



# ***Gorilla Journal***

*Journal of Berggorilla & Regenwald Direkthilfe*

*No. 22, June 2001*



**Recommendations  
for Conservation  
in the Kahuzi-  
Biega Park**

**Virunga Gorilla  
Population  
Increases**

**Gorillas of  
Takamanda, Mone  
and Mbulu Forest,  
Cameroon**

**Gorilla and Eco-  
Tourism**



# BERGGORILLA & REGENWALD DIREKTHILFE

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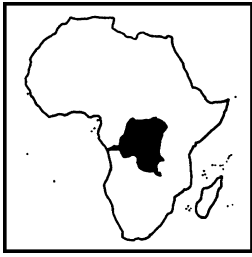
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## D. R. CONGO

### The Situation in Kahuzi-Biega in March 2001

The conservation strategy employed by the Kahuzi-Biega National Park during times of war has focused on the following activities:

- The fight against poaching in the interior of the park. Some farmers who illegally occupied the corridor connecting the two sectors of the park have been evicted by force.
- Intensification of the environmental awareness campaign, centered on "Park Destruction". The proportion of the local population accepting the park has increased from 37% to 83%.
- Dismantling the poaching network. This activity is meant to block the demand for products from the park such as baby gorillas, bamboo, ivory, etc.
- Support of development initiatives from the population.

Each of these activities has run into its own associated difficulties. The

fight against poaching is made difficult by the slowness of judicial authorities in pronouncing judgement and in cancelling the hereditary leasehold certificates held by certain farmers. The national police and/or the security service collaborate in the dismantling of the poaching network – but most operations are not successful. After the baby gorilla called Bitorwa had been confiscated, the people implicated in the capture were arrested. We hoped that their punishment would be exemplary and that the name of the person who ordered the gorilla killings would be publicized. None of these expectations were fulfilled; all those arrested were released from prison and the head of the network is still not known.

Since October 2000, the police have been on the tracks of ivory traffickers. In the town of Bukavu alone, these traffickers hold over 1,800 kg of ivory. But each time the culprits are supposed to be indicted, inexplicable obstacles turn up.

The situation of the low-altitude sector of the park is much worse. The impoverished local population has settled down inside the park. The people exploit the mineral coltan (page 13 ff.). They have promised wonders to the impoverished population of Nzovu: electrification, provision of fish for consumption, jobs, etc. They are also planning to exploit the park's timber within these projects. In this relentless exploitation of the park's natural resources, park representatives are facing a very real danger: anybody implicated in the coltan exploitation will consider park representatives as targets for attack.

The visit of the preliminary UNESCO mission to Kinshasa, Kampala, Kigali, Goma and Bukavu raised hopes for international support of the conservation of the park. In spite of our efforts to implement the recommendations made by this mission, the re-

sults show that these recommendations are very difficult to implement. No controls have been set up in the airfields bordering the park to follow the movement of natural resources exploited in the park. In order to find solutions, we have made contact with certain tribal chiefs to try and involve them in the protection of the park. An effective action would be the organization of a high-level diplomatic UNESCO mission in order to support the World Heritage Site, even in countries at war. The mission's agenda should also include the identification and dismantling of those obscure forces that cause any attempt to conserve the park to be overturned, even if the attempt is supported by the authorities concerned.

*The team of the ICCN/GTZ Project*

### Report of a Visit during the First Week of May

I went to Bukavu and Tshivanga but I was unable to reach the interior of the park. The security situation has, in fact, deteriorated badly since the end of April 2001:

- On 26 April, a patrol in which Carlos Schuler participated was almost intercepted by a group of Interahamwe who were a 15 minutes walk from the guard post. The patrol was able to save itself by fleeing quickly, but one tracker was captured.
- That tracker was able to escape unharmed after 3 days of captivity. From his statement it is clear that the Interahamwe group is powerfully equipped with light weapons and very well equipped with communication equipment.
- On 27 April 27, the same Interahamwe band stopped a civilian vehicle 7 km from Tshivanga. They forced the passengers to get out of the vehicle and robbed them. They then killed 5 people in total.



**A poacher arrested in the park with snares and his kill**



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**Carlos Schuler in front of buildings that were constructed with funds from the Born Free Foundation**

*Photo: Jean-François Segers*

– During the night of 3 May, Interahamwe stole 6 cows and a few goats from a farmer on the park border 5 km from the guard post. The farmer tried to resist and was killed.

– The apparent freedom of movement of these "rebels" seems unaffected by the major troop movements I could observe at Tshivanga.

Because it is currently impossible to guarantee visitors' safety in the park, the Director, Kasereka Bishikwabo, has been forced to refuse entry to the park to any visitors not belonging to the ICCN (*Institut Congolais pour la Conservation de la Nature*).

In spite of the bad security situation, ICCN continues to patrol the park. One can only praise the courage and the commitment of trackers, guards, guides and the Director. Thanks to their efforts not a single gorilla has been killed in the high-altitude sector in the last month.

However, the situation in the low-altitude sector of the park gives rise to increasing concern. It is quite possible that there soon will not be anything left to save. In spite of the appeal for help issued in *Le Gorille 2* magazine a year ago, nothing has been done to save the 8,000 gorillas and 3,600 el-

ephants that lived there. One can only bemoan the inertia of the big international nature conservation organizations. What good does it do that UNESCO declared Kahuzi-Biega a World Heritage Site in 1980 if no rapid reaction is possible when the park is in danger?

One cannot but wonder at the efficiency of these big organizations and contrast them with the activities of the small ICCN team in Bukavu. Supported by the GTZ (German Technical Cooperation) and small NGOs, this team safeguards the survival of the park against all odds. They have finished the construction of 15 guard posts and a health centre at Tshivanga. Every day, they work to protect the 130 surviving gorillas.

Although far removed from mega-projects and beautiful theories, and faced by the current war situation in the Kivu region, the high-altitude sector of the park continues to survive – thanks to the work of a few determined people. This is very reassuring to see. Once security has returned to an acceptable level and a system for controlling the supply of minerals put into place, the invaders of the lower sector of the park will have to be relocated

and offered a reasonable alternative to mining. WFP (*World Food Program*) has proposed to assist people who agree to leave the park with food aid.

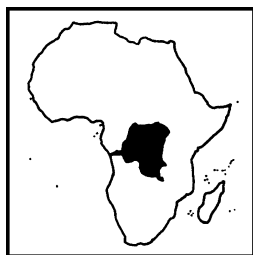
In addition, a long-term strategy for the participation of the population in the management of the park needs to be developed and established; ecotourism has to be developed; all sorts of research needs to be conducted. In the meantime, the park is fighting to retain its natural heritage, without help from the big organizations. What is most important now is for the park to conserve its capacity to react and to protect what it can with the means it has available.

*Jean-François Segers*

### Recommendations for Conservation in the Kahuzi-Biega Park

The large-scale hunting of gorillas is a result of social and economic instabilities that have gradually increased due to the collapse of the Mobutu regime, the influx of refugees (1994), and the first (1996) and the second (1998) civil wars. The lack of materials and security is becoming increasingly severe. The first step, needless to say, is to attain peace through positive negotiations among all stakeholders.

However, the end of war in Congo does not mean the end of problems for conservation. Growing conflicts between park authorities and local people may continue to stimulate gorilla poaching. It is important to make sure that the local people accept the existence of the national park. The spread of knowledge of conservation and the revival of relations of trust among people are urgently needed. Even during the war, these conservation activities can be initiated and planning activities for future conservation should be started. GTZ, WCS (*Wildlife Conservation Society*), WWF, DFGF (*Dian*



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*Fossey Gorilla Fund*), IGCP (*International Gorilla Conservation Program*) and other conservation organizations are now searching for appropriate and effective measures to implement this.

An international conference on apes held in Chicago in May, 2000, decided to make special efforts for the conservation of apes because of their mental similarities to humans and their precarious chances for survival. Since then, many appeals for stopping the bushmeat trade in apes and the destruction of their habitats have been sent from ape researchers to the governments of countries in which the great apes are living. The IPS (*International Primatological Society*) decided to promote a declaration of World Heritage Status for the great apes in January, 2001, at the 18<sup>th</sup> Congress in Adelaide, Australia. These movements aim to protect the great apes more effectively through improvement and reinforcement of legislation in the habitat countries.

However, the bottom-up approach is also very important during the war. As national institutions and the effect of legislation have become weaker in the Democratic Republic of Congo, people are making decisions according to their private interests. The park authorities are powerless to stop local people from using protected areas for cultivation and using the park's natural

resources for the necessities of daily life. Under such conditions, the role of local NGOs such as POPOF (*Pole Pole Foundation*) is very important for spreading conservation knowledge among local people and for controlling their destructive activities. Foreign countries and international NGOs should support them in their efforts to save people from the ravages of war and to save wild animals from the danger of extinction.

In order to initiate positive conservation activities, a population census was proposed by ape researchers and conservationists in 2000. It was conducted in the highland sector by Congolese researchers in cooperation with international NGOs. Based on the results of this census, the management of the park and gorilla tourism should be reconsidered by local people concerned. Habituation of gorillas and promotion of tourism may not be the best solution for conservation of gorillas and for development of local communities. Habituation of gorillas may increase infection by human diseases and may weaken the viability of the gorilla population. The influx of refugees and the prolonged human settlement inside the Kahuzi-Biega National Park may have already increased the risk of disease transmission to wildlife. As observed in the recent large-scale hunting of gorillas, habituation of gorillas may have enabled hunters to shoot all of the gorillas within a short space of time. If the benefits from tourism are distributed unfairly among the people bearing the burden of the park, conflict among local people may increase and cause further destructions in the park.

These strategies should be implemented in the near future to improve the understanding of the local people regarding the priceless value of the eastern lowland gorillas as a national and world heritage.

Juichi Yamagiwa

### World Heritage Animals in Danger

Local people are hunting and consuming bushmeat in the Kahuzi-Biega National Park (KBNP) because their situation makes it necessary. Therefore, they should be given the opportunity to present alternatives and solutions. The idea led to this inquiry. We sent mails and letters with the following request to persons who know the park and the local population very well:

#### ***How is it possible to prevent further hunting of endangered animals in the Kahuzi-Biega National Park?***

*Recommendations should come from persons who know the area and the situation of the local people. You are one of those persons and we would be very grateful if you could send us your opinion. As this problem can only be solved in cooperation with the people living near the park, we are especially interested in the recommendations of local people. Of course, anybody is welcome to give their opinion.*

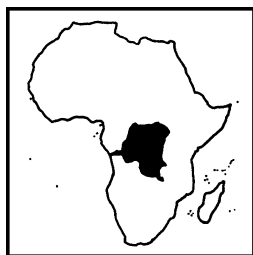
#### **Recommendations from A. Kanyunyi Basabose and Juichi Yamagiwa for the IPS Congress in Adelaide, January 2001**

- Facilitate peaceful negotiations among all political forces engaged in the Democratic Republic of Congo (UN level);
- Support the park to improve its facilities and equipment for patrol and to improve infrastructure around the park (ODA and UNESCO level);
- Establish an eco-museum in the vicinity of the park to promote education of local people and to function as an information center for tourism (ODA and international NGO level);
- Encourage the compensation for Batwa (Pygmy) people who have been evicted from the park and resident people who accepted them in their



**POPOF conducts conservation education for children**

Photo: Juichi Yamagiwa



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village (park authority and local governments level);

- Establish regulations to prevent the bushmeat trade and to destroy the poacher and trader network (park authority and local governments level);
- Educate soldiers to respect the World Heritage and to learn how to approach wildlife (park authority and armed forces level);
- Increase engagement of local people for the park management and tourism (park authority level);
- Make a plan for the optimal distribution of profit from tourism among local communities (park authority and local NGO level);
- Promote activities to accept and organize eco-tourism in this area (international and local NGO level);
- Establish the methods for monitoring wildlife in the park (park authority, international and local NGO level).

### A. Kanyunyi Basabose (Researcher, CRSN Lwiro)

A workshop on "Means of discouraging the hunting of endangered animal species for human consumption in the KBNP" was organized by POPOF (Pole Pole Foundation), a local con-



**Bushmeat symposium at the IPS Congress: A. Kanyunyi Basabose, Carla Litchfield, Edem Eniang, Tony Rose, Juichi Yamagiwa**

servation NGO. It was held on 23 March. Participants represented different stakeholder groups within the rural population living close to the KBNP. Among them were former poachers, park employees, consumers and sellers of bushmeat, tribal chiefs, researchers, students, artists, etc. Workshop participants considered the 4 main root causes of hunting

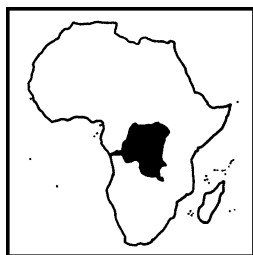
rare animals for human consumption. These 4 issues were:

- Insecurity due to the war;
- Poverty of the human population;
- Ignorance (the majority of the population has had no education);
- Problems particular to Pygmies.

Participants: Augu Kanyunyi Basabose (researcher and workshop moderator), John Kahekwa (DG POPOF), Chifundera Kusamba

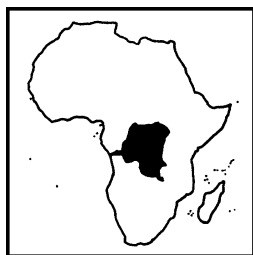
### Causes of poaching, consequences, proposed solutions and agencies that could implement them

Causes	Consequences	Solutions	Responsible for implementation
<b>Insecurity</b>			
	Political unrest, erosion of government power	Terminate the war	UN and OAU
	Presence of armed bands in the park and increase in poaching	Repatriate the refugees into their original countries	UN (HCR)
	Significant increase in war armaments in the villages adjacent to the park (insecurity in the villages and increase of poaching in the park)	Put an end to the rebellion and support national and international reconciliation	UN, Lusaka Agreement, governments
	The disarmament of park guards means that poachers operating freely in the interior of the park go unpunished.	Re-arm the guards of KBNP in order to improve the security situation in the park	Government, KBNP
	Tourism has come to a standstill.	Re-establish and support tourism	KBNP



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Causes	Consequences	Solutions	Responsible
<b>Poverty</b>			
	Poor socio-economic conditions of the population in the vicinity of KBNP due to unemployment and insufficient arable land, which results in a low crop and livestock production	Create employment opportunities for the population; allocate land for cultivation and/or seeds; channel 40% of income generated by tourism back to the population living near the park	KBNP, government, NGO
	Hunger (malnutrition) results in people hunting endangered species in the park for meat.	Initiate and finance small community projects to achieve food security, such as projects in agriculture, animal husbandry and fish cultivation, or the setting up of credit systems for the promotion of profitable activities	KBNP, government, NGO
	Incapability of parents to look after their children and educate them without the possibility of them becoming poachers themselves. This situation perpetuates poverty and compromises the future of the next generation.	Take care of certain social problems of the population around the park (such as education, primary health care, etc.)	KBNP, government, NGO
	Corruption of unpaid government authorities who do not provide an example to local people in regard to the laws relating to conservation	Training, logistical and financial support of guards and OPJs (Officier de Police Judiciaire)	KBNP, government, NGO
<b>Ignorance</b>			
	The majority of the population (and the poachers in particular) are illiterate. Poachers don't have the knowledge to distinguish between endangered animals and animals that are not at risk. Therefore they contribute to the further decline of endangered animals in the park. In addition, a lack of education means that people simply don't understand environmental education messages distributed by park authorities.	Establishment of literacy centres for adults; establishment of environmental education centres accessible to all people living close to the park	KBNP, government, NGO
	Lack of local initiatives for the protection of endangered animals in the KBNP	Encourage, support local initiatives, especially concerning environmental education and wildlife conservation	KBNP, government, NGO
<b>The Pygmies</b>			
	Marginalisation of the Pygmy tribes driven out of the park without compensation. This leaves them discontented and they therefore oppose any conservation measure initiated by the park.	Involve the Pygmies increasingly in the various activities conducted by the park	KBNP
	The Pygmies give many reasons for their continued poaching. Among them are the misery in which they live and their culture	Support mini-projects in agriculture and husbandry from which the Pygmies would benefit	KBNP, NGO



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Causes	Consequences	Solutions	Responsible
<b>The Pygmies</b>			
	The Pygmies give many reasons for their continued poaching. Among them are the misery in which they live and their culture.	Support economically viable activities for Pygmy women (such as handicraft projects) not alien to their culture	KBNP, NGO
		Take care of the Pygmy children's education	KBNP, NGO
		Assist the Pygmies with primary health care	KBNP, NGO
		Promote Pygmy culture	Pygmies, KBNP, NGO

(researcher), Kaleme Kiswele (researcher), Kizungu Byamana (researcher), Lungumbu Bweni (researcher), Zirimwabagabo Moustapha (POPOF Coordinator), Lungumbu Mukandilwa (student), Corneille (Chef de Centre de Miti), Balolebwami (representative of the Chef de groupement de Miti), Kizungu Janvier (former poacher), Citoyen Drole (former poacher), Mirenge (Pygmy), Kabwana (Pygmy), Bourguignon (KBNP guard), Kabehe (traditional dancer), Mangaza (woman, Pygmy). We would like to express our thanks to all participants for their contributions made during the workshop.



