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Chapter

STATUS OF THE PROPOSED LOMAKO FOREST BONOBO RESERVE (DEMOCRATIC REPUBLIC OF CONGO): A CASE STUDY OF THE BUSHMEAT TRADE

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1. INTRODUCTION

The geographic range of the bonobo (*Pan paniscus*) is limited to the left bank of the Congo River (Figure 1). The eastern boundary is thought to be the Lomami or Lualaba River; **to the south**, bonobo distribution is limited by the Kasai-Sankuru Rivers (Coolidge, 1933; Kano and Furuichi, 1984; Kortlandt, 1995). However, with the exception of some areas, the precise location of bonobos in this range is unknown. This lack of knowledge accounts for the large variation in overall bonobo population size estimates (Dupain and Van Elsacker, this volume). Recent publications agree on a figure of around 15,000 to 20,000 individuals, as proposed by the Bonobo/Pygmy Chimpanzee Protection Fund (Japan, 1992). All of these figures are based on the single extensive survey made by Dr. Kano in 1984 (Dupain and Van Elsacker, this volume). More accurate density information is **currently** available for some established study sites (Hashimoto and Furuichi, this volume; Thompson, this volume).

An important bonobo population is known to live in the Lomako Forest (Equateur, Dem. Rep. Congo (Figure 1)). Ever since the first bonobo studies in this forest, emphasis has been placed on the optimal conditions for making this forest a reserve (Badrian and Badrian, 1977, 1978; Susman *et al.*, 1981). At **that** time, however, the area was part of a Siforco logging concession (Danzer Furnierwerke GMBH & Co). In 1987, the logging

company abandoned the area and even offered their wharf along the Maringa river to World Wildlife Fund (WWF), Germany (Susman, 1989). In 1990, WWF-International submitted a proposal to create a reserve of 3,800 km² to the former Institute Zairois pour la Conservation de la Nature (Figure 2). In May 1991, the proposal reached Ministry level, but due to political turmoil, it was never approved. The proposed reserve was thought to be undisturbed, suitable habitat for bonobos, and apart from the presence of researchers, without permanent human inhabitants (Thompson-Handler, *et al.*, 1995). Thompson-Handler and her colleagues again stressed the urgent need for the creation of the Lomako Reserve. However, prior to any further progress more surveys of the region are urgently needed.

Within the proposed reserve, three bonobo research projects have been established (Figure 2): The Lomako Forest Pygmy Chimpanzee Project (LFPCP) (established by Dr. R. Susman, Stony Brook University, e.g. Susman, 1984) and the Isamondje study site (started in 1990 by G. Hohmann, Max Planck Institute, e.g. Fruth and Hohmann, 1993). Approximately 20 km from these two sites, the Iyema-Lomako site was established as a base for the Bonobo *in Situ* project (1995, Royal Zoological Society of Antwerp (Dupain, *et al.*, 1996a, b)). All research in the Lomako Forest focused on the socioecology of the bonobo; little work was done on conservation issues.

In this chapter, we summarize the importance of the proposed Lomako Reserve, and focus on the relationship of the bushmeat trade to other conservation issues in this area. We report on the influence of logging on hunting pressure, describe the situation of the local people, and provide preliminary results of a bushmeat market study conducted near the Lomako Forest.

Fig. 1. Bonobo distribution area (see text)

