



## SOCIO-ECONOMIC IMPACTS OF PROTECTED AREAS ON PEOPLE LIVING CLOSE TO THE MOUNT CAMEROON NATIONAL PARK

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### ABSTRACT

Local people living near protected areas can either be a threat to conservation or allies. Whether they take actions which are consistent with conservation or detrimental to conservation depends in part on the costs and benefits associated with each action. Incorporating the views of these local people in the process of decision-making and providing alternative livelihood solutions are important steps towards successful conservation. The aim of this study was to highlight the problems encountered by local populations living near Mount Cameroon National Park, Cameroon. We sampled households in six village communities who tend to harvest large volumes of resources from the national park, and found that due to restrictions on access to resources they consider a traditional right, these people exert a high pressure on wildlife through increased poaching. The majority were also against the creation of this park. We show that park management has recruited local people as Cluster Facilitators who take part in the decision-making process. This has led to increased collaboration of local communities, and a reduction in poaching activities. We argue that for local communities to be compliant with management policies, they should take part in the process of decision-making.

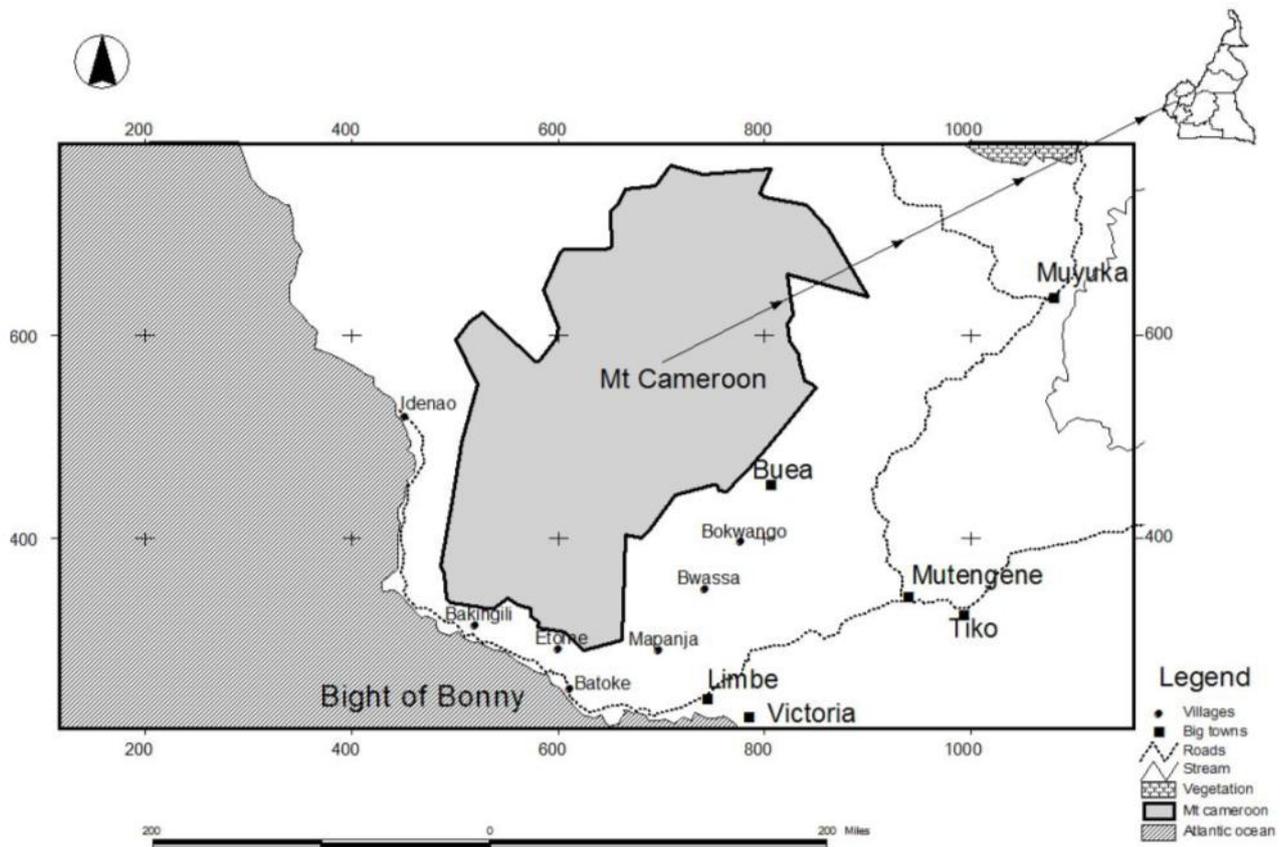
**Key words:** local people, decision-making process, Mt Cameroon National Park, successful conservation