**A. Kanyunyi Basabose with park guards and guides during a gorilla visit** Photo: Juichi Yamagiwa

**Kasereka Bishikwabo (Chief Conservator of the Kahuzi-Biega National Park)**

What can be done to eliminate these causes and remove endangered animals from the human food supply? This question was submitted to 70

persons working for the park, made up from 5 groups as follows: staff: 5; patrol personnel based at Tshivanga Station: 9; patrol personnel based at Mugaba Patrol Post: 7; guides and trackers: 19; former poachers who became park guards: 30.

**Kahuzi-Biega National Park Staff.**

It is important to note that although the population in the vicinity of the park has already lived for a long time in poverty, it has been further impoverished by the continuous warfare which persists in the Congo. This poverty mostly is the base of the poaching of park animals. Recommendations:

- Alleviate this famine aggravated by the wars by urgently providing food assistance to the population in the hinterland of the park;
- Assist the population by providing agricultural seeds and tools and promote the raising of cattle, goats, fish, pigs, etc.;
- Create employment near the park such as restoring maintenance activities for the trails that cross the park and the agricultural roads around and inside the park;
- Create technical schools in the vicinity of the park (carpentry, mechanical, agricultural, veterinary);
- Increase the efficiency of park surveillance by providing vehicles and communication equipment and im-

proving the standard of living of surveillance personnel.

To reach the population living close to the park it will be necessary to use local NGO channels which collaborate with the park.

**Tshivanga Based Patrols and Mugaba Patrol Post Patrols.** Recommendations:

- Pay the people working for the park adequately;
- Grant a food (family) ration to them;
- Increase the number of surveillance personnel;
- Equip the surveillance patrols adequately;
- Settle the population by providing employment, roads, schools, dispensaries, and potable water.

**Park Guides and Trackers.** Animals including elephants, gorillas, antelopes, forest hogs, wart hogs, baboons and guenons which are threatened by people living close to the park who search for food there. Since the war started in 1996, the guards have been disarmed and chased away from their patrol posts, stations, and substations. As a result, the control of the park has been lost. Then, armed groups forcefully overtook 90% of the park, where they hunt all edible animals. In addition, some of the local people received arms illicitly, which led to a further deterioration of the





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situation in the park. There will be no protection for the park without a frank collaboration with this population. The motivation of the guards is also essential, of course. Recommendations:

- End the war in the Democratic Republic of Congo;
- Enhance the message for protection of the park to the people living close to the park;
- Create socio-economic activities in the interest of these people;
- Reinforce the training of the guards;
- Provide surveillance equipment for the protection of the park;
- Provide modern field equipment to the park;
- Bring the standard of living of the guards up to today's standards.

*Former poachers who became park guards.* The animals in the park are killed because of the poverty of the population (famine, lack of clothing and money). To protect these animals, we propose to motivate the surveillance personnel by increasing their income. Once their income is augmented the park will be better protected because they will have no reason to enter the park for hunting.

**Conclusions.** These results suggest that further training and better equipment as well as higher motivation of guards will enhance the chances to substitute wild animals in human food supply. Moreover, it is necessary that armed groups leave the park. Some humanitarian assistance for the guards in the form of family rations would enable them to supplement their income. As they settled there as a consequence of the war, it is obvious that, first of all, the war should be stopped. Finally, efforts should be invested into the social and economic development in the hinterland of the park.

We have the feeling that support for development around the park must be intensified through participating management structures that collaborate



***The spokesman of the SGP (Participative Management Structure) hands over a signed contract to the park's Conservator in Miti***

with the park. Since the park presently does not have any resources, we need someone who can grant funds to support participative management activities in favour of the local population. The park, as a matter of fact, recently adopted a new strategy for management of natural resources involving the local population.

The KBNP-GTZ project distributed 537 rabbits, 30 pigs, 15 goats, etc. to 200 families. The idea is to provide the villages with substitutes for natural resources which the people search for in the park. It is a case of substituting bushmeat with domestic animal meat. It is interesting to note these micro-projects that the villagers who benefit from them make it a duty not to damage the park and to report those among them who exploit it. One result of this approach is that the villagers themselves discourage poaching. Thus, it has two effects: The living conditions of the population improve and the park is better protected.

The manner in which this activity was implemented is revolutionary compared to the other development

activities in the region. A sort of village parliament called Participative Management Structure (SGP) is created after an election at the secondary level. At the primary level, each locality elects its representatives. At the secondary level, the representatives select a small number of less than 20 who will represent them. This structure is a parliament in the sense that its members do not carry out any activities. Instead, they establish a village development plan for the conservation of the park. They seek associations or organizations in their locality which will implement the development plan. The lenders or donors will act through these executive associations under the control of the SGP.

Once tourism resumes, the park's contributions to local development will increase; and it will be these SGPs that will decide on the distribution of funds. Moreover, this development must not be just talk: Actions must also be taken. For example, if breeding is to be encouraged, breeders must not only be trained but must receive a sufficient number of animals



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so that their profit will be sufficient to enable them to live decently.

Furthermore, a strategy for Pygmies must be applied. Humanitarian assistance, especially food, is very urgent for the Pygmies because they are the main hunters who enter the park to satisfy their needs for food. The landless Pygmies are in need of land to enable them to live like other people in the region. At least 400 ha of land should be bought for the 400 Pygmy families living close to the park according to a census. Possession of land determines the standard of living in the region. The end of the war will permit the implementation of management conditions which will favour the prosperity and sound protection of what is left of the park.

**Omari O. Ilambu (Researcher, Yale University, USA)**

While other populations of gorillas have benefitted from more attention from the arena of conservation, the eastern lowland gorilla has been overlooked. The few people involved in its protection and management have not yet come up with a cohesive and synergic program to guarantee the survival of the subspecies.

My concern is that we end up taking an action only when this subspecies is on the verge of extinction. When you take a thorough look at its distribution, you will realize that all its main known distribution areas are either under military occupation or affected by mining activities. In either case, weapons, hungry humans and

traders condemn the gorillas to death for food supply or as a commodity.

More and more young people have been recruited and received basic training in the use of light weapons but they are not well-paid. That group of the population might constitute potential threats to wildlife, with primates among the first victims. Gorillas have never been threatened at this pace in the past, even during the intense war of the 1960s, following the troubled period after independence. Although people have hunted gorillas in the past, very few hunters would venture into the forest to search for gorillas. With the increasing circulation of weapons, collapse of the economy, lack of the possibility of farming (no stability in the area), local people have

### Chances for a New Life

Prior to the legal protection of the Kahuzi-Biega Park, the Batwa (Pygmies) lived there and they subsisted on the forest. With the foundation of the national park they had to leave their home and settled east of the park, particularly in the Kabare and Kalehe zones. At the moment, there are about 600 Batwa living in these zones. They do not own land and they are very poor; land ownership is very important for the standard of living in this region. Many Pygmies do not have any alternative to hunting in the park in order to survive.

The improvement of the living conditions of these people is a decisive step in the struggle against the bushmeat trade. Many families would like to practise farming, but they do not have fields. The Kahuzi-Biega Project wants to buy land and put it at the disposal of the pygmies – 200 ha, i.e. roughly 1 ha for every family. As soon as funds are raised, the purchase of the fields shall be started.

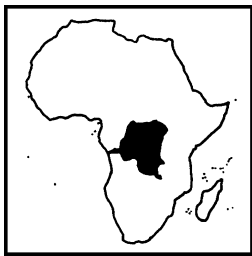
**Help us to protect the park by making it possible for the local people to lead a better life!**

*Berggorilla & Regenwald Direkthilfe*  
c/o Rolf Brunner  
Lerchenstr. 5, 45473 Muelheim, Germany



Education is one of the prerequisites for the reconstruction of the Congo – but the war has destroyed the schools. We would like to help improve schools in Bukavu. Aimé Jules Murhula from the ICCN/GTZ Kahuzi-Biega Project has sent us a detailed description of the situation at two primary schools. Above all, classrooms need to be built; one of them would cost roughly US\$ 5,000.

Who – whether single persons or organizations – wants to improve opportunities for children in the Congo? We would be pleased to send you further detailed information (in French).



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been forced to rely increasingly on natural resources. Bushmeat exploitation has increased due to its use as food and as a valuable commodity in satisfying any socioeconomic needs. Trends in the poaching of wildlife in the region clearly show a kind of succession in killing large mammals. After almost driving the elephant to the verge of extinction in the highland sector, poachers have shifted their interest to gorillas. The ready availability of weapons and ammunition throughout the region have greatly facilitated the killing of gorillas by poachers.

An array of solutions can be applied. I would recommend:

- Stop the inflow of guns into the area. Information and campaigns should be focused on the areas where weapons come from;
- Raise an international effort to create an educational program that reaches young people in different armed groups who do not earn a substantial salary and only possess training in the art of killing. That social group should turn to more useful and socio-economically productive activities in their home country.
- Change of behavior of park staff. Play a more technical role to improve the understanding of dangers of the abuse of biodiversity and the impact on human life and the environment;
- Oppose different mining activities in the lowland sector of the park. This pressure could also lead to reopening of some sites recently abandoned in the highland sector of the park. This would destroy the shrinking gorilla habitat and increase poaching.

**Ephrem Balole-Bwami (Professor, ISDR – Institut Supérieur de Développement Rural – Bukavu)**  
**The Current State of Poaching in the KBNP.** *In the high-altitude sector.* The WCS survey has documented abundant traces of human activity near Tshivanga Guard Post, towards

Lemera (Kalehe), Bunyakiri and Kalonge. Local people enter the park in order to hunt for mammals (antelopes, gazelles, marsh cane rats, etc.) with wire snares. Many people participate in this activity secretly and usually escape the attention of the guards.

Hunting is mainly done for home consumption. There are no formal channels to distribute bushmeat, although small-scale trade does exist. However, the scale and frequency of this small-scale trade are not worrying. Women don't play a role in this system.

*In the low-altitude sector.* Here, poaching has always been intense due to the local traditions of bushmeat consumption. The population hunts elephants, antelopes, apes and other primates. Hunting methods include the setting of traps, traditional means of hunting, and hunting with firearms (both hunting weapons and armaments left over from the war). A network for meat distribution is in place with women playing an active role. This network reaches Bukavu, although there is no official market for bushmeat in Bukavu.

**The Impact of War.** *In the high-altitude sector.* The war has upset the former reliance of people on domestic meat. Young domestic animals have been appropriated by successive waves of armed bandits (Mai-Mai and Interahamwe), the rebel army and the Rwandan army, in addition to others who could not be identified. Cows have almost disappeared from the vicinity of the park (Kalonge, Nindja, Bitale, Kalehe, Walungu, Kabare, ...)

The presence of armies and the demand for ivory (mainly in Kigali, Bukavu, Goma and other towns on the shores of the Great Lakes) have created a new form of poaching which particularly targets elephants (350 have been killed already). The network includes military personnel (Rwandan and Congolese) and the village poach-

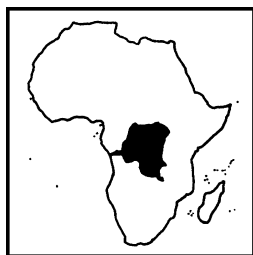
ers. Heads of the networks are inhabitants of Bukavu, Goma and Kigali. Likewise, there is a demand for baby gorillas, chimpanzees and other primates. This trade, in which the military is implicated, has given rise to the poaching of apes, which were formerly not targeted.

War has contributed to the increase in poaching in several other ways. First and foremost, it has led to increased poverty of the farmers living near the park. The following additional effects need to be mentioned:

- More than 3,500 ha of concessions in the interior of the KBNP have been obtained by Bukavu dignitaries. They have created permanent camps for the exploitation of wood, charcoal, timber and bamboo, and for cultivation. All the people living in these camps obtain their food from poaching.
- Increased exploitation of minerals (coltan, cassiterite, gold, etc.). These activities have also attracted considerable numbers of people into the park. As they obtain some income from the sale of minerals, these people can afford to buy illegal bushmeat if their demand for meat is not met by domestic animals. The situation is worrying at Lemera, Bunyakiri, Kalonge and Ninja.
- Finally, the war has driven armed bands back into the forest. They live exclusively on bushmeat.

*In the low-altitude sector.* The coltan mined at the lower altitudes is sought after for its high tantalum content. Many young people have travelled to the quarries to find work. This has increased the demand for meat in a region that was already hardly self-sufficient. There are bushmeat markets both at the mineral quarries and in the villages. However, as the security situation is still uncertain, research has not yet been possible in this area (page 13 ff.).

**The Women's Role in Poaching.** While there are no women poachers,



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women are involved in the transport of bushmeat, its distribution and marketing. The bushmeat network can be summarized as follows:

Women act as intermediaries between poachers and consumers. They may be engaged in this activity on their own accounts (tradeswomen) or on behalf of their husbands (poachers' wives). In general, the tradeswomen are independent women willing and able to risk going into the forest and to the quarries. They use all available means in order to guarantee a regular supply of bushmeat (including witchcraft). They provide the poachers with basic products (ammunition, salt, batteries, etc.). The poachers may stay in the forest for a long time (i.e. for one or two months). It is difficult to obtain precise information on the quantity and price of bushmeat exchanged along this network. In the high-altitude sector of the park, women are not involved in poaching. Even so, if elephants are killed, the women are quick to obtain the meat for their own consumption. However, this happens only sporadically.