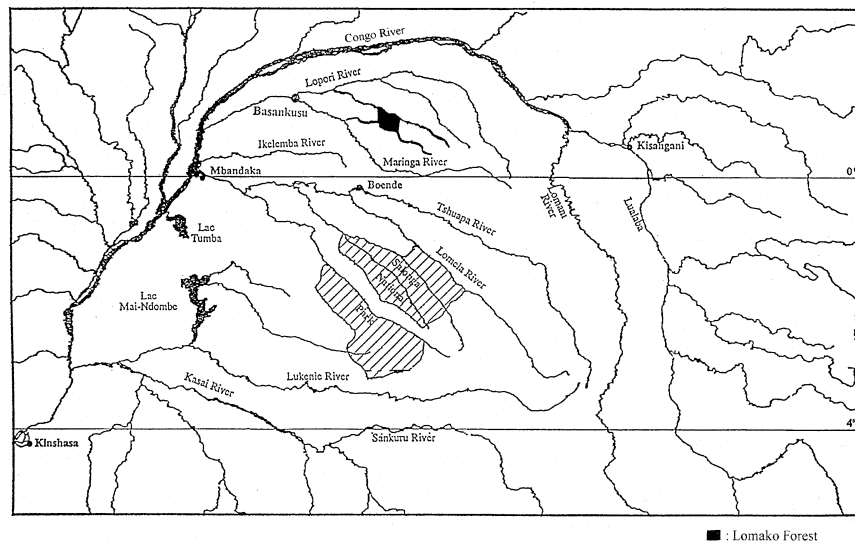


Figure 1. An important bonobo population is known to live in the Lomako Forest.

2. THE IMPORTANCE OF THE LOMAKO FOREST

The Lomako Forest was identified in colonial times as an important area for nature conservation. In 1954, Father G. Hulstaert discussed the Lomako Forest in a letter to the President of the Institut des Parcs Nationaux de Congo Belge as a suitable area for the creation of a reserve. The Belgian government opted for the alternative proposition, that of creating the Salonga National Park. The features below highlight Lomako's suitability as a reserve.

1. Permanent habitation has been forbidden in this forest block since the 1920s, first by the colonial government and later by the Zairean government. The local population, the Mongo ethnic group, resides in the officially sanctioned villages north of the Yekokora River or south of the Lomako River. The Mongo people are allowed to establish temporary fishing or hunting camps in the forest, but they are only permitted to stay there for a few weeks each year. According to the last action plan for *Pan paniscus* (Thompson-Handler, *et al.*, 1995), no humans inhabit the forest north of the existing study sites. The proposed reserve was therefore believed to be undisturbed terrain.
2. The American LFPCP along the Lomako River affords some protection to bonobos through the researchers' presence at the site. Prior to this

long-term project, the Mongo, who hunted in this forest, apparently practiced a taboo against eating bonobos.

3. In addition to *Pan paniscus*, several other rare and endangered species such as the Congo peafowl (*Afropavo congensis*, Dupain *et al.*, 1996c), chevrotain (*Hyemoschus aquaticus*), and the African golden cat (*Profelis aurata*) are found in this area. Elephant and bongo are still present in the eastern part of the proposed reserve (J.D. pers.obs.).
4. Due to the difficulties in exporting logs along the Lomako or Yekokora Rivers, it is highly unlikely that any logging companies will be interested in exploiting this region in the near future (Siforco, pers.comm.; Sokinex, pers.comm.; Scibois, pers.comm.).

The convergence of the above elements appeared to indicate that the Lomako Forest was the ideal area for the creation of a reserve for bonobos and other fauna. Unfortunately, our data do not entirely validate this view.

