wildlife conservation, risk undermining sustainable resource use in this landscape, as the 'community' could be inclined to discount the future heavily and there is likely little incentive for sustainable management or protection from outside hunters (Becker & Ostrom, 1995).

*Community Operated Safari Hunting Zones (ZICGCs)*

Community operated hunting zones, known as ZICGCs by French acronym (Zone d'interet Cynegetique de Gestion Communitaire) were created on the model of other community operated wildlife management programs in Africa. These zones were originally a project of the German conservation organization, GTZ, a response to the fact that safari hunting had failed to return benefits to local people[22], and are led by a contingent of community representatives that make up the *Commite de Valorisation des Resources Fauniques* (COVAREF). ZICGCs, although purportedly participatory zones of community management, are more accurately just another part of the conservation landscape that was organized by a partnership between MINFOF, GTZ, and WWF. Rather than emerging grassroots from the civil society, these community-based projects

[18] Conversation with author, MINFOF employee
[19] Conversation with author, WWF Mambale employee
[20] Conversation with author, president of the *Committee Paysane Forestier*, Sokambo, 8/8/10, and conversations with numerous villagers
[21] Conversations with author, numerous focus group interviews, in Dioula and Yenga
[22] Personal communication with GTZ employee

are established by conservation organizations, sometimes with low levels of local involvement and ownership (D. V. Joiris, 2010). In this case, as in Tanzania, there is a risk of the community acting as merely a go-to for the larger objective of enlarging the conservation system (Goldman, 2003)

Safari hunting zones are recognized as potential sources of revenue in buffer zones of protected areas of the Congo Basin (D. S Wilkie & J. Carpenter, 1999). But ZICGCs were tried out in pilot phases to very little success (Roulet, 2002;) and have improved little (Roulet, 2007). In addition to problems with funding transfers there are issues with communities having the funds to do required things such as inventories of wildlife species and of monitoring for poachers. They are now implemented throughout the country in both the Northern savannah areas and the Southern tropical dense forest. In the North of Cameroon this is slightly different for hunting zones, which are not complicated by timber interests and the North seems to be more developed in terms of tourism and perhaps with state and NGO presence that is not just piggybacking on Timber companies. As with all of the zones in this region, there are very specific definitions of what is supposed to be practiced, with a focus on the number of animals present and the ways they should be protected. A WWF employee expressed dissatisfaction that any of these plans take into account the fact that both animals and people move around between years and migration during years. And in any case, the spatial boundaries and the ways that individuals are charged with managing them are still ambiguous[23]. Much of the ambiguity stems from the conceptualization and implementation of ZICGCs, which was based less on precise terms that involved local people in their definition and more on the premise that local people were the root of the problem of over-harvesting of wildlife.

Management plans for ZICGCs are created between the population and the professional hunter, with this communication mediated by WWF. WWF is then supposed to check up on whether everyone is performing in accordance with this accord. A COVAREF president insisted that COVAREF holds a lot of meetings[24], However, one Ministry employee said that unless the professional hunting guide is obligated to talk with the population, there is not much money left over for meetings and even if there was a meeting people would not come.[25] Another argues that COVAREF is strictly volunteer and meetings were only called in the COVAREF when there were specific problems, there were no regular meetings.[26] Although an inventory of the ZICGCs is required by law, and were said to have been completed with WWF, MINFOF, and COVAREF[27], WWF did not follow correct protocol for this in soliciting accredited external help and instead did just one management plan for all ZICs in the region. To do inventories and monitoring the ZICGCs rely on the logging companies rather than doing the reports themselves, and often they will just use the same data that the concession used[28]. The technical parts of the plans come from WWF but they are said to be evaluated by the COVAREF[29]. Although there are officially 2 Baka, 2 Bantu, and 1 female local representative on the COVAREF, local people

[23] Conversation with community members
[24] Conversation with author, president of COVAREF
[25] Meeting with the Chef de Poste of ALPICAM Kika 7-18-10
[26] Meeting with former president of the COVAREF of Kika 7-17-10
[27] Conversation with author, WWF Mambale employee
[28] Conversation with author, MINFOF employee
[29] Coordinator of all COVAREF in Southeast, and President of COVAREF 1, Salapoumbe, 8/13/10

encountered in this study were largely unaware that meetings were going on ever. But the power over the entire set of COVAREF was recently transferred to the *délégué* in Yokadouma[30]

Anti-poaching missions are carried out twice a year, as there is insufficient funding from COVAREF. Yet others suggest that these patrols happen year round. Yet professional hunters also fund patrols by *ecoguards*[31]. Or they provide *motivation* in the form of cash and beer for them to do patrols, where timber companies do no such thing[32]. There is some uncertainty as to where *ecoguards* are able to make arrests, with the COVAREF president suggesting that they are able to do this in hunting zones, but others suggesting that this is not the case. WWF provides immense amounts of technical advice[33]. One *chef de poste* claims that they only hire the *chef de poste* during safari hunting season[34]. Yet for the COVAREF to dispatch *ecoguards* it must go through the UTO in Yokadouma.

Safari hunting guides are very close with the President, and even if it is past the hunting season, if the hunter has not finished his quota he often will stay on until he has[35]. One *ecoguard* claims that 'the safari guides call us after an animal has been killed, but it is unclear whether it was they who killed the animal or if it was actually poachers[36].' There have been many problematic events between safari hunting guides and the local communities, with community members complaining that hunting guides routinely threaten to burn their fields and houses or kill them if they are seen in 'their' hunting zones. Some people mentioned that the hunting guides sent the military in after them, and on one occasion recently a hunting guide shot and killed a local resident. Another safari guide says that although Baka are useful as guides, compared to the North, people in the South are difficult to work with and drunkards[37]. In response to these conflicts, a convention was held in 2009 with representatives from the various zones, The *Convention de Mambele.*

While in this case, the community does not appear to formally participate in the management of these hunting zones, wildlife management is occasionally practiced informally. Local people work for European safari guides as poaching patrollers, or benefit from the projects by acting as guides to Safari operations, many of which rely on Baka people to track animals[38]. Yet many people interviewed demonstrate frustration that they are not playing a bigger role in patrolling for poachers in this zone. Instead, they complain that they are often targeted as themselves being poachers by the safari guides.

*Timber Harvesting Zones*

[30] Zachary, mambale
[31] The MINFOF representative in charge of managing Ecoguards confirms that there is more often money for patrols during the safari hunting season, 7/23/10, Sokambo
[32] Ecoguad, Petite Savanne, 8/11/10.
[33] COVAREF president
[34] Chef de Poste, Salapumbe, there for three years, ex-Ecoguard, 8/13/10
[35] Conversation with author, MINFOF employee
[36] Conversation with author, Sokambo, Ecoguard
[37] Conversation with Mike the Hunter
[38] One white South African hunting guide said "we would be lost in the forest without them," referring to the Baka guides, Conversation with author

Some argue that there are no other actors better positioned to perform such a role in conservation in this part of the world than timber companies (Karsenty, Drigo, Piketty, & Singer, 2008). In addition to participating both directly and indirectly in the degradation of forest ecosystems, logging companies comprise the bulk of institutional presence across large areas of tropical forest, making them uniquely poised to solve the problems of overhunting (Lindenmayer et al., 2008). Assuming that hunting regulations are enforced, managed logging concessions could be especially valuable when near protected areas. One example is the 'buffer zone project', a project organized in 1999 through the WCS, CIB, and the Cogolese government that was designed to abate the negative impacts of logging on wildlife in the CIB logging concessions. The partnership entailed enforcing national wildlife laws, land-use planning for resource use, conservation education, monitoring of large mammal populations, and development of activities to replace hunting (Poulsen, Clark, & G. A. Mavah, 2007).

Hardin (2010) calls this an "embodiment of new managerial alliances streamlining the common interests of state, capital, and conservationists." And it is widely recognized that "timber companies are implicated in the *plan simple de gestion*[39] because they have the money, vehicles, and they make the roads"—which they put barriers on to deter hunting[40]. And while safari hunting guides are only around for a few months, timber companies are permanent[41]. One such stipulation of sustainable forests is regular patrols by 'ecogardes'—state employees who also work for logging companies (as well as for conservation zones) who are given authority by the Congolese government to make arrests is cause for contention. Another is the posting of a *chef de poste*, whose task it is to enforce laws in the forestry concessions. Yet, however stringent a *chef de poste* is, the lack of communication for effective cross-scale enforcement limits the overall success to this project. For example, one *chef de poste* says that although they trap many poachers they are set free[42]. Although he and his ecoguards refuse bribes, he has no authority to hold the poachers, who must go to a holding cell at the logging concession only briefly before they will be sent to prison in Yokadouma, assuming they are not set free from the holding area here or by police in Yokadouma.

What began with control of forestry now includes poaching patrol[43], and now a large extent of poaching surveillance and roadblocks operate under the same system as that which regulates timber, with irregularly and inadequately staffed checkpoints along the main roads[44]. And now the *ecoguards* positioned at checkpoints by themselves, rather than as before with other people[45]. Perhaps more importantly, *ecoguards* do not even have authority to make arrests outside of the park and therefore must simply inform the *Chef de poste* that there is poaching going on. If the *chef de poste* does not care about poaching, and he is often busy with other details such as illegal

[39] Similar to a management plan, the *plan simple de gestion* is less structured and formalized and generally in use for ZICGCs
[40] Coordinator of all COVAREF in Southeast, and President of COVAREF 1, Salapoumbe, 8/13/10
[41] Conversation with Zachary, WWF Mambale
[42] He gives the example of eight elephant tusks where people were just set free.
[43] Conversation with author, Sous-prefet, Salapoumbe, 8/13/10
[44] Consversation with *ecoguards* in Ouesso and Sokambo; and based on observation by author of checkpoint protocols, which on 15 passes through checkpoints in a vehicle there was nobody staffing the checkpoint at least ten times and no thorough search of the vehicle performed three times.
[45] Conversation with ecoguard, Kika 7/18/10

timber harvesting, then he will simply not do anything about this. Moreover, the funding availability is incredibly uncertain and the *chef de poste* does not often have missions going out due to this lack of funds[46]. As one *ecoguard* said:

*'Sometimes there is money to work, sometimes we are on standby because there is no money. We need to go to a meeting every now and again but if there is no money we do not do anything in the way of actual missions[47]'.*

Of three *chef de poste* interviewed, all mentioned that biggest problem for conservation is large-scale poaching[48]. But the possibilities for community involvement are dubious. As one *chef de poste* who was a former eco-guard claimed that 'Baka people are never consulted regarding the fight against poaching as they are all poachers themselves'[49]. While in the discourse there are good relations between people and the forestry concession, it is not actually the case, rather, the population is incriminated in the decimation of wild animals while people accuse the administration of the timber concession of abuses[50].

*Conservation Zones*

Protected areas have recently been gazetted in Southeast Cameroon, the *Parc National Lobeke*, *Parc National Niki,* and *Parc National de Boumba Bek,* comprising a large portion of the land area. While prospects for a viable tourism industry in this remote area of the Congo Basin are 'not encouraging'(D. S Wilkie & J. Carpenter, 1999), the areas are drawing support from conservationist NGOs. The protected areas are state controlled territory, and run by a *conservateur ,* who is housed in the WWF office for *Parc Lobeke.* The *conservateur* is responsible for ensuring the sanctity of the national park, and his jurisdiction ends at the borders of the park. Nevertheless, the *conservateur* of *Parc Lobeke* suggests that it should be he himself who is given control over all of the zones arguing that it is he who actually does the work of conservation in these buffer zones[51].

These areas are off limits to local people. Although they are meant to have contributed to the creation of this zone, nobody in this study had any recollection of such a participatory process[52]. During the gazetting of the park, however, conservationists asked the Baka to guide them to the rich areas of wildlife, only to then exclude them from the zones. Local people do not receive any scientific training from the NGOs associated with these protected areas, and the language of

[46] Conversation with author, WWF employee, (the chef de poste Kika and the ecoguard who works with him confirmed this, saying that MINFOF provided motorcycles that did not work, and that they just do not have the means).
[47] Conversation with author, Ecoguard, Sokambo 7/22
[48] Conversation with author, chef de poste Kika, 7/18/10
[49] Conversation with author, chef de posete Salapoumbe, 8/13/10
[50] Sous-prefet, Salapoumbe, 8/13/10
[51] Meeting with the Conservator of Parc Lobeke 7-22
[52] Although management plans for these protected areas say that surveys of local people were used to determine where the boundaries of protected areas should be, and in interviews with conservation employees they confirmed the participation of local people, this did not appear to be the case from 12 focus group interviews with various groups and from about 20 individual interviews with local people.

participation is instead in the form of *sensibilisation*, or community outreach. *Sensibilisation* involves representatives from conservation organizations delivering seminars to local communities about the importance of wildlife conservation. It effectively assumes that they have no knowledge about looking after wildlife. People express annoyance that they are only really trusted to even live near animals if there are many other partners involved in monitoring and protecting those animals. At the same time, in the discourse of conservation organizations, the indigenous Baka are being increasingly recognized as potential stewards of the forest. Conservation organizations in this region have a negative association in the minds of local people, who used to run when they would see WWF vehicles[53].

*Parc Lobeke* receives little funding from the state, rather it is supported largely through international conservation NGOs and through the numerous intergovernmental partnerships. For example, WWF gives vehicles to MINFOF in order to facilitate tourism[54]. With little likeliness of a thriving tourist industry in the near future, the external funding is likely to remain the only way for the national parks to stay afloat. Yet some are skeptical about external assistance, and one head of community hunting zones complains that everyone from WWF is from the capital city, and their salary comes from there, which could easily change, and this lack of stability makes it better to hire locally, where there are people less educated but who have more local knowledge[55].

*Wild-card zones: Mining and plantation agriculture*

Zones for mineral extraction are somewhat of a wild-card in Southeast Cameroon. They are often leased out to Asian companies, for whom the markets for goods do not incentivize the same environmental and social regulations. However, this could only be a matter of time before plantations arrive in the wake of logging and pushed by some sort of development or direct investment from Chinese. Mining zones, with their alluring direct profits, are not held to the same standards as the timber industry, and Chinese miners present the *délégué* of the UTO with invitation letters signed by Cameroon's president, Paul Biya[56]. One *chef de poste* claims that even though miners are not supposed to cut trees, but they do anyway in order to access minerals[57]. The uncertainty of land-tenure, even for the more stable timber and conservation concessions, makes a conservation strategy that is premised on extensive planning that comprises 'sustainable management' slightly irrelevant.

Plantation agriculture, already practiced extensively in the Republic of Congo and further west in Cameroon, has not really made an appearance in this region. Yet many argue that it is only a step behind the extensive logging that is already being practiced.

[53] Conversation with WWF employee, Mambele, 7/20/10
[54] Interview with tourist guide, parc Lobeke
[55] Coordinator of all COVAREF in Southeast, and President of COVAREF 1, Salapoumbe, 8/13/10
[56] Meeting with Delege of UTO 7-15-10
[57] Conversation with author, chef de poste Kika 7/18/10

*« Il faut mètre dans un paquet global, par expliquer »*

In speaking about the conflux of zones and the conservation objective, the MINFOF warden of Parc Lobeke said that 'you have to put it into a global package, in order to explain.' He claims that people cannot understand either the community forests or the ZICGCS in that they are a part of the park, and a part of conservation[58]. As demonstrated above, outside expertise factors heavily into the creation of each of these zones. Yet others are adamant that communities are important to protect the ZICGC, and hunting guides do this by putting people out into their zones[59]. And in spite of the sweeping asymmetries of power in terms of designing resource management strategies for hybrid governance zones in Southeast Cameroon, the murky space of partnership implementation at the local level fosters a hodgepodge of institutions, some of which do in fact empower local people. For example, boundaries of concessions have had to be redrawn at times, following disputes by citizens.[60] Yet, in some situations, people are able to practice micro-zoning, where they can absolve a particular tree from being logged, or be granted rights to access resources in a national park. The circumstances of this zoning seem to be dependent on individual circumstances: a critical mass of local unrest coupled with the whims of a park *conservateur,* logging company director, or safari guide (Ashley & Mbile, 2005).

**Inroads, Out-roads, and Blocked Roads**

All of the zones discussed in the previous section are intimately connected with each other through an extensive network of roads. Roads in central Africa are of immense importance for conservation and for development (William F. Laurance, Barbara M. Croes, et al., 2006; D. Wilkie, Shaw, Rotberg, Morelli, & Auzel, 2008). Through road construction projects through forests of equatorial Africa, the French colonial government reshaped landscapes, adapting European notions of the road (Freed, 2010). The logging industry thrives on roads[61], and builds immense networks of roads of varying size and longitivity. Small, simple roads are used for prospecting and dragging trees out, medium-sized roads enable logging trucks to carry felled trees to temporary depositories along the larger dirt roads, on which semi-trucks then transport logs from the forests of Cameroon and the Republic of Congo through to coastal ports. With roads built at different times and subject to varying levels of maintenance, the road network composes a heterogeneous forest structure, a mosaic of forest fragments of varying levels of degradation, connected by paths and roads of varying levels of re-growth. After the timber industry's bulldozers leave, the road network is used by humans and by non-humans, often in unpredictable ways.

Roads also link hunters and markets with previously inaccessible wildlife populations[62] and fragment landscapes into small, disconnected patches, where 'edge effects[63]' can cause rapid loss

[58] Meeting with the Conservator of Parc Lobeke 7-22
[59] Coordinator of all COVAREF in Southeast, and President of COVAREF 1, Salapoumbe, 8/13/10
[60] Interview by author, Simon A.P. Rietbergen, World Bank Senior Forestry Specialist, 6/16/2010
[61] CITE the article that suggests logging companies employ more road building engineers than foresters, and that they are effectively road building companies.
[62] Roads vastly decrease the average distance that hunters have to walk to find animals and the bring them to market ((D. Wilkie et al., 2008; Zhang, Justice, Jiang, Brunner, & David S. Wilkie, 2006))

of species (Wilkie, 2000) and limit the physical movement of other species (W. F Laurance et al., 2006). The Congo basin has at least 50,000 km of recently constructed roads (Laporte, Stabach, Grosch, Lin, & Goetz, 2007a). Some mammal species prefer the dense grasses and shrubs that colonize recent forest clearings, and logged forests have been found to contain higher abundance of elephant, gorilla, and medium-sized duiker (Clark, Poulsen, et al., 2009)(Melissa J. Remis & Rebecca Hardin, 2009). Yet species abundance was found to be strongly related to the distance to unlogged forest, suggesting that undisturbed forest functions as a source habitat (Clark, Poulsen, et al., 2009), as well as to protection and enforcement levels and flows of arms, ammunitions, and influxes of people (Melissa J. Remis & Kpanou, 2011).

Their prominence in social, economic, and ecological systems make roads a focal point of interaction between groups from each of these zones. As such, they become key sites of tension and intervention. At the eco-region level, this tension is between proponents of human development and those of biodiversity conservation. While at the local level, these mobile global concepts such as sustainable development produce friction (Tsing, 2005) with the multitude of actors. From these entanglements are spawned real partnerships and symbiotic relationships. These relationships are crucial to understanding the interactions between political and social systems and ecology of wildlife management in the TNS landscape. And they also represent crucial places for wildlife management policy that aims to be inclusive of local knowledge and to respond to the non-linearities of this coupled socio-ecological system.

Actors rely on each other's local knowledge in curious ways, often centering in the space of roads. While it is obvious to a safari hunting guide that the roads bring in immense poaching, they also help him find animals[64]. It is rumored, for example that a European safari hunting guide bribes the drivers of logging company bulldozers to allow him to put a tracking device on them so he would know where roads were most recently built[65]. Another hunting guide remarked that animals do not seem to mind logging but are in fact curious about the noises of the saws and other equipment, so they come to see. He thus often takes clients out on hunts on Saturdays—when no trees are being felled—and to places where the forest was cleared the week before, which makes it much easier to find animals[66]. Timber companies are implicated in management of roads because 'they have the money, vehicles, and they make the roads—which they put barriers on to deter hunting'[67]. Although safari guides and logging companies do not usually work together to design the limits or to mark them but there is one instance a logging company worked with a hunter to create such a road block[68].