**Other Resources Taken from the Forest.** Pressure is exerted not only on animal resources, but also on mineral and timber resources. The high-altitude sector of the park supplies bamboo for an important bamboo market in Bukavu. This market involves over 600 people and has an annual turnover of more than US\$ 800,000. Collecting and selling bamboo generates a monthly income of US\$ 40–50 per participant. Every day 9–12 tons of bamboo are sold, resulting in 1.5–2 ha of bamboo forest cut down per day. Women are not involved in this market, it is conducted entirely by men.

Likewise, there is an important market for wood and charcoal. This market employs over 1,200 people who deforest approximately 12 ha of forest in the northeastern part of the park every week. In the southeastern

Activity	Venue	Persons concerned
Killing of the animals, processing the meat, smoking the meat	Deep in the forest (park)	Poacher
Transport of the bushmeat to a selling point	Inside the forest	Poacher
Transport of the meat to where it is sold to the final consumer	Quarry or village	Poacher, women
Supplying urban and other networks	Villages	Other customers, men and women

part of the park, this activity takes place in the concession areas. The exploitation of wood and charcoal generates a monthly income of US\$ 15 (wood) to US\$ 32 (charcoal). Women are actively involved. The annual turnover is estimated to be over US\$ 600,000.

The exploitation of the wood resources of the KBNP injects approximately US\$ 1.5 million into the area every year. As incomes in other sectors are extremely low (a primary teacher earns less than US\$ 5 per month), the income generated by poaching must be a great incentive for this activity. Poaching in the KBNP provides a means for people to reduce their poverty, if only to a small degree.

**Recommendations.** In order to fight against poaching, the ICCN and the Management Board of the KBNP are taking a number of measures:

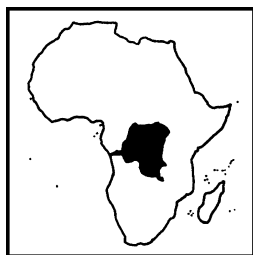
- Suppression of poaching activities through deployment of police in that part of the park which is under their control (see map);
- The promotion of farming pigs, rabbits and goats at two pilot sites, Miti and Mudaka;
- International and local lobbying, while advertising to the population inside the park the presence of whites;
- Collaboration with MONUC.

However, current measures are not sufficient. What is required is coordinated action on different levels, but

the prerequisite for this is the end of the war and the return to a state of law and justice. In particular, the following measures should be adopted:

- All armed bands should leave the KBNP.
- The exploitation of minerals should be regulated: Only licensed people or companies should be given a permission to exploit minerals and the license should include environmental impact restrictions. The granting of licenses should be regulated. Zones where minerals can be exploited must be delineated, etc.
- The living standards of the human population have to be improved. This could be achieved with the support of agriculture and husbandry, arts and crafts, development of labour-intensive employment opportunities, etc.
- Gorilla tourism must be revived, as this activity can generate a lot of income and therefore have a positive impact on the living standards of the human population.
- Reduction of the poverty of women by targeting activities for the promotion of loans with guaranteed security (Grameen Bank).

Compiled with information from: Chantal Shalukoma (researcher ICCN-GTZ, KBNP), Aimé-Jules Murhula (Chief of administration DAP ICCN-GTZ, KBNP), Dieudonné Boji (researcher ICCN-GTZ, KBNP), Kasereka Bishikwabo (KBNP Director), Nguvu Munembe (ISDR student, from Itebero), Mashingilwa Tabu (formerly ISDR, from Walikale), Saki-



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sanga Sakitundu (formerly ISDR, coltan collector at Walikale), Mawazo Mukoko (ISDR student, from Itebero), Wakusomba Museme (tradeswoman from Shabunda), Immaculée Wababili (IRC executive Bukavu, from Shabunda), Ngabo Roch (economist, coltan trader in Kalonge), Nkubiri Vumilia (teacher in Ufamando, Kalehe).

## Coltan Boom, Gorilla Bust

The lucrative trade in coltan has recently become headline news. This report explores the link between rising sales of mobile 'phones and Play-Stations and falling numbers of gorillas in an African war zone. However, there are two controversies relating to coltan from Central Africa. First, there is the broad question of whether or not it is legal to trade with rebel-held territories. This is the subject of the report by a "panel of experts", commissioned by UN Security Council to examine the exploitation of natural resources in war-torn Congo (page 16).

My report focuses on the second controversy – the exploitation of natural resources, especially coltan, in legally protected areas such as the Kahuzi-Biega Park. It is based on a nine-day visit to Rwanda, Democratic Republic of Congo and Kenya, during which discussions were held with conservationists, coltan traders, NGOs and government ministers and officials. An important source of information was the report of an independent consultant hired by ICCN.

### Mining Techniques

Coltan is found in fairly soft rock, streambeds and alluvial deposits. Miners dig with shovels, sometimes with picks and crowbars to loosen the substrate. The loose mix is sieved through mesh of approx. 5 mm squares. The grit is then washed in a bowl, box or piece of curved bark until only the heavy coltan particles remain. The need for water to separate

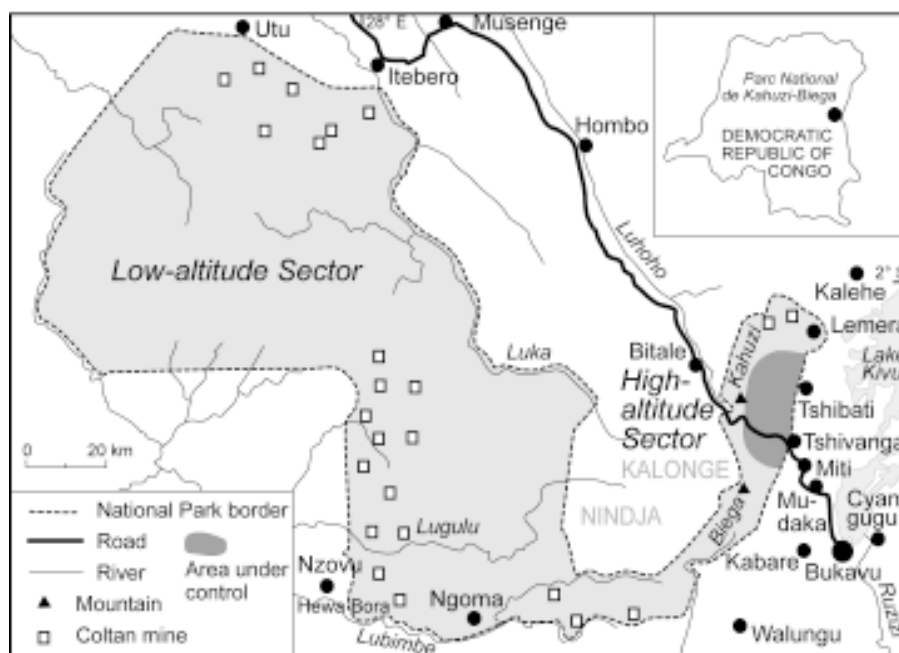
out the coltan means, of course, that mining tends to be concentrated along streams and rivers. This exacerbates the erosion of soils and the risk of landslips during heavy rain, and tends to silt up pools downstream.

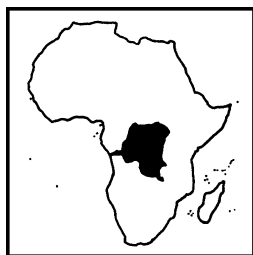
The coltan grit is bagged in small nylon bags sewn from larger food sacks. There are two rough measures – a desert spoon and "le gosse" (a small tin, originally a condensed milk brand, which has come to mean the tin itself; it holds about 200 g of coltan grit). When the bags are full they may weigh from 15 kg to 50 kg according to the strength of the carrier, and a spring balance is usually present at the site to weight them. The bags are sewn shut and transported on the back in a "makako" – a sort of basket-rucksack made from forest lianas.

### Environmental Damage from Coltan Mining

- Forest clearance and use of timber and poles to build camps to accommodate workers;
- Forest clearance to expose substrate for mining;

- Pollution of streams by silt from washing process;
- Erosion of unprotected earth during rains leading to land-slips;
- Cutting of firewood for warmth and cooking in camps;
- Hunting of animals for bushmeat to feed miners and camp followers;
- Animals maimed or dying after escaping from snares;
- De-barking trees to make panning trays for washing coltan;
- Cutting of lianas to make carrying baskets for coltan;
- Disturbance of animals due to large number of people resident in and moving through forest;
- Silting up of streams likely to kill invertebrates and reduce photosynthesis in aquatic plants;
- Reduced productivity of fish stocks in lakes and rivers affected by silt pollution;
- Ecological changes due to loss of keystone species such as elephants and apes;
- Long-term changes in watershed due to rapid run-off in deforested areas.





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### Bushmeat from the Park

When the first reports of the exploitation of Kahuzi-Biega mentioned bushmeat, it was thought that the meat was probably destined for local markets. This was the case when hunting first increased in 1998. Reports of ivory, timber and gold coming out of the park left the impression that anything of value was being looted.

It is only now that the picture since 1999 has emerged. Most of the miners in the park were eating large mammal meat for a year or more, including elephants, gorillas, chimpanzees, buffaloes and antelopes. By March 2001, people were eating tortoises, birds, small antelope and monkeys. Hunters used to go out daily from the mining camps and return with large mammals.

Now they go out for up to a week, and even then sometimes return empty handed. No elephant meat was seen during 4 weeks of fieldwork, nor were tracks observed. It seems likely that elephants may be extinct and other large mammals have declined dramatically and are heading for local extinction.

If these reports are verified, the world population of Grauer's gorilla may have declined by 80–90%, with perhaps as few as 2,000–3,000 survivors in scattered pockets of a few hundred each. The independent consultant's report mentions an estimated 200 men setting snares feed the mining camps. In a park of 6,000 km<sup>2</sup>, this gives an average hunting ground of only 5 km x 6 km per hunter (although in reality the distribution would not be even). Clearly, sustained trapping at this intensity will exterminate every terrestrial animal capable of triggering the snares. In addition, according to the independent consultant, poachers and ex-military use firearms – these will ensure that arboreal species, such as monkeys and larger birds, do not escape the carnage.

### Orphaned apes

The independent consultant mentions a live baby gorilla being carried out of the forest on someone's back in a baby wrap. It was not a very small one (maybe 1–2 years) and seemed in

good health. This was shortly before an expatriate soldier was offered a baby gorilla for sale in Gisenyi, Rwanda on 10 April 2001, and could well have been the same one. Unfortunately, the well-meaning soldier lec-

### Natural Resources of Congo

With an area of 2,344,858 km<sup>2</sup>, the Democratic Republic of Congo is the third-largest country in Africa, and in 1996 it had a population of approximately 46 million with more than 200 ethnic groups. It is one of the richest countries in Africa in its agrarian potential, its energy resources and in the variety and abundance of mineral resources. With a gross national product of less than US\$ 200 per person (annual per capita income in 1996: US\$ 130), however, the Congo is among the poorest countries in the world.

The Congo exports a number of agricultural and forestry commodities, including coffee, tea, palm oil, rubber and wood. Mining and those branches of industry based on mining make up approximately one quarter of the gross domestic product and serve as a basis for the economy.

The D. R. Congo is the world's largest producer of cobalt and industrial diamonds, and the sixth largest producer of copper. Katanga, in the south, and Kivu, in the east, are especially rich in mineral deposits. The Precambrian copper and cobalt deposits of South Katanga, the largest in the world, also contain zinc, lead, cadmium, silver and uranium. There are large deposits of iron ore in the northeast of the country, and there are some manganese deposits near Kisenge in southwestern Katanga. Primary and secondary gold deposits are scattered throughout the northeastern part of the country, from the Uele and Ituri Rivers to Katanga. Diamonds (both industrial and gem quality) are concentrated in Kasai Orientale. There are combined deposits of germanium, tungsten, niobium and tantalum (in pegmatites) and tin in the east in Maniema and Kivu.

Niobium (Nb) is a very hard metal and its possibilities of replacement are therefore extremely limited. It is used to refine steel, and as a high temperature material it is indispensable to the nuclear industry, to aircraft and rocket engine technology, and to the construction of turbines.

Tantalum (Ta) is a chemically very resistant metal and exceedingly heat-resistant; it is irreplaceable in the production of stainless steel, medical instruments, chemical equipment and plants, in vacuum technology, in electrical engineering and in electronics. The Pentagon classifies tantalum as a strategically important substance. Because of its use in the computer and communication technology, the world-wide demand for tantalum has enormously accelerated.

Niobium and tantalum occur mainly as columbite (coltan: colombo-tantalite), a combination of niobite (Fe,Mn) (NbO<sub>3</sub>)<sub>2</sub> and tantalite (Fe,Mn)(TaO<sub>3</sub>)<sub>2</sub>. Apart from the D. R. Congo, other important producing countries are Brazil, Canada, Australia, the CIS states, Thailand, Malaysia and Nigeria, with Nigeria and the Congo having the richest deposits.

*Klaus Griegel*



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**Gorilla skulls from the Kahuzi-Biega Park**

*Photo: Ian Redmond*

tured the vendors on the error of their ways, and so was not taken to see the orphan and its whereabouts now is not known. Sadly, the whereabouts is known of many orphan chimpanzees, who seem better able to survive the traumas of capture and ill-treatment.

At the quarterly meeting of ICN Conservators in November 2000, the subject of illegally held protected species was on the agenda. It was estimated that there may be as many as 50 orphan chimpanzees in the region – at least 20 in Bukavu and up to 10 in Goma alone. One of the action points for that meeting was a census of such captives, most of which are not receiving adequate care. The problem is then what to do about them. Without a sanctuary, the authorities are unable to confiscate them, and so there is an urgent need for an animal welfare NGO to step in to help here.

### **Socio-economic Consequences of the Coltan Boom**

The destructive nature of the coltan-rush is not just to be measured in its

environmental impact. Instead of being a rare opportunity for bringing benefits to hard-pressed communities, coltan has brought out the worst attributes of human nature – decadence, immorality, drug abuse and crime.

– Thousands of families have been deserted by their main wage-earner in his desire to "get-rich-quick".

– Agricultural production is therefore down as many fields remain un-tilled.

– Prostitution has increased; in the camps, sex is available for a spoonful of coltan.

– As a consequence, an increase in sexually transmitted diseases has been reported, especially AIDS.

– Drug abuse and crime has reportedly risen as more "fast money" has been circulating.

– Education has been badly affected; in *Le Gorille 4*, Bakongo Mudahama reports that school attendance has dropped by 30% as students have deserted their studies to dig for coltan.

– Many lives have been lost in mining accidents; 90 miners were killed in

collapsed coltan mines in Mumba and Luwovo.

– Almost all of the major profits of this valuable resource accrue to foreigners, not to local people.

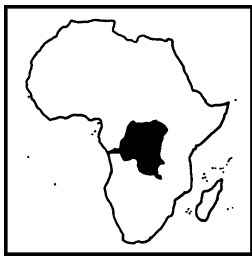
It is a double tragedy that the sudden increase in coltan prices has led to social and ecological destruction, rather than providing an opportunity to bring lasting benefits to the people by careful exploitation of legally mined deposits. It is the responsibility of those in the developed world, whose demand has created this chaos, to step in with the skills and resources to turn the situation around.