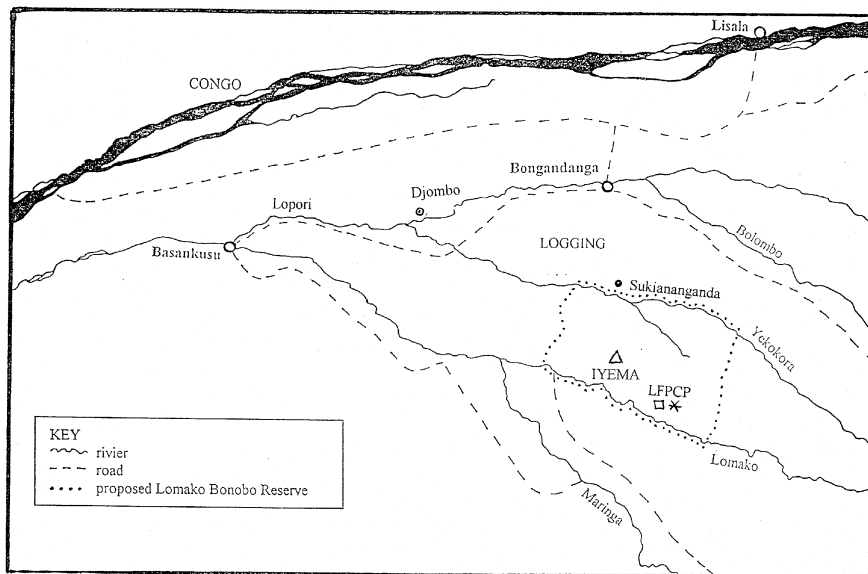


Figure 2. The proposed Lomako Forest Reserve. Multiple sites in the area have become trade centers for bushmeat.

3. LOGGING'S INFLUENCE ON HUNTING AT LOMAKO

In 1995, the first author conducted a 45-day survey along the Yekokora River (the northern boundary of the proposed reserve). We found this region of the forest to be inhabited (Dupain, *et al.*, 2000). We met small groups of hunters, most of whom were either ethnic Ngombe from the north or from Basankusu, or people belonging to the religious sect of the Kitiwalists, living in the southeastern part of the proposed reserve. While the latter group has resided in this area since the mid-1960s, the Ngombe hunters were quite recently attracted to the area by the widespread stories of high animal densities in the Lomako Forest. We gathered clear evidence that the bushmeat they hunted was sold to the lumber company workers based north of the Yekokora River. A market was held on the border of the Yekokora River (Figure 2). There the hunters met lumber workers and their families and exchanged bushmeat for clothes, medicines, cartridges, and other goods. We did not at that time conduct a thorough investigation. However, in January 1998, Karl Amman organized an expedition to the same region to gather more precise data. The main goal was to get an idea of the importance of bushmeat hunting in this area, with particular reference to the influence of the nearby lumber company. Team members (including J.D.) stayed for about one week near the marketplace. We visited the small settlements in the surrounding regions and compiled questionnaires on hunting practices and the organization of the bushmeat trade. After visiting the market, we searched on the Lopori River for boats transporting wood, and eventually bushmeat, to Kinshasa. Finally, we flew in a small plane over the logging concession to assess the visibility of logging activities from the air.

The main findings of this expedition are as follows (see also Amman, 1998):

- Bonobos are still present in the area but their density seems to be decreasing, while the area covered for hunting is increasing. We accounted for the limited access to bonobo meat (seven fresh carcasses in one week) by the decreasing density of bonobos and by the scarcity of cartridges. The latter was a temporary problem attributed to the ongoing war in Congo-Brazzaville that caused the factory manufacturing MACC-cartridges in Pointe Noire to close. This is no longer true today. Moreover, cartridges are mainly provided by the lumber company, which also provides guns. During our stay, one of our local collaborators witnessed the arrival of a lumber company plane carrying a fresh supply of cartridges.

- The lumber company facilitates consumers and traders of bushmeat and provides them with a means of transport for this trade. Consumers and traders are the company's employees and their families.
- The lumber company attracts "outside" hunters. These are enterprising men, mainly belonging to the ethnic group of the Ngombes.
- Logging activity increases hunting pressure on the local fauna, not only in the logging concession, but also deep in uninhabited and "protected" (since no logging activities are planned) forest.

A commonly cited solution to these problems is the provision of meat to the lumber company employees (which is not done at all) and the prohibition of the transport of smoked bushmeat out of logging concession areas on company boats. Halting the import of cartridges may reduce the impact on bonobo and other primate populations in general, as these animals are usually hunted with guns. Snares are mainly used to trap ungulates and rodents (Delvingt, 1997).

4. OTHER EXPLOITATION OF THE LOMAKO REGION

Even if logging activity was prohibited in the Lomako and surrounding region, there are no guarantees that commercial, unsustainable hunting would also stop. Defaunation of the northern part of the proposed reserve appears to be mainly the result of the diverse effects of timber trade, which attracts immigrant commercial hunters. The southern part suffers from exploitation of forest products as alternatives to the declining coffee, rubber, and palm oil businesses.

Traditional laws state that different sections of the forest block north of the Lomako River belong to the various villages situated south of the river. According to governmental law, these people may exploit the forest and may stay there for a few weeks but permanent settlement is forbidden. As was noted in the last action plan for *Pan paniscus* (Thompson-Handler *et al.*, 1995), the implementation of these laws is assumed. However, we calculated a permanent human density of 0.4 individuals/km² in about 250 km² of this "uninhabited" region, and evidence indicates that the resident human population in the proposed Lomako Reserve is growing. Our interviews with the local people made it clear that this situation reflects what is happening throughout the 3,800 km² Lomako region. Furthermore, the situation has been made official by local authorities, which since 1996 have formally recognized most permanent settlements in the forest.

After some time spent talking with the local people, it was apparent that most of them preferred their former way of living in their natal villages where many of them had coffee, maize, or cocoa plantations. However, due to the deteriorating infrastructure of the country, businessmen from Kinshasa rarely or never visit these villages, and the villagers have no idea when boats will arrive along the Maringa River. Additionally, the forest fauna adjacent to their homes has been all but exterminated. In short, although most local people would prefer to stay in their natal villages, living close to their relatives with easy access to schools, more and more of them survive by hunting in the more distant forests. Thus, subsistence hunting escalates into commercial hunting, which enables the local people to trade bushmeat for clothes, medicines, soap, salt, and other necessities.

The phenomenon of remigration to the forest continues to put pressure on wildlife. In order to address this problem, we plan to establish an agricultural program around the existing plantations. This program is at the request of, and in collaboration with, the local people and is supported by the Bonobo Protection Fund. We will serve as facilitators between businesspeople in Kinshasa and the villagers in the forest. In this way, the local people will be able to return to a preferred lifestyle in their natal villages, which should slow down migration into the forest. The program aims to reduce the need for commercial hunting activities. Simultaneously, we hope to demonstrate the indirect economic benefit of bonobo conservation. Several village heads in the surrounding areas contacted us in 1998 asking if there would still be a chance of attracting researchers to “their” part of the forest if bonobo hunting was stopped.

5. BUSHMEAT MARKETING

Although we might succeed in reducing commercial hunting activities in the proposed Lomako Reserve, the demand for meat in large cities will probably grow. All bushmeat hunted along the Lopori, Yekokora, Maringa, and Lomako Rivers is, if not consumed in the forest, mainly transported into Basankusu. This city has become a major market for bushmeat en route to Kinshasa. In order to acquire information on the hunting pressure in the forests adjacent to these rivers we have started to monitor the available meat at the two markets in Basankusu. Table 1 shows some preliminary results. In one month (February 1998) we counted a total of 808 carcasses. Bonobo carcasses represented 0.4% of the total number. About 56% of the animals were ungulates and 28% were primates. These percentages are similar to what was found in other market studies (see for review Bowen-Jones, 1998). We also encountered three infant bonobos, two of them on a boat heading for Kinshasa. People we met during our

expedition in January 1998 complained of a lack of cartridges. Taking this into account, it is likely that the number of bonobo carcasses counted in Basankusu may have been lower than during periods when there was no shortage of cartridges.

We used questionnaires to determine the origins of 500 animal carcasses (Table 2, Figure 2). The four bonobo carcasses counted all originated from the Lomako region. Thirty-six percent of all carcasses came from the Lomako region; only 17 animals were hunted near the Yekokora River. This low number reflects the fact that most bushmeat from that area goes directly to lumber company employees. Future questionnaires should explore in detail the exact hunting location, the identity of the hunter, the means of hunting, etc., but our preliminary results highlight the importance of the Lomako region as a source of animal protein for people living in large cities such as Basankusu. Currently, we are developing questionnaires on food preferences, profit margins at the market, and related variables.

Table 1. Preliminary findings of the bushmeat market study at Basankusu (one month). Total number of carcasses counted = 808.

	Species	# (% of total)
Order Artiodactyla	<i>Cephalopus calypigus</i>	128
	<i>Cephalopus nigrifrons</i>	46
	<i>Cephalopus monticola</i>	37
	<i>Cephalopus dorsalis</i>	26
	<i>Cephalopus sylvicultor</i>	22
	<i>Potamochoerus porcus</i>	98
	<i>Hyemoschus aquaticus</i>	21
	<i>Tragelaphus spekei</i>	18
	Total	450 (55.75%)
Order Primates	<i>Ptilocolobus tholloni</i>	83
	<i>Colobus angloensis</i>	58
	<i>Cercopithecus ascanius</i>	43
	<i>Cercocebus aterrimus</i>	22
	<i>Cercopithecus mona</i>	10
	<i>Cercopithecus neglectus</i>	7
	<i>Cercopithecus nigroviridis</i>	2
	<i>Pan paniscus</i>	4
Total	229 (28.21%)	
Order Rodentia	<i>Atherurus africanus</i>	54
	<i>Sciuridae</i>	10
	Total	64 (7.92%)
Class Reptilia	<i>Crocodylidae</i>	51
	<i>Testudinidae</i>	4
	<i>Varanidae</i>	1
Total	56 (6.93%)	
Order Pholidota	<i>Manis tetradactyla</i>	3 (%)
Class Aves	Unidentified	1 (6%)

Table 2. Origin of carcasses counted at the Basankusu market (n=495)

Location	Number of Carcasses
Along the Lopori River	88
Near Bongandanga	40
Along the Yekokora River	17
Along the Maringa River	38
Surroundings of Basankusu	134
Along the Lomako River	178
Total	495

6. CONCLUSIONS

The most recent data on the status of the proposed Lomako Forest bonobo reserve are summarized here:

1. The Lomako Forest is an important area that deserves special conservation attention. It contains a significant population of bonobos and it harbors other endangered and rare species. However, in a way that is not readily apparent to the outside world, it is subject to increasing human hunting pressure.
2. Hunting pressure is strongest in the northern part of the forest. Much of the bushmeat is sold to lumber company employees and their families, who also transport this meat to major cities. Importation of cartridges on company boats increases hunting pressure on larger species such as the bonobo. Providing workers with alternative foods and prohibiting the transport of meat and cartridges on company boats could greatly reduce hunting pressures due to the logging activities.
3. In the southern sector of the forest (and into the northern sector when we deal with the local population *sensu strictu*), hunting pressure is growing due to forced migration into the forest, caused by the difficulty of subsistence in the local people's natal villages. We hope to reverse this trend by promoting their former agricultural activities. This is occurring in collaboration with, and by request of, the local population.
4. Basankusu is an important urban center of bushmeat trade with regard to the fauna hunted in the Lomako Forest. Many people rely on the Lomako Forest, not only for meat consumption, but also as a source of income. Further study through market censusing and questionnaires is necessary to strengthen justifications for the creation of the Lomako Reserve.

7. POSTSCRIPT (SEPTEMBER 2000)

At the time of departure from our research site in November 1998, Siforco had halted logging activities, and logging in the Lomako area has not been resumed. However, other timber companies have already begun to express an interest in setting up logging concessions in and around the proposed Reserve. Although the Lomako Forest officially belongs to the area controlled by President Kabila, it lies close to the area controlled by the Mouvement pour la Liberation du Congo. Since the beginning of 2000, contact with our local collaborators in the forest has been virtually impossible. Any suggestion regarding the status of the bonobo at this present time would be no more than a guess. We continue, however, to promote the establishment of the Lomako Reserve. Through these and other procedures, we aim to enhance the survival prospects of the local human populations and the flora and fauna of the Lomako Forest.

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