Even when it is stated that the greatest threat to poaching is coming from 'outside', local people are said to be implicated in commercial hunting, as 'sometimes these poachers hire pygmies for

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[63] Edge effects due to roads and other infrastructure are strongly felt in tropical forests, where a dark, humid microclimate of stable temperature contrasts markedly with clearings, which are harsher and more variable. (Blake et al., 2007).
[64] Meeting with safari hunting guide 7-17-10
[65] the ex-president of the COVAREF of Kika 7-17-10
[66] Meeting with safari hunting guide 7-17-10
[67] Coordinator of all COVAREF in Southeast, and President of COVAREF 1, Salapoumbe, 8/13/10
[68] Meeting with Delege of UTO 7-15-10

their expertise in the forest[69].' Yet the Baka suggest that people should be hiring them too so that they can pay for school. They argue that they know exactly who is in the forest, whether they are commercial bushmeat hunters or illegal loggers[70]. The failure to recognize and make use of this local knowledge about road networks and commercial bushmeat hunters is undermining the conservation project by both making local people disinclined to participate in the 'fight against poaching' and making them more inclined to cooperate with the 'poachers themselves'. Local knowledges respond better to temporal and spatial heterogeneity and intimately connected with an understanding of historical ecological processes (Goldman, 2003; Scoones, 1999; K. S Zimmerer, 1994). In the next section, I argue further how the local peoples' intimate understanding of the changing ecosystems in these forests makes them uniquely important actors.

**Ecosystem Flux, Uncertainty, and Management**

Sayer and Campbell argue that both conservation and development are too often rooted in top-down, western science rules and the fundamental aspects of the way development science is organized are creating obstacles to change (J. Sayer et al., 2007). The paradigm of projects seeks to reduce uncertainty by reducing the complexity and allowing simultaneously for verification of success. It is argued that the extensive and unpredictable movements of wildlife make local management unable to adequately govern wildlife commons (Naughton-Treves & Sanderson, 1995). In the process of streamlining however, intricate institutional frameworks co-ordinating local resource management systems is lost (Agrawal & Gupta, 2005; M. Leach, Mearns, & Scoones, 1997; Turner, 1999). And the inability to fine-tune zonings is another impact of the culture of conservation, which is universalized for application anywhere. For example, right in the middle of the supposed conservation corridor is a large road that is the main path of thousands of tons daily of timber careening out through the forest.

One reason for lack of immediate success is that experts do not have access to informal local knowledge that is necessary for success. Managing overhunting within ecosystems is an inherently contentious activity (Duffy, 2000), and, as we have seen above, an incredibly difficult activity. In addition to the inconsistencies in institutional support for the fight against poaching, the uncertainties inherent in the socioecological system in Southeast Cameroon are such that management regimes must remain flexible and iterative. This rigidity of planning disrupts flexible techniques of land-use and the landscapes created in the process are much less responsive to the local ecological processes to which local knowledge has adapted.

In a large part, the uncertainty of spatial and temporal ecosystem characteristics comes through reliance on multi-national corporations, hedging the success of conservation on the vagaries of the global economy. And the boom and bust nature of the timber industry is particularly precarious.[71] Funds going to *ecoguards* and patrols effectively ceased during this time. Relying

[69] WWF employee, Conversation with author, Mambale, 7/20/10
[70] Conversation with author
[71] For instance, during the 2008 crisis more than half of timber company employees were laid off in Southeast Cameroon's ALPICAM concession, and had no choice but to seek a living hunting bushmeat in the forests around concessions (Interview with Director General of ALPICAM logging company) and in Congo a sawmill was closed

on timber companies for conservation makes for much uncertainty and inconsistency in resource allocation. When the global market for timber is lucrative, resources can be allocated to conservation while during economic recession projects are cut, sawmills closed, and people are laid off from work, when the high numbers of immigrant laborers are driven to poach protected species in order to feed their families. Furthermore, the vast number of different companies operating logging concessions in Southeast Cameroon alone[72] makes it highly difficult to standardize conservation between logging concessions, and whether or not a particular logging concession is certified for sustainable extraction varies too, based on numerous social and political factors[73].

Global funding patterns for conservation are similarly unpredictable (Igoe & Kelsall, 2005). The conservation industry in the TNS region relies heavily on external funds[74], which are similarly tied to fluctuations in global economy (Brockington, Duffy, & Igoe, 2008). Safari guides too, are less reliable in that they are there for only half of the year, and they do not necessarily spend all of the hunting season in their zone. *Sensibilisation* takes place in March when the hunting guide arrives and they need to rely on MINFOF because COVAREF has too little money for even just *sensibilisation*[75].

With this inconsistency in labor supply and funding for conservation activities, it makes sense to identify local people who understand the inner workings of these natural and human ecosystems. But Fairhead and Leach argue that the idea of a pristine forest landscape is unrealistic, and that past uses of the forest by humans for hunting, gathering, agriculture, and industrial activities have shaped it in unique ways (Fairhead & Melissa Leach, 1996). This is vastly evident in the study site in Southeastern Cameroon, for example, where Lobeke National Park was industrial logging ground fifty years ago (Parc Lobeke Plan d'amanegement). People in this study site have intimate knowledge of the dense networks of trails, whether those created fifty years ago or within the past season. In fact, they use old timber prospecting routes for hunting trails and old extraction roads to access their fields of plantains and maize. Thus, local ecological knowledge, or *traditional ecological knowledge* need not be circumscribed by conceptions of immaculate forests, but rather as intimate understandings of whatever the local conditions are. In the case of these forests, there are indeed immense tracts of primary, 'un-touched' forest landscapes, yet they are much more.

While semi-arid environments are traditionally talked about as being dynamic systems of human and animal movements, there are comparably fewer studies that indicate such for tropical forests. The tendency to think of rainforests as places of dense and constant biodiversity discredits such subtleties, and, I argue, to the detriment of conservation in this region. The vegetation across this zone varies spatially and seasonally, based on topography/elevation, waterways/tributaries, and

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and the entire conservation infrastructure disappeared with it (conversation with CIB logging company conservation representative). Reportedly, there was a massacre of gorilla following the economic crisis (Lunch with the director of ALPICAM Kika)

[72] Around 8 companies with offices based in various European countries.

[73] Independent certification of sustainable timber harvesting, typically from FSC, is under fire from conservation biologists, see Bennett 2001, Timber Certification: Where is the Voice of the Biologist? (E. L. Bennett, 2001)

[74] Indeed, Southeast Cameroon is almost entirely devoid of tourism, with only 180 tourists visiting Parc National Lobeke during 2009 (conversation with author, Conservateur of Parc Lobeke)

[75] Coordinator of COVAREF in Southeast, and President of COVAREF 1, Salapoumbe, 8/13/10

rainfall. Although seasonality is typically not assumed for 'tropical rainforests', it is a fact in the forests of Southeastern Cameroon, which are tropical deciduous forests—with two distinct dry seasons. The difference between dry and wet seasons corresponds with movement patterns of large mammals as well as with the ease of hunting. For example, during the wet season, animals take shelter deep in the forest, and roads are highly impassable in the rain. Timber extraction is practiced much more intensively during the dry seasons, with logging operations effectively ceased during heavy rain, which means that poachers can neither access remote areas of the forest, nor bring meat to market in a timely matter during the wet seasons.

Spatial patterns of forest vegetation vary temporally by season and by year, owing largely to forest re-growth after logging (Makana & Thomas, 2006). This variation determines where animals live and where and when they migrate[76]. I argue that the dynamic nature of timber extraction—which creates a landscape of forest that is a mosaic of various stages of degradation and regrowth and varying sizes of roads and prospecting routes that substantially alter the vegetation and the movements of animals[77]. Soil quality, varying degrees of timber and mineral exploitation, natural clearings and degrees of agricultural practice[78] also contribute to the heterogeneity of this landscape. For example, elephants' migration patterns depend on the season and the vegetation and they migrate often to natural forest clearings, or *bais*, where they are able to ingest essential nutrients[79]. Whether or not timber is currently being harvested also can alter spatial patterns of large mammals, who are often curious about the noises coming from logging[80]. The implications of these patterns on breeding cycles of mammals are importantly understudied as well. And The dynamics of animals and plants in forests are predicted to be even more uncertain during the next century due to climate change[81].

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[76] Furthermore, the spread of plant species and vegetation composition is highly dependent on the presence, abundance, and migration patterns of large mammals like elephants and gorillas (S. Blake, Deem, Mossimbo, F. Maisels, & Walsh, 2009a; S. J Wright & H. C Muller-Landau, 2006).

[77] For instance, Clarke et al. (2009) demonstrate non-linear response of animal abundance to temporal and spatial effects of logging, as animal abundance varies with different stages of forest re-growth. These shifting abundances can be understood by recognizing that canopy reduction brings shrubs and grasses to the forest floor, benefitting some terrestrial species. Ungulates and elephants are particularly drawn to forest clearings, where they can browse on grasses and herbs (Clark, Poulsen, et al., 2009; Melissa J. Remis & Kpanou, 2011).

[78] Agriculture, including where and when it is practiced, is deeply tied to deforestation and road-building that are connected with the timber industry (Norris et al., 2010).

[79] Elephant movement is highly determined by the presence of roads (S. Blake et al., 2008b). Elephants also migrate based on the fruiting patterns of trees, for instance they look for bush mangoes, just as people do. Normally, people in villages say that they have to walk quite a way to find elephants, but when wild mangoes are in season elephants come to eat them so you can find them nearer to villages, often in conflict with people Conversation with guide from WWF, Mambele)

[80] (Bradshaw, Schore, J. L. Brown, Poole, & Moss, 2005) demonstrate that social trauma can disrupt behavior and migration patterns of elephants, which are found far less frequently near roads (Stephen Blake et al., 2007). (M. J Remis & Hardin, 2009) suggest that the combination of gorillas' use of unique forest microhabitats resulting from selective logging and human habituating for tourism underlies adaptation (at least temporary) to increasing human forest uses.

[81] Tropical forests are particularly vulnerable to climate change, which stands to exacerbate other drivers of species extinction (S. J Wright, 2005; S. J Wright & H. C Muller-Landau, 2006). The predicted 2100 mean annual temperature (31.3° C) is expected to exceed highest mean average temperature that supports closed-canopy forests today (28° C). Estimates are that mammals in 75% of forests will have to travel over 1000 km to reach 'cool

Local people are well aware of these—both subtle and obvious—alterations in landscape. Agriculturalists follow loggers and turn degraded forests into fields of bananas or manioc or cacao. Not only do local people know about these changes, but so do loggers and safari hunters, who must be brought formally into conservation efforts. Elephants and gorillas are savvy as well of these changes to forests (Clark, Poulsen, et al., 2009; M. J Remis & Hardin, 2009), and local people recognize the precise ways in which animal movement is affected[82]. Hunters and elephants alike travel on the roads and trails left by dragging out enormous trees[83]. In the following sections, I discuss the fundamental problems excessive zonation of the landscape poses to conservation and livelihoods. I then go on to discuss the role that innovative partners can play, focusing specifically on local people—both Bantu and Baka.

**Conservation across Scales and Space in a Changing Forest: What is 'Local Knowledge?'**

*"The scaling of conservation occurs through the intermixing of social actors and institutions across a gamut of geographical areas that is conspicuously far-flung. (Zimmerer 1999)*

As we have seen above, the migratory behavior of animals, the seasonal variation in resource availability and use, and the rapid changes that Congo basin forest ecosystems undergo, make fluid land-management regimes a necessity. Many argue that introduced formal institutions will miss the flexibility that is inherent in informal institutions. Lemos and Agrawal suggest the importance of communities to monitoring and managing forests is even more pronounced in this era of heightened international connectivity and consumption of forest resources (Lemos & Agrawal, 2006d). Livelihoods and poverty are intimately tied to the success of conservation projects (W. Adams & others, 2004), and I argue that in this precarious context, it makes more sense to strengthen local institutions of land-use and wildlife management to fulfill the dual and intersecting goals of wildlife conservation and livelihood security. In addition to these uncertainties of global, regional, and national political economy, the heterogeneity of landscape composition—made further heterogeneous by patterns of timber and mineral extraction—make it necessary to involve local people in management of resources for the sake of conservation.

Resource decentralization reforms have been linked to conflict and violence (McCarthy, 2004; Peluso, 2007). Local users are often completely excluded from nature reserves and the myriad 'buffer zones' surrounding them (R. Neumann, 1997; R. P. Neumann, 2002; Schmidt-Soltau, 2009) while activists expect them to protect endangered wildlife and habitats (Agrawal Clark & others, 1999). People in Southeast Cameroon are similarly kept to the periphery, referring to themselves as 'the simple guardians of the forest', and recognizing that they have no say in resource-use decisions. In spite of the national and international rhetoric, 'local knowledge' is all but neglected in policies and management plans. Goldman (2003) demonstrates in Tanzania how Maasai are kept peripheral to the process of conservation suggesting that anything otherwise

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refuges' in order to continue living, and likely wide-ranging changes to species composition and in many cases extinction could result (S. J Wright, 2005; S. J Wright & H. C Muller-Landau, 2006).

[82] Conversation with author, Baka in Yenga

[83] Nonlinearity has also been documented in the field of conservation biology in terms of human-elephant interactions, where human population density reaches a threshold after which elephants disappear (Hoare & Du Toit, 1999).

would require 'a radical transformation of the culture and institution of conservation.' Interviews with local Baka people revealed that many people think of all the zones as having one single management plan. Indeed, villagers do not distinguish between WWF and the National Parks service or other representatives of the administration[84]. A number of organizations such as WWF and the Forest Peoples Program are working with Baka to map out their territory. They complain that WWF and these other strategies only 'make it look like we are implicated in management' saying that they do various things like participatory mapping but that they have already made their decision and have really already drawn the zones anyway and made their decision.

Western and Gichohi discuss the social and ecological impacts of segregating otherwise joined ecological and social processes (Western & Gichohi, 1993). The Baka, for whom wildlife is traditionally not overhunted, are similarly made to undergo these 'segregation effects', with the processes of conservation and logging parsing apart their forests and wildlife management institutions (Rupp, 2001). One negative segregation effect is that local people lack clear incentives to safeguard wildlife populations. In the community operated safari hunting zones, people do not recognize wildlife as being a source of benefits[85]. Although they receive money for attending meetings by conservation NGOs, people get more money from poachers[86]. Another effect is that local knowledge is not considered useful in the agenda of conservation. Some emphasize that the 'conservation ethic is not carrying over enough to buffer zones'[87] Arguing that community operated safari hunting zones should be co-managed, the *conservateur* says "with the ZICGCs the state has left *la porte ouvert* (the door open), and in these cosmopolitan areas, people are accomplices in poaching, highly influenced by exterior population[88].

But what is local knowledge in such a rapidly changing ecosystem? Furthermore, what is local in these zones of intensive international connectivity? Where the daily reminders of the world's immenseness and their powerlessness in the form of timber trucks blow clouds of dust all over the world in their haste to get enormous logs out of the forest and into European markets. One could argue that in the newly created landscapes, the 'traditional ecological knowlede' (TEK) that people have does not really apply. Yet, in spite of no formal recognition of wildlife rights, communities have a say in what happens to resources simply because they live in intimate proximity to them. As such, developing and implementing policies of wildlife management should rely heavily on input from local forest-dwellers (D. S Wilkie & J. F. Carpenter, 1999).

'Indigenous' Baka as well as 'sedentary' Bantu people[89] have a lot to offer community based endeavors as 'active knowledgeable participants.'[90] As Goldman stresses, rather than thinking of

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[84] Chef de poste, Kika; and communication with local people

[85] Said by one COVAREF president: 'People do not see money coming from animals but from white people who kill their animals.' Conversation with author, Salapoumbe, 8/13/10.

[86] Various conversations with author

[87] WWF conversation with author 7/20/10

[88] Meeting with the Conservator of Parc Lobeke 7-22

[89] For a thorough depiction of why categorizing each of these groups in this way is problematic, see (Rupp, Stephanie, 2001).

[90] An important distinction to make here about forest peoples in Central Africa, as compared to forest peoples in the Amazon, is that Central African forest dwellers have long engaged with and sought further engagement with 'external' actors. While the Guarani of the Amazon, for example, have been often shown to value solitude from

local knowledge as something that can be codified and extracted, it makes sense to note the usefulness that this knowledge derives from its intimate nature, and equally important to understand that it is continually transformed (Goldman, 2003). While it is difficult to incorporate this local knowledge into management plans, this knowledge can be immensely useful for conservation endeavors, if even informally. But formally applying local knowledge could be an important step towards sincere involvement of local peoples. Simultaneously ensuring that they are more invested in the success of the conservation endeavor and more trusting of international conservation NGOs. Without a measure of trust and respect between forest user groups, the prospects of sustainable management of wildlife populations are grim.

## Conclusion

In this paper, I have attempted to describe some part of the complexity of managing wildlife populations in multiple-use forests in a part of the world where there is intense poverty and corruption[91]. In the examples that I have given here, it seems that not a lot is working well in terms of cooperative management across forest-use zones. In describing the situations and the processes here, it has not been my intention to pass judgement on any who participate in hybrid-governance of these socio-ecological systems. In fact, I could rarely discern nefarious intentions on part of any involved, and I was more often than not surprised at the good faith that nearly every interviewee showed to wanting to understand how to better cooperate. Rather, I am critical of a techno-political framework for management that seems to have little regard for the importance of local knowledge to these complex and rapidly changing ecosystems.

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other social worlds, the Baka are quite the opposite, and have long participated in trade various groups entering the forest. That is not, however, to say that they do not value the sanctity of their traditions, their traditional knowledge; they do and they are often secretive in this regard.

[91] The direct impacts of corruption are difficult and perhaps useless to try to tease apart. In their "One hundred questions of importance to the conservation of global biological diversity", Sutherland et al. ask "How does corruption influence the effectiveness of conservation, and what are the most effective ways of preventing negative consequences?" (Sutherland et al., 2009). It seems that in many instances, literature on conservation takes a normative approach to the idea of corruption, which some argue is a pervasive fact of life in African politics, yet others suggest that this should not mean considering African political systems as distinct from other political systems worldwide (Bayart, 1993). Barrett et. al. do work to challenge the explanatory power of corruption as directly connected to biodiversity loss, arguing that statistical models that attempt to link corruption with forest and elephant depletion are inaccurate as they fail to account for important variables (Barrett, Gibson, Hoffman, & McCUBBINS, 2006b).

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# Part II

# Logging, Conservation, and Resource Access: land-use zoning and forest transitions to agriculture in Southeast Cameroon

Nathan Clay

**Abstract**

*Around the world, logging and conversion of forest to agriculture threatens biodiversity and ecosystem services. While the Congo basin has comparatively high levels of undisturbed tropical forest, recent increases in timber extraction and increases in human populations threaten the stability of many ecosystems. In response to these risks, schemes of hybrid environmental governance link NGOs and timber companies with the state and local communities to monitor resource-use. These international organizations attempt to work with local-level resource users to secure sustainability through land-use zoning and management plans. The boundaries and the accompanying forest management institutions radically re-shape resource access spatially and temporally and the consequent livelihood options and land-use decisions have important implications for food security and economic development as well as for biodiversity conservation. Resource access among various people within these multiple-use forest landscapes is highly heterogeneous, with benefits falling differentially to people even within what are considered homogeneous communities. This paper seeks an understanding of how the processes of boundary-making and hybrid management contribute to resource access. Emphasizing the role of institutions—both local and transnational—it draws from focus groups and individual interviews to see how strategies of hybrid governance shape forest use patterns among local-level users. In doing so, this paper attempts to understand the dynamic interactions between resource governance systems and ecological systems, providing insight into how people are altering livelihoods strategies in response to resource access.*

## Introduction

Forests in the tropics are degraded at ever faster rates, due largely to logging and clearing for agriculture and international conservation organizations are responding to the threats this forest degradation poses to biodiversity and ecosystem services by implementing conservation measures. The degradation patterns of clearcut and selective logging reshape forest ecosystems and in the process altering, creating, and removing opportunities for local livelihoods such as agriculture, hunting/gathering, and wage labor. The boundaries and management institutions that make up conservation endeavors likewise reshape forest use patterns by altering incentives and resource access. And when conservation and timber extraction are practiced within the same socio-ecological systems their resource-access shaping forces interact to alter the physical and social environments to an even greater degree. Empirical understanding is needed of the various mechanisms of resource access and how they conform to political-economic factors (Ribot and Peluso, 2003).