Coltan mining, with safe mines and environmentally responsible practices, could yet turn out to be a boon to the region. But only a responsible attitude on the part of the buyers will achieve this in a region where guns rule and might is perceived as right. The concept of "Certified Coltan" needs to be introduced immediately to the world market, and mineral dealers must act quickly if they are not to be tainted with the decadence of the Coltan Boom in Congo.

### **The Status of Grauer's Gorilla**

Only immediate action at the highest level will halt the destruction of this beautiful area, and offer a chance of recovery of its unique biodiversity. It remains to be seen how many – or how few – of Kahuzi-Biega's 3,600 elephants and 8,000 gorillas have survived the massacre in the lowland area, but it is hoped that relict populations could have retreated to, or survived in, the most inaccessible parts, furthest from the mining areas. The only accurate data is from the highland area.

It appears that the population of Grauer's gorilla in the Kahuzi-Biega National Park and Kasese may have been reduced to under 1,000. The other nine populations listed by Hall et al. (1998) numbered in the tens or



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**Guy Debonnet (GTZ) addresses the people of Mudaka during the ceremony of protocol signature for collaboration with the park**

hundreds a decade ago and are also likely to have declined or been exterminated. The population in Maiko National Park is thought to have escaped the heavy poaching, but if our worst fears prove founded, the sub-species may have been reduced from about 17,000 to only 2,000–3,000, an 80–90% crash in only 3 years.

### Recommendations

The simple message from all the conservationists on the ground is that **immediate action** is required to save the park. If the political will to stop the mining, and resources for ICCN are not forthcoming now, then the chances of Grauer's gorillas surviving and the park recovering are virtually nil. The medium- and long-term plans are, therefore, dependent on the successful implementation of the short-term acts. (These recommendations are complementary to those by A. Kanyunyi Basabose and Juichi Yamagiwa on page 5 f.)

### Short-term priorities

– Immediate, high-level international political pressure on the Presidents of RCD-Goma, Rwanda and Uganda to order action to halt the destruction in

Congo's national parks and reserves, especially KBNP.

- Immediate release of the funds promised by UNESCO more than two years ago;
- Increase NGO support to ICCN;
- Co-ordinate with humanitarian agencies if people leaving KBNP are in need of assistance;
- Identify the chemical signature of coltan from KBNP and ensure trade in it ceases.

### Medium-term actions

- Establishment of a commission with representation by all stakeholders (UNESCO, ICCN, local Government, NGOs and community leaders) to settle once and for all the disputed boundaries of KBNP;
- Locate funds to enable ICCN to increase manpower and extend the excellent monitoring and protection currently afforded to the mountainous sector to the lowland sector of KBNP. A census of large mammals is a high priority to assess the potential for recovery of the park's ecosystems;
- Implement DFGFE's (*Dian Fossey Gorilla Fund Europe*) proposal to establish an endowment to finance a micro-credit scheme similar to the

successful one pioneered by DFGFE in Goma, providing the means for local people to set up small businesses and thereby reducing their dependence on illegally acquired resources;

- Identify the best location for a sanctuary to care for orphaned primates, thereby enabling ICCN to confiscate them (modelled on the *Uganda Wildlife Authority's* Ngamba Island Chimpanzee Sanctuary);
- Assist local NGOs such as the *Pole Pole Foundation*, to source funds for conservation education, reforestation and improved farming practices around the park boundary.

**Long-term objectives.** As soon as peace returns to the region, the successful gorilla tourism of the 1970s and 1980s should resume, financing the conservation work and bringing benefits to the surrounding communities. Revenue sharing schemes such as those already operating in southwestern Uganda should be introduced and Kahuzi-Biega National Park will have been saved.

*Summary of a report written by Ian Redmond (funded by DFGF Europe and Born Free Foundation). Complete report in PDF format:*

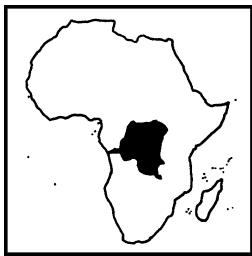
<http://www.bornfree.org.uk/coltan>

## Exploiting Kivu

In April 2001, the UN published a 55-page paper entitled *Report of the Panel of Experts on the Illegal Exploitation of Natural Resources and Other Forms of Wealth of the Democratic Republic of the Congo*. A brief summary:

Illegal exploitation of the mineral and forest resources of the Democratic Republic of Congo is taking place at an alarming rate. During the first phase, stockpiles of minerals, coffee, wood, livestock and money were taken from the territories conquered by the armies of Burundi, Rwanda and Uganda, and either ex-





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ported to those countries or to international markets by their forces and nationals. This phase was followed by systematic and systemic exploitation. It flourished because of the structures put in place during the conquests of the Alliance of Democratic Forces for the Liberation of Congo-Zaire. Exploitation was often carried out in violation of the sovereignty of the Democratic Republic of Congo, of national legislation and sometimes of international law, and led to illicit activities. Key individual actors including top army commanders and businessmen on the one hand, and government structures on the other, have been the engines of this systematic and systemic exploitation. Some leaders in the region bear a direct responsibility.

The Panel concluded that tough measures must be taken to bring to an end the cycle of exploitation and the conflict in Congo. Recommendations revolve around 6 broad themes: (1) sanctions against countries and individuals involved in the illegal activities; (2) preventive measures to avoid a recurrence of the current situation; (3) reparations to the victims of the illegal exploitation of natural resources; (4) design of a framework for reconstruction; (5) improvement of international mechanisms and regulations governing some natural resources; and (6) security issues.

The UN report can be downloaded from the UN website (<http://www.un.org>). It also names international companies that have been buying the illegally exploited resources such as coltan. Several organizations in Europe have since started campaigns against this activity. People should write to their elected representatives and mobile phone/computer manufacturers, asking them not to support this exploitation. In June Sabena/Swissair decided not to transport mineral resources from East Africa on their flights any more.

### Gorillas without Elephants? A Query for Research

The Kahuzi Biega National Park (map: page 13) consists of two parts: the original zone, 600 km<sup>2</sup>, gazetted in 1937, is covered with highland vegetation between 1,800 m and 3,308 m. About 258 gorillas and 350 elephants thrived there until 1996. The second zone, 5,400 km<sup>2</sup>, classified in 1975, is covered with rainforest from 600 to 1,200 m. About 8,000 gorillas and 3,600 elephants lived there until 1996.

Since 1999, we have known that the 350 elephants from the original zone of the park had been massacred and that more than half of the gorilla population was destroyed. The last census (June-August 2000) indicates that only 130 gorillas survived. No elephants are mentioned in that report, although we still see 2 elephants during our daily monitoring activities.

In March/April 2001, we sent an investigator to the lowland extension zone of the park. He reported massive killing of the fauna in that area. As many as 15,000 miners are reported to live inside the park. They feed on wild meat and they destroy trees for firewood and construction. The tens of thousands of armed groups who have lived inside and around the park for 4 years now also contribute to the destruction. The situation of the elephants is uncertain and gloomy. Six months ago, miners could easily buy elephant meat. Poachers with firearms could still kill an elephant per day. Now, those hunters can find no more elephants. The investigator interviewed 6 poachers who complained that for 6 weeks they had found no elephants. Those poachers estimated that they were no more elephants in the forest, though there were still some gorillas. They were even holding a baby gorilla that they had captured after killing its parents.

Nowadays, the gorillas of the Kahuzi Biega Park who lived in symbiosis with elephants have to move alone in the forest. Our daily observations suggest that the ranging distance of the gorillas has diminished compared to times when elephants were present. Rangers frequently find the gorillas in their night-nests; that never happened before. They even recently encountered a healthy gorilla which was still asleep at 10:00 am. Gorillas have always followed tracks made up by the elephants, but these paths no longer exist. There was competition for food between elephants and gorillas and this too no longer exists.

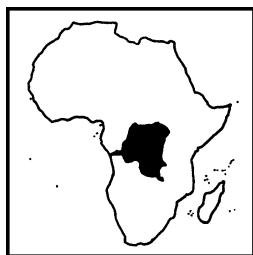
The park management, therefore, are now asking a number of questions. That oversleeping gorilla, was it exhausted from pushing off its way through the thick forest? Do gorillas move less because no paths are available? Do they move less because more food is available in their immediate vicinity? Will this reduction of movement make the gorillas more vulnerable for poaching? How does the vegetation develop after the disappearance of the elephants?

No ecological or ethological study is yet being conducted. Such studies would be useful to understand the changes in the park. The results would suggest an appropriate management strategy. A specialist is needed to clarify the problems, design the methodology and train research assistants who would be in charge of collecting the data. The problem is real. But the park has as yet no means to start this study.

*Kasereka Bishikwabo*

### News from the Virunga National Park

We estimate that 310 km<sup>2</sup> are cultivated today in the Virunga National Park. This is due to the war that has



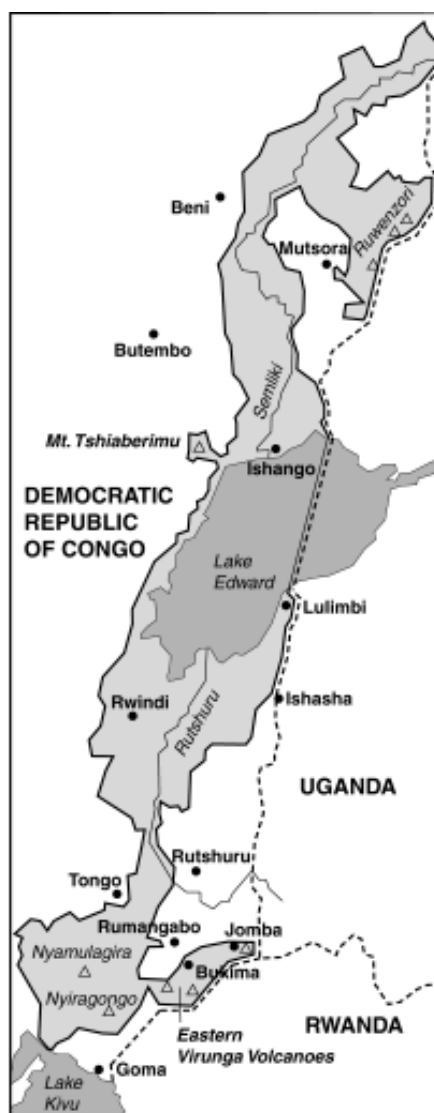
## D. R. CONGO

also caused many other problems in the region. Moreover, no salary has been paid to the ICCN staff in the park for 75 months and the population around the park is very poor due to the war. The people know about the importance of the park but so far they have not received any profit from it.

In order to encourage people to stop farming within the park, our project (*Peace Parks in the Great Lakes*) is trying to arrange a dialogue between the park staff and the population, who must be involved and considered in conservation. "We must act together" said some leaders of the local people. Recently, our project led a meeting in Nairobi where all the principal stakeholders decided to be partners and define activities that will be conducted in synergy. After Nairobi, PPP (*Peace Parks Project*), the WWF project (PEVi – *Programme Environnemental autour des Virunga*), the leader of the Virunga National Park's South Sector and local chiefs organized 3 days of sensitization. The aim was to convince people to stop farming the park land at Mugunga, Kisingati, Kabti and Kirorirwe and to find out how a permanent dialogue with them can be maintained. The results were encouraging. The population in these areas stopped farming the 1.5 km<sup>2</sup> that had been cultivated recently. Activities like this must be encouraged and funds must be found.

When the park staff approached the people, they agreed to stop farming the land – however, they also described the difficulties that they have to survive. They hope that the park and its partners will fund some small projects to improve their welfare. PPP is planning to establish "le comité des dialogues" around the Virunga National Park. We will work on this during the next months.

The overall objective of PPP is to promote the conservation and sustainable use of biodiversity during armed



conflicts by setting up a network of protected areas for peace and contributing towards the improvement of welfare of the affected populations in the Great Lakes countries. We are planning to fund small projects for the local population, the delimitation of Virunga National Park with the local population and park staff, sensitization on television and radio and we want to establish a warning system for the conservation of the national park. Our project is still in its initial phase and we do not have enough funds. We would be

grateful if some generous people or organization could help us because we have to deal with enormous problems.

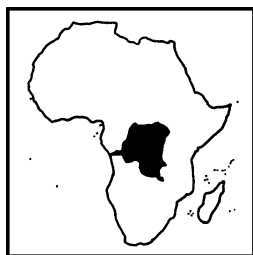
*Claude Sikubwabo Kiyengo*

### News from Mt. Tshiaberimu

In February, Mai-Mai militia were active in various villages around Kyondo and were disturbing local socio-economic life. They visited Camp Ngai and Burusi patrol posts and created a state of panic among rangers (who are still disarmed). I had informal contact with their leaders and managed to convince them not to do any harm to the rangers as they are there just to save the few remaining gorillas of Tshiaberimu. It is just difficult to rely on their good will as their intentions are quite unpredictable.

In an emergency contingency plan to deal with the situation, I held meetings with the team of rangers, various local leaders and extension workers of PEVi/Kacheche based in Butembo. This plan concerns basically the security of rangers, improving collaboration with local leaders, and communication with various partners and stakeholders. Activities related to the monitoring of gorillas and maintenance of forest trails will continue. We decided to reduce patrols in encroached areas to avoid confrontation with local people which may attract the militia and expose the rangers to high risk. I paid the rangers bonuses for 3 months and provided more food so that they have all their necessities for more than a month. But there is still a lot to do, as I have to change my entire working plan because of the new situation.

The future of Mt. Tshiaberimu depends on both a good long-term conservation commitment in terms of rangers' presence and activities, and



## D. R. CONGO

a community-based approach to alleviate poverty, the burden of the people who are living on the brink of chaos (nonexistent government and inefficient administration, which is completely helpless and unable to support social and development initiatives ...). In the 2001 project plan for Mt. Tshiberimu, emphasis was put on socio-economic and development initiatives: working with grassroots associations, identifying problems to be solved together and developing community capacities to address their priorities and explore practical and achievable solutions. Schools were identified as a special target for action.

*Vital Katembo Mushengezi*

### Seminar on Community Conservation: Tayna Gorilla Reserve

As part of the ongoing activities of the *Tayna Gorilla Reserve Project* (RGT), a seminar for local landowners was held at Butembo from 29 to 31 January 2001. Led by Chief Warden Pierre Kakule, 35 participants discussed community conservation, the protection of gorillas and other endangered species, and the establishment of protected areas. These seminars and open discussions allowed local landowners to participate and understand community conservation in the Democratic Republic of Congo as well as other parts of Africa.

The seminar included the following presentations: Present Conservation Policy in Congo (Mr. Kyungu/RGT); Experiences with Community Conservation in Southern Africa (Mr. Jobogo, Warden/ICCN); Gorilla Conservation at Mount Kyabirimu (Mr. Kasivika/NGO COTEDER); Education and Sensitization of Local Populations (Mr. Ngahinga/NGO SYDIP); The Role of Women in the Management of Natural Resources (Ms. Kalindula/

NGO UWAKI); Conservation and Development Experience from the Epulu Okapi Reserve (Mr. Ndimu/PEVI-WWF); Community Reforestation and Education around the Virunga National Park (Mr. Ndimu/PEVI-WWF); Gorilla Protection in the Sarambwe Forest (Mr. Buturu/NGO GAIDER).

The seminar also used video films about mountain gorilla monitoring, mammal eco-ethology in the Virunga National Park, and agroforestry in southern Africa to help educate the local landowners. During the 3 days, the landowners participated in various discussion groups to evaluate the problems around the reserve and they proposed the following solutions:

#### Related to ecosystems

- Involvement of whole hierarchy in administration and use of lands (land owner/chieftaincy/collectivity);
- Resolution of land conflicts;
- Training and education of population in rational use of forest habitats;
- Halt human migration towards the Tayna Gorilla Reserve.

#### Related to the human population

- Identify people who are not locals in the area and find means to remove them (e.g. gold miners);
- Stimulate the political-administrative authorities to provide aid;
- Stimulate agricultural activities and credit to increase familial income;
- Train the people, introduce them to micro-projects for self-financing;
- Improve roads and provide health centres and schools at low fees;
- Foster a sedentary population by generating micro-projects;
- Educate population about gorillas, forests, and their natural biological heritage.

#### Related to women

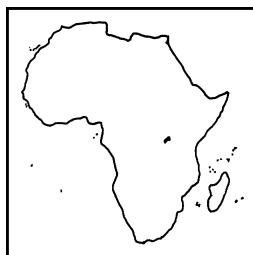
- Encourage women to participate in dialogue committees;
- Train and educate rural women (literacy);
- Encourage women to participate in local micro-projects.

Each of the organizations involved (*Tayna Gorilla Reserve Project*, NGOs, land chiefs, political-administrative authorities) decided to take priority actions based on the recommendations formulated during the discussion groups. The following recommendations received the highest priorities:

- The local land chiefs who had received training during the seminar would return to their areas and train their neighbours about conservation and rational management of biodiversity;
- Personnel recruited for the Tayna Project should come from local communities in and around the reserve;
- The project should support the education of local landowners' children;
- Local women should be educated and trained on matters of biodiversity and conservation, and then be involved in Tayna Project activities;
- Conservation Clubs (Friends of the Gorillas) should be created in order to popularise the notion of forest and fauna conservation;
- The Tayna Project should form an official collaboration and technical exchange with ICCN.

Since the seminar, we are happy to report that a collaboration with ICCN has been formed, three children's conservation clubs are active, more locals have been hired to work as guides and trackers for the Tayna Project, and local chiefs are actively participating in the education of the rural population. A micro-project for local women is underway as one of the first development projects for the Tayna Reserve. Salaries, equipment and supplies are also being provided to the Tayna Project by the *Dian Fossey Gorilla Fund International* as primary conservation partner.

*Pierre Kakule, Jean Claude Kyungu*  
This seminar was supported by Berggorilla & Regenwald Direkthilfe and the DFGF International.



## RWANDA

### Virunga Gorilla Population Increases

Despite the conflict in the Great Lakes region, the Virunga population of the highly endangered mountain gorillas has been protected effectively and the numbers have increased by more than 10%.

The organizations working together to protect the mountain gorillas and its habitat estimate that the number of Virunga gorillas is now 355 individuals. Monitoring data from IGCP (*International Gorilla Conservation Programme*) and DFGF-I (*Dian Fossey Gorilla Fund International*) show that the population has been slowly increasing, despite the war and conflict in the region, and the enormous threats to the habitat. The last census of the Virunga population of mountain gorillas was conducted in 1989 and showed the population to number 320 individuals. From the daily monitoring of the research and tourism gorilla groups, and the sightings of wild groups, it appears that the current population stands at a minimum of 355 known gorillas. This figure is most likely an underestimate, with more individuals to be counted, and it represents a significant increase from the 1989 census. An analysis, currently in preparation by IGCP, DFGF-I, the *Institute of Tropical Forest Conservation* (ITFC) and the Max Planck Institute will describe in more detail the population increase observed.

The increase can be directly traced to the sheer dedication of field staff operating on the ground. Park rangers and trackers, many of whom have been killed or wounded while on duty in Rwanda and Congo, have been patrolling the forest continuously throughout the years of civil unrest. This dedicated work has limited the damage to the habitat and the population of gorillas.

*From a Press Release by IGCP*

### Visit to the Mountain Gorillas in Rwanda

At the end of March 2001, I once again had the opportunity of visiting the mountain gorillas in the Volcano National Park in Rwanda. I obtained permits for the same gorilla families as I did during my last visit: Amahoro and Suza. While the average number of visitors during my 2 days' visit last year was 2 persons, the average this year was about 6 persons per gorilla group. All numbers refer to the tourist "low season" (March, April).

Normally, tourists are not allocated by the ORTPN office (*Office Rwandais du Tourisme et des Parcs Nationaux* – Rwandan Office of Tourism and National Parks) on particular groups, but it is attempted to send the maximum number of visitors per group (8 persons) because this means a lower logistic expense. The gorilla families visited most often are undoubtedly Amahoro and Sabinyo, as these two prefer the lowest vegetation zones of the national park, and so can be reached in a relatively short time. The terrain, however, can be difficult (particularly during the rainy season) because of the abundance of vegetation and the unstable terrain. Visitors who



*Photo: Cyril C. Grüter*

have permits for the groups Amahoro and Sabinyo can drive by 4WD vehicle or they can be taken up to the border of the national park where the actual tracking starts.

We found the Amahoro group after a trip that lasted a little more than an hour on a steep slope within sight of the cultivated fields outside the park. The rangers, who climbed the slope earlier in order to locate the gorillas, were in permanent radio contact with the guides.

The number of visitors, guides, porters and soldiers on this day was almost as high as the number of the

### Mountain Gorilla Killed by Militia

A male gorilla in the Volcano National Park was cooked and half eaten by Hutu militiamen at the beginning of June. It is possible that a second one met a similar fate. The two gorillas are believed to be lone silverback males. The militiamen had infiltrated the park from neighbouring Congo to escape a relentless Rwandan army crackdown on their bases in Congo. The Rwandan rebels shot, grilled and ate the gorillas when the park was surrounded by the army and the rebels were unable to get food. Although the killing and eating of monkeys, chimpanzees and lowland gorillas is common in Congo and other parts of Central Africa, it is rare in Rwanda and Uganda. After this incident the army deployed troops around the gorilla groups and around the park. Soldiers accompany tourists up the mountains and others line the routes to gorilla feeding grounds.



## RWANDA



**This German stamp was published in the series "endangered animal species" in May 2001. It shows mountain gorillas from Dian Fossey's group 5.**

gorillas in the Amahoro group. This was from my point of view a serious disturbance for the animals. The few soldiers and porters usually stay at a distance from the gorillas, and only the visitors and guides approach the gorillas to within a few metres. But even this is not always enforced, according to the report by Chris Whittier of the *Mountain Gorilla Veterinary Project*, who accompanied both trackings and who by means of GPS (Global Positioning System) recorded data such as altitude and exact geographic coordinates.

Disturbance due to stress is presumably higher for the families habituated for tourists than for those with the research teams, because they sometimes are visited on 7 days a week by up to 15 people (who do not always behave according to the regulations). The research groups are visited by only a few people on 4 days a week, although the researchers are allowed to stay longer with the groups than the tourists. The stipulated length of stay – one hour – was exceeded when we visited the Amahoro family. A reduction of the number of visitors from 8 to 6 persons (as had been the case prior to the political unrest in Rwanda) would surely be desirable but can hardly be realized.

Most people visit the gorillas during a day trip starting from Kigali or from Kisoro in Uganda, if there are no permits for the Bwindi or the Mgahinga gorillas have not crossed the border from the Congo. A permit for a gorilla visit in the Volcano National Park still costs US\$ 250 (to be paid in cash), and even without prior booking there is still a good chance of getting a permit just one day before the tracking. The booking is made in the very simply equipped ORTPN office in Ruhengeri or in the headquarters of the park in Kinigi.

Normally all tourists are asked to arrive at the headquarters in Kinigi at 8 o'clock in the morning on the day of the tracking. After a 3 hours' walk (e.g. through the *Hagenia* woodland), we spotted the first members of the Suza group in a sunlit forest clearing above 3,000 m. The Suza group consists of 3 silverbacks, of which Kurira is the patriarch. Because of the delays, we reached the gorillas around noon (siesta time) when the group was resting, spread out in the thicket. This made observation even more difficult.

The siesta phase, however, did not prevent a young blackback from making a bluff charge at the human visitors. Once a silverback approached us up to 2 m as well.

As the group moved on, prior to the end of the visiting time, we also set off turning back. Clouds gathered, followed by heavy rain during the descent. The guides made every effort to explain the park regulations in English to the tourists. Unfortunately, not every visitor complies with the instructions. During my second tracking, noisy talking in particular made sightings of buffalos or woodland elephants very unlikely.

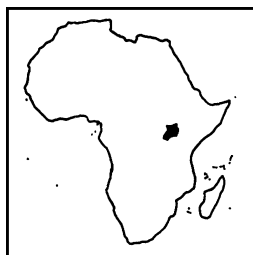
Some guides are still not sufficiently equipped for their profession (e.g. no good shoes or gum boots), which are necessary for this job.

In Rwanda, volcano climbing is not yet allowed because of potential land mines and attacks by Interahamwe militia. In Uganda, on the other hand, the volcanoes Muhavura, Gahinga and – depending on the situation – Sabinyo as well, can be climbed to the top.

*Cyril C. Grüter*



**William Mugisha (left), regional gorilla meeting in Kinigi, February**



# UGANDA

## Why Study Bwindi Gorillas?

One of the compelling reasons to conserve gorillas across their range in many African countries is because of the ecological, behavioral, and genetic variability they exhibit. However, our current understanding of many aspects of gorilla biology is strongly biased because of unequal efforts to study gorillas in different places. Most of our knowledge of gorilla ecology, demography, and social behavior is based on mountain gorillas of the Virunga Volcanoes as a result of the long-term research efforts at the Karisoke Research Center. While the increasing number of gorilla research projects that have sprung up across Africa in the past decade demonstrate that Virunga gorillas may represent one extreme, still relatively little is known about the Virunga mountain gorillas' closest neighbors in Bwindi Impenetrable National Park, Uganda. Bwindi Impenetrable is separated from the Virunga Volcanoes by only 30 km at the nearest point but there are several factors that make Bwindi gorillas distinctive and worthy of study.

From an ecological standpoint, not only are there broad differences in altitudinal and habitat zones between the Virungas and Bwindi, there also is a large zone that the two areas have in common. However, the forest zone where gorillas have been most intensively studied in the Virungas (above 2,700 m) does not exist in Bwindi and very little research has been done in the overlapping lower altitudinal zones of two places. Even in protected areas as small as the Virungas or Bwindi, given the large altitudinal variation, one would expect to see variability in gorilla ecology and, in fact, it has been shown in the Virungas (McNeilage, in press). Therefore, until more is known about the variability within and between each location, we should be

cautious when generalizing our scientific conclusions or management decisions for both areas.

From a purely scientific standpoint, studying Bwindi gorillas contributes to our understanding of the socioecology and evolution of primates and other animals. Current socioecological theory predicts that many factors, including the distribution of food resources and the reproductive strategies of individuals, play an influential role in the social system exhibited by a species. In particular, the relative quantity of fruit and herbaceous vegetation in gorillas' diet is predicted to cause changes in many variables including group size and cohesion, home range size and utilization, dispersal patterns, between group competition, and within group social relationships (Doran & McNeilage 1997). Testing these hypotheses requires detailed examination of ecological and behavioral parameters in many gorilla populations.

The taxonomic status of Bwindi mountain gorillas is also a topic of debate. The recent revision of the primate taxa considers Bwindi gorillas to

be "*Gorilla beringei* ?". Based on limited morphological and ecological data, Sarmiento et al. (1996) suggested that the Bwindi gorillas should be considered a unique subspecies from both the mountain gorillas of the Virungas and eastern lowland gorillas. However, based on genetic studies, the gorillas of the Virungas and Bwindi are indistinguishable (Gardner & Ryder 1996). While part of the debate rests on differing opinions of what is a subspecies, more research is needed to clarify the identity of Bwindi gorillas.

Regardless of their taxonomic classification, Bwindi gorillas are a small, isolated population of approximately 300 individuals and equally as endangered as the Virunga gorillas (McNeilage et al. 2001). Because the two areas differ in ecology due to both natural variation and history of human disturbance (e.g. cattle grazing was a problem in the Virungas, but pitsawing and gold mining occurred in Bwindi), we cannot necessarily assume that the parameters influencing population dynamics such as birth and mortality rates are the same in both areas. As far as we can tell, the Bwindi gorilla

**Percentage of each protected area represented by the various vegetation/forest types**

Forest Type	Altitudinal Range	Virungas	Bwindi
Midaltitude Forest	< 1,500 m	–	15%
Lower Montane Forest	1,500 – 2,500 m	–	33%
Upper Montane/ Mixed Forest	2,000 – 2,500 m	37%	50%
Bamboo	2,400 – 2,800 m	26%	2%
Brush Ridge/ <i>Hagenia</i> / Herbaceous	2,700 – 3,300 m	25%	–
Alpine/Subalpine	(> 3,300 m)	12%	–



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### **Bwindi gorillas**

*Photo: Martha Robbins*

population has not grown in the past decade yet the Virunga gorillas have increased in number. While many of the conservation issues facing the two areas are shared, such as the risk of disease transmission from humans to gorillas, several of the problems vary in degree of concern between the two places. For example, whereas the threat of gorillas getting caught in snares set for antelope is much greater in the Virungas, crop raiding by the gorillas is a much bigger problem in Bwindi. Fortunately, there is excellent communication and collaboration amongst the protected area managers and NGOs working in both regions, but a greater understanding of the differences and similarities of the gorillas' biology in each protected area will contribute to more informed management decisions specific to each place.

To address the need for more information on Bwindi gorillas, in 1998 I began a study of their behavioral ecology. The main focus of my research is to understand the causes and consequences of variation in the social sys-

tem of gorillas (group structure and social relationships amongst individuals). In particular, I am asking the following questions: How much fruit do Bwindi gorillas eat? Does fruit eating result in increased levels of within-group competition and corresponding changes in social relationships? What reproductive strategies do males and females use and how do these impact on individual reproductive success? How do various ecological, demographic, and behavioral characteristics differ between the Bwindi gorillas, Virunga gorillas, and other gorilla populations?

Data collection has primarily focused on observations of the Kyagurilo Group, which has been monitored by the ITFC (*Institute of Tropical Forest Conservation*) since the late

1980s. Since I began this study, the group has ranged in size between 12 and 14 individuals with demographic changes including 2 births, the emigration of 2 blackback males, and the immigration of one subadult female. Certain questions concerning reproductive strategies, such as paternity determination, are being addressed through genetic analysis of this and other gorilla groups in Bwindi by Anthony M. Nsubuga (page 31 ff.).

While data collection is ongoing and analysis is underway, some interesting results are emerging. Fruit does play a greater role in the diet of Bwindi gorillas than for the Virunga mountain gorillas, but not as much as for eastern and western lowland gorillas. The home range of Kyagurilo Group is much larger than the home range of Virunga gorilla groups and comparable to that observed in lowland gorillas. Preliminary results also suggest that competition when feeding on fruit resources is more intense than when the gorillas are feeding on herbaceous vegetation (Robbins 2001).

In sum, it should be recognized that it takes a great deal of effort to conduct research on gorillas in the wild, which partially explains why we don't know more about gorillas in more places. However, if we want to understand the flexibility exhibited within and between gorillas of differing populations, subspecies, and species, the efforts of intense research are necessary. It is clear that the more we learn about gorillas in a wide variety of habitats the more we can contribute to science, education and public awareness, and conservation efforts.

*Martha M. Robbins*

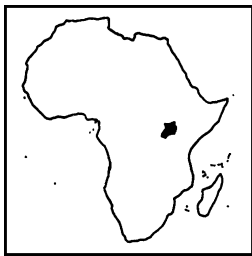


### **Silverback Zeus (Bwindi) in a tree**

*Photo: Martha Robbins*

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## An Outbreak of Mange Hits the Bwindi Gorillas

In July 2000, the *Mountain Gorilla Veterinary Project* (MGVP) received an urgent call that 3 juveniles of the Nkuringo group on the edge of the Bwindi National Park were losing hair and one was lethargic and not eating. The problem sounded like it was probably the skin parasite *Sarcoptes*, commonly called mange or scabies. There had been a previous outbreak in the park that had claimed the life of an infant. It was therefore imperative to treat the group quickly. The worst clinical case was identified and darted; the animal had skin scrapings and biopsies done.

Back in the new lab in Ruhengeri the vets found the actual mite in the skin scraping to confirm the diagnosis. Samples were then transported to the USA where further tests were run and the mite was keyed to the same morphology as the human mite. This is the first time the mite has been examined to this level and supports the theory that the mange is probably of human origin.

When the Nkuringo group was surveyed again in February 2001, 5 in the group of 18 individuals were observed to show mild signs of mange. Some of them were treated. Darting with two doses of Ivermectin approximately 2 weeks apart proved to be an effective treatment. At the end of February, the MGVP was informed that a group of 3 unhabituated gorillas were showing signs of mange and that one was completely bare except for a patch of skin on the back. Reports and nest sightings indicate that wild gorillas do make incursions into community lands around the Nkuringo sector. ITFC researchers identified 5 such groups. These groups seem to have home ranges that overlap with that of the infected Nkuringo group.

The mange is now under control and there has been no mortality. We are still monitoring the group. The condition of the gorillas who developed signs of illness is improving greatly.

*Antoine Mudakikwa*

## Learning for a Living

For more than 15 years now, we have been training women how to sew and knit in our sewing and knitting centre in Mutolere, Kisoro. Manual skills are not taught very much in the surrounding schools. Much greater importance is given to academic subjects like mathematics, English, geography, etc. We started offering these courses mainly for unmarried mothers. Most of these women were very young and had no possibility of earning a living for themselves or for their families.

After a three-month beginners' course in knitting and hand-stitching, we then carried out a sewing course. After some time we were very successful. Our sweaters, jackets and layettes have sold very well and we were able to employ and train up to 14–15 girls. We had acquired the knitting machines with the help of Mi-



**One of the sewing courses in 2000**

sereor (an agency against hunger and disease of the German Catholic Church) and my home parish. In this period we trained more than 60 women. Some of them have started their own business in the meantime and are now competing with us here in Kisoro, which pleases me. About 5 women have "started a new life" in other towns with 2 or 3 machines. Others moved to Kampala to work in larger sewing companies. And others are married now and work with sewing machines that we bought for them from our profits. All in all, we donated machines to more than 20 women.

At the moment 4 women are working for us using different knitting machines. We are very happy about the order of knitting sweaters for the rangers and we would like to further cooperate with the *Berggorilla & Regenwald Direkthilfe* in the future.

*Waltraud Ndagijimana*



**These sisters received a sewing machine from the project**

*Photos: Waltraud Ndagijimana*





# GORILLAS

## The Role of the Cross River National Park in Gorilla Conservation

The Cross River National Park (CRNP) is the only moist tropical rain forest national park in Nigeria. It is surrounded by moist tropical rain forest around the northern and central parts and mangrove swamps on the coastal fringes. The park, in the extreme southeastern corner of Nigeria, covers approximately 4,000 km<sup>2</sup> within the Cross River State, approximately on 5°04'–6°25' N and 8°30'–9°30' E. The park is officially managed as 2 divisions, the Oban Division in the south and Okwangwo Division in the north. The Cross River gorilla (*Gorilla gorilla diehli*) occurs within the Okwangwo Division.

The Okwangwo Division, a complex of rainforest, montane forest and derived savanna, is renowned for its rich diversity of flora, about 1,545 species representing 98 plant families. Some of the plant species are endemic to the area and others are completely new to botanical science.

This park has among the highest diversity in the region as it houses about 78% of the primate species occurring in Nigeria. Interestingly, the areas where the Cross River gorillas live are unique in the sense that such habitats also host other charismatic primates such as the chimpanzee (*Pan troglodytes*) and drill (*Mandrillus leucophaeus*). Hence the 3 largest primate species of Nigeria live sympatrically in the park and the surrounding habitats (Mbe Mountains, Afi Mountains and Takamanda Forest Reserve, Cameroon).

### Developing Infrastructure for Gorilla Conservation

**Kyangy Gorilla Station.** The gorilla is the theme animal of the CRNP, and therefore the park management has developed a research-cum-tourist sta-

tion at Kyangy to facilitate research on the gorilla as well as promote scientific knowledge on the park and gorilla-based eco-tourism in the future.

Mbe mountain is a strategic habitat of Cross River gorillas and presently harbours about 30–40 individuals. The area recorded some improvement in protection and scientific research during 1995 and 1997 following funding from the EU. Presently the area, a community forest use area, has been receiving much attention; this may improve the conservation of the Cross River gorilla. CRNP and the *Primates Preservation Group* (PPG) are presently trying to maintain researchers' presence in the area as well as to talk with the stakeholders over continued conservation of the area. Lack of funds has been a major drawback towards the realisation of this goal.

Although the PPG has enthusiastic field workers who would love to continue long-term gorilla research and tracking in the mountains, there are currently no funding possibilities to keep the group working continuously.

**Butatong Divisional Head Office.** The Butatong divisional head office was initiated and developed by the EU/WWF/Federal Government of Nigeria (Okwangwo Project). The divisional office contains facilities such as offices, staff quarters, visitor accommodation and recreation points, nature trails and arboretum. There is a ranger station from which the Okwa



**Clement Ebin, General Manager of the park, in a tent donated by us**

and Okwangwo sectors are patrolled. Here, rangers are provided with hostel type accommodation and from there they start their daily patrols.

**Support Zone Initiative.** In recognition of the fact that rural communities that depended on the rain forest for their survival have lost access to the areas now designated as park, and to give the task of park management and conservation a human face, the park management initiated and developed a concept known as "Support Zone Development Programme".

Under this scheme, consultations are made with support zone communities and development assistance is taken to them. Some of the assistance programs include creation and maintenance of access roads, provision of basic health care services, agricultural inputs, and vocational training for identified hunters to prepare them for alternative employment and livelihood.

There is also a program to relocate certain enclave villages from the park to alternative areas outside the park to enhance park protection as well as reduce the impacts of human perturbations.

### Cross River Gorilla Distribution around the CRNP

The Cross River gorillas range in an area of mainly semi-deciduous, montane and derived savanna within approximately 5°50'–6°30' N and 8°50'–9°40' E. The area spans the border of Nigeria and Cameroon. The gorillas are distributed in isolated sub-populations in and around a complex of hilly escarpments with steep valleys and odd peaks that generally rise higher than surrounding forested lands. Some of these reach nearly 2,000 m. At present, 4 isolated sub-populations are recognized though there may be more. The recognized sub-populations are those of the Mbe Mountain Ranges, the Afi Mountains,



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the Boshi Extension Forests (CRNP) and the Takamanda Forest Reserve of Cameroon which is contiguous with the CRNP. Gorillas range as far north as the Obudu Plateau, thus giving the subspecies the most northerly and westerly distribution of all gorilla populations.

## Promoting Gorilla Research and Conservation

The CRNP, having selected the gorilla as its theme animal, pursued over the last decade a gorilla based field biological research within the Okwangwo Division of the park and the Mbe Mountains (not yet officially included in the park). It is part of the management's plan to include this latter area (about 100 km<sup>2</sup>) into the park because of the presence of gorillas (30–40 individuals).

Currently, a 10 man ranger force based at the Kanyang gorilla station, at the foot of the Mbe Mountains, patrols and protects the mountains in cooperation with the landlord communities. Following initial long-term in-house research organized by the Okwangwo Program Management, between 1995 and 1997, the Cross River based NGO PPG, in collaboration with the CRNP and other local institutions, has maintained a continuous research presence in the mountains from 1998 to date.

## Boshi

The Cross River National Park and the PPG are also carrying out survey work in the Boshi Extension looking specifically at gorilla ecology and threats. These on-going studies will determine their ranging behaviour in the area. There are some indications that the animals migrate seasonally across the Nigerian border into Takamanda Forest Reserve.

The park has intensified its efforts to provide protection measures by bringing a team of rangers to the area.

Logistic support, however, has not been adequate to effectively mobilize this team. The area is vast and would require a minimum of 20 rangers in the field to patrol regularly. It is necessary to coordinate activities more effectively in the east around the international border and in the west around Bumaji, Busi etc., where human activities are rampant.

## Park Surveillance and Law Enforcement

A team of 34 park rangers effects park protection in Okwangwo Division. The rangers carry out their activities by organizing patrols and surveillance in and around the park. During these patrols, various observations are made. These include the continued trans-border poaching of elephants between Nigeria and Cameroon (carried out mostly by Cameroonians, especially by two notorious and evasive hunters). Persistent farming occurs around the support zone villages of Balegete (Elumsof), Okwa, Okwangwo, Bashu and Otchakwe, and there is incursion of cattle grazing by Fulani herdsmen along the Bushi-Ranch axis. There is also widespread poisoning of some rivers with gamalin 20 (herbicide) by fishermen, reported around the village communities of Butatong, Bashu, Bamba, Okwangwo, Okwa and Beebo.

The Division also recorded an increase in activities of timber and non-timber forest products extractors. The forest products harvested were mostly *Capolobia*, *Garcinia* and ebony; this development was attributed to the scarcity of these species in the community forest around the park and the neighbouring Cameroonian village of Obonyi.

Appreciable success in surveillance and law enforcement was registered, however. The rangers made a number of arrests of offenders and in collaboration with the police detained them at Obudu and Okondi Police

Stations. The prosecution of these offenders was carried out by a committee from the CRNP head office in Akamkpa.

Among the items seized and destroyed were camping huts, wire traps and animal carcasses. Other seized items included guns, knives and axes which were later returned to the owners after plea by the Chiefs and community leaders in the area. Offenders were, however, made to pay various charges as a penalty for trespassing and contravening park laws in order to serve as a deterrent.

Further enforcement of park surveillance and patrols was enhanced by the improvement of access roads to ranger posts. This was achieved by the upgrading of the road to the Divisional Headquarters, Butatong and the completion of work on the bypass to Butatong which started in 1996.

Camping gear and other patrol items that will facilitate rangers' operations will be purchased when funds are available. At the moment, an effort to identify suitable radio equipment that will function effectively in the difficult terrain of the rain forest is in progress.

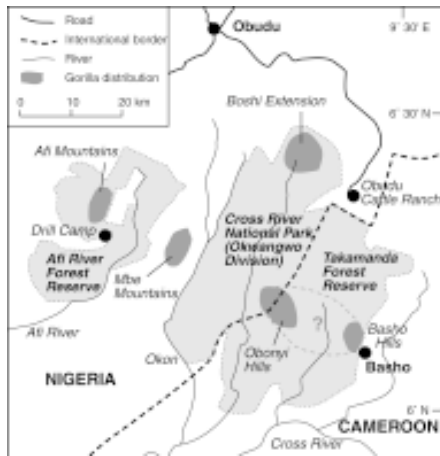
*Edem A. Eniang*  
Recently, the PPG has received assistance from Berggorilla & Regenwald Direkthilfe of US\$ 500 and some rain jackets for the rangers working in the Okwangwo Division specifically on gorilla protection.

## Workshop on the Conservation of Cross River Gorillas

A four-day meeting was recently held in Calabar, Nigeria, to formulate practical proposals to improve the survival prospects of the Cross River gorilla, recently recognized to be a distinct subspecies (*Gorilla gorilla diehli*) and one of the most critically endangered



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primates in the world. The meeting involved government officials, conservationists and scientists from both Cameroon and Nigeria, as well as technical experts and representatives of supporting agencies from overseas. It was sponsored the Africa Program of the *Wildlife Conservation Society* (WCS), New York, with organizational assistance from WCS Cameroon, the *Nigerian Conservation Foundation*, the management of Cross River National Park, and *Primates Preservation Group* (Cross River State).

The meeting was structured as a three-day technical workshop (on April 6–8, 2001), followed by a conference session (April 9). The first day of the workshop was devoted to the presentation of information about the biology and management of the gorillas, and was open to a number of invited guests. The next 2 days were restricted to a small core of experts with a special knowledge of, and/or management responsibility for the gorillas and their habitat. This core group carefully reviewed the threats to the survival of the gorillas and formulated a set of recommended actions to alleviate these threats.

The core group's final recommendations were summarized in the form of a communique which was presented to the closing day's confer-

ence session. This session was attended by political leaders (including Onari B. Duke, wife of the Governor of Cross River State), and by representatives of the local media. The communique was worded as follows:

"The Cross River gorilla is internationally recognized as one of the most critically endangered animals in Africa. With a total world population of less than 250 individuals, it lives in a number of isolated mountains straddling the international border between Cross River State, Nigeria, and the Southwest Province of Cameroon. Its survival will depend on urgent action to counter the threat of uncontrolled hunting, and the degradation and fragmentation of gorilla habitat resulting from expansion of human settlement and forest use.

Recognizing the perilous status of the Cross River gorilla, a group of 25 government officials and conservation experts from Nigeria, Cameroon and overseas gathered in Calabar for a workshop and conference from 6 to 9 April 2001. Participants acknowledged the importance of involving local communities in all conservation efforts, and identified the following priority needs (not listed in order of importance) for immediate action to save the gorillas:

- Improve effectiveness of anti-poaching measures, and enforce other protected area laws;
- Strengthen endangered species and protected area laws where necessary;
- Conduct surveys to clarify gorilla distribution, and identify core habitats;
- Provide legal protection for all core habitats;
- Secure and maintain forest corridors between core habitats;
- Establish measures for effective coordination of conservation across international borders;
- Undertake environmental education and awareness programmes targeting

key officials, villagers and the general public;

- Provide incentives to encourage certain villages within protected-area enclaves to relocate;
- Develop and implement a plan for sustainable financing of gorilla conservation activities involving national governments and external funding sources;
- Carry out training and capacity building, particularly for protected-area staff and African primatologists and conservationists;
- Prepare and implement an ecotourism development plan."

*John F. Oates*

Core workshop participants: C. Agbor (Forestry Commission, Cross River State), J. Ayeni (GTZ Project, Mamfe, Cameroon), M. Bakarr (*Conservation International*, Washington DC), A. Bassey (*Nigerian Conservation Foundation*), C. Ebin (Cross River National Park), R. Ebot (Ministry of Environment and Forests, Cameroon), E. Eniang (*Primates Preservation Group*, Cross River State, and University of Ibadan), G. Etoya (Ministry of Environment and Forests, Cameroon), B. Fosso (Ministry of Environment and Forests, Cameroon), R. Fotso (WCS Cameroon), E. Gadsby (*Pandillus*, Calabar and Limbe), J. Groves (University of Sussex and Takamanda Forest Project), D. Hoyle (WCS Cameroon), P. Howard (WCS New York), K. McFarland (City University of New York), E. Nwufoh (*Primates Preservation Group*, Cross River State), J. Oates (Hunter College CUNY, and WCS), E. Obot (*Nigerian Conservation Foundation*), A. Plumtre (WCS Uganda), N. Rowe (*Primate Conservation Inc.*), J. Suter (*Fauna and Flora International*), V. Ukpai (Dept of Environmental Conservation, Federal Ministry of the Environment, Calabar).

## Gorillas of Takamanda, Mone and Mbulu Forest, Cameroon

At the beginning of September 2000 I recommenced my field research on the *Gorilla gorilla diehli* population of the Takamanda Forest Reserve and the Mone Forest Reserve in the Southwest Province of Cameroon. With the research coming into its 6<sup>th</sup>



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month of fieldwork, this report has been produced to serve as an update on our progress.

In 1998 and 1999 my field surveys conducted in the Takamanda Forest Reserve, which covers an area of 676 km<sup>2</sup>, estimated that approximately 140 weaned gorillas inhabited the highland areas of the Takamanda Forest. However, I found no evidence of gorillas at all (and only a few other large mammals) in one highland area I surveyed. This was near a large village, and hunting is a major economic activity in this area. These observations suggested that my population estimate should be adjusted to take into account the proximity of villages to potential gorilla habitat. On the other hand, collections of skull records indicated that it was also possible that gorillas may still exist in the Mone River Forest Reserve (previously known as the Mawne River Forest Reserve) which covers 538 km<sup>2</sup> and is located approximately 6 km south-east of the Takamanda Reserve.

My new surveys are being conducted to confirm gorilla presence or absence and abundance, where possible, on all of the major highland areas within and surrounding the Takamanda Reserve. Line transects, focusing on gorillas but including signs of all large mammals and humans, have been set up on four of the highland areas within the Takamanda area. These sites are based around the villages of Takpe, the Kekpane/Basho Hills, Mende (often referred to as Mendi) and Obonyi I. All mammal and human data collected on transects from two of these sites can be compared with the data collected in 1998 and 1999. Additional nest searches have taken place in these 4 main areas in an attempt to locate all fresh nests, feeding trails or signs of feeding and dung per highland area. During the earlier surveys both lowland and highland areas were investi-

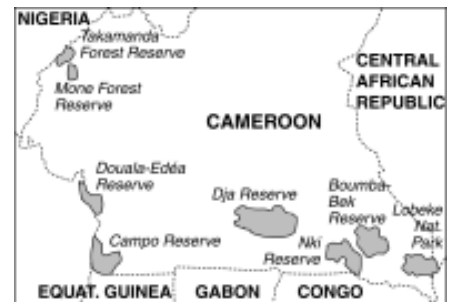
gated with practically no sign of gorillas recorded in lowland areas, hence new surveys are focusing on the main highland areas and smaller scale lowland general surveys are on-going in lowland areas. Surveys of the Mone Forest Reserve and the Mbulu Forest, which is located to the north of Mone and the east of Takamanda, are being conducted to confirm the presence or absence of gorillas in this area.

## Results in Brief

A detailed report will be produced when my surveys are completed later this year, however initial results confirmed the continued presence of gorillas in 3 of the 4 highland areas surveyed in Takamanda. One highland area surveyed, located a few hundred meters from the village of Takpe, revealed over 30 gorilla nests grouped closely together. This finding calls into question our recommendation from 1999 and as above, that our 1999 population estimate should be heavily weighted against highland areas, located near to villages. The highland areas around Mende on the grassland/forest interface approximately 5 km south of the Obudu Cattle Ranch



**Jacqui Groves at a feeding site in Kekpane/Basho Hills**



in Nigeria, provided no evidence of gorillas. This area was very similar to the highland area surveyed in 1999 near the neighboring village of Matene in as much as it provided very little large mammal data at all.

## Gorillas Discovered in Mone Forest Reserve and Mbulu Forest

In January 2001 areas around the village of Mbu (5°59' N, 9°31' E) in the Mone Forest Reserve were surveyed for gorilla nests and three groups of 6 nests were located approximately 8 km east of Mbu. These nests were on relatively steep hillsides but at low altitudes. We re-visited this area during April and were fortunate enough to encounter a small group of gorillas; 1 adult male, 2 adult females and 1 infant. Surveys extended northwards to the village of Tava located in the Mbulu Forest, where no nests were found in the forest area between Tava and Bandolo. Continuing north, additional highland areas were investigated in Mbulu and gorilla nests were located in 2 sites between the villages of Badshama and Ashunda. Further surveys are scheduled to take place on highland areas within Mbulu and Mone Forest Reserve to confirm the distribution of these gorillas. This new finding indicates that the gorilla population in this part of Cameroon may therefore be larger than originally estimated. (This research, known as the *Takamanda Forest Surveys Project*, is funded by the *Whitley Foundation*, the *Wildlife Conservation Society* and



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**Gorilla skulls collected in Takamanda and Mone**

(the Margot Marsh Biodiversity Foundation.)

## Collaboration and Further Surveys

In April 2000 the German Technical Cooperation, GTZ, commenced a joint project with the Ministry of Environment and Forests (MINEF), *Protection of Forests around Akwaya* (PROFA), concentrating initially on the Takamanda Forest Reserve and surrounding areas. The project has been given an initial 3-year phase, which if successful will continue for an additional 9 years. We are working in collaboration with GTZ and MINEF and in November 2000, during a meeting with the Chiefs and representatives from local villages, a traditional hunting ban on gorillas, chimps, drills and elephants was implemented. No report of gorillas being killed has been received since 2 individuals were shot in December 1998 around Takpe and Mbu. In September 2000 the *Smithsonian Institution* pledged funds to the *Takamanda Forest Surveys Project* to conduct a thorough vegetation survey of the Takamanda Reserve to support the conservation status of these gorillas. This survey is currently being conducted by T.C.H. Sunderland and in collaboration with a team from PROFA and MINEF. Further taxa surveys supported by the *Smithsonian* are also underway in collaboration

with *BirdLife International* Cameroon and the *Cameroon Dragonfly project*.  
Jacqueline Groves

## Great Ape Hunting and Trade in Lobeke, Cameroon

The Lobeke National Park falls within the southeastern corner of the Republic of Cameroon. It is part of the larger Congo Basin forest block characterised by a low population density clustered within the semi-deciduous evergreen and swamp forest types covering the region (Letouzey 1985). The forests of the region include a high diversity of plant communities minimally disturbed by human activities (Hall 1993), and support extraordinary high densities of large mammals including elephants, western lowland gorillas, chimpanzees, bongos and many other forest species.

The local communities comprise mainly the Bagando and Bakwele ethnic groups of Bantu origin and semi-sedentary forager-farmer Baka Pygmies. There is also a small number of Moslem traders and other non-indigenous people who came into the area as a result of logging activities. There also exists a small population of Congolese, Senegalese and other nationals from the West African region involved in petty trade and ivory and gold trafficking.

Another important characteristic of Lobeke National Park is its contiguity with other protected areas, the Nouabalé-Ndoki National Park, Congo, and Dzanga-Sangha Dense Forest Reserve, Central African Republic.

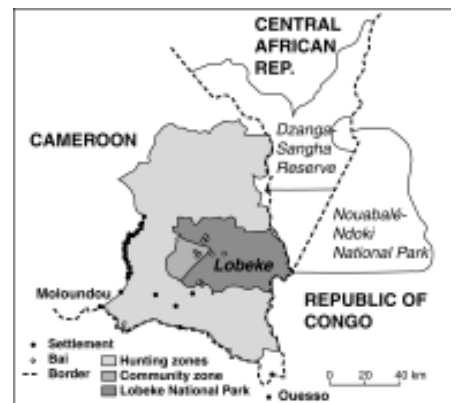
## Biological Diversity

For a multitude of reasons Lobeke is of outstanding conservation importance. The area harbours an unusually high density of forest mammals, particularly amongst so-called "charis-

matic megafauna" such as elephants (*Loxodonta cyclotis*), gorillas (*Gorilla gorilla gorilla*), chimpanzees (*Pan troglodytes*), bongos (*Boocercus euryceros*), and forest buffaloes (*Syncerus nanus*). Significant populations of widely threatened species are still found in Lobeke, although increasingly under threat due to over-exploitation. The avifauna comprises more than 283 species, including 3 species (*Ageslates niger*, *Apaloderma equatorial*, *Criniger olivaceus*) of restricted distribution, included in the *IUCN Red Data Book*. The forest clearings of the area attract many African grey parrots (*Psittacus erithacus*) and green pigeons (*Treron australis*), which are very often captured by commercial agents exceeding sustainable limits.

The aquatic fauna of the region is also extremely rich with more than 62 fish species recorded in rivers and major streams in the area (Makazi et al. 1998). The rivers of the region are also known to be rich in shrimps widely harvested by the local people. Non-timber forest products such as honey and bush mangoes (*Irvingia* spp.) are widely distributed and harvested by the people. Bush mango collection during peak fruiting periods represents an important economic activity that mobilises the entire active population of the area.

The Lobeke forest is also rich in various commercial tree species, no-





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tably ayous (*Triplochiton scleroxylon*), sapelli (*Entandrophragma cylindricum*) and azobe (*Lophira alata*). The richness of the forest in various commercial species has attracted many timber companies to the area. Most of the forest area in Lobeke has been logged at least 3 times over the past 30 years (Hall 1993). Most of the current logging practices are probably unsustainable and could in the long term constitute a major threat to biodiversity and conservation of natural resources in the region.

## Primate Diversity

Studies of WCS in 1996 indicate high densities of various primates species censused using standard line transect methods involving direct observations and nest counts for the great apes. Based on nest density computation, a mean density of 2.98 weaned individuals/km<sup>2</sup> for gorillas and 0.17 weaned individuals/km<sup>2</sup> were found. Results of 6 arboreal species studied in the Lobeke Forest (Usongo 1998) showed an overall encounter rate of 0.98/km. Spot-nosed monkey *Cercopithecus nictitans* and gray-cheeked mangabey *Lophocebus albigena* were the most abundant with group encounter rates of 0.3/km and 0.28/km respectively. Arboreal primate species are well represented in the Lobeke Forest and the southeastern forest region in general. Chimpanzees are more abundantly distributed in primary than secondary forest, and gorillas are commonly found in secondary *Maranthaceae* and logged forest vegetation.

## Conservation Threats

One of the most fundamental conservation problems in the region is over-exploitation of the natural resources. Natural resource exploitation defies all conservation norms, and is coupled with a lack of management system geared towards effective protection and resource management. There is a

complex chain of factors that contribute to the unsustainable nature in which resources of the region are exploited; these could be linked to a wide range of reasons, notably:

- Ineffective presence of relevant government services linked to natural resource management;
- Diffuse local community with no coherent traditional structure as major custodians of these resources;
- Extremely isolated and remote nature of the area posing natural obstacles for any control measures;
- Permeable frontiers allowing easy movement of poachers across the borders;
- Influx of fortune seekers into the area;
- Isolated nature of most of the indigenous population;
- The impoverished and fragile economic environment.

The main activities that constitute the threats to biodiversity conservation in the region include:

## Logging

One of the greatest threats facing conservation work in the region is commercial logging. Intensive logging in the region started in the early 1970s (Sikod et al. 2000). The abundance of logging roads has exposed hitherto closed forest to poachers who settle along the roadsides to conduct large-scale commercial hunting and bushmeat trade. The logging trucks help in transporting bushmeat to distant urban centres, and in turn replenish poachers in the forest with basic needs such as food, purchase of wire snares, cartridges and other materials. Most of the poachers are former workers of logging companies and most of the local bushmeat markets are found in these logging areas.

The most immediate consequence of large-scale intensive logging is its impact on the forest structure that results in forest fragmentation. Chim-

panzee populations being primary forest dwellers respond negatively to forest fragmentation. Selective logging in particular is known to result in lower densities of chimpanzees (Plumptre and Reynolds 1996, White 1992). Usongo (1996) reported higher encounter rates based on nest counts of chimpanzees in unlogged forest (0.71 nests/km) than logged forest (0.67 nests/km). More studies done by WCS in 1996 in the region showed that habitats with little human disturbance support higher species densities. Gorillas, on the contrary, are generally associated with wetlands and secondary forest, and thicket type forest (Fay and Agnagna 1992). These vegetation types provide gorillas with their food and are also important nesting sites for them.

## Hunting

Hunting represents one of the biggest threats facing species populations. Primates, and great apes in particular, are generally hunted for food by local people and poachers for the bushmeat trade. Chimpanzees and gorillas are mostly hunted with locally made guns and special wire snares fabricated for that purpose. Ammunition is ferried into the area from neighbouring Congo. Gorilla and chimpanzee hunting is carried out largely by commercial hunters who in most cases are non-indigenous, usually former workers of various logging companies operating in the region.

Based on field observations, more than 10 apes are hunted every month within the Lobeke region and most likely at least 10–15 per week in southeastern Cameroon – an annual estimated offtake of about 500 individuals. Most of the meat is ferried to neighbouring markets in Ouesso, Pokola in Congo, and Yokadouma, Bertoua and to some extent Yaounde and Douala. The logging trucks transporting wood from the forest to the



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## ***Colobus monkey for sale***

Douala seaport transport most of the bushmeat. Law enforcement officers have very little control due largely to the lack of personnel and logistics. The price of smoked chimpanzee or gorilla is about US\$ 20 in local markets in the region and three times as much in cities and neighbouring markets in Congo.

**Other hunting methods.** Poisoned bow-and-arrows, local weapons, are mostly used by Baka Pygmies, although great apes are rarely killed by Baka Pygmies using poisoned arrows. Wire snares are widely used by poachers, with special cables used for trapping great apes given their weight and size.

**Other uses of great apes.** Gorillas and chimpanzees are not only killed for their meat but are also kept by many, especially expatriates working with various local industries, as pets. There is also trade, especially of baby chimps and gorillas, across the region to Europe and to some extent Asia and South Africa. The animals are bought by animal collectors who travel from cities into the region for the trade. They are transported in very poor con-

ditions in small wooden cages. Certain parts of great apes are used for medicinal purposes and other traditional forms of use by local Bantu and Baka Pygmies. For example, chimpanzee hairs are used for curing serious skin burns.

## **Conservation action**

Given the high pressure due to hunting compounded with habitat degradation as a result of commercial logging, there is urgent need to undertake various conservation actions such as the establishment of more protected areas in forested areas like southeastern Cameroon to save populations and habitats. The national governments in the Congo Basin need to step up law enforcement and other measures to take control of the situation. There is very little control by rangers, who are poorly equipped to redress current trends in the bushmeat trade in the region. More zoological inventories should be conducted to identify important conservation sites and provide baseline management information on the distribution and abundance of species in the region. Studies are also required to assess the present pressure on populations due to hunting.

*Leonard Usongo and Robinson Ngnegueu*

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## **Gorilla Molecular Ecology: From the Forest to the Lab**

A comprehensive understanding of the ecology and social behavior of gorillas requires the long-term study of multiple groups of habituated individuals in their natural habitat. However, there are many aspects of gorilla sociality that cannot be addressed solely with observational data. For example, field observations of mating behavior can provide information on the *possible* fathers of an offspring, but field researchers are unlikely to observe all copulations and therefore true paternity determination requires genetic analysis. Similarly, understanding the genetic relationship (e.g. siblings, parent-offspring, cousins) between individuals requires complete demographic records for all individuals. Rarely are such records available from the field since information about immigrants and individuals born prior to habituation are typically lacking. Recently, improved methods of genetic analysis using the DNA from non-invasively collected specimens has made it possible to begin constructing highly accurate, individually distinctive genetic



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## **Fecal samples to be analyzed**

profiles or "genotypes" for large numbers of wild gorillas. This information provides an opportunity to complement observational data from the field with data on genetic relationships and so achieve a better overall understanding of gorilla social behavior. In addition, genetic analysis can also provide information on the number, sex and relationships of individuals in unhabituated gorilla groups, potentially providing insights into the behavior of individuals that have not been directly or intensively observed.

Our laboratory at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany is currently conducting a large-scale comparative study of gorilla "molecular ecology" in collaboration with several gorilla field sites across Africa. Molecular ecol-

ogy is a relatively new discipline in which genetic techniques are used to address questions about behavioral ecology, evolution, and conservation. The research relies upon the use of DNA obtained from non-invasive samples, that is, materials such as shed hair or feces that can be collected without disturbing the gorillas themselves. These samples are collected by our field collaborators in parallel with behavioral data collection, tracking or censusing. When the gorillas are habituated, samples are collected from known individuals shortly after defecation. However, for gorilla groups that are not yet habituated or individually identified, samples are collected at nesting sites. Excluding unweaned offspring that sleep with their mothers, each gorilla builds a new nest in a new location each evening, and then defecates in or beside the nest before leaving it the next morning. Thus, it has been possible to obtain near-complete samples from gorilla groups, even in situations where obtaining samples from identified individuals is not possible. The size of the gorilla dung lobes associated with each nest provides some clues about the individual(s) that slept there (silverback have the largest lobes, adult female/

sub-adult male are a little smaller, juvenile and infant dung lobes are the smallest). Censuses of wild populations rely largely on counts of nests rather than counts of individuals, and genetic analysis can potentially aid in improving census accuracy, for example by distinguishing between nests of blackback males and adult females or determining whether some gorillas build multiple nests at each nest site.

Results from studies in progress show that DNA can be extracted from gorilla feces with a high rate of success, although there is a slight difference in DNA extraction success rates across study sites. For example, 95% of fecal samples from Karisoke yield adequate amounts of nuclear DNA for paternity analysis, while 80% of samples from Mondika are successful. This discrepancy may be related to ecological factors such as differences in diet or the rate of feces decomposition. Our lab is using a systematic approach to further investigate these factors with the aim of improving methods of sample collection and storage. In contrast to feces, shed hairs collected from nests provide a much less reliable source of nuclear DNA, presumably because they contain very few cells that may degrade quickly.

<b>Field Site</b>	<b>Subspecies</b>	<b>Sampled</b>	<b>Individuals*</b>	<b>Field Collaborators</b>
<b>Mondika Research Center</b> Central African Republic	<i>Gorilla gorilla gorilla</i> (western lowland gorilla)	75	<b>Diane Doran</b> SUNY Stony Brook	
<b>Kahuzi Biega National Park</b> Democratic Republic of Congo	<i>Gorilla beringei graueri</i> (eastern lowland gorilla)	125	<b>Omari Ilambu</b> Wildlife Conservation Society	
<b>Bwindi Impenetrable National Park</b> Uganda	<i>Gorilla beringei beringei</i> (Bwindi mountain gorilla)	150	<b>Martha Robbins</b> MPI for Evolutionary Anthropology	
<b>Karisoke Research Center</b> Rwanda	<i>Gorilla beringei beringei</i> (Virunga mountain gorilla)	90	<b>Liz Williamson,</b> <b>Clare Richardson, Dieter Steklis</b> Dian Fossey Gorilla Fund International	

\* Estimated number of individuals from whom samples are currently analyzed





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We have found that only approximately 10% of shed hairs contain adequate amounts of DNA for paternity analysis, indicating that although nuclear DNA analysis using shed hair is in theory possible, it requires that large numbers of hairs be collected from each nest in the hope that a few will contain sufficient genetic material. Since the number of hairs typically found in a gorilla nest can vary greatly from a few to hundreds, the use of feces as the source material for DNA is clearly the better option.

We are currently analyzing both nuclear and mitochondrial DNA from western lowland gorillas (Mondika Research Center), eastern lowland gorillas (Kahuzi-Biega National Park), and mountain gorillas (Bwindi Impenetrable Forest and Virunga Volcanoes) in order to address the following questions: Which males sire offspring in gorilla groups? Does the dominant male sire the majority of the offspring, or do subordinate males also gain reproductive access to females? What is the genetic relationship (brothers? father-son?) between males in multi-male groups? What are the genetic relationships between females, and does the pattern differ across sites? How accurate are nest counts in providing information about group structure? Are multiple nests often built by a single individual, and finally, how should census estimates take this into consideration? In addition, the use of a common set of genetic markers in all study populations permits eventual higher-level comparisons, such as of the overall levels of genetic variability between subspecies and species. Ultimately, this study will also contribute to gorilla conservation and captive management efforts by increasing our knowledge of gorilla genetic variability and population structure.

*Brenda J. Bradley, Anthony M. Nsubuga, Martha Robbins and Linda Vigilant*

## Orphan Gorilla Reintroduction: Lesio-Louna and Mpassa

The bushmeat trade has been recognised as the greatest threat to the immediate survival of Africa's great apes. The current levels of the commercial bushmeat trade threaten to eliminate the remaining populations of great apes in West and Central Africa within the next half-century.

One result of the bushmeat trade has been the increase in the number of orphaned infant gorillas, common chimpanzees and bonobos offered for sale in major towns and cities throughout their distribution. These infants ranging from a few months to 2 years old are too small to eat and a far higher price can be found by offering them for sale as pets.

In a bid to counteract the trade in orphaned gorillas in the Republic of Congo, the *John Aspinall Foundation* established an orphanage in the capital city of Brazzaville in 1986. The orphanage project became known as *Projet Protection des Gorilles*.

*Projet Protection des Gorilles* is a partnership between the *John Aspinall Foundation* (previously the *Howletts and Port Lympne Foundation*), a UK based charitable organization, and the Government of Congo. Its objectives:

1. The confiscation, rehabilitation and release of western lowland gorillas orphaned by the bush meat trade,
2. The management and protection of the Lesio-Louna Reserve, the release site for the orphans,
3. Raising the awareness on a local, national and international scale of the bushmeat trade and the trade in orphan gorillas.

In Congo, gorillas are completely protected by law. By educating people about gorilla behaviour and gorilla societies, we believe we can help to curtail the drastic decline in wild gorilla populations. It is here that we can

make our biggest contribution to great ape conservation by using our high visibility to push this message of conservation. This "tipping" process, educating ordinary citizens about the bushmeat trade and conservation issues, has already been seen to work with government agencies and ordinary people who have had contact with us. We believe that through education and awareness the message will diffuse throughout Congolese society helping to stem the bushmeat trade.

## The Gorilla Confiscation Programme

Prior to the setting up of this project, the Government of Congo was unable to apply internal laws relating to this trade, as there was no outlet for the orphaned gorillas. The Brazzaville Zoological Park at that time was under-funded, and not in a position to deal with the numbers of orphans coming into the major towns for sale as pets.

Without the application of the laws concerning trade in gorilla orphans, poachers could not only profit from the bushmeat of the parents, but also go unhindered in the process of selling their offspring. With the advent of the project, forestry officials had the opportunity to make a realistic impact upon this trade whilst spreading the message that it would not be tolerated. Meanwhile those confiscated orphans that survived now had a future.

## The Lesio-Louna Reserve

The project was initially sited at the Brazzaville Zoological Park where orphans were taken for care and rehabilitation. These orphans have grown up and formed stable "family" groups. One of the original aims of the Rescue Centre was to release the orphans back into the wild and to this end the project started looking for a suitable location.



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Initial reconnaissance for a release site for the gorillas started in the early 1990s and subsequently the Lesio-Louna Sanctuary was established under the Ministry of Water and Forests in a decree dated 28 December 1993. The reserve covers an area of 45,000 ha and comprises a mosaic of rolling tall grass savannah and gallery forests, which have over forty species of plants, that constitute the gorillas' diet. Approximately 25% of the reserve is forested.

The climate is typical of equatorial regions with 1,400–1,600 mm of rain annually. The dry season occurs between June and September and a prolonged wet season starts in October and continues through to the following May. A short dry season can occur in January/February but frequently is not marked. The temperature is 20–30°C throughout the year with an almost constant 80% humidity.

The site was chosen to run alongside the already existing Lefini Reserve, in an effort to maximise the value of the two sites and in an effort to pool resources. Originally designated a sanctuary under Congolese law, the site has been gazetted as a reserve as of 31 December 1999.

## Current Gorillas Status

In 1994 the first group of gorillas was taken to the Lesio-Louna Reserve and this group of 6 were fully re-released in 1996. Since this date another group of 7 has been released, and a third group of 10 is ready to take its next step toward reintroduction in the near future.

The project was seriously affected by the 1997/1998 civil war and the following instability in Congo, which forced our staff to orchestrate a hair-raising evacuation of 13 juvenile and infant gorillas to JGI's (*Jane Goodall Institute*) Tchimpounga Reserve near the coastal town of Pointe Noire. Five sub-adult gorillas already released re-

mained in the Reserve and survived the conflict. Yambo, the only sub-adult gorilla still in an enclosure at the reserve narrowly escaped being shot by soldiers looting our camp, saved by the entreaties of staff that had stayed behind. Unfortunately Magne, a 14-year-old male and the last adult left at the Brazzaville zoo died of an undiagnosed illness 2 days after being evacuated to an island in the Conkouati reserve north of Pointe Noire. Having lived most of his life in an enclosure, "Le Doyen", as visitors to the zoo affectionately knew him, succumbed to the stresses of the fighting and the long translocation.

One of the main changes caused by the war was the closing of the Brazzaville Zoo orphanage and relocation of all operations to Lesio-Louna upon our return from exile in November 1998. The orphanage was not missed, it was a haven for disease no matter what preventative measures were taken. The newly arrived orphans benefited enormously from being transferred directly to the forest and seeing their healthy peers playing and eating; their mortality rate was reduced drastically.

There are currently 2 groups of adults and sub-adults (with 2.2 and 2.1 members). Both groups are living self-sufficiently in the reserve. Another group of 4.5 juveniles and infants is to be transferred further north in the sanctuary outside of the other groups' range soon for a full release.

The gorillas currently released are surviving without supplementary feeding and are in good health. Group dynamics have changed dramatically as the groups age and expand their territories. Solitary males and their extensive ranging habits have caused problems when wandering outside the reserve but we do hope to translocate these males to an isolated band of forest to the north of the reserve along the Lefini River.



*The Mpassa area*

## La Mpassa

In 1998, with over 10 years of experience accumulated from the Congo project, the *John Aspinall Foundation* set up an orphan gorilla project in the neighbouring state of Gabon. The sanctuary is located in the region of Haut Ogooué. It consists of around 171,800 ha of the Leconi Plateaux (part of the Batéké Plateaux that incorporates the Lesio-Louna Reserve across the border), including Lake Loulou and in the area of the Mpassa River, (the southern border follows the southeastern Gabonese-Congolese frontier).

As with the Lesio-Louna Reserve in the Congo, Mpassa has no recent reported sighting of gorillas in the area although there is anecdotal evidence of their presence until the 1950s before being hunted out. There has been a recent sighting of a lone chimpanzee near camp but no groups, suggesting that the riverine forest could be used as a corridor to the larger forest block.

The Mpassa project benefits from the isolation of its position on the Batéké Plateaux and the Mpassa River that separates the human camp from the gorillas minimizing contact between the orphans and their keeper handlers and fostering independence from an early age.

In October 1999 Kwam and Kwa Kwa, two-year-old males from Howletts, were transferred from Kent to Gabon, the first captive-born gorillas



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to be returned to the wild. Both adapted quickly to the forest and quickly established their position in the group. They learnt almost immediately what could be eaten and what could not, Kwam by eating everything and Kwa Kwa by copying his more experienced peers.

Tragically Kwa Kwa died suddenly of appendicitis in February 2000, but Kwam continues to do well, vying for the dominant male position with Marco, another 6-year-old. Apart from a mug of milk supplemented twice per day, all food is foraged by the gorillas themselves and Kwam's captive birth has not been a hindrance at all to his nest making at night. There are currently 7.9 gorillas in the sanctuary.

## The Future

Orphanage projects by nature are expensive but this does not diminish the important role that they play in conservation. The media interest and high visibility of this pioneering project means that the gorillas in the Lesio-Louna Reserve and Mpassa have become ambassadors for their species. Both projects are currently increasing their educational programs in the country to focus on the bushmeat trade in outlying villages and capital cities, each project acting as a springboard to launch the message of gorilla conservation.

*Amos Courage, Ian Henderson and John Watkin*

## Gorilla and Eco-Tourism

### Mountain Gorilla Tourism: Some Costs and Benefits

Conservationists mobilized in 1979 when plans were announced to clear a large area of the Volcanoes National Park in Rwanda for cattle grazing, since conversion of the forest habitat was considered the greatest threat to the mountain gorillas' survival. A means of making the gorillas "pay for

themselves" and protecting the park was needed, so a tourism program was planned and developed by researchers with experience gained from the Karisoke Research Center, Amy Vedder and Bill Weber. The *Mountain Gorilla Project* initiated the tourism program in Rwanda and gorilla tourism has since become a great success in terms of increased protection of the parks, close surveillance of additional gorilla groups and much needed revenue.

Daily observations of the gorillas have facilitated rapid intervention when necessary, for example, to remove snares. With increased protection from poachers, more infants survived in groups that were habituated for research or tourism and in the 1980s the gorilla population was increasing for the first time in 3 decades.

Revenue from gorilla tourism helps cover salaries and operating costs in all the protected areas of Rwanda. In addition, international publicity surrounding the gorillas and the advent of organized tourism brought many visitors to Rwanda and in the past made tourism the third-highest foreign currency earner for this country, after tea and coffee. International awareness and concern for plight of gorillas has been enhanced through tourism and has generated funds for conservation activities and research. The gorilla has become a national symbol and today the Rwandese passport, visas for foreigners, and bank notes all feature gorillas.

**Some Dangers Linked to Tourism.** Tourism does have drawbacks. Even before tourism began, impacts of human visits on the gorillas' behavior were feared, such as changes in their ranging patterns, impeding the transfer of females to other groups, and hindering reproduction. Stress to the animals can be provoked during the habituation process or through regular contact with unfamiliar humans, which

could potentially result in immunosuppression or reduction in reproductive success. These impacts have never been adequately evaluated. Fortunately, extrapolation from research on population demographics carried out at Karisoke Research Center, indicates that tourism has not been deleterious to the gorillas' overall health, behavior and ecology. Any negative impacts seem to have been outweighed by the improved monitoring and protection.

Until recently, we relied on speculation, extrapolation, and common sense to evaluate the risks of disease transmission from humans to gorillas. