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NATURE CONSERVATION AND HUNTER GATHERERS' LIFE IN CAMEROONIAN RAINFOREST

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ABSTRACT The policy and strategy of nature conservation projects in Africa have been changing due to various failed cases since the colonial period. "Collaborative management" with the local populations and "adaptive management" to the changing local conditions are introduced as progressive approaches in the conservation project of southeastern Cameroon. The Baka hunter-gatherers who are directly influenced by the project, are expected to be future conservators by the conservation agent. However, they do not show much interest in the project. One of the main factors for their indifference lies in the contents of the project, which does not take into consideration the actual life of the Baka. The Baka not only depend on a variety of forest resources, but also on farm and industrial products. Zoning of land-use patterns and hunting regulations are not compatible with the Baka life, which is characterized by nomadism and heavy dependence on forest animals for food and cash income. Moreover, environmental education in a top-down way with an intermediary of dominant farmer agents may lead to reinforcing or reproducing the existing subordinate relationship of the Baka with the neighboring farmers. These points should be taken into consideration for designing an effective conservation plan.

Key Words: Baka hunter-gatherers; Conservation project; Collaborative management; Zoning of land use; Hunting regulation.

INTRODUCTION

The forest in southeastern Cameroon supports extraordinarily high densities of endangered species including western lowland gorillas and chimpanzees (Ekobo, 1998). However, deforestation and poaching have been accelerating particularly in this rich forest. A conservation project called "Jengi project"⁽¹⁾ was started in 1998 to protect three important areas of tropical rain forest: Lobeke National Park, Boumba=Bek and Nki. The last two are newly proposed national parks. One of the key features of this project is a proposed zoning of the forest, allowing differentiated resource use in each zone. The project also proposes environmental education to enhance local people's awareness of the project. The Baka hunter-gatherers who heavily depend on the forest products may be most seriously influenced compared with other ethnic groups. The Baka are expected to be the people who will shoulder the future of the conservation and sustainable forest utilization. However, they show little interest in the on-going conservation project. The promoters found it difficult to involve the Baka in the conservation project.

Nature conservation projects have been attempted in Africa since the colonial period, but have not attained satisfactory results yet. The interest of govern-

ment authorities and the local populations have severely conflicted because the authorities tried to exclude the local populations from the protected areas under the influence of the ideal of "protectionism" (Neumann, 1998). Since the 1980s, conservation agents realized the importance of the involvement of local populations in conservation activities, and attempted "community based-conservation" (Western & Wright, 1994). The MINEF (Ministry of Environment and Forestry of Cameroon) has embraced "collaborative management" which aims at the active participation of local populations, and "adaptive management" which aims to adjust management to constantly changing local conditions as more progressive approaches in the management of protected areas in southeastern Cameroon (Davenport, 1998). MINEF works with WWF (World Wide Fund for Nature) and GTZ (Deutsche Gesellschaft für Technische Zusammenarbeit).

The policy and strategy of the nature conservation project have been changing through lessons learned from various failed cases. Why do the Baka seem indifferent to the conservation project? I will first describe the Baka's dependence on the forest resources, and their broader economic activities. I will present data on their subsistence activities, diet and material culture. I will contrast these data with regulations proposed under the *Jengi* project, and identify contradictions and potential sources of conflict.

STUDY AREA AND METHOD

The research was conducted from July 2001 to the end of February 2002 in the area around the village of Malea Ancien in the Boumba=Ngoko Division of East Province, Cameroon (Fig. 1). Malea Ancien is situated at 02.49.476N latitude and 014.36.084E longitude, about 600 m above sea level, and 113 km southwest of Yokadouma, the district capital. The village is located near the end of a logging road which was constructed in 2000. The village extends along this road over 9 km, and is composed of 8 sections. The total population is 307 people (Halle, 2000), who belongs to the Bantu-speaking Konabembe and the Baka Pygmies. The Konabembe amount to a total of 68 people (37 men and 31 women). The population of the Baka is 105 people (51 men and 54 women). The Baka speak a language that belongs to the Oubanguian group (Greenberg, 1966).

The study area is located in the northwestern part of the Congo Basin. The vegetation consists mainly of the evergreen forest, of semi-deciduous forest and of mixed forest (Letouzey, 1985). The maximum annual rain fall is 1,500 mm, and temperatures range from 23.1°C to 25°C (Some, 2001). There are two rainy seasons and two dry seasons in a year. The rainy seasons fall between September and November, and between March and June. The long dry season is from December through February and the short dry season from July through August (Ekobo, 1998).

I observed and conducted interviews about subsistence activities, diet, material culture, residential pattern, hunted and traded animals and the cash econ-

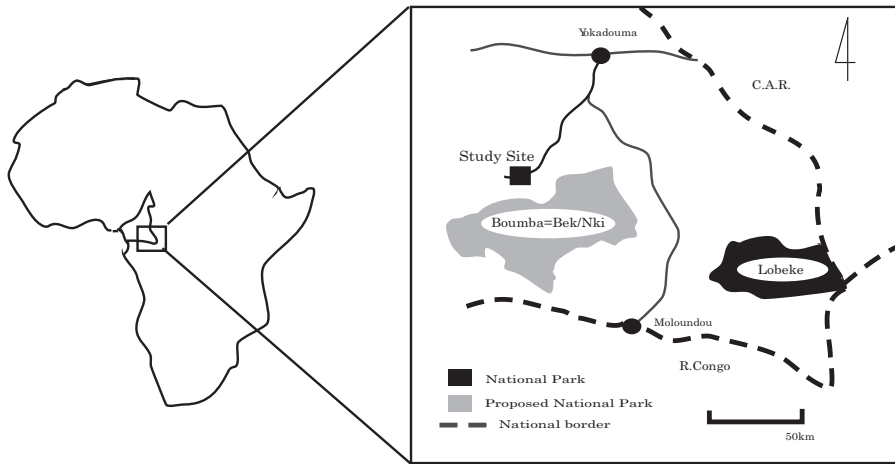


Fig. 1. Study Area

omy. To quantify daily activities, everyday 10 adult men and 10 adult women were interviewed about what they did on that day. Activities were classified as forest-related activities (hunting, gathering and fishing), farming, and working for farmers. The daily activities were confirmed by observing items the interviewees brought to the settlement. I recorded all the items and their weight that 5 adult Baka women brought to the village, and weighed the meat that 5 adult men brought to the village. The use of oils and other condiments, except for salt and pepper, in the meals of five households was recorded twice a day. The relative contribution of forest and farm products to the daily staple food, side dishes, and oils and other condiments was estimated. I recorded all the durable items that people had in the village and at the farming camps at the beginning of the study.

The research included recording the residential patterns of the entire Baka population of the village. A day was only recorded as spent in the forest when it included an overnight stay there. I also recorded the animal species and number that were hunted by 25 Baka men during the entire seven-month research period. Separately I kept records of the number of traded animals and the cash income obtained from the trading. The income of one household was recorded for a total of 129 days between September, 2001 and February, 2002. This household consisted of a father and his son who earned cash by hunting and working for farmers, a mother and her daughter who earned cash by collecting forest products and working for farmers, and two infants.

I consulted documents and the reports on the *Jengi* conservation project at the offices of MINEF, WWF and GTZ in Yokadouma and Yaounde, and I also interviewed staff of these organizations.