This paper looks to the dense humid forests of Southeast Cameroon, in which ethnically diverse local user groups are caught within a torrent of such multi-national, multi-stakeholder interaction. Timber companies, wildlife conservation organizations, and safari hunting outfits

partner with the state and local communities as part of an ecosystem-scale conservation landscape that endeavors to reconcile sustainable resource use and local economic development. Such schemes of 'hybrid governance' are premised on the dynamic interconnections already prevalent in the globalized natures of timber extraction and biodiversity conservation—with the political economies of both dissolving prior conceptions of 'local' and 'global'. Through a depiction of this space of 'living landscape' conservation, this paper shows how the interlinked schematics of resource exploitation and conservation are delineating local resource access trajectories in new ways. The boundary and right delimitations have consequences for local food security and development as well as to conservation of plant and wildlife species.

Ribot and Peluso (Ribot & Peluso, 2003) discuss resource access[92] as the "ability to derive benefit from things", analyzing access not as a 'bundle of rights' but as a 'bundle of powers' that inscribes the ability of certain actors to benefit from resources. Looking at an array of processes, or 'mechanisms'of resource access, they categorize the implicit power relations driving rights-based resource benefits through access to technology, capital, markets, labor, knowledge, authority, identity, and social relations. This paper follows their methodology, with the goal of mapping the dynamic processes and relationships among multiple sets of actors that dictate resource access. The analytic used in this paper also derives from calls to scrutinize decentralization regimes to assess the benefits that are redistributed to local-level users. The complex web of interacting forms of access that enable benefits also drive land-use decisions. And with an eye towards notions of sustainability in multiple-use forests and dynamic interactions inherent in socio-ecological systems, this paper also offers modest insight to some of the factors driving land-use transitions within landscapes of conservation.

Specifically, this paper looks at how hybrid governance alters resource access for local-level users through the eight forms of access indicated by Ribot and Peluso (2003). Beginning with an overview of logging and conservation as forces shaping resource access and land-use decisions, the paper addresses institutional complexity in dynamic processes of forest governance among diverse communities. It then presents a background of the study site and methodology, discussing a history of land-use and agriculture in the Congo Basin, with emphasis on Southeast Cameroon. The insights are drawn largely from focus group interviews with communities from three villages and numerous other individual interviews with local-level resource users as well as other actors involved in the various resource-use zones[93]. The typology of resource access is used to hypothesize the interests of the multiple actors involved in shaping access and distributing benefits, in addition to the ensuing access itself. The conditions under which these

[92] Indeed, the concept of resource access as such has been the project of much scholarship, before and after the Ribot and Peluso piece. In aligning with Ribot and Peluso's 2003 *A Theory of Access*, this paper aims to present a case study that follows their methodology, however, it acknowledges the myriad similar depictions of resource benefits. For instance, Leach, Mearns, and Scoones *Environmental Entitlements*.

[93] In each of three villages (Yenga, Dioula, and Mbatika), each 'community' was represented by one focus group of Baka women, one group of Baka men, one group of Bantu women, and one group of Bantu men, with between 5 and 12 people in each focus group. 28 individual interviews were held with people from these three villages as well as from three other nearby villages. Other actors interviewed include logging truck drivers, members of village agriculture councils and community based hunting and forestry operations and other community-based organizations, government employed park-rangers (*ecoguards)*, safari hunting guides, timber company employees, conservationist NGO workers, Cameroon government ministry employees.

actors make decisions about allocating resource access and benefits to local users are also hypothesized, as are the land-use patterns that emanate therein.

The paper concludes that the sets boundaries drawn and rules practiced on part of ecosystem-scale hybrid-governance of resources constrain resource access by local users in a variety of ways, while enabling other access by certain users. Furthermore, the neo-liberal technocratic governance schemes fail to re-distribute benefits from timber extraction and safari hunting to the local communities to whom these funds have been promised—both directly through revenue sharing and indirectly through development projects. These failures of the slated goals of these projects of development and conservation are partially the result of a few corrupt individuals and weak local institutions, as some have suggested. However, these schemes were doomed to fail at their inception—the myopic result of neglect of local perspectives in designing resource-management plans. Furthermore, the lack of access to resources has negative implications that span much further than current generations, putting at risk the prospects for development and sustainable natural resource use alike.

## Literature review: Boundaries, rules, and resource access

Resource access is shaped by a variety of specific mechanisms, as well as through the purview of local, regional, and global political economies (Ribot & Peluso, 2003). And access to forest resources is increasingly determined by powerful transnational actors, such as timber companies and conservation organizations (Tsing, 2005). The institutions of forest management that these governing bodies dictate shape patterns of forest use. The two foci of this paper are logging and conservation, which are explored here as delimiters of resource access and shapers of forest use patterns.

### *Logging and Conversion to Agriculture in the Tropics*

Looking at sustainable ecosystem productivity, (JA Foley et al., 2005) argue that the consequences of land-use are felt on a global scale. The literature suggests that human occupation of complex terrain environments decreases when small-scale farming becomes less attractive than the larger scale agroindustrial efforts requiring large areas of relatively flat terrain (Aide & Grau, 2004; Rudel, Defries, G. P Asner, & Laurance, 2009). Lambin et al (2003) argue that global factors that adjust markets and policies create opportunities and constraints for people making decisions about land-use. Yet, throughout the world there are many disparate drivers, both proximate and underlying, of deforestation, with changes in resource access and social organization being main factors in land-use decisions (H. J Geist & E. F Lambin, 2002).

Forest conversion to cropping systems was evident throughout the tropics with more than 60 percent of cleared land entering permanent, large-scale agriculture. Indeed, the amount of forest converted to agriculture increased by 20 percent between the 1980s and 1990s. More than half of newly expanding croplands came from forests. The trends documented here indicate that the causes of deforestation have shifted from more subsistence-driven agriculture to larger-scale enterprise-driven agriculture, particularly in South America and Southeast Asia. These

increasingly globalized drivers forest clearing are being accelerated, at least in part, by demand for biofuels such as ethanol and biodiesel produced from food and feed crops (H. K Gibbs, 2009)

Ecosystem responses to land use characteristically vary according to stage in the transition from frontier clearing to intensive human-dominated landscapes and according to the ecological setting. (Ruth S. DeFries, Jonathan A. Foley, & Gregory P. Asner, 2004). There are ecological impacts even to selective logging, which has been shown to create immense 'edge-effects', nearly seven times that of clear-cutting deforestation—and crucially for many species, these effects are felt even deep into remote forested areas (Shearman, Ash, Mackey, Bryan, & Lokes, 2009). (Nepstad et al., 1999) warn of increased risk of fire where there is severe drought in forests. Yet some argue that secondary forests are valuable for conservation (Makana & Thomas, 2006), Elkan, Naughton-Treves. Mattison & Norris (Mattison & K. Norris, 2005) argue that because land being used for agriculture overlaps spatially with land valuable for conservation, the drivers that shape land-use and their links with biodiversity need to be understood. Yet selective logging has far less impact on mammal populations and species richness overall than conversion to agriculture (Dunn, 2004). In fact, some argue that logging concessions can 'extend the conservation estate' if they are managed to be large areas that comprise various logging histories, including patches of unlogged forest (Clark, Poulsen, Malonga, & ELKAN, Jr., 2009).

Yet (EF Lambin et al., 2003) argue that looking at land cover-cover change as an all-encompassing shift in land-use fails to emphasize that land-cover change can be incomplete: modification as opposed to conversion. In addition, they stress the importance of considering the linked effects of climatic and anthropogenic patterns of change and the multiple spatial scales of change. Furthermore, land-use decisions are made at the individual and household levels (Mertens, William D. Sunderlin, Ousseynou Ndoye, & Eric F. Lambin, 2000). Lambin et al (2003) argue that identifying the causes of land-use change requires understanding how various factors interact in specific contexts to influence how people make decisions about land use. When looking at a decade-long timescale, the major contextual conditions have been shown to be economic shifts mediated by institutions. The decisions generally weigh human demands against undesirable ecosystem responses based on societal values, and ecological knowledge provides a basis for assessing the trade-offs (Ruth S. DeFries et al., 2004).

Timber extraction has been shown to shape resource access by enabling further agricultural expansion via swidden agriculture following on the networks of newly created roads. Similarly, benefits from harvest of forest products—principally wild game or 'bushmeat'—can be enhanced by roads penetrating further into once-remote forests as well as by the expanding markets caused by booming logging towns. In Cameroon, there are numerous laws regarding the distribution of tax revenues garnered from forestry operations, pertaining to direct as well as indirect benefits. According to the 1994 forest law, 50 percent of the revenues are meant to be distributed to local communities by way of the regional administration. Further benefits to social welfare are also stipulated as part of the contracts between the state and the often international timber companies who lease concessions on a fifteen or thirty year timeframe. Most prominent among social benefits is the construction and funded upkeep of health and educational facilities.

Conservation has also been demonstrated to alter resource access and land-use decisions, in many cases drastically. Neumann shows that local people are often completely restricted from

using resources within protected areas. And there are debates about whether the creation of parks has lead to the displacement of millions of residents. Community-based conservation has also been shown to alter resource access, with similar asynchronies in terms of benefit distribution between actors even within what are considered homogeneous 'communities'. For example, in Tanzania, Goldman argues that the zones created for migrating wildlife do not allow for grazing privileges by Maasai peoples (2003). Ecosystem-scale conservation in the Congo basin is premised on the idea that managed timber concessions can be part of a conservation landscape. Biodiversity conservation has shaped social, political, and economic geographies the world over (Zimmerer, 2006). In multifunctional landscapes in Central Africa the challenge is both developing opportunities to increase agricultural yields with minimal impacts on biodiversity and to avoid detracting from livelihoods by protecting forests (Ken Norris et al., 2010). The type of agriculture that is adopted as well as the spatial and temporal facets of agriculture are key to biodiversity conservation and development. The importance of a matrix of agriculture and forest patches to biodiversity conservation (Vandermeer & Perfecto, 2007).

The tropical forests of Central Africa have become host to an influx of powerful transnational actors that are dramatically altering land-use and livelihoods opportunities (Wright, 2005). Logging concessions occupy 30% of forest area with a further 12% designated as protected areas (Laporte, Stabach, Grosch, Lin, & Goetz, 2007). Extractive use and its accompanying population booms are decimating plant and animal species across the region and some predict that large-scale plantation agriculture will follow timber extraction, further threatening biodiversity and ecosystem services (Fitzherbert et al., 2008). International NGOs like the World Wide Fund for Nature are responding to these global concerns by implementing region-wide mechanisms for improving resource management, livelihoods, and human-rights. Key among these efforts are innovative hybrid-governance arrangements that link timber companies, NGOs, state agencies, and local communities for resource governance. If logging concessions can "extend the conservation estate"[94] and the conservation value of degraded forest depends on how logging affects biodiversity, then it is essential to look to how logging affects agricultural transition. Logging companies have recently incorporated sustainability concepts into their management plans that theoretically promote biodiversity conservation[95]. The impact of selective logging on mammal populations has been studied (Clark et al., 2009), yet less work has been done on how agricultural landscapes are altered and created through selective logging.

Mertens and Lambin argue that such "new institutional tools for forest management and land-use planning in Cameroon have not yet provided a sustainable answer to the problems of degradation of the forests" (Mertens & Eric F. Lambin, 2000). But land-use planning does reshape forest use patterns. Considering human-modified landscapes as depended on by various humans and non-humans to deliver services is an increasing trend, with biodiversity in multi-functional forests and increasing focus of conservation biologists (Kareiva, Watts, McDonald, & Boucher, 2007; Naughton-Treves, 2002; Ken Norris et al., 2010; Remis & Kpanou, 2011). Such an approach could re-shape the drivers of land-use change (Mertens & Eric F. Lambin, 2000). Mertens and Lambin (2000) seek to redress the normative assumptions of micro-economic models of rational-actor land-use decisions by considering change "not as simple forest conversions between two

[94] (Clark et al., 2009)
[95] For more information, see FSC, ITTO, ATBIT

time periods but as complex trajectories of changes affected by reversibility and fluctuations over successive observation periods". Their argument is largely based on the inherent unpredictability of socioeconomic drivers.

Effective forest management is seen as crucial for the economic development of Congo basin forests, with potential for revenue from carbon trading schemes (Justice, D. Wilkie, Zhang, Brunner, & Donoghue, 2001). Compensation from REDD has been suggested to have potential to be worth more than deforestation for farmers and loggers in Cameroon (Bellassen & Gitz, 2008). With REDD++ poised to drastically alter land-use incentives and governance in the Congo basin, outcomes of governance and institutions are even more pressing . Cameroon has low adaptive capacity in response to climate change, further hampered by weak institutional linkages within the government and across sectors and local to regional to international scales (Brown, Nkem, Sonwa, & Bele, 2010).

*Land Use in the Congo Basin*

Sub-Saharan Africa is still largely in the 'subsistence stage' with the vast majority getting food from subsistence farming or pastoralisim (Ruth S. DeFries et al., 2004). The notions of land use rights in Southern Cameroon have varied largely over the past two centuries (Vermeulen, Dethier, & P. Auzel, 1998). Prior to European arrival, human migration was largely determined by hydrology, with settlements between rivers and people moving between two and three times within their lifetimes. Yet paleobotany studies of the Congo Basin indicate that oil palm was cultivated in the Holocene (Sowunmi, 1999). Pearl millet appears about 3,000 years ago (Kahlheber, 2009). In Central Cameroon, Banana cultivation has been shown to have occurred at least in 2,500 B.P., explaining how agriculture was spread through the rainforest (Mbida Mindzie et al., 2001). Agriculture was improving and made use of clear cutting and fallowing land for 25-30 years, planting squash and nut crops, and about 25 people per square kilometer. Group cohesion was enhanced through collective hunting and fishing activities. Land rights were first come first served, and territory for hunting and fishing thereafter followed lineages, with fallow land up for grabs. Fruit trees could be planted by strangers.

With German Colonization in the mid-eighteenth century, a trade economy that relied on rubber plantations and hunting for ivory was implemented. Populations began to concentrate around factories, and people became increasingly sedentary. Yields doubled on nut crops as agriculture increased in importance, and fallow time decreased. Collective hunting decreased with the arrival of metal cables for snare traps. Circumscribed lands began to be more defined and handed down through lineages. French colonization continued concessions of rubber and ivory, eventually replacing the trade economy with standard currency and national policy on cocoa. Villages were abandoned along certain axes, and the extended family as well as the importance of elders was somewhat diminished. The importance of cocoa as a cash crop grew, with itinerant farmers jockeying for land, and land rights often linked to cocoa. At this time, owners of cocoa plantations were able to exclude people from parts of the forest, and rights for land in fallow were made permanent.

Large-scale forest exploitation took off in the 1950s, with commercialization of cable. Villages became more fixed in administrative distracts along roads and near health infrastructure, and the social organization between villages became looser. Cocoa thrived early on before falling, at

which time overexploitation of faunal species became rampant, exhausting certain species near settlements. During this time, labor was organized not on social rules but on personal economic affinities. Hunting routes were extended to meet the growing demand for bushmeat and with the increase in traps. The lineage-based territories were replaced by indefinite limits of modern village lands, with hunting practiced in all circumscribed lands.

Joiris demonstrates that exploitation of hunting grounds involves seasonal rotations, allowing animal species to regenerate, and he suggests that this area must therefore be vast (Joiris, 1996). Yet the continued extension of hunting lands would suggest the depletion of certain species, and using a hunting indicator to delineate exploitation zones is in effect working within the confines of the assumed customary or 'traditional' systems (Vermeulen, Karsenty, & Delvingt, 2001). He suggests that the delimiting of space based on clanic (cultural) desires (to have sons go out and begin new villages) declined with a greater emphasis on division of space based on roads (what he calls a modernist definition). In this new framework, displacement is based not on cultural factors but on the notion that land in adjacent villages is exhaustible.

In more recent years, macroeconomic policies[96] and demographic shifts have played a large part in land-cover. While deforestation in the 1980s was largely due to addition of cultivators, it is more recently the response of these cultivators to market demand for food crops and improved network of distribution (Mertens & Eric F. Lambin, 2000). Land-cover changes, due to their non-linear patterns, tend to create mosaics of land-use with more recently arrived households growing faster due to friends and other family immigrating to join the established household. And a significant proportion of the areas subject to a land-cover conversion are subject to another change in the following years (Mertens & Eric F. Lambin, 2000).

In Cameroon, Mertens, Sunderlin, Ndoye, and Lambin (2000) note a turn away from cash crops like cocoa and coffee toward food crops like plantain due to shifts in macroeconomic contexts that brought about a crisis from 1986-96. They demonstrate that most of this food crop production is done in newly cleared fields—with deforestation pervillage four times higher than in the precrisis period—with the old fields of cocoa and coffee left dormant until after the crisis. In this period, 97% of households consider that demand for land can be most easily met by migration to unsettled area or further forest clearing. Diversifying economic options by keeping the fields for cash crops open has also lead to increased deforestation (Mertens & Eric F. Lambin, 2000).Villages also sharply increased selling plantain and non-plantain food crops

[96] Ndoye and Kaimowitz (Kaimowitz, O. Ndoye, Pacheco, & W. Sunderlin, 1998) identified four major periods of macroeconomic change in Cameroon since the time of decolonization:
(a) During the *pre-oil boom* period (1967–76), agriculture was the base of the economy, and high taxation on cocoa and coffee limited forest clearing to grow those crops; GDP grew annually at 4.8%;
(b) During the *oil-boom* period (1977–85), per capita GDP increased from US dollars 485 in 1978 to US dollars 915 in 1985, due primarily to oil exploitation;
(c) In the *economic crisis* and *structural adjustment* phase (1986–93), Cameroon's terms of trade deteriorated by 65%, average per capita GDP fell 6.3% annually during 1985–93, and oil production also fell, which put the burden back on agriculture and timber to provide most of the country's foreign exchange;
(d) In the period following the *devaluation* (1994–present), the CFA Franc was devalued by 50% to restore competitiveness of exports which, coupled with increased world prices for cocoa and coffee, led to a mild rebound of these commodities

during the crisis period, and these villages show the highest increase in deforestation. This increase is also associated with provincial and national-level distribution networks. Also, the decrease in fertilizer inputs from agricultural extension services meant that people could not intensify agriculture but had to extensify (Mertens et al., 2000).

Based on modeling, the carbohydrate staples that are produced throughout Central Africa make it possible to accommodate about 25 people/km$^2$ (Barnes & Lahm, 1997). Population growth and the growth of urban food demands as well as little research in agriculture have been chief causes of agricultural expansion in West Africa. And human migration into the forests in Cameroon has been shown to increase rates of deforestation. And logging roads make remote swaths of forest connected to growing urban centers (Mertens & Eric F. Lambin, 2000). The interactions between logging and conservation are of great concern in Central Africa as 30-40% of its remaining forests are within logging concessions (Laporte et al., 2007).

**Background: Elephants, Trees, and People**

Although forests of the Congo Basin are among the least degraded tropical forests in the world, the forests of the region are increasingly becoming logging and timber concessions. Compared to West Africa, for example, the expanse of forest in the Congo Basin is much greater, with less degradation. Compared with West Africa, there is substantially less forest/agriculture mosaic in Central Africa: there is about five times as much forested land in Central Africa as there is forest-agriculture mosaic, while in West Africa there is about five times as much forest-agriculture mosaic as dense forest. However, that is rapidly changing in terms of legal logging (Wright, 2005) and Global Forest Watch (GFW) estimates that the amount of timber harvested illegally matches that extracted legally. International organizations are responding to the threats that unchallenged extraction poses to biodiversity as well as to livelihoods of local-level users. The result is that within the past ten years an impressive array of institutions has arisen, the successes and trials of which are yet sparsely documented.

Southeast Cameroon was a major rubber producing area at the end of the 19$^{th}$ century (M. J. van Binsbergen, 2005), and has more recently been the site of intensive hunting for ivory and timber extraction. Although the long history of colonial exploitation and post-independence exploitation have been infused with corruption, the recent push towards transparency in the logging sector in the Congo Basin makes more data about institutional variables available. Moreover, the combined influx of NGO dollars going towards biodiversity conservation present another vast influx of western institutions, that are rapidly changing the frameworks of resource governance. Regional commitments spawning from the WWF-led forest Summit in Yaounde, such as the Congo Basin Forest Partnership (CBFP) and USAID's Central African Regional Program in the Environment (CARPE) are bringing increased financing. These projects are purported to have some success, as the landscapes which the Congo Basin Forest Partnership designated for conservation priority have been shown to be less likely to undergo forest degradation or modification. (Duveiller, Defourny, Desclee, & Mayaux, 2008). At the same time, the immense institutional interactions that such partnerships entail beg further study (Hardin, Robillard, Bahuchet, & Jong, 2008).

The Sangha River Tri-national Park (TNS) and surrounding area is a crucible of such multi-stakeholder interaction. Created in 2000 the TNS landscape consists of 4.5 million hectares in three national parks and 3.7 million hectares of multiple use zones among tropical forests of Cameroon, the Central African Republic (CAR), and the Republic of Congo (ROC). The multiple use zones surround the national parks and comprise 23 timber concessions, 11 safari hunting zones, 6 community-managed hunting zones, a handful of community forests, and agriculture zones along roads. This conflux of zonings is mobilized as ecosystem scale conservation—an NGO-led effort to both 'extend the conservation estate'(Clark et al., 2009) and to incorporate the needs of the array of stakeholders—with the management planning processes of each individual zoning unit defining the TNS land use plan'(Usongo & Nzooh, 2009). The multi-scale governance arrangements are dictated and organized through region-wide partnerships such as CARPE and CBFP, and funded by the World Bank and the European Union.

Ecosystem-scale conservation in this region focuses on a number of species of charismatic mammals, such as forest elephants, eastern lowland gorillas, forest buffalo, chimpanzees, bonobo, and a variety of forest-dwelling ungulates. Poaching pressure is identified as the main threat to the continued thriving of these species, and conservation measures revolve around the theme of abating poaching through increasing monitoring and enforcement. With recent conflicts in the ROC and CAR, transboundary conservation in the TNS region has focused on decreasing the spread of weapons and munitions through a militarized force of anti-poaching patrols, including armed *ecoguards* as well as national army. Conservation measures also include co-managed zones of resource use such as community operated hunting zones (known as ZICGCs by French Acronym), and community managed forestry operations. Conservation organizations play a large role in implementation and upkeep of these zones, with 'participatory management' more typically taking the form of '*sensibilisation',* or community outreach and education that endeavors to teach local people the importance of resource conservation.

*Ecological Background*

The ecological system of the study site in Southeast Cameroon is classified as a broadleaf evergreen deciduous forest. There are two dry seasons and two wet seasons, with one dry season and one wet season more pronounced[97]. The annual rainfall average is 1500mm with …. .falling during rainy seasons and ….. during dry seasons. The average temperature is 24$^{o}$ C[98]. The landscape in Southeast Cameroon, in contrast to much of the flat Congo basin, is hilly. The South Cameroon Plateau is the prominent geological property of the region, and the elevation ranges from 250 to 800m with an average of 650m, and gentle hills remain pronounced even into the north-eastern part of the Sangha River Valley. The topography, which is interspersed with marshes, determines where logging, agriculture, and hunting can be practiced. While south of the Sangha river, the smaller rivers flow steadily year round, the Sangha and the more northern tributaries have complex flow regimes throughout the year, with high and low water levels in upstream areas. Seasonal flooding occurs in the rainy season, particularly in the valley areas by the slow-moving larger rivers such as the Sangha and Ngoko which form the border of

[97] Rainy season from September to November, a dry season from November to March, a rainy season from March to June, and a dry season from July to August.
[98] Based on averages at Milloundou, from (Gwanfogbe & Azobi, 1990)

Cameroon, as well as the Dja and Boumba (Gwanfogbe & Azobi, 1990). In conjunction with the numerous rivers of myriad sizes, this topography determines where land-use boundaries are drawn.

Yet it is important to note that these landscapes are also highly influenced by human activity. Logging concessions of various ages are scattered throughout; even the *Lobeke* protected area contains an old logging concession. Timber extraction, even if selective or 'reduced impact' logging, greatly alters landscapes, and the livelihoods of humans as well as other mammals and plants[99]. Road building, while strongly correlated with economic growth, is also linked to ecological degradation (David Wilkie, Shaw, Rotberg, Morelli, & Philippe Auzel, 2008). A pre-requisite to timber extraction, road building makes it opportune for settlers to convert forest to various types of agriculture (Kummer & Turner, 1994), (Karsenty & Maître, 1993). Road networks greatly reduce the amount of time it takes for people to travel from villages to their farms. Yet roads make the forest more accessible to migrants rather than causing local subsistence systems to transition to market-oriented systems (Mertens & Eric F. Lambin, 2000). 'The road network, which, in this region, the logging companies often built and maintained for wood transport, facilitates access to forest areas by shifting cultivators in search of new agricultural land' (Karsenty et al. 1993). The improved access to remote forest areas due to increased logging activity, which increases the quality of roads and traffic on the roads, as well as creating local markets from migrant laborers working in logging (Mertens et al 2000).

The resources discussed below, and the benefits derived therein are primarily in terms of agriculture and hunting and gathering. Access to basic necessities such as food and clean water, are key elements of interaction between 'natural' systems and their human users.

*Forest Users*

In the Southeast province of Cameroon there are about 100,000 people, residing in two small urban centers (Yokadouma and Molondou) and around 50 villages and six logging towns. There are five major categories of actors who principally determine resource access in the TNS buffer zones of Southeast Cameroon: government officials, timber companies, NGOs, local community representatives, and safari hunting guides. This paper hypothesizes that each of these actors has different incentives to provide benefits in terms of resource access. Although management plans for each of the use zones carefully delineate the rights of access to resources, the actual patterns of resource use as determined by the resource access to the bundles of powers to access and utilize resources, such as land for agriculture and the markets, forests to gather fruits and honey, markets for cash crops such as cacao, or hunting permits and access to hunting grounds.

The ecosystem management protocols include intensive zoning for various forest uses. In Southeast Cameroon, the focus of this article, the principal land-use zones are: Agroforestry, community-operated safari hunting, community hunting, timber extraction, and conservation

[99] Reduced Impact Logging (RIL) techniques, now popular with international (particularly European) timber companies are partly the reason for this difference. Although RIL is mandatory to write into management plans, some argue that the lack of standardization of RIL practices means that the techniques are differentially adhered to across space, with logging concessions certified as sustainable more likely to adhere to them (Ezzine de Blas & Ruiz Pérez, 2008). However, even with a low density of trees being cut the road infrastructure that is required to prospect and haul out logs still provides opportunity for agricultural expansion (Ken Norris et al., 2010).

(protected areas). Each of these zones operates under a distinct management plan, but also includes provisions of cooperative interaction between actors in the various zones. As each of these zones overlap to a large degree, provisions for cooperative management are very important, especially considering the migratory nature of wildlife species (Remis & Kpanou, 2011).

The 'local people' referred to in this paper are comprised of numerous distinct yet interacting 'communities' and ethnic groups. Principal divisions that were enacted during the colonial era divide the more sedentary groups of agriculturalists (Bantu language speakers) from the semi-nomadic hunter-gatherers (indigenous, or 'baka' language speakers). In reality, these 'baka' groups, such as the Aka of the northwest Congo Basin, have long been in contact with Bantu-speaking agriculturalists, with each retaining cultural identity (Bahuchet & Guillaume, 1982). And of the Bantu-speaking peoples, there are numerous cultural-linguistic groups, such as Bagweli, Budwa, Bufalo, Bu'go, Bombiko, Bonguio, Bombissa. In addition, there are numerous traders, shopowners, and fishermen, muslim merchant classes who hail from further north in Chad or Mali. Baka people comprise about 25 percent of the population in the Southeast province of Cameroon, and a slightly higher percentage further south and east.

Forest peoples have a diversity of subsistence types, which are often overlapping. In Southeastern Cameroon, for example, Swidden agriculture is practiced by Bangando, Mbomam, and Kwele peoples, while the indigenous Baka practice hunting and gathering. Commercial hunting, he suggests is mainly practiced by the Kaka ethnic group, who traditionally practice Swidden agriculture in neighboring areas of Republic of Congo and Central African Republic. Interestingly, although the Baka represent only about 5 % of the total population, they make up the majority of research (Mertens & Eric F. Lambin, 2000). For the purposes of this article, it will be accepted that while each of these groups of local-level users has overlapping resource-use patterns, there are tendencies among each of the groups to particular livelihoods. Baka tend to spend more time in the forest to hunt and gather more than practicing agriculture while the various Bantu groups practice more agriculture than subsistence hunting. Muslim traders seldom venture into the forest.

*Land-use Zones*

Designated to local people for both subsistence and cash crop agriculture activities, the agroforestry zone extends about 8 km on either side of the main North-South logging road. As nearly all villages are located along this road, this zone corresponds to where people's houses a majority of people permanently reside. The agroforestry zone is known as the people's zone, the place in which they can practice agriculture and hunting. Before the Agroforestry zones were created many people had their agricultural plots further into the forest. It is argued that people will continue to lose rights and access to land as the government intends to increase the area of permanent forest. Most smallholders have not gone through the process to procure a legal title to their land and as a result villagers and forest dwellers have lost access to their traditional territories or seen them degraded by extractive industry (Ashley & Mbile, 2005).

Community operated hunting zones, known as ZICGCs by French acronym (Zone d'interet Cynegetique de Gestion Communitaire) were created on the model of other community operated wildlife management programs in Africa. These zones were originally a project of the German conservation organization, GTZ, a response to the fact that safari hunting had failed to return

benefits to local people[100], and are led by a contingent of community representatives that make up the *Commite de Valorisation des Resources Fauniques* (COVAREF). Safari hunting zones are recognized as potential sources of revenue in buffer zones of protected areas of the Congo Basin (D. S Wilkie & J. Carpenter, 1999a). But ZICGCs were tried out in pilot phases to very little success and have improved little (Roulet, 2007). In addition to problems with funding transfers there are issues with communities having the funds to do required things such as inventories of wildlife species and of monitoring for poachers.

Protected areas have recently been gazetted in Southeast Cameroon, the *Parc National Lobeke*, *Parc National Niki,* and *Parc National de Boumba Bek,* comprising a large portion of the land area. Their boundaries are indicated in some places by rivers and in others by signposts. While prospects for a viable tourism industry in this remote area of the Congo Basin are 'not encouraging'(D. S Wilkie & J. Carpenter, 1999b), the areas are drawing support from conservationist NGOs. The protected areas are state controlled territory, and run by a *conservateur ,* who is housed in the WWF office for *Parc Lobeke.* The *conservateur* is responsible for ensuring the sanctity of the national park, and his jurisdiction ends at the borders of the park. Nevertheless, the *conservateur* of *Parc Lobeke* suggests that it should be he himself who is given control over all of the zones arguing that it is he who actually does the work of conservation in these buffer zones[101]. These areas are off limits to local people. Although they are meant to have contributed to the creation of this zone, nobody in this study had any recollection of such a participatory process[102]. During the gazetting of the park, however, conservationists asked the Baka to guide them to the rich areas of wildlife, only to then exclude them from the zones.

Timber harvesting zones, or logging concessions, surround the protected areas *Lobeke* and *Boumba Bek*, and the concession owners practice selective logging in accordance with management plans that dictate where and when they will cut which trees[103]. As these concessions are part of the conservation landscape, indeed comprising a large portion of the migratory corridor between the two protected areas, they are subject to measures that are more strict than other concessions. The concessions referred to in this study site are leased by an Italian company, ALPICAM, who interacts regularly with WWF to orchestrate conservation plans to minimize forest degradation from logging activities and corollary biodiversity loss through excessive commercial bushmeat hunting within the concessions. ALPICAM has even employed a former WWF employee to supervise its management plan activity and liaise with WWF as well as the international sustainable forestry certification board, FSC.

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[100] Personal communication with GTZ employee

[101] Meeting with the Conservator of Parc Lobeke 7-22

[102] Although management plans for these protected areas say that surveys of local people were used to determine where the boundaries of protected areas should be, and in interviews with conservation employees they confirmed the participation of local people, this did not appear to be the case from 12 focus group interviews with various groups and from about 20 individual interviews with local people.

[103] Management plans for logging concessions are mandated by the Cameroonian government as part of the 1994 forestry law, an effort to augment the transparency of logging operations. These detailed documents indicate where trees will be cut, and formulate rotational patterns to spread out disturbance of forest over the thirty year time horizon. They also confer quotas as to the species of trees that can be harvested.

The overarching regional and global political economy is an important factor in resource access. Mertens et al (2000) suggest in fact that "policies *outside* of the formal forest sector are a key part of the problem of tropical deforestation, and therefore potentially a key part of the solution" (Mertens et al., 2000). Land tenure is also a significant factor in access to resources and in land-use decisions[104]. Wilkie et al argue that it will be difficult to mitigate conversion of land to agriculture until land availability becomes limiting and a real-estate market develops, giving farmers incentive to intensify production (2008). But detailed analysis of either of these factors is outside of the scope of this paper. Rather, in the following analysis the paper focuses on access to technology, capital, markets, labor, knowledge, authority, identity and social relations. In doing so, it attempts to map the benefits that people from various groups are able to derive from forest resources in the various zones of land use.

**Changing Boundaries, Changing Livelihood: Logging, Conservation, and Resource Access**

Logging and conservation zoning and management strategies alter resource access among local-level users in a variety of ways. In this section, the paper follows the heuristic of bundles of powers of resource access as put forth by Ribot and Peluso (2003), mapping how ability to derive benefits from resources is derived from power relations based on eight categories of access: technology, capital, markets, labor, knowledge, authority, identity and social relations. These categories of access to benefits, along with property rights are explored here across the multiple use zones of tropical forests near three villages in Southeast Cameroon. Material and cultural aspects of ability to derive benefits are addressed here and the broader regional, national, and international political economies are also considered.

*Property Rights*

Notions of property conform to the socially acknowledged rights of law, custom, norms, or convention (Ribot and Peluso, 2003), and common property scholars have demonstrated that in many cases the laws—whether formal or informal—do not completely determine the pathways of resource access (Schlager and Ostrom, 1992; Berkes, 1989).

Agroforestry zone provides enough land for subsistence activities is uncertain based on this study. One elite who is the president of COVAREF argues that the Agroforestry Zone does provide enough space[105]. However, people surveyed in this study are consistently upset about the lack of space to practice agriculture and especially hunting in the Agroforestry zone. They complain that while they barely have enough land for long fallow periods now, the prospects for their children to have land are very slim. And they argue that the animals that they used to hunt have fled further into the forest. Although they are essentially powerless to alter this zoning arrangement, some people are taking measures against this, and it was noted that there were people residing on homesteads within timber concessions. It is said also by conservation

[104] Vermeulen demonstrates how the surface areas of cultivated and circumscribed lands (see definitions above) have shifted in response to key events throughout the past century in Central Africa. He suggests that the ways that cultural upheavals of colonialism have changed Central African societies over the past century have not included what happens with land tenure.

[105] Conversation with M. le President de COVAREF 2 & 9

administrators that because of the 'demographic influx' there is not going to be enough space in the agroforestry zone for people to farm and hunt even for subsistence[106]. And the notion of what constitutes subsistence hunting and gathering are nebulous. People interviewed suggested often that it does not matter to *ecoguards* whether they are collecting a little or a lot of something[107], they will still be in trouble.

Property rights under the new schemes of zoning seem to fall differentially on different ethnic groups. Baka people were more likely to suggest that there was not enough space in the agroforestry zone, saying that their camps used to be further into the forest[108]. People do reclaim land sometimes[109].

*Technology*

Technology can enable and constrain how and where people benefit from resources. Access to technology such as wire-snare hunting traps, guns, and fertilizer determines how easily people are able to acquire certain resources. Efficiency in agricultural technology attracts more people to the area, so this is a paradox or contradiction as presented by (YANGGEN, REARDON, & PUCALLPA, 1999). The same paradox is true of road construction, which enables people to access remote reaches of forests for farming, hunting, and gathering, and then to access distant markets to sell those goods. And road construction and logging activities, according to some people interviewed, have immediate negative consequences for local people. For instance, the old paths in villages have been destroyed by logging companies, and there are now few wild yams or termites to eat[110].

More recently, an area inside the protected area has been sanctioned as a community-use zone. In the community zone people can collect wild yams and mangoes and they can fish, however there is no hunting allowed[111]. Many people are able to better access agricultural lands due to roads. It has been shown in other parts of the world that subsistence agriculturalists follow logging activity, planting fields in the wake of felled trees, and the same is true in the Congo basin and this study site.

Access to weapons is an important part of technology in terms of resource access. Most Baka people hunt with wooden and metal weapons and many other local people with simple crossbows and the like. A few people, such as rural elites, have access to guns, which greatly alters their ability to access resources, regardless of whether those resources would be illegal. But even where people do not have guns of their own, in some cases elites lend them guns and hire them to hunt protected animals commercially. However, people think that the forest belongs to them and that they do not need official documents[112].

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[106] Head of WWF Mambale, 7/19/10

[107] Woman in Mbatika: explained that for *mangue sauvage* you can dry the seeds and make a paste that will not spoil for over two years, and so people tend to collect a lot of this when it is in season as it makes an important as a thickener and a protein addition to sauces.

[108] Focus group with Baka women in Dioula

[109] Interview of WWF employee, 7/20/10

[110] Focus group in Mbatika

[111] Interview of WWF employee, 7/20/10

[112] Interview with president of *Comite Paysane Forestier*, August 3, 2010

Yet technology is accessed differentially, with various people in the diverse communities able to take advantage of certain options for livelihoods through new avenues for resource access. For instance, the community-use zone in the national park are meant largely for the Baka, who garner a majority of their food intake from hunting and gathering. However, the community-use zone is only accessible to those who can procure a one-time use permit. These permits are only awarded to those who are able to travel to the park headquarters in Mambale (more than 40 km away for many people) and fill out a written form requesting rights to hunt or gather in the zone for a day.

The fact that the park headquarters is quite distant prohibits many people from travelling there, and many Baka people cannot afford transportation by motorcycle or bush taxi and therefore must walk, while Bantu peoples can more often afford transportation. And once at the headquarters, the necessity of writing out the request precludes those who are illiterate, also more often Baka who are less able to pay for school. And even if people are able to fill out the form, they are forced to bide time for bureaucracy—one educational elite said it took him two days to secure such a permit—or wait for the representatives to show up to the office[113]. Some say that you have three to six months to wait for these forms to go through[114]. Furthermore, it is acknowledged by both local people and conservation NGO employees that even if people are able to secure permits they must then brave the national park, which is filled with elephants. And most people do not have the means to defend themselves in case of an attack.

One of the methods called for by conservationists to address the overharvesting of bushmeat is to provide alternate sources of protein for people. There have been numerous operations such as guinea pig farming, and stocking fish ponds, yet none of these projects has had lasting success. Surprisingly, WWF does not even seem open to local initiatives, as they refused to fund one president of the *Comite Paysane Forestier* who wanted to build a fishpool for the community and ended up doing so with his own money[115]. Assets were also not furnished to the same man by the timber company SOFAC, when he wanted wood boards to build a health building, even though he went to the offices, they would argue that there was simply not enough wood.

Baka people interviewed present disappointment with the allocation of supplies to build things. For example, in Mbatika, they are well aware that the timber company has built football stadiums for the villages of Yenga and Dioula, however they did not get anything. People also complained that timber companies were polluting their streams and destroying their hunting paths.

*Capital*

The flow of money out of the local communities is an all too common occurrence that people are scarcely surprised that it continues. They see forest assets sail out along roads daily in timber trucks that blow dust clouds across the village, and they see the failure of these companies to provide the services they promise. The money from community hunting zones, similarly, is

[113] The likeliness of people being in the office would be difficult for the author to judge during a short study, but at least twice during over a month in this study site there was nobody to be found in the office for stretches of two days.
[114] Focus group in Yenga
[115] Interview with president of *Comite Paysane Forestier*, August 3, 2010

essentially touched by no one in the community. Some suggest that it is a problem that funds from various forest-use groups have to go through the UTO, with both timber companies and safari hunting guides paying dues directly to the office in Yokadouma rather than to the communities. And if there is ever a problem or conflict between hunters and loggers or local communities, the hunters call directly to Yokadouma rather than dealing with the problem locally.

Where development is concerned, capital is of immense importance. The absence of tangible capital or its indirect benefits in the form of services weighs heavily as a reason for local distrust of international organizations. And in spite of the apparent abundance of forests in the tropics, capital is essential for numerous things in increasingly cosmopolitan forests. One of the most important items for purchase would be school inscription fees and supplies. Without money, people are unable to send their children to school, presenting a grave impediment to development. For conservation, capital is important as well. Only with capital will people be able to purchase a greater portion of their daily protein from non-bushmeat sources. For example, a lack of capital was invoked as a reason failing to raise pigs as an alternative protein source, as they had no money to continue to provide food to them[116].

Changes in resource use mean that some people are more able to access capital while others have more difficulty.

It is ironic that many of the projects orchestrated by NGOs and timber companies to build infrastructure for schools are occurring parallel to the difficulty for certain groups to pay for schooling. Women interviewed often mentioned how difficult it is now to send their kids to school now while it used to be much easier. People now rely immensely on money earned from selling cacao[117]. They talk about how the cacao season is short, and in 2010 cacao and mangues sauvage seem to not be very productive, and after the cacao season there is really nothing else to bring money in to continue paying for school[118].

*Markets*

Some people are able to access capital by accessing markets. People with houses along the road and surplus food items are able to sell bananas or plantains or cassava to passing logging truck drivers headed to the capital city, Yaounde. Yet some groups are even more negatively impacted by the lack of capital. Although they engage regularly in trade with Bantu peoples, Baka are less able to procure capital, as they do not practice trade on similar scales as their Bantu neighbors. Furthermore, their restricted access to much of the forest does not allow them to collect or hunt or fish to an extent that would enable them to earn money. Baka thus find it still more difficult to send their children to school, furthering the process of marginalization. A number of people in this study expressed distress that they were unable to gather items from the forest, such as *mangue sauvage* (bush mango) to sell. Many people remarked that they were forced to send their children to illegally hunt animals in order to pay for school.

[116] Focus group in Yenga
[117] Pasteur Gaston de Mambele, Vice President of Mambele Community Forest 8/13/10
[118] Focus group in Mbatika

In addition to lower-priced food commodities like plantain, cash crops like coffee and cacao are important sources of income for people in Southeast Camereoon. International buyers come to the forest and cart out sacks of coffee and cacao beans for roasting and processing in Europe. Access to markets these lucrative markets varies largely by social status. Poor people and Baka, who lack land tenure, are excluded from the cooperatives that dry and sell cacao and coffee beans.

*Labor*

Labor is a crucial factor dictating whether or not people are able to take advantage of the 'legal' or 'illegal' property rights. Where individuals or families are able to put forth the requisite labor to fell large trees and burn understory vegetation, they are at times permitted to plant and harvest in fertile areas. Likewise, where they are able to expend the energy to watch after their farms and ensure that animals do not destroy their crops[119], they are able to have productive harvests. Yet, due to myriad other necessities, not all people are able to invest the same labor into farming or hunting activities. People are also upset that they must travel so far into the forest in order to hunt animals.

Certain people are able to take advantage of labor markets that are swelling with the influx of logging companies and NGOs. Logging companies derive the vast majority (documented elsewhere at over 98%) of their workforces from external communities. From focus group interviews, people noted great displeasure in the lack of employment for community members in logging operations, with only one Baka man given a job and few 'Bantu' men. People seem to insist that even this minute concession of sharing part of the direct profit from cutting down their ancestor's trees would factor greatly to curb the dissention between local and transnational actors. It is yet unmet, in spite of insistence by the FSC and regional partnerships. Booming labor markets for timber company employment continue to draw immense crowds of young men and their families, who are forced to then settle in the area without steady employment. Alternate livelihoods such as agriculture or illicit bushmeat hunting are adopted instead.

Furthermore, when global prices for timber plummet and hundreds of immigrant logging employees are laid off they turn to subsistence activities. For instance, during the 2008 crisis more than half of timber company employees were laid off in Southeast Cameroon's ALPICAM concession, and had no choice but to seek a living hunting bushmeat in the forests around concessions[120] and in Congo a sawmill was closed and the entire conservation infrastructure disappeared with it[121]. Reportedly, there was a massacre of gorilla following the economic crisis[122].

Although logging companies are loathe to legitimately employ local people, it should be noted that they do maintain a patronage relationship with local communities. Benefits from timber companies often come in the form of parties with beer and food, new t-shirts, or soccer fields. Rebecca Hardin argues in the case of Bayanga, CAR, that timber companies are in fact much

[119] One man in Mambale for example said that he cannot leave his field for even a month because animals will come eat and destroy everything. He needs to return every one or two weeks and to camp out in the field.
[120] Interview with Director General of ALPICAM logging company
[121] Conversation with CIB logging company conservation representative
[122] Director of ALPICAM, Kika

more attuned to the importance of patronage politics in Central Africa (Hardin, 2002). While conservation organizations act like their mere presence is doing people a favor, timber companies recognize that it is essential to bring local people over to their side to avoid conflicts. In Southeast Cameroon, people interviewed for this study said that the timber companies would throw parties to convince village chiefs to sign agreements for microzoning to log in their forest[123].

The other land-use zones alter labor dynamics in similar ways. Conservation organizations provide employment as guides for hunting and tourists and as *ecoguards,* who patrol for poachers. *Local* people work for European safari guides as poaching patrollers, or benefit from the projects by acting as guides to Safari operations, many of which rely on Baka people to track animals[124]. And as part of this new labor force, hunting guides provide motivation in the form of cash and beer for them to do patrols[125]. And guides occasionally provide the meat of large mammals that their American or European clients kill, elephants or bongo antelope, to local communities. Yet this distribution is not even among communities, or among people within communities. Some cities, such as Sokambo never see this meat, as one man argues because they do not have a *chef de poste*[126]. And in other places the providing of meat may have happened once but then the safari hunting guide moves to a different town near the hunting zone[127].

But at the same time, the ecoguards that are employeed are in many cases former poachers themselves. Yet many people interviewed demonstrate frustration that they are not playing a bigger role in patrolling for poachers in this zone. Instead, they complain that they are often targeted as themselves being poachers by the safari guides. The *conservateur* of parc Lobeke claims that "people are accomplices in poaching", and that their implication is influenced by exterior population[128]. Indeed, people interviewed for this study did not deny the role that some members of the community are playing in illicit commercial bushmeat hunting. They acknowledged that when elites from cities offer to provide guns and money in exchange for hunting animals in the forest they are do not refuse, as there are often no better options to earn money or to eat. This mercenary activity is matched by similar payments from conservation organizations for people to attend conservation education meetings, or what is referred to as *sensibilisation,* where NGOs extol the benefits of conservation and offer a per diem.

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[123] These agreements, known as *vente de coupe* and *tenues de palabre* involve local community leaders and representatives from timber companies. Although they are stipulated as essential parts of the logging protocol by the 1994 Cameroon forestry law, they have been practiced for some time. In these agreements, logging companies typically consent to provide some number of social services (such as hospitals, schoolhouses, employment, or soccer pitches) and infrastructure (such as road upkeep) in return for rights to log in the nearby forest without confrontation. However, it has been shown that logging companies seldom honor these agreements in full, and this study identified a trend among all three villages of the terms of *tenues de palabre* yet unmet.

[124] One White South African hunting guide said "we would be lost in the forest without them," referring to the Baka guides, Conversation with author

[125] Ecoguad, Petite Savanne—parc Lobeke, Cameroon, 8/11/10

[126] Interview with president of *Comite Paysane Forestier*, August 3, 2010

[127] Regarding this, one example is a man in Mambale who says 'Pepe est bandit' and he gives nothing to people, like meat, which he used to, but he now lives in Kika, so people of Mambale get none of this.

[128] Meeting with the Conservator of Parc Lobeke 7-22

People interviewed were upset that they lost land access in the forest due to conservation and logging zones and that they were not compensated with other jobs[129]. Conservation organizations have also attempted to develop alternate livelihoods for Baka in the form of creating rugs and baskets out of reeds to sell to tourists. Baka people encountered during this study—and the craft-making is done principally by women—consider this as neither a culturally nor a financially beneficial enterprise, as useless for empowerment as it is for providing a livelihood that does not derive directly from forest resources. In fact, they recognize this alternate livelihood with great disdain saying that 'we are not allowed to go into the forest and just have to make woven mats to sell'[130].

*Knowledge*

Outside expertise factors heavily into the creation of each of these zones and local people say that before the park there was no zoning. And in spite of the sweeping asymmetries of power in terms of designing resource management strategies for hybrid governance zones in Southeast Cameroon, the murky space of partnership implementation at the local level fosters a hodgepodge of institutions, some of which do in fact empower local people. For example, boundaries of concessions have had to be redrawn at times, following disputes by citizens.[131] Yet, in some situations, people are able to practice micro-zoning, where they can absolve a particular tree from being logged, or be granted rights to access resources in a national park. The circumstances of this zoning seem to be dependent on individual circumstances: a critical mass of local unrest coupled with the whims of a park *conservateur,* logging company director, or safari guide (Ashley & Mbile, 2005). One group of Baka said that WWF and these other strategies only 'make it look like we are implicated in management' saying that they do various things like participatory mapping but that they have already made their decision and have really already drawn the zones anyway and made their decision[132].

One question is whether people know the rules that are attributed to each use zone. One thing that Baka people consistently were not aware of was that they are allowed to kill one elephant each year as long as they secure a permit ahead of time. Perhaps more telling is that people understand that the reason for Parc Lobeke is that white people have no more animals in their countries[133]. However, they argue however that it is good that the park exists because they can protect animals and that with conservationists 'we need to find something in common'. Needless to say, the meetings in which management plans and the rules of zoning are discussed are thought of by people as very exclusive. Few Baka are permitted to attend and women argue that no women are invited to meetings ever[134]. There are participatory management structures in place to direct the community operated hunting zones and the revenues there earned, yet people challenge that COVAREF is 'merely there to calm people' and it was instituted in 2000 so people could 'pretend they are managing things', it is really just a façade[135].

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[129] Focus group with Baka women, Dioula
[130] Ibid.
[131] Interview by author, World Bank Yaounde, 6/16/2010
[132] Baka in Dioula, focus group with author
[133] The Bantu chief of Yenga, conversation with author
[134] Bantu women in Dioula
[135] Bantu men in Dioula

Another question is whether people know where the zones begin and end. Many people say that the zones are not at all well marked. Interestingly, "Limite eco" is the word for land-use limit in the Baka language, meaning the limit of the UFA, and they see this as the same limit as for other zones, in other words that of the zone which they cannot enter[136]. One WWF employee claims that people do know where the zones are but that they do not respect them because they want to go into the park to hunt elephants and sell the meat[137]. The delegue argues that there is no problem with the limits in the zones but a problem with access to resources. For the community operated safari hunting zones, the safari guide is said to decide on the limits of the zone but he just puts up a plaque that indicates where the zone is. The hunter and the logging company do not usually work together to design the limits or to mark them but there is one instance where CEFAC worked with a hunter to create a barrier[138].

Knowledge of how to cultivate crops within the agroforestry zone is different among various groups. Baka people interviewed expressed sadness that they are not able to spend more time in the forest hunting and gathering, often saying things like "everything is in the forest". The shift from vast spaces to hunt and gather to a delimited zone to practice agriculture has evidently not been an easy transition for many Baka. For example, women in one village indicated that they do not know how to cultivate peanuts, which they see their Bantu neighbors growing and selling for profit[139]. Many people complained that the only thing that WWF does is come tell people that they cannot go into the forest to hunt[140].

*Authority*

Through these complex webs of access, individuals are dominant to some actors and subordinate to others (Ribot and Peluso, 2003). The institutions managing resources in these zones implement stringent rules regulating when and where people can use resources. By law, these governance arrangements are supposed to be participatory, involving communities in management, however the large institutions just enforce things rather than enabling local people to make decisions. These decentralized resource management schemes, often called co-management or hybrid-management, are ambiguous about transferring rights to local people, and both state and international actors have the power to give resources or take them away. People complain that 'we are the simple guardians' working for the government to look after the forest, and that they do not feel any implication in management in any way. They say that 'we have no more forest here.'[141]

This is evidenced strongly by the fact that the agroforestry zone has no management plan, formal or informal. When asked about this, a director for WWF in Mambele said that "there are no management plans for the agroforestry part of the agroforestry zone because there is no plantation agriculture here yet"[142]. The national forest domain is classed as non-permanent, and is largely secondary forest and the Cameroon government does not recognize traditional land

[136] Baka focus group in Mbatika
[137] Meeting with WWF employee
[138] Meeting with Delege of UTO 7-15-10
[139] Focus group with women in Dioula
[140] Baka focus group in Mbatika
[141] Focus group in Mbatika
[142] WWF Regional Director (Conversation with author, 8/9/10)

tenure arrangements within this zone even though much of the land is held by individuals, families, and clans. As a result, areas of the national forest domain are easily sold by the state to agro-industrial plantations. By requiring people to fill out documents to formalize their land titles, the government is actually gaining more rights over land and nullifying traditional land tenure systems, essentially recentralizing in the name of decentralizing (Ribot, Agrawal, & Larson, 2006). The fact that there are no permits for agroforestry zones would seem to indicate that these are the most tenuous of zones and capable of being taken away from people at any moment, and the fact that this is the only area that does not have any sort of management plan indicates the lack of concern for local people and the only zone that is truly theirs.

In terms of resource allocation, Baka must rely on Bantu people to act as liaisons with timber companies. And Bantu people in smaller villages and hamlets are forest to rely on Bantu within more major villages. For example, one group of Bantu people outside of Dioula wanted a *cheferie* and a stadium built and were promised that by the timber company but were later told that they needed to discuss that with the village of Dioula[143]. Often, people are not sure to whom they should address complaints for compensation when fields are destroyed by animals; whether they should speak to WWF or to the state[144].

People are not even farming or hunting according to subsistence laws as they are afraid of the *ecoguards*[145]. The failure of Agroforestry zones to institute land-tenure rights means that wildlife is largely still considered an open-access resource in these zones[146]. And local people are constantly afraid that their zones will be further encroached upon and altered by the nearby logging zones and the safari hunting zones. This lack of recognition of ownership by the very people who are meant to control this zone has negative implications for wildlife conservation, risk undermining sustainable resource use in this landscape, as the 'community' could be inclined to discount the future heavily and there is likely little incentive for sustainable management or protection from outside hunters (Becker & Ostrom, 1995).

By many accounts, people are accused of overextending their authority. For example, *ecoguards* are said to harass people even in the agroforestry zone, or even if they are just hunting for subsistence, and moreover that they just take the confiscated meat and eat it themselves[147]. There is no agriculture or hunting allowed in ZICGC, as it is very much the zone of the hunting guide, and there are no rituals allowed in the park or in the UFA[148]. Many people interviewed said they were made to leave the UFA even though a majority of their fields for crops were there, and Baka people seemed to be more upset by this, and less likely to be compensated[149]. However,

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[143] Bantu community in Mbatika
[144] Interview with man in Mambale
[145] Conversation with author, president of the *Committee Paysane Forestier*, Sokambo, 8/8/10, and conversations with numberous villagers
[146] Conversations with author, numerous focus group interviews, in Dioula and Yenga
[147] Focus group interview with Bantu men in Ngilili
[148] Chef de Poste, Salapumbe, there for three years, ex-Ecoguard, 8/13/10
[149] Baka women in Dioula, focus group interview. It is of course difficult to say whether Baka or Bantu are more impacted by the rule of farming in the UFA, however in the villages surveyed during this study that was the case. One possible hypothesis could be that Baka people generally have their fields further away from the main roads and villages—as those spaces are typically taken up by Bantu people, and thus Baka fields are more likely to be located in the space of the forestry concessions

people do on occasion practice agriculture in the UFA, growing banana and cacao[150]. While the rules of being in the ZICGC and the UFA may likely be more sparsely enforced, in the parc they are fairly strictly enforced. And even Bantu people used to go into this area to collect yams and bush mangoes and lettuces and other things[151].

Authority in terms of rights to hunt animals has important implications for food security, both directly in terms of protein consumption and indirectly in availability of starch. Many mammal species are protected by law and local people are not permitted to hunt them even for subsistence use. The implications in terms of protein access vary depending on the zone of use. In the protected area, hunting is completely outlawed except for in a smallish area designated for community use for those who have permits. As seen above, it is very difficult for anybody to access such permits, and particularly difficult for certain ethnic groups. Logging companies are required by law to arrange to provide benefits for local communities, agreements which are referred to as *tenues des palabres.* However, people in this study indicated that these agreements were rarely honored, and some people suggested that it is 'here just to corrupt'[152]

*Identity*

Identity is an important part of resource access. Many minority groups are excluded from resources, but in a few instances they are selected to benefit specifically from resources. Yet according to the Cameroonian law there is no distinguishing between Baka and Bantu, as everyone is a Cameroonian citizen. However, Baka people are hardly acknowledged as legitimate citizens. The Baka cheifdoms are not recognized by the prefecture as housing local governments, while Bantu chiefdoms are. Baka are not at all happy that all of the wood is being cut, and they say that they give this to Bangando but not to Baka[153].

Issues of overhunting are generally ascribed to large-scale commercial hunting operations, and it is in response to that threat that a majority of the tactics attempt to intervene. However, local-level subsistence hunters are also targeted. Population growth and shifting cultivation are generally assumed to cause most deforestation in Cameroon (Amelung & Diehl, 1992). Of three *chef de poste* interviewed, all mentioned that biggest problem for conservation is large-scale poaching[154]. But the possibilities for community involvement are dubious. As one *chef de poste* who was a former eco-guard claimed that 'Baka people are never consulted regarding the fight against poaching as they are all poachers themselves'[155]. While in the discourse there are good relations between people and the forestry concession, it is not actually the case, rather, the population is incriminated in the decimation of wild animals while people accuse the administration of the timber concession of abuses[156].

People express annoyance that they are only really trusted to even live near animals if there are many other partners involved in monitoring and protecting those animals. At the same time, in

[150] Focus group interview, Yenga; and focus group with Baka in ALPICAM concession
[151] Focus group interview in Yenga
[152] Focus group with Bantu people in Mbatika; "*c'est ici pour nous corompre".*
[153] Baka focus group in Mbatika
[154] Conversation with author, chef de poste Kika, 7/18/10
[155] Conversation with author, chef de posete Salapoumbe, 8/13/10
[156] Sous-prefet, Salapoumbe, 8/13/10

the discourse of conservation organizations, the indigenous Baka are being increasingly recognized as potential stewards of the forest. Conservation organizations in this region have a negative association in the minds of local people, who used to run when they would see WWF vehicles[157]. The community park zone was made with the Baka in mind, however it is uncertain who is using it and the WWF employee interviewed did not know where this zone is and it appears it is not very well defined[158]. People associate WWF with having tremendous power and they are fearful of that power as it entails ecoguards burning their fields and sending their husbands to jail. People consider ecoguards to work for WWF[159] while in fact these are employed by the state. While WWF workers interviewed in this study were insistent that I understand ecoguards were not employed by WWF, local people seemed to be entirely unaware of that fact.

Some people greatly identify with the zones that they inhabit, particularly safari hunting guides, who are typically Europeans, and who refer to the land as 'my concession'[160]. There is intense conflict and disagreement among the various users. In one case a safari hunting guide killed a poacher. Local people in this study site unanimously consider the safari hunting guide to be crazy. And these guides seem to exercise their power liberally, with guides said to take even Baka children who are found fishing in the safari hunting zone into WWF headquarters[161]. And local people understand what the agendas are. One Bantu woman said that 'animals and trees are more important than us… an elephant costs more than a human… we care about conservation and want children to see trees and animals but this conservation is not practiced in the correct way here'.[162] And others say that it has been the same thing with WWF for 10 years, saying 'different words, same idea'[163].

Baka people, interestingly, do not even consider the agroforestry zone as the forest. They frequently mentioned, for example, that the forest is off limits to them and that all of the big animals have retreated deep into the forest; both points about which they are very upset. Their identities are firmly based on the forest, and their frustration is expressed as 'now we just wait around with nothing to do.' They are discouraged that all they have now is fields to plant things in. And they explain that they used to retreat to the cool of the forest during the hot dry season to escape maladies. Although they recognize that the government is finally sending teachers for the schoolhouse that had been built years ago, they profess discouragement that they are now not able to afford school fees and supplies, as they have no money from hunting[164].

One of the chief representations of identity that seems to be shaped by these zonings is that of the people-animal dichotomy. Many people interviewed in this study indicated that they were convinced of the greater importance and the greater level of rights enjoyed by animals. Baka and Bantu alike spoke of forest resources such as wild lettuce and wild mango as being now reserved for animals. They refer to themselves as 'worth less than the beasts.' Both Bantu and Baka

[157] Conversation with WWF employee, Mambele, 7/20/10
[158] WWF Regional Director (Conversation with author, 8/9/10)
[159] Focus group with Baka women in Dioula
[160] Meeting with Mike the hunter 7-17-10
[161] Focus group with Baka women in Dioula
[162] Woman in Mbatika
[163] Man in Mambale
[164] Baka women in Dioula and in an encampment near Mambale (8/10/10)

people identified with trees, which provide things like salt and caterpillars during times when wild game is scarce; one Bantu man said 'it protects us and you just come to cut it down'[165]. People are also worried that trees are going to be cut down as they are close to their houses, or to the graves of their ancestors.

*Social relations*

Because of the asynchronies of authority, many people must invest in social relations with those in power in order to secure resource access. "Power is inherent in certain kinds of relationships and can emerge from or flow through the intended and unintended consequences or effects of social relationships" (Ribot and Peluso, 2003 pg 156). The idea of knowing what the rules are for particular land-use zones is subject of some dissention between ethnic groups. For example, many Bantu people said that although they know where the limits of zones are the Baka were almost completely unaware. However, from this study, that was not entirely the case, rather everybody seemed to have a working knowledge of the various zones.

Social relations dictate resource access in direct and indirect ways. Directly, Bantu people refuse to pay Baka people decent prices for tradable goods. In some cases, they will not trade with them. Some Bantu women complain that they are not able to purchase beef from Muslim traders, as they reserve the scarce meat for other Muslims[166]. And Muslims are also accused of bringing all of their own fishing tackle from the North and catching all of the fish and selling them at exorbitant prices. Baka people are relied on as scapegoats in some cases. In one such instance, when WWF came to check up on the COVAREF for funding accountability they were told that 300 machetes were purchased but could not be produced as they were given to Baka who lost them in the forest[167].

Cooperation and conflict over benefits from resources conform to the current political economic circumstances (Ribot and Peluso, 2003). In this study, there are rampant conflicts between local-level users and international actors of NGOs and timber companies. There are frequently road blocks to protest the failure of logging companies to distribute benefits. A ministry official suggested that people moved to areas and set up agroforestry after finding out they were going to be made into UFAs to make sure that they would be compensated[168]. Furthermore, safari hunting zones overlap with the agroforestry zone, and in these zones people are forbidden to practice agriculture and subsistence hunting[169].

Baka have long been considered inferior by Bantu people, who referred to them as slaves worth no more than cattle. While this has been changing in recent years, a number of Baka people interviewed during this study indicated that a direct result of the land-use zoning was that they are forced to be slaves for Bantu people as they are unable to access as much of the forest. It is more difficult now to send their children to school, whereas they used to sell forest products for money to pay school inscription fees. They are very upset that they get nothing from anyone in compensation, and they consider the fact that the forest from which they used to get everything is

[165] Interview with man in Mbatika
[166] Focus group in Mbatika
[167] Meeting with president of *Comite Paysane Forestier*, Sokambo
[168] Conversation with author, MINFOF employee
[169] Conversation with author, WWF Mambale employee

now largely off limits to them is evidence that they are at the very bottom of the social hierarchy[170].

**Discussion: Coupled-systems and patterns of resource use**

Across the mechanisms of resource access discussed above, power relations are integral to determining who is able to benefit from what resources when and where. The vast reshaping of resource access due to zonation of conservation and extraction areas, as presented above, undoubtedly restricts the present resource access for local-level users. Ironically, this marginalization of the people who depend on the forest most heavily for survival are prevented from access to enable distant forest 'stakeholders'[171] to benefit abstractly from plants and animals in the Congo basin forests. In reality, benefits from forest resources fall quite differentially on different users even within the subset of local people. As demonstrated in the above analysis, Baka as well as other minority ethnic groups are constrained from resource access more than other ethnic groups. Needless to say, this continued marginalization has negative consequences for the wellbeing of thousands of people.

From a human rights or an economic development perspective the downsizing of forest access rights has immediate negative consequences[172]. But even from a conservationist perspective the intensive management through land-use zones threatens the longetivity of the ecosystem at hand—which is one that is both defined and mediated by human and animal agents as well as by other organic and inorganic 'natural' forces. Specifically, the changing patterns of resource access in the forests of Southeast Cameroon have implications on the integrity of these ecosystems. The shifts in land-use patterns that are caused by institutions of conservation and timber extraction and their prescribed schemes of resource management will have immediate and long-lasting impacts on the ecology of the region. Some of the ways that these management regimes directly and indirectly cause patterns of land-use transition are here discussed. And people frequently stated that there would not be enough land for future generations in the agroforestry zone.

*Agricultural transitions and Resource Access*

[170] Focus group with Baka women, Dioula

[171] Although the term 'stakeholders' is used regularly in policy circles regarding the various groups and individuals that have some stake in what happens to forests, this term can be misleading. By making only a binary distinction between those who have a stake and those who do not, the term 'stakeholder' presents various groups of people as having an equally important say in what happens with the forest resources. Furthermore, this term makes no distinction as to the very different agendas and the ways that people are interacting with resources. As such, this codification, while potentially often benign policy jargon, could at times strip those who depend on the forest more directly of the weight they deserve in the decision-making process. The distant stakeholders referred to here include for example conservation experts from the US or timber buyers in Europe.

[172] It could also be noted that this failure to enable benefits from crucial forest resources is ironic, given the importance of the indigenous Baka to the conservationist discourse. The public relations of NGOs calls on Baka as 'guardians of the forest' who live at harmony with nature, while that harmony is categorically disrupted and Baka are allotted by far the least decision making power.

Mertens and Lambin (2000) suggest four crucial factors determining resource use, and those are utilized here as a template for understanding how land-use decisions might derive from the above detailed resource access. Three of these factors are considered here: Physical accessibility to the forest[173], Forest-clearing cost[174], and social accessibility to forested land[175].

The first important factor is physical accessibility of the forest. As has been demonstrated above, physical accessibility follows closely with the nature of the physical landscape, which in this region is marked by hills and swamps and rivers. Roads factor in as a very important part of physical access, with various roads in various stages of upkeep (by timber companies) enabling access to new forest plots for agriculture and hunting, as well as to markets. Roads present a distinct paradox to proponents of conservation with development, as they are both essential for economic development and crucial components of biodiversity loss. As demonstrated above, people often use old logging roads to access forest for new agricultural land. It was noted in the study site that homesteads are springing up further off the main roads, on secondary logging roads, where people are able to farm in forest clearings created by the selected removal of a few very large trees. Hunting options are similarly opened up with deeper penetration of roads into forest. It is also important to note here that the movement of elephants and other large mammals is similarly determined by the presence of roads.

Technology plays an important role in resource access, as demonstrated above, and it plays a very important corollary role in land-use decisions. The density of vegetation cover following the removal of a single tree is greatly reduced for a given area, even when care is taken to follow standards of Reduced Impact Logging. In these recently cleared areas, people can utilize hand-tools such as axes or machetes to remove smaller trees. Some people, particularly near community forests, have access to chainsaws, which enable them to remove remaining trees with greater efficiency. Yet logging roads also enable people to more easily arrive at areas in the forest that are natural clearings, where they can easily plant crops.

Access to technology enabling farmers to get to their fields and reside in their fields, and to defend animals from destroying crops are also important determiners of patterns of land-use. For instance, when animals destroy crops, which is highly probable in areas especially that are closer to national parks, and also in areas that are part of the buffer zones of national parks, farmers must make other decisions about how to feed their families.

Yet the fact that forest clearing for fallow agriculture takes place on medium rather than high-aptitude soils suggests that deforestation is more strongly influenced by accessibility variables than by soil suitability (Mertens & Eric F. Lambin, 2000). And the third important factor of resource use is social accessibility of forested land. As has been demonstrated above, social accessibility can take many forms, including regional nonfarm employment opportunities,

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[173] Which, according to the authors, in turn depends on the road network and the number of openings in the forest cover that facilitate access to the forested areas; this can be measured by the forest-cover fragmentation and by the distance of any forest location to the nearest forest/non- forest edge

[174] Which the authors argue is related to the technology used for forest clearing and to the density of the vegetation cover;

[175] Which the authors suggest is related to human pressure on the land and depends on the population density relative to nonfarm employment opportunities in the region and, as a proxy variable, on the average income level of the local population (low average income level is assumed to generate greater demand for land).

population density, formalized and informal land tenure. And villages with a low population showed the greatest increase in deforestation (Mertens & Eric F. Lambin, 2000).

As compensation for lost crops from protected species such as elephants or gorillas is essentially non-existent, farmers must find other ways to secure money and food, often turning to illicit means. The fact that they are forbidden to kill animals puts their food at risk, but the fact that they are not compensated for crop losses could give farmers little incentive to abstain from killing the offending animals. Yet there are numerous other strategies, which have similar negative consequences for biodiversity. For many farmers, this has meant that they now plant fields nearer to their permanent residences, which puts greater pressure on the land immediately surrounding villages, and makes farmers less likely to incorporate more distant plots into fallow cycles. In this study site, as well as in other areas of TNS and other African regions of high conservation value, the threat of crop destruction has lead some groups of farmers to organize in cooperatives to better prevent animal raids. By coordinating planting fields neighboring one another, farmers can rotate shifts watching the plots for invading animals. This pattern of land use similarly puts more pressure on a smaller area, making it less likely for previous plots to regenerate in a fallow stage.

*Implications of changing resource use patterns*

The implications of these patterns of forest use could be harmful to both local livelihoods now and in the future and to prospects for biodiversity conservation. While there is technically enough space for everyone to farm currently, that is likely to change in the near future as more and more people settle in the region. The forced overemphasis of farming and hunting in particular areas risks undermining the 'conservation where people live and work' that is so prized by ecosystem-scale conservation. By reducing the amount of land set aside for fallow periods, the area of forest in various stages of regrowth that is considered essential habitat for many species is decreased. The matrix of land-cover could be compromised by such strategies that seek to minimize crop loss due to animals. While the agroforestry zone is supposed to serve as part of the conservation corridor between two protected areas, large expanses of degraded land make it unlikely that animals will migrate through. In fact, according to many accounts from local people, elephants are no longer found near villages and it is more often gorillas and other monkeys who are responsible for crop damage. Although the retreat of some large mammals to deeper reaches of the forest would appear to solve the problem of crop destruction to some degree, the negative side-effect would be that migratory corridors are being cinched off. It amounts to inscribing places where people cannot be and places where animals will not be. Yet while animals at least have the rights to roam where they please, people do not have such rights, and a common remark was "we are less than beasts to conservation organizations".

The fact is that people need to eat, and culturally they like to eat meat. One woman in Yenga exclaimed that "I would rather eat six pieces of meat for a meal if I could!" Yet conservation strategies revolve more around restricting access to certain 'illegal/ unsustainable meat sources than enabling greater access to 'legal/sustainable' sources. This irony is certainly not lost on local people. As a tongue-in-cheek response to the situation of conservation and agriculture, one woman suggested "monkeys can eat the crops, we should raise monkeys."[176] And what are

[176] Focus group interview in Yenga

called illicit livelihoods like poaching should be acknowledged as a merely a livelihood option that is going to exist until people have other options and there is sufficient enforcement of the laws. And even more than a necessity, people—both Baka and Bantu—consider the forest a safe and important area for cultural reasons. They suggest that the forest is a place of safety and benefit, saying you can go there to find medicine, you can go there and leave your children and the forest takes care of them[177].

**Conclusion**

While recognizing the perils that come with invoking narratives of inevitable resource decline due to population pressure and scarce resources (Forsyth & Walker, 2008; Mitchell, 2002), it would be imprudent to disregard the delimitation of an agroforestry zone as benign with regard to food security, cultural integrity, and biological diversity. As the above analysis of resource access has demonstrated, local people are diversifying livelihoods in the face of powerful new zonings and institutions of forest use and management. Yet, while these institutional assemblies of forest governance provide opportunities for some, this paper has also shown that they restrict access for others. Assuming the other stance within the dichotomy of the 'tragedy of the commons' paradigm would not do justice to the institutional complexity or the sociocultural and ecological diversity in Southeast Cameroon. The socio-ecological system in this region is intimately intertwined, and appreciation of its nuances must be a starting point to guide further management decisions.

At present, intensive expert-driven management of the open access wildlife and forest land resources has created problems where it has attempted to address other perceived issues. Careful assessments of the consequences of particular management must be made. Specifically, the success of future management operations depends on a deep understanding of the nuances of forest land-use transitions. As Ribot and Peluso (2003) indicate, the nature of power and the spokes on the web of access to resources shift over time, and the ever-changing institutional and individual positions must be reassessed over time.

This paper is but a small start in identifying key actors, trends, and outcomes in terms of resource access. In order to speak to how influences of ecosystem-scale conservation on resource access shape land use patterns locally and more broadly, it will be essential to systematically connect these institutional changes with changes in land-use. Such land-use transitions must be understood through narratives of local people in addition to analysis of remotely sensed images. Lambin et al (EF Lambin et al., 2003) argue that looking at land cover-cover change as an all-encompassing shift in land-use fails to emphasize that land-cover change can be incomplete: modification as opposed to conversion. In addition, they stress the importance of considering the linked effects of climatic and anthropogenic patterns of change and the multiple spatial scales of change.

[177] Ibid.

Such integrative work must take the forefront of studies of resource governance in the TNS ecosystem, and in the forest ecosystems throughout Central Africa. Yet institutional complexity is recognized throughout the world in areas where very poor and very rich people are united in spaces of resource richness. And the precise impacts of these confluences of multiple perceptions, agendas, and identities in a globalizing world society are increasingly difficult to pinpoint. While this study has focused on one time period, understanding the changing nature of resource use decisions and the ecological impacts will require following robust frameworks of analysis through years and decades.

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# Part III

# Imagining Management, Managing Imaginaries: Entangled Boundaries in Congo Basin Forests

Nathan Clay

**Abstract**

*Looking at the mosaic of land-use zonings in the 'conservation ecosystem' of the Parc Tri-National de la Sangha (TNS), that spans borders of Cameroon, Republic of Congo, and the Central African Republic, I discuss the cooperative management of wildlife resources. A region with sparse governmental presence and extensive resource extraction, the TNS area has been the recent trial ground of 'hybrid governance' strategies that purport to decentralize resource management through partnerships between communities, timber companies, professional hunting outfits, and international Non-Governmental Organizations (NGOs). The entanglement of these actors through projects of co-management make for a rich landscape of interaction between people with multiple agendas and ways of knowing. The terms of resource management are driven by these powerful international actors, which take the place of the state, re--concentrating decision-making power of resource management through to strict definitions of ecosystem function. Rather than sincere involvement by local peoples, the panoply of land-use zonings and their frameworks of hybrid management are laced with bureaucracy and corruption that make it difficult for people to take ownership of conservation projects. Nevertheless, people are participating in the project of management, both 'formally' and 'informally'. In this paper, I look to how local knowledge is employed and translated via management plans for each of the use zones and how it is used transacted informally among the various actors. In doing so, I examine the management plan as a boundary object, looking to the processes of delineating resource-use boundaries and rules, and how the plans reconcile the needs and desires of various forest users.*

## Introduction

Human use of the Congo basin is rapidly expanding (PErez, DE, & others, 2006), with forests becoming host to an influx of powerful transnational actors that are dramatically altering land-use practices and livelihoods opportunities (Wright, 2005). Logging companies, safari-hunting outfits, and protected areas have expanded throughout the Congo Basin (Laporte, Stabach, Grosch, Lin, & Goetz, 2007). Logging concessions now occupy 30% of Congo basin forest area (Laporte et al., 2007) and bring with them logging towns, sawmills, and even hydroelectric power stations, and with that, thousands of people immigrating to find employment (Poulsen, Clark, Mavah, & Elkan, 2009). International conservationist NGOs are responding to the threats this influx of humans pose to biodiversity by implementing region-wide mechanisms for standardizing resource management, with increased funds for monitoring of extractive industry channeled through intergovernmental institutions such as the USAID-led Congo Basin Forest Partnership—CBFP (Brown, 2009). The vision CBFP is to provide a framework for sustainable forest use that incorporates the concerns of diverse stakeholders as well as their participation in the management process.

Linking timber companies, NGOs, state agencies, and local communities, the CBFP and other such partnerships emphasize 'landscapes of conservation', employing hybrid-governance arrangements that aim to promote conservation 'where people live and work' (Miller & Hobbs, 2002) and thus simultaneously improve livelihoods and human-rights of local populations (Scherr & Gregg, 2005). The *Tri-national de la Sangha* (TNS) ecosystem was enacted as one of the 11 high-priority 'conservation landscapes' in the Congo Basin[178] and is a crucible of diverse actors interacting at local to global scales. Drawn up in 2000, the TNS landscape consists of 4.5 million hectares in three protected areas and 3.7 million hectares of multiple-use zones among tropical forests of Cameroon, the Central African Republic, and the Republic of Congo. The multiple use zones are meant to act as 'buffers' to protected areas and they comprise 23 timber concessions, 11 safari hunting zones, 6 community-managed hunting zones, a handful of community forests, and community agriculture zones along roads (Usongo & Nzooh, 2009). Schemes of hybrid-governance link these powerful international institutions with local actors in effort to govern resources 'sustainably,' that is, striving for the dual goals of biodiversity conservation and human development (P. R Oyono, 2004).

Planned economies and centralized resource management have failed largely as a result of their inability to account for the uncertainties inherent at the local level (Scott, 1998)[179]. Indeed, the CBFP recognizes the need for 'institutions to adapt their rules to local conditions.' Yet the project of eco-regional conservation is increasingly premised on notions of transportable and transposable frameworks of resource management (M. Goldman, 2009). In the discourse, hybrid governance purports to incorporate expert and local knowledges from a range of actors. In fact, the success of the conservation and development projects are premised on this intimate inclusion of place-based knowledges. Needless to say, the discourse of resource decentralization is not always reflected in reality (Ribot, 2003; Ribot, Agrawal, & Larson, 2006d). Forestry departments have been shown to employ science to reinforce their resistance to adopting ecosystem-wide frameworks of conservation (Forsyth, 2005). And conservation in Central Africa continues to be practiced largely according to 'scientific' conservation biology, with local knowledge and participatory resource management lagging far behind even Southern or East Africa (Roe, Nelson, Sandbrook, Nelson, & Sandbrook, 2009).

Even if through power asynchronies, the various user groups in the TNS ecosystem are working together. In this paper, I explore some of the complex triangulations of hybrid governance[180], drawing from interviews with a range of actors from local people to loggers to World Bank forestry workers. Looking at the *management plan* as a 'boundary object', I seek to elucidate how such protocols become standard with time, and how the strange processes of exchange become normal, 'joint endeavors', forming bridges between social groups rather than imperial visions of order imposed on others (Star & Griesemer, 1989). The partnerships—such as between loggers and conservation workers—are indeed strange, and the exchanges of knowledge and resources 'informal'. Yet they are fundamentally shaping identities and creating

[178] See (Lemos & Agrawal, 2006c) for a thorough explanation of hybrid governance.
[179] In relying on the precepts of modernism and quests for utopia, Scott shows how 'scientific management' of forests in Germany was over-standardized, neglecting the experiential knowledges that emerge at the local level, what Scott calls *metis* (Scott, 1998).
[180] These are more complex than the original dichotomous decentralization strategies, and they often involve local people in addition to two transnational actors.

opportunities for resource access and new livelihoods. The management plan—both a tangible document and an inherently abstract concept—makes for an important locus in understanding how these groups communicate and attempt to cooperate.

There is recognized urgent need to do interdisciplinary work on the concept of boundaries and borders, with much to be learned from integrating the various conceptions of borders (Lamont & Molnar, 2002). In looking at management plans, I discuss both the material and immaterial boundaries the TNS landscape, with a focus on Southeast Cameroon. I focus on two 'critical events'[181] of resource management in Cameroonian forests: the initiation of the colonial projects of timber extraction and conservation, and the enactment of an eco-regional approach to conservation. In looking at the concept of forest management in two different time periods, I seek to identify how the institution of forest management, and of management plans themselves have evolved. Through the idea of management in lived landscapes, I look to the idea of justice in lived landscapes.

All scientific work is heterogeneous, premised on the cooperation of different actors who often have vastly divergent worldviews. Tension emerges from the need to work through these multiple viewpoints in order to generalize findings (Star & Griesemer, 1989). In formulating and carrying out resource management plans for the various use zones in contemporary forests in Southeast Cameroon a wide range of actors is called upon: conservation workers from the United States, Europe, and Cameroon; loggers from Europe and Cameroon; safari hunting guides from Europe; village chiefs; 'sedentary/agriculturalist' Bantu villagers; and 'indigenous/semi-nomadic/hunter-gatherer' Baka[182]. In accordance with the participatory frameworks for managing wildlife in the spaces surrounding protected areas, each of these groups is called upon for various details such as inventories of wildlife, monitoring for 'poachers', and delimitating or adjusting the physical boundaries of each land-use zone.

Management plans in central African forests have been employed since the early days of colonial exploitation, and they continue to be used today, marking expansion from just plans for extractive industry to plans for conservation zones and community hunting zones. The concept of boundary objects can be a useful analytic for exploring complex relationships among various actors cooperating, or perhaps more accurately for this socio-ecological system, for attempts at cooperation. In employing the boundary objects concept, I also keep in mind this crucial issue: namely that Central African forests have long been thought of as home to intense asymmetry in

[181] Critical events, such as the institution of a new law 'rework traditional categories,' prompting 'new modes of action' to come into being. Moreover, they are events that leave their mark on a variety of institutions, including 'family, community, bureaucracy, courts of law, the medical profession, the state, and multi-national corporations' (Das, 1999).

[182] The Baka 'pygmies' are traditionally nomadic and semi-nomadic hunter-gatherers who have traditionally spent a majority of their time in the forest. The assumption that they are hunter-gatherers as opposed to agriculturalists is problematic as Baka have long engaged in agriculture and in trade with their Bantu neighbors (D. V. Joiris, 2003; RUPP, 2003). It also bears mentioning here that forest peoples in Central Africa are distinct from forest peoples in the Amazon in terms of their openness to 'external influences.' Central African forest dwellers have long engaged with and sought further engagement with 'external' actors. While the Guarani of the Amazon, for example, have been often shown to value solitude from other social worlds, the Baka are quite the opposite, and have long participated in trade various groups entering the forest. That is not, however, to say that they do not value the sanctity of their traditions, their traditional knowledge; they do and they are often secretive in this regard.

power relations. Indeed, the ways that people express power over other people by way of the environment, including variations of relationships between social groups, has been understudied by environmental historians (Jacobs, 2003). In that sense, I also draw from political ecology literature to understand how some debates over ecological conditions are 'discourse coalitions' between powerful international actors, the prescribed terms of which are 'foreclosed in advance' to power dual agendas (Forsyth & Walker, 2008).

Nevertheless, I attempt to refrain from taking a normative stance, and focus more attention on the unique spaces of interaction that these encounters engender, more akin to what Anna Tsing refers to as "zones of awkward engagement" than a 'clash' (Tsing, 2005). I thus look to the 'intimate knowledge' that comes through such partnerships between various groups of people through time (Hugh Raffles, 2002)[183]. In implementing the ecosystem approach according to the Convention on Biological Diversity, Forsyth argues that different institutions 'pick and choose' from this approach to suit strategic goals. He suggests "the essence of the Ecosystem Approach could be better seen as a negotiable, and culturally sensitive approach to ecosystem management that can be adopted in diverse locations." In exploring the myriad entangled ways that people in Congo basin forests are developing new livelihoods, empowerment and resource access, as well as the ways that they are being restricted, I aim to develop insight into what is working. And recognizing that management plans are ever in flux, I hope to elucidate how conceptions of the plan could be useful.

With everything under increasing management, even management itself is thought to be manageable (Parker, 2002). I will attempt to manage this paper by beginning with a history of forest governance and of management plans in Central African forests. In the subsequent two sections I look to how this history has merged with other political factors to produce the boundaries and the narratives resource management that are prevalent to this day and the management tools that rely on as well as enforce those narratives. I then look to the contemporary space of entangled interactions and focus specifically on how management plans are boundary objects. Finally, I discuss the implications of the friction in these forests.

## A History of Forest Management in the Congo Basin

Foucault challenges the conception that looking at space precludes appreciating time in matters of historical analysis (Foucault & Gordon, 1980). In this section, I give a brief overview of strategies for resource management in the Congo Basin. I explore the significance of boundary making in French colonial Africa, both in terms of national borders and of land-use zones. And I attempt to give an overview of the ways that the content of management plans and the reasons for their implementation have changed over time through socio-political contexts from the colonial to the post-colonial, and now into an era of globalization of trade and idealisms.

[183] Raffles's concept of 'natural history' refers to the interactions among humans of various cultures and between humans and their landscapes, and how these complex webs have shaped the physical and the perceived landscape. He argues that the dichotomy between the imagined landscape and the physical landscape is the real myth (Hugh Raffles, 2002).

The categories and institutions forged under colonial rule should not be viewed as the whole-sale creation of white authorities but as the result of 'the complex historical entanglement of indigenous and colonial concepts' (Hamilton, 1998; Thomas, 2003). For example, the history of entangled cultures between the Fulbe and the Arab traders along the Sahara shaped the interactions between French colonizers and the peoples of the Chad Basin (Roitman, 2005)[184]. The concept of asymmetrical resource access existed prior to colonialism. In South Africa, classes of foragers and pastoralists had unequal access to means of production (Jacobs, 2003). And colonialism worked within pre-defined classes and political arrangements (Jacobs, 2003; Roitman, 2005). Indeed, Cameroonian forests have a long history of regulatory institutions (P. R Oyono, 2004). From the early days of colonialism, kings used large-scale hunting rituals to advance power and control trade and white hunters. White colonists employed many African hunters, even when some of the chiefs would try to prevent them from accessing hunting grounds, yet they relied on Africans to help them hunt. And they had little understanding of the ways in which Africans themselves related to wildlife (MacKenzie, 1997). Passage of game laws in 1899 and 1906 excluded Africans from hunting by making licenses too expensive.

The concept of management has its roots in Enlightenment-era philosophy in Europe, with society becoming increasingly organized around the concept of maximizing "energy production, economic yields and environmental quality" (Merchant, 1989, p. 238). Rene Descartes suggested that humans make themselves "masters" or "possessors" of nature by rationally analyzing our material environments and then subjecting them to control through technology (1637). From the scientific and industrial revolutions emerged "Managerial ecology, which began to frame society-nature interactions through ecosystem modeling, manipulation, and prediction of outcomes." And the dichotomy of local and scientific knowledge began in the 18th century when science evolved to prioritize definitions that can singularly explain many phenomena (Guyer & Richards, 1996). Agrawal argues that the colonial process of integrating statistics into forestry practices was a method of legitimizing resource control and in the process they changed people's conceptions of nature (Agrawal, 2005).

During the colonial period, Germany, the United Kingdom, and France had administrative units in place to regulate the forestry sector (Hédin 1930, Letouzey 1957). The management plan, or *Plan d' aménagement,* in colonial French Equatorial Africa has been the necessary document that is meant to outline the methods and timeframes of resource extraction. The French word *aménagement* does not in fact translate directly to 'management plan,' but more accurately to 'development plan'. Although it has been considered a flexible term, Bavington argues that management as control is a principle use (Bavington, 2002). The French word *aménagement* derives from the Italian *maneggiare,* which pertained to exertion of dominion over nature through the breaking and training of horses (Williams, 1985). Early management plans in concessions of French colonial Africa were essentially business reports. They outlined the valuable resources: rubber, timber, and ivory, and mapped their location and relative abundances. But French institutes of scientific forestry became more involved in the process of management,

[184] Roitman suggests that the overwhelming mobility was problematic for a colonial government that relied on reliable census information in order to garner taxes. And interestingly, the regulations imposed by the colonial government brought about even more transitivity, with people diversifying livelihood strategies so that they were moving around, and gravitating even more towards positions as intermediaries in economic exchange such as cattle brokering.

producing materials about silvicultural techniques and methods of inventory and extraction. Rational management was the driving idea, with the goal of optimizing resource extraction.

During the colonial era in Africa, the continent was portrayed as a 'lost Eden', in need of preservation, and the conceptions of conservation in Africa were borrowed from aristocratic rural estates in England (R. P. Neumann, 1996). Conservation in colonial Africa followed a similar extractive mindset along with a similar 'scientific quantification' as that of forestry. Explorers used ivory to fund their missions to Central Africa. Businessmen and politicians used it to fund their endeavors as well. Meat was used to give to local populations to make travelers and settlers more accepted and it became a necessity to be a good hunter in order to keep all of your labor 'in meat' (Mackenzie, 1990). Many hunters prided themselves on being naturalists as well, and often sold trophies to the best museums, which were springing up all over the world. Naming new species was the greatest reward, and MacKenzie argues that the frantic search for specimens placed some species at risk. In fact, these naturalist-hunters advocated most vigorously for conservation policies[185].

Classifying nature and charting boundaries reflects the idea of conservation as controlled or wise use. Colonial conservation developed with science as a means for appropriating resources. This accords with the tenets of colonialism as Adams and Mulligan suggest: controlling people through four dimensions of rationality: expansion of scientific and technological knowledge, capitalist economy, hierarchical organization, and legal systems to promote predictability and accountability of social action (Adams & Mulligan, 2003). Rebecca Hardin uses the term "concession" to refer to a spatial unit of exploitation and development, as well as to a social process of relinquishment, acquisition, and consolidation of control. The steps that must occur to delineate areas of resource extraction also occur for resource conservation: prospecting, drawing boundaries, and controlling through management plans. One such conservation management institution was the Convention for Preservation of Birds, Animals and Fish, which in 1900 made lists of animals that were prohibited to hunt.

The first conservation organization in Africa, *The Society for the Preservation of the Wild Fauna of the Empire,* 'positioned itself as an independent expert organization with the specialist knowledge necessary to assess information and influence colonial policy in Africa'(Mackenzie, 1990). In this organization we see precursors to contemporary cooperation among various stakeholders. In effect a scientific society, it pressed the commercial value of maintaining game as well as the aesthetic value of beautiful places. One of its key strengths was its ability to reach important people and the network of overseas correspondents, gaining power, resources, and legitimacy from aligning with leaders from other countries, like Teddy Roosevelt. There was a range of workers, men from wide range of backgrounds including different levels of knowledge about Africa and wildlife, all conforming to the preservationist mindset. (Prendergast & Adams, 2003).

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[185] Conservation ideals also emerged from the frontier of animals and humans and the obsessive colonial idea of domination: "Ideas about conservation emerged in the third phase of the hunt and were closely bound up with the myths, ideologies, and pseudo-scientific practices of that period. The need for a white subsidy being past, the need to feed Africans not yet recognized, the link between conservation and the Hunt lay in the demarcation of the privilege and power of the new rulers of Africa." (p58). (Mackenzie, 1990).

Conservation reflects an imperial vision of colonial responsibility, with the mission and projects of the *Society for the Preservation of the Wild Fauna of the Empire* embedded in the colonialist ideology (Prendergast & Adams, 2003), eerily similar to the visions that conservation organizations hold in terms of the mission to save the world and its species, and likely in terms of condemning some for being poachers. Indeed, many extractive economies during the colonial era relied on violence to subdue residents. With these actions still in the memories of many residents, it is very difficult to work towards environmental management (Mbembe 2000). Furthermore, there is a more recent history of coercive conservation in this region, largely at the hands of WWF that caused alienation from the conservation project. Much of this conservation was premised on the idea that local communities were poachers and were incapable of managing their resources sustainably.

Yet, concessionary politics, Hardin suggests are created by local populations with complex histories, in addition to global elites, national governments, and NGOs. Rather than being imposed from above, they are selected by local people as a framework of daily interaction with which they are comfortable. Traditions of patronage and charismatic leaders thus make practices such as bringing meat, building hospitals and roads, by logging companies in many ways more popular than internationally touted models for community based conservation, that is, conservation that has an increasing involvement with humans who live in the protected areas (Hardin, 2002). And Gilles-Vernick argues that because people prospered in the past from working for colonial loggers and plantation owners, they see the resource-restricting interventions of the creation of conservation zones as particularly onerous[186] (Giles-Vernick, 2002).

**Boundaries and Control: Narratives of Environmental Change**

*"Truth is a thing of this world: it is produced only by virtue of multiple forms of constraint. And it induces regular effects of power. Each society has its regime of truth, its general politics of truth: that is, the types of discourse that it accepts and makes function as true"* (Foucault & Gordon, 1980, p. 131).

The concept of trust is intimately important in biodiversity conservation. For one, the dogma of the importance of biodiversity functioning, on which rests the conservation doctrines driving the gazetting of national parks and other management strategies, remains largely untested empirically (Ferraro & Pattanayak, 2006)[187]. Furthermore, the management principles on which

[186] Gilles-Vernick looks at how environmental change is understood through history by the Mpiemu people of the CAR, focusing on shifting decisions of land use. She suggests the Mpiemu concept of *doli*, which she describes as a process of thinking about the past and the present that is characterized by space and place—is a way of perceiving the forest that is tied to the present as well as to past events such as resource exploitation or changes in political processes. Gilles-Vernick explores how *doli* changed over the past century through various encounters with 'others'.

[187] Guyer and Richards' idea of 'zones of ignorance' argues that predicting global biodiversity based on known species and the frequency of species discovery is not inherently illogical, but that the specific principles of characterizing these zones needs to adjusted. Biodiversity masquerades as a quantitative concept without being quantifiable, and the concept thus fails to offer a 'plausibly principled approach' to delineate the boundaries of ignorance so that the scientific agenda can be opened up. And, importantly, the concept of biodiversity has thus far

the conservation organizations that thrive recently on Integrated Conservation and Development projects are bound to precepts of trust from both their donors and the people who inhabit the many spaces of conservation throughout the developed and especially the developing world. Donors trust that the NGOs—and they trust them a great deal in spite of their lack of enforced accountability (Igoe & Kelsall, 2005)—are responsible with managing their money. And for conservation to work, the many local people who are part of conservation projects (directly and indirectly and willingly and unknowingly) must 'trust' the NGO. Yet, when a conservation project fails, people equate the failure of the project to achieve success as a sign that the managing organization has adopted the culture of corruption that they see as predominant within the state (Solly, 2007).

Foucault suggests that discourse analysis is particularly useful in transcending the bounds of 'the intrinsic temporality of individual consciousness' in order to see when relations of power transform discourses (Foucault & Gordon, 1980). Along those lines, conservation often is used as a ploy by the state in order to gain greater control over local communities through overemphasis on Western notions of how 'the other' should be managed (R. Neumann, 1997). In this section, I look at how the ecosystem approach serves to guide how forestry departments interact with NGOs and timber companies to reinforce debates about forests that are 'foreclosed in advance' (Forsyth & Walker, 2008). Foucault suggests that truth is formed through language, and is merely one of the effects of power. The notions of the world in terms of resource use are made true by conservation organizations and by timber companies in the process of formulating management plans.

Mitchell argues that technology and science are used as tools to drive modernization and transform societies, with science arranged as opposed to nature. He argues that the relationship between science and development is complex, in fact the binary ideas and technology, he argues, could only have arisen from this complexity (Mitchell, 2002). Images of native resource use as either good (traditional) or bad (modernized) legitimize and delegitimize land-use claims (R. Neumann, 1997). The 'breakdown of tradition' idea has often been applied to the Congo basin's forest peoples, with the mythological idealized notion that land has been managed sustainably until the arrival of colonizing French and German resource extraction enterprises. This recurring trend of the 'pre-colonial referent' was identified as serving to legitimate present demands (Karthala, 1982). Knowledge can be strategically mobilized around a narrative of scarcity by a techno-political network of scientists, politicians, and citizens.

In the post colonial world, international institutions are filling in these voids. These transnational actors, backed by regional visions for conservation and development have largely replaced the state in matters of resource governance as well as provision of human security[188]. As such, since the 1970s socioeconomic changes within the region of the region have been massive and rapid (D. Joiris, 1999). The World Bank has come to define the problems of development and has put in place experts—who use science and a globalizing narrative that generates confidence and

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been cornered by conservation organizations who mobilize the idea in line with their crisis mentality. They suggest that rather than a blanket idea of biodiversity, the concept needs to be pluralistic (Guyer & Richards, 1996).

[188] The 'benefits' provided by various timber companies and conservation projects vary in space and time. A full explanation of these supposed benefits is outside the scope of this paper, yet they have often included provision of primary and highschool education, health services, electricity, and jobs.

makes development seem essential. In this way he argues that the bank is hegemonic. Yet Goldman argues that The Bank was only able to transition to being environmentally sustainable after the international experts of environmental cohorts made that acceptable (Michael Goldman, 2006).

In the tropical forests of Central Africa, which are often assumed to be incredibly abundant with resources, narratives have also been used for political purposes. Similarly to Thailand, where illicit imagery of communist refuges, permeable borders and narcotics trade predominate, in the Congo basin imagery of brutal civil war, refugees, and rampant poaching, and permeable borders has been the focus of many development and conservation efforts. These imageries could be similarly utilized by NGOs, the state, and timber companies to legitimize their strategies, and they are even employed on the regional level. This is likely defined by the logging industry, which is increasingly under control of the certifying boards such as FSC, and thus also fluctuates with the global economy, and consumer demand for sustainable forest products (consumers are less likely to pay the extra money for sustainable wood when there is an economic recession. And increasingly, forests are being defined by CO2 sequestration ideas for projects such as REDD++. Biodiversity can be used to restrict peoples' resource access where they would like to be able to look forward to biodiversity being approached in such a way that it enriches possibilities, suggesting that this should follow from the global trend of science to acknowledge and learn from local experience (Guyer & Richards, 1996).

Intergovernmental partnerships such as the CBFP unite around the concept of biodiversity conservation, focusing on conservation eco-regions. Guyer and Richards defined a 'landscape approach to biodiversity' as imagined understanding of spaces that have been shaped by human management. Yet this idea seems to have been appropriated by international NGOs to push for more land area for biodiversity conservation—in swell-sounding projects like WWF's 'ecoregions' or WCS's 'living landscapes'. This hijacking of the term 'landscape' seems to be another example of how the crisis-oriented thinking of conservation creates a discourse that 'short-circuits the full and rigorously plural exploration of what it is we do not, and might seek to, know about biological and cultural variety' (Guyer & Richards, 1996).

Wildlife management in the TNS ecoregion is defined almost entirely in terms of 'poaching' or illegal harvesting of protected wildlife species. Hunting animal species illegally for their meat and for valuable products such as ivory is deemed the most severe threat to wildlife populations in policy documents, management plans, and in conversation with administrators. As such, the mechanisms for wildlife management overwhelmingly involve criminalization and subsequent control of illicit hunting activity. This control is enacted directly (through arrests and subsequent jailing) as well as indirectly (through *sensibilisation* programs, which purport to inform local people of the hunting laws and the importance of wildlife conservation, and often end up just paying people a *per diem* to attend a meeting).

These zones operate under the same framework of conservation guidelines, with the various actors working in partnership. This conflux of zonings is thus mobilized as ecosystem scale conservation—an effort to both 'extend the conservation estate' (Clark, Poulsen, Malonga, & ELKAN, Jr., 2009) and to incorporate the needs of the array of stakeholders—with the management planning processes of each individual zoning unit defining the TNS land use plan (Usongo & Nzooh, 2009). There is a vast amount of discourse dedicated to discussing

participatory management of forest resources. WWF, for example, has responded to criticism of their lack of compassion for local people by increasing their focus on the 'indigenous' Baka[189]. WWF's Central Africa regional program identifies the Baka as caretakers of the forest, and their project is called *'Jengi'*, a Baka word which means the oneness with nature.[190]

**Maps, Management, and Calculability: Geographies of Power in Neoliberal Forests**

*"Once knowledge can be analysed in terms of region, domain, implantation, displacement, transposition, one is able to capture the process by which knowledge functions as a form of power and disseminates the effects of power." ~Michael Foucault* (Foucault & Gordon, 1980, p. 69)

In his story of technology of politics in Egypt, Mitchell explains that "the world out of which techno-politics emerged was an unresolved and prior combination of reason, force, imagination, and resources" (Mitchell, 2002, p. 52). Within this messy context, it is to the world of maps and management plans on the local level that we now turn. Probing notions of space and spatial boundaries can enable greater understanding of how power is inscribed through geographic nomenclature[191] (Foucault & Gordon, 1980). The power to delineate land-use zones and resource access in Southeast Cameroon is legitimized largely through technical knowledge that differentiates itself from place-based 'local' or experiential knowledge[192].

What forestry refers to as "science" is more a 'complex collection of bureaucratic procedures that can confuse the most capable of silvicultural experts' (J. C Ribot et al., 2006d). Conservation, too, employs such frames. Goldman discusses the discourse of conservation corridors (a widely accepted conservation strategy that has little empirical verification of success). She argues that the flexibility of the concept makes it a boundary object that connects various social worlds—the standardized set of tools (including GIS mapping of boundaries) making it even more accessible to various groups of people, from European scientists to Maasai herders (M. Goldman, 2009). This power, through the knowledge, is thus internalized in the

[189] The Baka 'pygmies' are traditionally nomadic and semi-nomadic hunter-gatherers who have traditionally spent a majority of their time in the forest.

[190] *Jengi* has been interpreted as a complex word that roughly translates to an intimate connection between people and the forest. It is also the name of the Baka peoples' coming of age ritual, which involves killing an elephant. For more information see Joiris or Bachuet. Ironically, the Baka people must go through an intensely bureaucratic process to gain authorization from WWF to practice their ritual Jengi.

[191] When asked about why geography has not taken a more prominent role in his philosophy, Foucault justifies his decision to not include geography explicitly in his *archaeology of knowledge* in spite of his 'obsession with geographic terminology.' He says of his 'spatial obsession' that it has enabled him to find how power and knowledge relate in geographical terms, understanding how geographic nomenclature designates the particularities of domination (Foucault & Gordon, 1980).

[192] Distinctions between 'traditional' and 'scientific' knowledge sets are problematic for a number of reasons. The dichotomy has been argued to be artificial as what is colloquially referred to as scientific knowledge in effect works intimately with 'local' contexts of people and place to produce (Agrawal, 1995a, 2002b; H. Raffles, 2002). Segregating and categorizing knowledge as scientific or traditional risks losing sight of the political bases that underwrite science (Forsyth & Walker, 2008). The disempowering qualities of such a dichotomy are also particularly onerous for the Congo basin, where colonial and post-colonial resource extraction schemes have relied heavily on coerced and forced labor.

process of conservation. In the following paragraphs, I discuss how management plans were designed and implemented in each of three use zones: agroforestry zones, community operated hunting zones, and logging concessions.

Designated to local people for both subsistence and cash crop agriculture activities, the agroforestry zone extends about 8 km on either side of the main North-South logging road. As nearly all villages are located along this road, this zone corresponds to where people's houses a majority of people permanently reside. The agroforestry zone is known as the people's zone, the place in which they can practice agriculture and hunting. Yet it has no management plan, formal or informal. When asked about this, a director for WWF in Mambele said that "there are no management plans for the agroforestry part of the agroforestry zone because there is no plantation agriculture here yet"[193].

Community operated hunting zones, known as ZICGCs by French acronym (Zone d'interet Cynegetique de Gestion Communitaire) were created on the model of other community operated wildlife management programs in Africa. These zones were originally a project of the German conservation organization, GTZ, a response to the fact that safari hunting had failed to return benefits to local people[194], and are led by a contingent of community representatives that make up the *Commite de Valorisation des Resources Fauniques* (COVAREF). ZICGCs, although purportedly participatory zones of community management, are more accurately just another part of the conservation landscape that was organized by a partnership between MINFOF, GTZ, and WWF. Rather than emerging grassroots from the civil society, these community-based projects are established by conservation organizations, sometimes with low levels of local involvement and ownership (D. V. Joiris, 2010).

Management plans for ZICGCs are created between the population and the professional hunter, with this communication mediated by WWF. WWF is then supposed to check up on whether everyone is performing in accordance with this accord. A COVAREF president insisted that COVAREF holds a lot of meetings[195], However, one Ministry employee said that unless the professional hunting guide is obligated to talk with the population, there is not much money left over for meetings and even if there was a meeting people would not come.[196] Another argues that COVAREF is strictly voluntary and meetings were only called in the COVAREF when there were specific problems; there were no regular meetings.[197] Although an inventory of the ZICGCs is required by law, and were said to have been completed with WWF, MINFOF, and COVAREF[198], WWF did not follow correct protocol for this in soliciting accredited external help and instead did just one management plan for all ZICs in the region. To do inventories and monitoring the ZICGCs rely on the logging companies rather than doing the reports themselves, and often they will just use the same data that the concession used[199]. The technical parts of the plans come from WWF but they are said to be evaluated by the COVAREF[200]. Although there

[193] WWF Regional Director (Conversation with author, 8/9/10)
[194] Personal communication with GTZ employee
[195] Conversation with author, president of COVAREF
[196] Meeting with the Chef de Poste of ALPICAM Kika 7-18-10
[197] Meeting with former president of the COVAREF of Kika 7-17-10
[198] Conversation with author, WWF Mambale employee
[199] Conversation with author, MINFOF employee
[200] Coordinator of all COVAREF in Southeast, and President of COVAREF 1, Salapoumbe, 8/13/10

are officially 2 Baka, 2 Bantu, and 1 female local representative on the COVAREF, local people encountered in this study were largely unaware that meetings were going on ever. But the power over the entire set of COVAREF was recently transferred to the *délégué* in Yokadouma.[201]

Some argue that there are no other actors better positioned to perform such a role in conservation in this part of the world than timber companies (Karsenty, Drigo, Piketty, & Singer, 2008). In addition to participating both directly and indirectly in the degradation of forest ecosystems, logging companies comprise the bulk of institutional presence across large areas of tropical forest, making them uniquely poised to solve the problems of overhunting (Lindenmayer et al., 2008). Assuming that hunting regulations are enforced, managed logging concessions could be especially valuable when near protected areas. Hardin (2010) calls this an "embodiment of new managerial alliances streamlining the common interests of state, capital, and conservationists." And it is widely recognized that "timber companies are implicated in the *plan simple de gestion*[202] because they have the money, vehicles, and they make the roads"—which they put barriers on to deter hunting[203]. And while safari hunting guides are only around for a few months, timber companies are permanent[204].

(Lamont & Molnar, 2002) discuss the differences between symbolic and social boundaries, suggesting that symbolic boundaries are contested and remade as 'the essential medium through which people monopolize resources', and only become social boundaries when they are widely agreed upon. It is thus important to understand when spaces of interaction become legitimized as boundaried spaces. In the forests of this study site, a majority of local people, although aware of the boundaries, tended to assume that all of the zones operated under a single management plan. If they do recognize the boundaries of the various zones, they recognize them in terms of which rights they have and which they do not. For example, subsistence hunting is permitted within Agroforestry zones but not within timber concessions or protected areas.

Tsing emphasizes how a normalizing idea of globalization overlooks many of the more creative encounters, providing a framework to study global interconnections—including a cultural analysis of knowledge in what she refers to as 'cosmopolitan interactions'. Indigenous politics entwine with that of NGOs and resource extraction companies and discusses how this plays out for expert and local knowledges (Tsing, 2005). People from different social worlds can cooperate, and do so by focusing on objects that have meaning for both worlds (Star & Griesemer, 1989).

One such object are elephants. Joiris explains how the diversity of conceptions of an elephant in central Africa, (as either a menace and a food source or a protected species and a source of potential income through tourism and funding from NGOs) leads to a divide in how people approach conservation. He explains that forest communities consider living in the forest to necessitate "considerable energy and knowledge in order to successfully utilize the forest resources on which they depend. In other words, they "domesticate" nature, both technically and

[201] Conservation NGO employee, Mambale
[202] Similar to a management plan, the *plan simple de gestion* is less structured and formalized and generally in use for ZICGCs
[203] Coordinator of all COVAREF in Southeast, and President of COVAREF 1, Salapoumbe, 8/13/10
[204] Conversation with employee, WWF Mambale

symbolically" (D. V. Joiris, 2010). He suggests that naturalists, on the other hand, consider the forest as a space of discovery, rather than a resource for living. Management plans of the multiple use zones attempt to regulate the incentives with regards to elephants.

**'Coerced Cooperation'? or 'Entangled Natures and Boundaries'**

*"The paradigm of the strategy of extraversion, at the heart of which is the creation and the capture of a rent generated by dependency and which functions as a historical matrix of inequality, political centralization and social struggle, continues to be a heuristic." (Bayart 2000)*

Narratives of decline can be overly simplistic and often tied to political agenda, and Jacobs argues that it makes sense to focus on innovation, as "people frequently changed their relations with the environment according to what was possible and what seemed auspicious" (Jacobs, 2003, p. 21). Although it is tempting to consider the colonial entry into the world of forest management as a complete overhauling of the native worldview by the triumphant European model of coerced progress, this 'breakdown of tradition' approach misses how colonial subjects have shaped politics of contentious issues by "engaging, defying, and reworking them" (Ferguson, 1999). In the domestic colonial scene, for example, power is shown to be relational rather than binary[205] (Stoler, 1991). Roitman suggests, for example, that 'the bush' refers to a space of unknown and difficulty to regulate, there is in fact a multitude of productive enterprise taking place in that liminal and transboundary place. Thomas's idea of entanglement is useful to discuss these zones of forest use, where 'domains of power intersect and people, things, and ideas moved back and forth between rural and city households and government areas in Kenya and London' (Thomas, 2003, p. 6). In using the idea of entanglement, I argue that the buffer zones of SE Cam forests are becoming rich sites of interaction that are fundamentally reshaping how people from many walks of life think about wildlife conservation.

In the forests of Southeastern Cameroon, the natures of each of these actors are intimately entangled in space, resources, and occasionally in agenda. Conservation organizations and conservation biology researchers[206], for example, operate projects within the infrastructures of logging, utilizing roads, lodging, and imported foods. In perhaps no place is the spatial overlap more apparent than in the research and eco-tourism site of *Djembe,* which is in the PNL, but which can only be reached via a logging road, that runs through the park, which was itself a logging concession up until 1985. Timber companies are now becoming places of scientific research, with conservation organizations and independent researchers working in them to 'mutual goals'. Rupp discusses the interactions of various ethnic groups in Southeastern Cameroon. She describes how the 'indigenous', migratory hunter/gatherer groups are deeply involved with trade and cultural activities and even marriage with sedentary 'bantu' agriculturalists. Moreover, she discusses how the livelihoods of both of these groups overlap,

[205] Stoler argues that the history of European imperialism has lead to an intertwined focus on race and sex that makes up bio-power. Drawing largely on Foucault's concept of bio-power, she looks at how power is relational rather than binary in the domestic colonial scene. Stoler forgoes looking at explicit questions of race for more intimate governance issues: the personal boundaries of race.

[206] The author of this paper included.

with hunter/gatherers practicing agriculture and the bantu agriculturalists hunting—for both subsistence and for profit (Rupp, 2001). These groups are increasingly in the ties of various transnational organizations.

Actors rely on each other's local knowledge in curious ways, often centering in the space of roads. While it is obvious to a safari hunting guide that the roads bring in immense poaching, they also help him find animals[207]. It is rumored, for example that a European safari hunting guide bribes the drivers of logging company bulldozers to allow him to put a tracking device on them so he would know where roads were most recently built[208]. Another hunting guide remarked that animals do not seem to mind logging but are in fact curious about the noises of the saws and other equipment, so they come to see. He thus often takes clients out on hunts on Saturdays—when no trees are being felled—and to places where the forest was cleared the week before, which makes it much easier to find animals[209]. Timber companies are implicated in management of roads because 'they have the money, vehicles, and they make the roads—which they put barriers on to deter hunting'[210]. Although safari guides and logging companies do not usually work together to design the limits or to mark them but there is one instance a logging company worked with a hunter to create such a road block[211].

Patronage factors heavily into hybrid-governance in these multiple zones. Timber companies, when they want to gain access to a parcel of forest that is in the community agroforestry zone, will bring cases of beer to a village in order to convince people to sign release papers. Conservation organizations employ this strategy as well, paying per diems to people who attend meetings about the benefits of conservation. In the Dja game reserve in Cameroon, giving money for conservation has been shown to enforce the expected patronage framework, which negate participatory approaches as people merely assume the subordinate role of powerless and knowledgeless (Hillary Solly).

In spite of the lack of participatory management, people encountered during this study are engaging with regimes of hybrid governance in unique ways. In the TNS study site, a number of people were involved with informal practices of poaching monitoring with safari hunting guides or on their own. For example, one villager designed a poaching monitoring plan and carried it out, even identifying the whereabouts of numerous hunting camps and writing the results up with a map that he sent to WWF. Yet he was frustrated that WWF refused to invite further such missions, and could not fathom why such volunteer work would not be considered useful. Another villager worked as an assistant to a hunting guide, going with him to do poaching patrols.

Interviews with local Baka people revealed that many people think of all the zones as having one single management plan. Indeed, villagers do not distinguish between WWF and the National Parks service or other representatives of the administration[212]. A number of organizations such as WWF and the Forest Peoples Program are working with Baka to map out their territory. They

[207] Meeting with safari hunting guide 7-17-10
[208] the ex-president of the COVAREF of Kika 7-17-10
[209] Meeting with safari hunting guide 7-17-10
[210] Coordinator of COVAREF in Southeast, and President of COVAREF 1, Salapoumbe, 8/13/10
[211] Meeting with Delege of UTO 7-15-10
[212] Chef de poste, Kika; and communication with local people

complain that WWF and these other strategies only 'make it look like we are implicated in management' saying that they do various things like participatory mapping but that they have already made their decision and have really already drawn the zones anyway and made their decision.

Markers of identity can become commodities, with minorities defining themselves as such in relation to others (Peet & Michael. Watts, 1996). In thinking about Gramsci's framework of hegemony, co-management is a new such form of hegemonic partnering, where communities in conservation, hunting zones for example, are identifying a group of local people that makes sense to partner with, and which are thought of as one group of people—the community. They mythos of the wealth to be gained from a resource weighs heavily on the formation of local narratives (Peluso & M. Watts, 2001)[213]. Local people interviewed in this study understand that the timber that is being exported is valuable, and that they are not seeing the returns on any of it. They see timber-trucks drive by hourly blowing clouds of dust in their haste to get enormous logs out of the forest and into European markets. Likewise, they are constantly reminded of wildlife, with elephants and gorillas frequently destroying season's worth of crops. They understand that the wildlife is dear to white conservationists from the WWF *sensibilisation* seminars. And they certainly understand the need to prevent wildlife from being overharvested. But the abstract idea of conservation is just as much of a myth to them as it is to Americans donating money to WWF even though they will never see an elephant running through the forest.

**Conclusion: Conservation Frictions and Created Landscapes**

*"A biographical landscape, at once material and fantastic, born from the politics of history and molded out of everyday life"* (Hugh Raffles, 2002, p. 4)

Raffles's depiction of the pluralistic imaginaries of Amazonia—the landscape as a 'planetary patrimony', of which everybody in the world has a visual lexicon—the images that make up the 'potent environmental Amazon of contemporary imagination,' and the ground: the rivers, trees, and mudflats, the fishes, birds, and mammals. Raffles suggests that both of these stories are myths, and neither is sufficient to encapsulate the natural history of the Amazon basin. Schumaker shows that the constructions of landscape is mythical on part of both Africans and Europeans, and served as a template for the physical transformation of the landscape. In riverine communities in Zambia, the 'natural' landscape is altered by humans to make it more productive, with areas of increased agricultural productivity becoming transformative spaces that produce hope of future of prosperity. Hughes shows that there are multiple conceptions of a lake that shift throughout time.

In Cameroonian forests, the intimate connections between various groups of people and the novel ways that these groups are forced to negotiate use of the environment and negotiate other human rights by way of the environment are fundamentally reshaping the natural-human ecosystem. The distinctions between the material and the fantastic are increasingly blurred (trees,

[213] Watts argues that while prosperity, violence, and ecological damage emanating from oil extraction is important, so is the mythos of oil, asking how debates over citizenship and the idea of the nation are connected with environmental justice narratives.

animals, roads, and money), in spite of attempts by management plans to do precisely otherwise. The landscape is delineated and there is always the option to conform to the prescriptions, yet more often those prescriptions are not followed, and they were only implemented in the first place as part of grandiose plans of regional and even worldwide management. As Roitman demonstrates in the Chad basin, the transitive spaces and frontier zones that are envisaged through infrastructure, technology, and regulation become more important, and rather than dominion over space, power was intimately tied into mobility (Roitman, 2005). The landscape, as it has been set up, can confer agency and people can also derive agency from the landscape. In this way, management influences the possibilities of agency, creating opportunities and constraints to access resources.

The landscape is fundamentally altered by a hodgepodge of exchanges (perpetrated legally and illegally) with the intention of creating resources for markets far away (Tsing, 2005). In the Central African Republic (part of the TNS landscape), Remis and Hardin (2009) demonstrate that indigenous groups diversify their livelihood strategies to include working with loggers, researchers, and tourists. They suggest that encounters with wildlife for tourism or research are opportunities for information exchange and reconfiguring power relations. And for international scales, 'transvaluation' of species can mitigate stale debates between advocates of either human or animal rights (Remis & Hardin, 2009).

As uniquely prescriptive and yet malleable boundary objects, management plans provide a framework for interaction, and are rich in their iterative natures with which they cross into multiple worlds. Yet, as Goldman (2009) argues with concept of conservation corridors, the language of management is pervasive into local culture.

Frederick Cooper challenges the applicability of Foucault's diffuse notion of power in Africa, suggesting that concentration spatially/socially but not very nourishing and in need of pump to push moment to moment and place to place. Even if we are not able to identify such arteries and capillaries, the dense and intimate interactions between these groups in Southeast Cameroon forests have spawned a rich network of knowledge trading, which is enabling people to gain power in new ways. As such, these interactions between 'global' and 'local' actors could have important implications for the future of 'democratic' decentralization of resource use. If we look to what Arjun Appadurai calls 'deep democracy', where near Mumbai new forms of dense networks of action are linking to expert knowledge in new ways, and these expert networks, where experts are captured for a certain means are creating more opportunities and technologies for people to capture such knowledge (Appadurai, 2001).

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# Concluding Remarks

This thesis has presented a survey of three strands of research about the same socio-ecological system. In beginning to formulate a conception of the ways that people are interacting with their environment I have attempted to elucidate some of the multiple perspectives on issues that have been raised during recent years. Needless to say, its primary benefit has been undoubtedly to its author, who endeavors to continue asking similar questions in follow-up work as a doctoral student. In that sense, the process of field research that has culminated in the writing of this thesis has been worthwhile in and of itself (for the author). And so, before a traditional conclusion that summarizes any insight gleaned, a reiteration of thanks to all the people who made this process possible is of primary necessity.

If any insight has been drawn from this reflection on a few months of fieldwork that has become a thesis, it is that the complexity of the socio-ecological system in this study site must be appreciated. The unique landscape has been shaped by a long history of intimate interrelationship between humans and the forest environment. The scale of this interaction has been ramped up during the past fifteen years with the incursion of diverse groups of people utilizing the forest—namely timber companies, conservation NGOs, and international development organizations—adding to the already complex networks of local-level users. The rapid changes to the ecosystem are accompanied by rapidly evolving management prescriptions, many of which purport to involve 'local communities' in the process of management. And entangled in these management schemes and environmental changes are many people of various ethnic groups who rely on the ecosystem in diverse ways—and whose adaptations to the changes in the socio-ecological system are as diverse as the changes themselves.

This set of three papers has begun to shed light on some of the many adaptations that various groups of people are making in response to intensified forest governance regimes, with each of three perspectives illuminating a separate but adjacent face of the prism. This means of course that these are but three of the potentially infinite approaches to categorizing and describing resource access and use. And furthermore the brief time spent in the field enabled the author to gain only a cursory understanding of the overwhelming complexity. Distilled into something that is by necessity a coherently organized set of research results, this synthesis is no doubt all but perfunctory. Nevertheless, with an eye towards future research in this study site, this set of papers elicits a few questions of potential interest.

One line of inquiry could be a spatially explicit look to how people are altering resource use patterns as a result of changes to management plans and how that ties to broader socioeconomic factors. At the same time, mapping the myriad ways that resource use patterns and local institutions mediate and define management prescriptions will be essential for a more complete look at how this feedback influences formal and informal policy. Such a research project could entail identifying the reasons that individuals and groups decide where and what to farm and where and what to hunt. Using GIS to map observed patterns over the course of a year or more and remotely sensed images to look across a longer time horizon will likely be follow-up research. The narrative that subsistence-level users are contributing to the degradation of tropical forests as suitable wildlife habitat is still strong in the Congo Basin. Gaining a more empirical

understanding of the precise resource use patterns will be essential to directing forest governance strategies in coming years.

Secondly, the ways that the resource-use patterns by both local-level and international forest users impact the ecology of this ecosystem are largely understudied. Future study in resource use patterns should also attempt to map the ecological changes on a landscape scale. This would include transects of plant and animal species composition and density as well as information gleaned from interviews with local people about changes in landscape ecology. This ecological level, rather than being viewed separately from the social, must be analyzed alongside the resource use patterns. The relationship between social and ecological changes is undoubtedly complex, and must be approached with both quantitative and qualitative methods.