### INTRODUCTION

Local people living near areas of great importance to conservation (e.g. protected areas), are trapped between their dependence on resources from these areas to meet their local development aspirations, and international pressure to protect resources of high international value (Van-vliet, 2010). The establishment and management of protected areas has become the cornerstone of biodiversity conservation strategies the world over (Adams & Mulligan, 2003; Brechin et al., 2003; Ervin, 2013; Lele et al., 2010; Singh et al., 2013). Although it is increasingly recognised that the conservation of biodiversity cannot be successful without providing alternative livelihood solutions to local communities dependent on forest resources (West et al., 2006), global experiences illustrate that the successful integration of conservation and development continue to be elusive, especially in Africa (Lele et al., 2010; Schmidt-Soltau, 2000; Van-vliet, 2010).

In Africa, many people depend on their surrounding environment as a major source of livelihood, as forests provide important cultural and economic resources for the rural and urban poor (King, 2009; Wicander, 2012). Sub-Saharan Africa has been the site of intense conservation planning since the colonial era (King, 2007, 2009). Under the auspices of wilderness protection, colonial authorities established national parks largely for the purpose of hunting and tourism, while forcibly evicting indigenous populations and without taking into account the long-term unsustainable effects of such actions (Adams & Mulligan, 2003; Schroeder, 1999). The rise of sustainable development as a guiding paradigm for global conservation, coupled with increasing concerns about biodiversity loss, has generated a growth of protected areas in Africa.

Highlighting the socio-economic problems encountered by local populations living near the Mount Cameroon



**Figure 1. Map of Mt Cameroon National Park showing study villages in the Southwest region of Cameroon**

National Park, and the implications for the conservation of its fragile biodiversity, was the main goal of this study. Specific objectives were to: (i) develop a baseline survey in order to assess conservation and development activities in the area, (ii) determine the level of dependence of local communities on forest resources of the national park, and (iii) provide conservation and development agencies working in the region with additional information in the planning of their activities.

## MATERIALS AND METHODS

### Study area

The Mount Cameroon National Park ( $4^{\circ} 08' N$   $9^{\circ} 07' E$ ) is situated on the coast of Southwest Cameroon, in the Gulf of Guinea, Bight of Bonny (Figure 1). The climate in this region is maritime and equatorial, with an average annual temperature of  $26^{\circ}C$ , and average annual rainfall attaining 10,000 mm at the foot of the mountain towards Debuncha, which is the second wettest place in the world (MIAVITA, 2011; Toteu et al., 2010).

The Mount Cameroon National Park was created in December 2009, following intense efforts since 1995 by the Mount Cameroon Project (MCP), a multilateral biodiversity conservation project funded by the Department for International Development (DFID) of the United Kingdom, working directly with local

communities. The goal of the MCP was to maintain biodiversity in the region by increasing the capacity of local stakeholders to sustainably manage natural resources (Brown, 1998). Increased collaboration since 2007 between the World Wide Fund for Nature (WWF), MINFOF (Cameroon's Ministry of Forestry and Wildlife), and with the financial support of the German Cooperation organisation, KfW, led the way to the creation of the park. MINFOF gazetted an area of 58,178 hectares in the region to be the national park, with a buffer zone that extends 5 km from the park's limit to the surrounding villages. The buffer zone is the area adjacent to the national park, and is defined by an imaginary line extending on average 5 kms from the park's external boundary. This area was identified to enhance the protection, and lessen the negative impacts of restrictions on neighbouring communities (MINFOF & WWF, 2006). The local people were then told to stop exploiting forest resources in these newly marked areas during sensitisation meetings which followed, but no compensatory measures were put in place.

The Bakweri tribes were the first to settle in the area, to the eastern part of the mountain, and later on the Woveas to the north east (Ardener, 1996). These two tribes constitute the major indigenous groups in the area, and make up about 10 per cent of the population,



Local communities near Mt Cameroon National Park © Eric Djomo Nana

whereas the other 90 per cent of the population is made up of people from other parts of Cameroon, and other nearby countries including Nigeria, Ghana and Benin (Laird et al., 2011). This highly heterogeneous population is mostly dependent on farming and forest resources, such as non timber forest products (NTFPs) and bushmeat for their livelihoods (Burnham, 2000; Cernea & Schmidt-Soltau, 2006).

In the nineteenth century, the German government claimed control of the Kamerun protectorate, and alienated most of the land from the local people in the Mount Cameroon region, because of the high fertility of the land. The Germans needed a large labour force, and so decided to bring in thousands of people from other villages in Cameroon to work in German plantations in the area. After the first world war, this part of Cameroon was under British colonial administration, which seized German plantations, but did not give the natives their land back despite efforts made by the Bakweri Land Claim Committee who petitioned the British government to allow the indigenes to reclaim their land (BLCC, 2006). Instead, the land was placed under the custody of the Governor of Nigeria to hold in trust for the Bakweri. It was only after independence of the Federal Republic of

Cameroon in 1961, that indigenous people could reclaim part of their land, although the majority was leased to a newly created statutory corporation, the Cameroon Development Corporation (CDC), and later on to other major agro-industrial firms like PAMOL Plantations Limited Cameroon (PPLC) and Saxenhof Tea Estate.

#### **Field work**

Interviews were conducted with community respondents in November 2012 in six villages situated next to the Mount Cameroon National Park (Bokwango, Batoke, Bakingili, Bwassa, Mapanja and Etome) with a total population of more than 20,000 people (Table 1). A questionnaire consisting of both open-ended questions, and a discrete categorical scale was designed for the purpose of this study. We endeavoured to recruit respondents from a cross section of the population to make our samples as representative as possible, and therefore included representatives of civil society, state officials, community elders, traditional chiefs and other local residents.

The people from the communities under investigation were informed about the aims, relevance, and procedure of the study, and that there was no obligation to



**Poaching inside the Mount Cameroon National Park © Eric Djomo Nana**

participate. These particular forest-dependent communities were selected to represent typical local communities in the region because they were located next to the national park, and also, because there is a general lack of services like good roads and healthcare services. Acute poverty is endemic in this area with 87 per cent of the people living below the poverty line (World Bank, 2011).

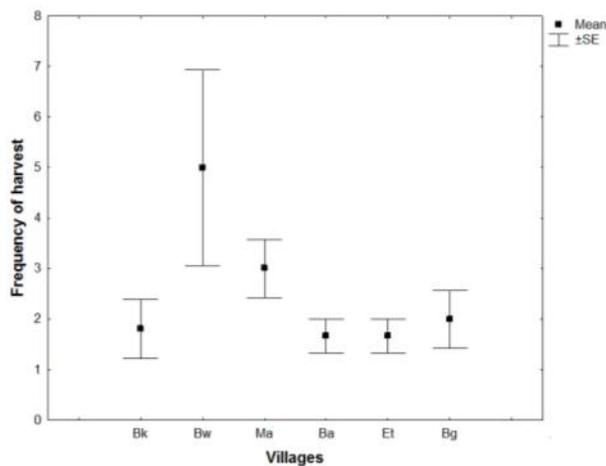
Due to differences in the population sizes of the sampled villages, sampling was proportionate to the village sizes, and we sampled those who were available for interview. Though the sampling was therefore opportunistic, the possibility of non-response bias in the study cannot be excluded. However, the large sample size which we endeavoured to make as representative as possible in this study likely means that non-response bias was minimised (Isreal, 2012). While a few respondents could read, and completed the questionnaire on their own, most of the respondents were illiterate, and interviews

were conducted to assist them in completing the questionnaire. Interviews were conducted at homes, and in work places either in English, Pidgin-English, or in the local dialect and each interview lasted 30 minutes on average. To minimise the occurrence of biased responses, leading questions were avoided during the interviews, and questions that would waste time or disturb people with irrelevant issues were also avoided (Ammerberg, 2003; Kvale, 1996). Community members were asked to state the name of their village, ethnic group, occupation, level of education, and identify any relevant affiliations within the community (for example, government, traditional groups, religious groups, labour unions, or educational institutions). Respondents were then asked more focused questions on household structures, and types of forest resources harvested with their frequencies of harvest.

Questions were asked on community involvement in the process of management decision-making to provide further details regarding their engagement in various aspects of the process (for example, supporting or opposing projects or programmes of participation), the name(s) of the project(s), as well as their perceived levels of contribution to the process (using a 4-point continuous scale). This was followed by a question on their awareness of an 'Environmental Impact Assessment' (EIA) Decree (Decree No. 2005/0577/PM) containing provisions for public participation in any development project likely to affect their forests, as well as their perceptions of the efficacy of the government in promoting, and implementing this Decree (again, using a 4-point continuous scale). Finally, the last questions asked respondents to list a series of potential obstacles to effective public participation in management decision-making, and to state their impressions regarding the creation of this national park.

#### **Data analysis**

A chi-square test was used to determine differences in the frequencies of harvest of forest resources by the study villages from the Mount Cameroon National Park. This information was obtained from the questionnaire. T-tests were used to test for differences between the number of local people in favour or against the creation of this national park, as well as, for the average age-sex distribution of people living across all the study villages, and the Mount Cameroon region. Data on age-sex distribution of people in the Mount Cameroon region was obtained from the regional delegations of Ministry of Economy, Planning and Regional Development (MINEPAT), and Ministry of Social Affairs (MINAS) of the Republic of Cameroon. Analyses were done with STATISTICA 6.0.



**Figure 2.** Frequency of harvest of natural resources of the study villages in the Mount Cameroon National Park. Bk = Bokwango, Bw = Bwassa, Ma = Mapanja, Ba = Batoke, Et = Etome, Bg = Bakingili

## RESULTS

### Age-sex distribution and occupational structure

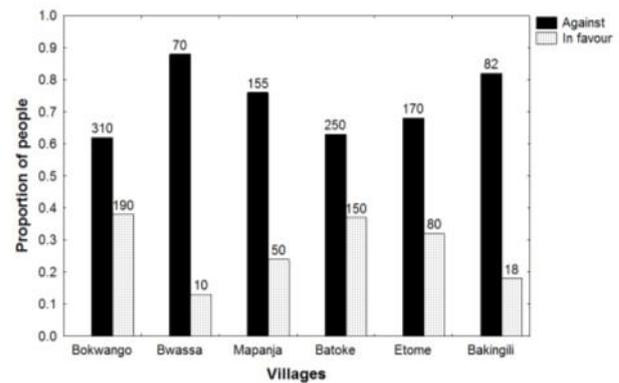
The sample comprised 1,535 people surveyed in six villages. The age and sex distribution of people in the study villages (Table 1), was not significantly different from the regional average; t-test;  $t = -0.09, p > 0.05, df = 1, 950$ . The population's occupational structure showed two dominant occupations: food crop farming and harvesting of forest resources. Food crop farming was given by respondents as the main occupation, and made up 83.61 per cent of livelihood, making it the principal source of livelihood.

### Harvesting of forest resources and impressions of people

There were significant differences in the frequencies of harvest of forest resources between the study villages ( $\chi^2 = 34.5, df = 4, p < 0.001$ ), with Bwassa and Mapanja harvesting more forest resources inside the National Park than the other villages (Figure 2). Bwassa and Mapanja tended to harvest more forest resources than the other villages because the state of their farm to market roads were worse than those of the other villages, making them more isolated. In all the villages sampled, the impressions of the local people participating in this study were generally against the creation of this national park (t-test;  $t = 9.29, p < 0.001, df = 1,534$ ) because of the restriction of what they considered to be a traditional right (Figure 3). Some villagers promised to intensify poaching in retaliation to the restrictions imposed on them.

### Management activities

Only 13 forest guards (none of which was an indigene from the area) had been allocated to this park which is



**Figure 3.** Percentage of people against or in favour of the Mount Cameroon National Park in the six study villages. The dark bars represent the people against in each study village while the light bars represent the people in favour. The numbers on each bar represent the total number of people interviewed for each category per village

over 58,000 hectares in area. However, some villagers had been recruited by the conservator's office to serve as Cluster Facilitators for the national park. Cluster Facilitators are teams composed of community members of villages around the park whose goal is to ensure effective collaboration of local people, and reduce management costs. These members are elected by village management committee members. They meet twice a year to discuss, and plan activities for six months. Together with the park service team, they discuss and find solutions to problems and challenges relating to forest matters. They play the role of so-called 'village parliamentarians' as they are responsible for disseminating information and planned activities adopted at cluster meetings back to their community members.

## DISCUSSION

The household and occupational structure in the study villages reveal that these villages have a high proportion of young inhabitants with few income generating activities, as is the case for the region. These people present a high risk for the fragile biodiversity of the national park. In order to survive, and get revenue for a decent living, they have no choice but to encroach on the forest resources of the park. The people adjacent to the Mount Cameroon National Park have been exploiting these forest resources for generations, and consider this to be a traditional right (BLCC, 2006). With the transformation of the area into a national park, they find themselves dispossessed of their customary lands, with no compensatory measures put in place to support their livelihoods. This can explain the negative attitude these communities had towards this park. Some even went so far as promising to increase hunting in the park.

**Table 1. Age and sex of people living in the sampled houses in percentages. In brackets are the number of people sampled in each village community and the total gives the percentage of each age group in the entire sample.**

Village	Sex	Age group				
		0 - 15	16 - 30	31 - 45	46 - 60	>60
Bokwango						
	female (251)	43	9.6	37.8	4.8	4.8
	male (249)	42.6	4.8	47.8	4.8	0
Batoke						
	female (176)	23.3	47.2	14.7	14.8	0
	male (224)	40.5	41.1	9.4	4.5	4.5
Bakingili						
	female (60)	41.7	28.3	15	15	0
	male (40)	27.5	27.5	15	22.5	7.5
Bwassa						
	female (40)	25	30	25	5	15
	male (40)	45	37.5	5	7.5	5
Mapanja						
	female (108)	19.4	34.3	34.3	8.3	3.7
	male (97)	32	30.9	18.6	7.2	11.3
Etome						
	female (166)	25.3	49.4	25.3	0	0
	male (84)	0	50	50	0	0
	<b>Total</b>	<b>32.8</b>	<b>29.8</b>	<b>27.8</b>	<b>6.4</b>	<b>3.2</b>

In other tropical areas where rural communities have been dispossessed of their customary lands, it has been reported that restrictions to forest resources led to increased income losses, and significant changes in their diets, and reduced access to native medicinal plants (Bajracharya et al., 2006; Ferraro, 2002; Coad et al., 2008). In the Congo Basin, bushmeat has been reported to be an important source of fall-back income in the absence of alternative livelihood opportunities (Kümpel et al., 2010), and also provides from 30 to 80 per cent of the daily protein requirements (Foppes & Ketphanh, 2004; Wilkie & Carpenter, 1999). In forest zones of West and Central Africa, hunting for trade to urban markets has been shown to contribute 60 per cent of the income of poor to middle income households (Coad et al., 2010; Endamana et al., 2010; Kümpel et al., 2010). Kayambazinthu (1988) reported that in Malawi, 90 per cent of the primary energy supply needed by local communities living around protected areas is provided from fuelwood, and that imposed restrictions have often led to a disregard of management policies, causing tension between the local communities and park managers. These different studies illustrate the vulnerability of forest communities living near protected areas in the tropics, and their high dependence on forest resources.

Thus, dispossessing local communities of their customary lands, can significantly affect livelihoods, because these communities lose their main source of income (Kümpel et al., 2010). This can seriously frustrate

local communities, especially if no compensatory measures are put in place (West & Brockington, 2006), further impoverishing communities who are already part of the poor to middle income households. These people will then have little choice but to surreptitiously enter into those areas from which they have been dispossessed to increase poaching, with disastrous consequences for wildlife. For example Cernea & Schmidt-Soltau (2006) showed that local communities in Gabon who had been dispossessed of their customary lands, had increased incentives to intensify hunting by re-infiltrating those areas.

Food crop farming was the most important source of livelihood for the local people of Mount Cameroon, and it is worth mentioning that many farms of local people are now situated in the Mount Cameroon National Park's buffer zone. With the loss of part of their farmland, and a restriction on accessing forest resources inside the park, the future prospects of development for these local people are quite bleak. It is urgently necessary to provide alternative income generating activities to these people if conservation is to be successful.

There has, however, been some compliance of local communities of Mount Cameroon with management policies since some of the villagers were recruited as Cluster Facilitators. Through this participatory approach, embraced by management of the Mount Cameroon National Park, the park authorities have reported increased collaboration of local communities, and a reduction in poaching activities.



Savannah-montane forest border on Mt Cameroon © Eric Djomo Nana

## CONCLUSION

Research shows that protected areas can make positive contributions to well-being and poverty reduction. Protected area policies increasingly stipulate such approaches, but there is still often a significant difference between policies and practice (Ferraro et al., 2011). This study shows that for protected areas like the Mount Cameroon National Park, which continue to carry a huge cost for local people, greater efforts are needed on the ground to bring practice in line with policy regarding treatment of local communities. Including villagers in the process of decision-making as Cluster Facilitators is a step in that direction. It is quite clear that biodiversity conservation and economic development can have compatible goals, provided efforts are made to take into account the needs of the local people. Integrating local people in the process of decision making is important if conservation is to be successful (Lotter & Clark, 2014). With sufficient supportive policies in place, livelihoods will be improved while protecting and managing biodiversity in sustainable ways.

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## RESUMEN

La población local que reside cerca de las áreas protegidas puede representar o una amenaza o un aliado para los esfuerzos de conservación. El hecho de si estos habitantes toman acciones que son coherentes con las metas de conservación o acciones perjudiciales para la conservación depende de los costos y beneficios asociados con cada acción. El incorporar la perspectiva de estas poblaciones en el proceso de toma de decisiones y ofrecerles soluciones y alternativas en términos de sus medios de vida, son pasos fundamentales hacia un esfuerzo de conservación exitoso. El objetivo del presente estudio fue destacar los problemas enfrentados por las poblaciones locales cerca del Parque Nacional del Monte Camerún. Llevamos a cabo una encuesta de los hogares en seis aldeas que generalmente cosechan grandes cantidades de recursos del parque nacional, y encontramos que debido a restricciones en el acceso a los recursos que ellos consideran un derecho tradicional, estos habitantes han ejercido una alta presión en la vida silvestre de la zona mediante un aumento en la caza furtiva. Además, la mayoría de las personas encuestadas estaban en contra de la creación del parque. Nuestro estudio muestra que los administradores del parque han reclutado a algunos representantes de la población local para participar en la toma de decisiones y servir como facilitadores con los demás habitantes. Esto ha resultado en mayor colaboración de las comunidades locales en los procesos de gestión y una reducción en las actividades de caza furtiva. Nosotros concluimos que la participación de las comunidades locales en la toma de decisiones es necesaria para conseguir que estas mismas cumplan las políticas de manejo del parque.

## RESUME

Les populations vivant à proximité des zones protégées peuvent soit constituer une menace envers la conservation soit en être les alliés. Leur action en faveur ou en défaveur de la conservation dépend en partie des coûts et des bénéfices qui y sont liés. Le fait d'intégrer le point de vue de ces populations locales dans le processus de prise de décision et puis de leur fournir des solutions alternatives de subsistance, constituent des étapes importantes vers la réussite de la conservation. L'objectif de cette étude est de mettre en évidence les problèmes rencontrés par les populations locales qui vivent près du parc national du Mont Cameroun, au Cameroun. Notre étude concerne un échantillon de ménages dans six communautés villageoises qui ont tendance à prélever de grandes quantités de ressources sur le territoire du parc national. Nous avons trouvé qu'en raison de restrictions d'accès aux ressources qu'elles considèrent comme un droit traditionnel, ces communautés exercent une forte pression sur la faune du parc à travers l'augmentation du braconnage. De plus, la majorité était contre la création de ce parc. Les gestionnaires du parc ont alors recruté des facilitateurs parmi la population locale qui prennent part au processus de prise de décision. Cela a conduit à une collaboration accrue des communautés locales, et une réduction des activités de braconnage. Nous soutenons donc qu'afin d'assurer la cohésion des collectivités locales aux politiques de gestion, ils doivent être associées au processus de prise de décision.