DEPENDENCE OF THE BAKA ON FOREST RESOURCES

I. Subsistence Activities

During the short dry season (*elanga*) the Baka women leave the village for the forest early in the morning and return with a basketful of fruit. In particular, they eagerly collect two kinds of fruit. One is called “*mabi*” (*Baillonella toxisperma* Pierre.), that is edible, but also yields a high quality oil extracted from the seeds. The other is “*pekie*” (*Irvingia gabonensis* [Aubry-Lecomte ex O’Rorke] Baill.), of which the fruit’s juice is consumed, while the nuts are used as an oily condiment. The major rainy season “*dunga*” is a good time to hunt. Groups of Baka men stay in hunting camp for a week or longer during this season. They set traps around the camp and check them every day. During the long dry season “*yaka*” both women and men are most active. They work for farmers until noon, and then go fishing until it gets dark. At this time, entire families move to fishing camps in the distant forest (*molongo*). In addition to fishing, they will hunt, and gather wild yams and fruit. The Baka come back to the village when the minor rainy season “*ma*” starts. Honey (*poki*) is collected in the beginning of this season. Both Baka men and women listen carefully to buzzing bees when they walk in the forest.

While the Baka spend most of their time on forest activities (32%), they also spend days working for Konabembe farmers (35%). The governments of Cameroon and NGOs have encouraged the Baka to take up farming themselves, but the Baka in Malea Ancien rarely cultivate sizable fields (4%). They obtain farm products and used utensils in return for the work they provide for the Konabembe. The Baka say, “*there are plenty of agricultural foods in the village of Konabembe*”. They visit the neighboring village of the Konabembe frequently when they stay in the village, and even when they stay in forest camps in the long dry season to exchange smoked fish and meat for farm products with the farmers.

II. Diet

The Baka acquire a variety of food from forest-related activities and working for the Konabembe farmers, and their diet varies depending on the season. They usually take meals twice a day, but occasionally only once when not enough food is available. This happens especially in the rainy seasons. By contrast, the Baka may eat four times a day when they have abundant food.

A meal is basically composed of staple food such as plantains, cassavas or wild yams, and a side dish of meat, young leaves of cassava, leaves of “*koko*” (*Gnetum africana* Welw.; *Gnetum buchholzianum* Engl.), or other foods. The side dish is cooked with salt, red pepper and oily condiments such as “*pekie*”, “*mabi*” and other fruits. The oily condiments extracted from the wild nuts serve not only as condiments, but also as an important source of lipids and proteins (Leung, 1968).

Farm products contribute 96% in weight to the staple foods. By contrast forest products contribute 82% to side dishes and 94% to oily condiments. Thus, the agricultural products obtained from Konabembe farmers form the major part of their energy intake, and they obtain most of the materials for side dishes and oily condiments from the forest.

III. Material Culture

The Baka use many forest plants and animal materials for a variety of daily uses, without making much effort to process them. Products made exclusively of natural materials include huts, furniture such as beds and mats, carrying devices such as baskets and carrying straps, cooking utensils such as wooden mortars and grating boards, dusting tools such as brooms and dustpans, fire-making instruments, hunting and gathering tools, ritual and musical instruments, and many others. I recorded some 100 kinds of more or less durable utensils, and 40 are made either partly or entirely of natural resources. The Baka also use 50 kinds of industrial products obtained from peddlers and farmers including pans and pots, bottles and buckets, wire and fishhooks, combs and soap, modern medicine, clothes and so on. Baka sometimes utilize the waste materials which they have picked up on the logging road near the logging camps. I recorded 10 kinds of "waste" utensils including empty boxes and cans, nails and hinges.

Of the industrial products, the iron implements needed for subsistence activities, clothes and salts are especially important. The Baka's clothes are easily spoiled because they spend much time in the forest. The Baka always say "*I like to buy clothes when I earn money*". They know fairly well the prices of those and other industrial goods as soap and western medicines.

The importance of relationships with a wider society has been increasing, as evident from this and other studies (Ichikawa, 1994; Curran & Tshombe, 2001). The Baka also have frequent contacts with other societies, all the more because they lead a semi-sedentary life in the village. The present-day Baka find difficulty in living without relationships with the external world through which they obtain staple food and other daily necessities. This point should seriously be taken into consideration in designing conservation and development projects.

PREDICTED IMPACT OF THE CONSERVATION PROJECT

I. Natural Resource Management under Land Use Zoning

The land use zoning is usually regarded as a rational method for conservation and sustainable utilization of natural resources. It applied to various protected areas in Africa such as the Dja Faunal Reserve in Cameroon and the Odzala National Park in the Republic of Congo (Joiris, 1998). A similar pro-

posal of land use zoning has been made for the conservation area in southeastern Cameroon (Some, 2001).

The residential and resource use patterns of the Baka, however, are not compatible with the proposed zoning system (Table 1, Fig. 2). For example, some of the forest camps where the Baka stay during parts of the year are located

Table 1. Land Use Pattern in the Different Zone

	Gathering	Fishing	Hunting	Farming	Inhabiting	Sport hunting
National Park	○	○	×	×	×	×
General hunting zone	○	○	○*	×	×	○*
Community hunting zone	○	○	○*	○	○	○*

Information obtained from MINEF and GTZ

○ =Permitted, * =Conditionally Permitted, × =Prohibited.

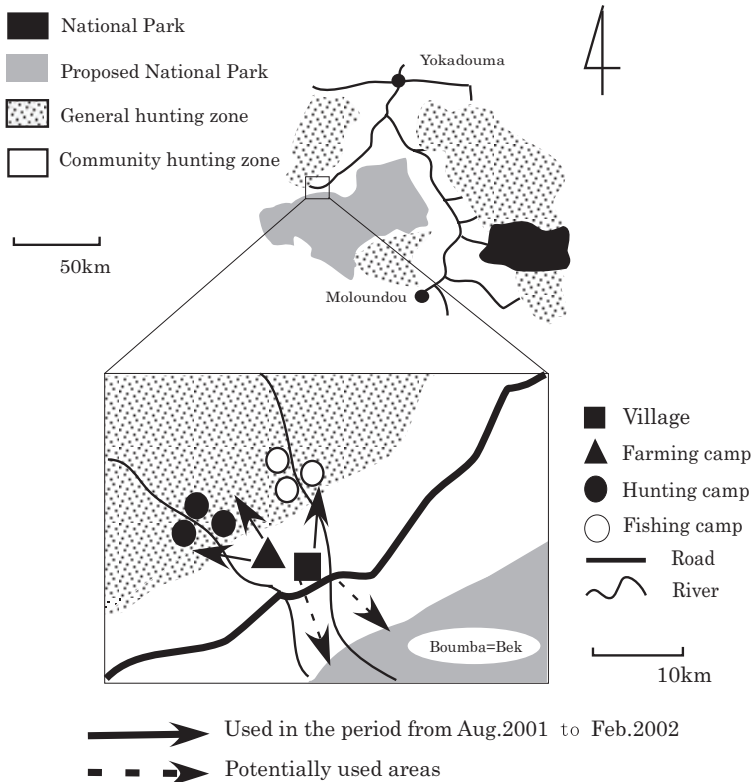


Fig. 2. Location of Baka Settlement in the Zone

in “general hunting zones” where it is not allowed to reside. The village and farming camps are located in the “community hunting zone”. The Baka stay in these two types of settlements mainly in the rainy season from August to January, but they make at times several day-long trips to the hunting camps. When the major dry season comes in February, the Baka move to fishing camps or to hunting camps located in the “general hunting zone”. In that area, under the new rule system, only licensed hunting such as sport hunting is allowed, while overnight stays are totally prohibited. In this zone, hunting and fishing by the Baka would become illegal acts.

The locations of hunting camps and fishing camps normally shift from year to year. Previous studies have indicated (Bahuchet, 1991; Ichikawa, 1996) that hunter-gatherers avoid concentration of resource use by frequent and extensive residential shifts. The new zoning system may promote intensification of resource use in a specific site, which may result in the deterioration of forest resources in the area.

II. Hunting Regulations

In addition to the new rules for land use, hunting regulations are also to be imposed on the local inhabitants. Animal species have been classified into three protection categories, A, B and C (Table 2). The species belonging to the last category can be hunted by the local people. They can only be hunted for subsistence purposes by traditional hunting methods made from plant material during the approved hunting period (December-June). In case of violation, perpetrators have to pay between 50,000-200,000 FCFA⁽²⁾ or they will be imprisoned for 20 to 60 days, for instance when they are detected carrying a piece of meat of class A or B animals (Article 155 of Law No. 94-01 of 20, January 1994).

The Baka traditionally hunt larger mammals such as elephants, gorillas and other species of the category A, to smaller mammals, reptiles and birds. They consume almost all parts of these animals as food, material culture, medicines, and for trading. They not only eat the flesh, intestines, skin and bone marrow, but also utilize leather, fur and horns to make handicrafts and medicines. Some of the meat is traded with the farmers and peddlers, and the Baka purchase iron implements, clothes, cigarets and alcohol with the cash obtained from this trade.

The Baka frequently hunt species of category B, such as Peter's duikers and bay duikers. This group accounts for 90% of the catch weight. During the study period, 92% of the catch comprised protected species. The Baka traded 24% of the catch with farmers and peddlers and 92% of this traded meat is from species of category B. This trading contributed 45% to the total cash income. The Baka spend the money on iron implements, cooking utensils and clothes, which are now essential to the present Baka life. Clearly, the Baka depend heavily on class B animals for their diet and cash income. The class C animals alone, comprised of small mammals, smaller reptiles and birds, cannot provide the

Table2. The classification of protected species in the study area

Class	Regulation	Scientific name	Common name	Vernacular
A	totally prohibited from hunting	<i>Gorilla gorilla</i>	gorilla	<i>ebobo</i>
		<i>Pan troglodytes</i>	chimpanzee	<i>seko</i>
		<i>Colobus guereza</i>	Guereza black and white colobus	<i>kalu</i>
		<i>Galago alleni</i>	Allen's galago	<i>polo</i>
		<i>Perodicticus potto</i>	potto	<i>katu</i>
		<i>Anomalurus</i> sp.	flying Squirrel	<i>likuya</i>
		<i>Smutsia gigantea</i>	giant pangolin	<i>kelepa</i>
		<i>Panthera pardus</i>	leopard	<i>sua</i>
		<i>Orycteropus afer</i>	aardvark	<i>binja</i>
		<i>Hyemoschus aquaticus</i>	water chevrotain	<i>akolo</i>
		<i>Loxodonta africana cyclotis</i>	forest elephant*	<i>ya</i>
B	prohibited from hunting without authorization from the government	<i>Syncerus caffer nanus</i>	buffalo	<i>mboko</i>
		<i>Tragelaphus spekei</i>	sitatunga	<i>mbugdi</i>
		<i>Tragelaphus euryceros</i>	bongo	<i>mbongo</i>
		<i>Cephalophus callipygus</i>	Peter's duiker	<i>ngendi</i>
		<i>Cephalophus dorsalis</i>	bay duiker	<i>ngbomu</i>
		<i>Cephalophus silvicultor</i>	yellow-backed duiker	<i>bemba</i>
		<i>Potamochoerus porcus</i>	red river hog	<i>pame</i>
		<i>Hylochoerus meinertzhageni</i>	giant forest hog	<i>bea</i>
		<i>Civettictis civetta</i>	African civet	<i>liabo</i>
		<i>Varanus niloticus ornatus</i>	Nile monitor	<i>bambe</i>
<i>Loxodonta africana cyclotis</i>	forest elephant*	<i>ya</i>		
C	prohibited for trading	others animal species		

Information obtained from MINEF and GTZ

*Forest elephants with ivory weighting less than 5kg are classified into class A and others into class B.

Baka with sufficient meat even for their subsistence. My surveys showed an income of 17,200 FCFA over 129 days, an amount which will make it impossible to pay the fines proposed under the new regulations.

In summary, the new hunting regulations do not take into consideration the importance of animals to the Baka. Were these regulations to be strictly enforced, the Baka would find it difficult to maintain their previous livelihoods.

III. Environmental Education

The officers from MINEF and promoters (*animateur*) trained by GTZ carry out environmental education and explain about the outline of the project and the role of local populations in the conservation project. In the environmental education, an officer speaks to the audience in the French language which the Baka do not understand much, then it is translated into the local farmers' language (Konabembe) by a promoter⁽³⁾ who is selected from the farmer group.

When the environmental education took place in the study area, the Baka were required to participate in the assembly held in the meeting place of the farmers' village. The officer from the MINEF and the promoter sat on the chairs in the center of the meeting place, surrounded by the farmers. Most of

the Baka men sat on the ground in the peripheral part. Most of the farmer men attended the assembly, whereas a half of the Baka men had left for the forest. Even the Baka present at the meeting place were inattentive, in spite of the important assembly in which their activities would be considerably restricted. They remained indifferent to what was going on till the end of the assembly, and had left for the forest immediately after the assembly closed, without uttering a word on the project. Such an attitude of the Baka marks a sharp contrast with that of the farmers who had consistently expressed their interest in the project.

In this case of environmental education, the social relationship prevailing in the local society is clearly demonstrated. The Baka are informed of the conservation project by government and local intermediaries such as MINEF officers and GTZ promoters in a top-down way. While "collaborative management" with local population is allegedly adopted in the conservation project in southeastern Cameroon, actual processes are far from this ideal, and seem to fail in involving one of the important stakeholders, the Baka hunter-gatherers.

The Baka are not considered to be equal to farmers in a socio-political context. The Baka depend on the farmers for farm and industrial products, and also for negotiation with the outside world, while they provide farmers with a labor force. This relationship seems to be mutually beneficial, but it is actually very sensitive with potential conflicts and tension between the two groups. The farmers always occupy a superior position over the Baka. The Baka appear to obey the farmers, but they frequently speak ill of the farmers behind their backs. Such an unbalanced relationship is reflected in the scene of environmental education, and may hinder the active participation of the Baka in the conservation project in the face of the dominant farmers.

The messages from the government or from the conservation agencies concerning the project are often transmitted through the existing social relationships, in which the Baka are placed in a somewhat subordinate position to the villagers. To the Baka, the environmental education might provide them with another opportunity for reinforcing the existing unequal relationship between them and the farmers. This seems to comprise one of the important factors for the Baka's indifference to the conservation project.

CONCLUSION

This paper examines the problems that are arising with the implementation of new regulations in three national parks in southern Cameroon and how this conflicts with the livelihoods of the Baka, one group of indigenous inhabitants of this region. The subsistence activities, diet and material culture of the Baka have been analyzed to show their dependence on the forest, farm and industrial products. The Baka's subsistence and economy depend extensively and profoundly on the forest resources. At the same time, agricultural products and commercial goods now comprise an essential part of present-day Baka life. In

the conservation plan, such an actual life of the Baka, their mobile land use and the various roles of forest animals are not seriously taken into consideration.

As Child (1984) noted, it is important that conservation projects are promoted by taking into account the interests of the various stakeholders. The conservation agents in Cameroon need to examine the project from the viewpoint of the Baka people who, heavily dependent on the forest, could use their rich knowledge and experience with the forest for the conservation and sustainable use of the forest resource.

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NOTES

- (1) “*Jengi*” is the most powerful spirit among the Baka people who live in this region (Tsuru, 1998). The report by WWF (Ekobo, 1998) says that choice of this name will testify the project’s recognition of and respect to the local culture.
- (2) FCFA is the currency widely used in central African countries (former French colonies). 1 yen= 5 FCFA.
- (3) All the five promoters are recruited from the farmers, and the Baka have no other way than just to listen to the farmer’s speech.

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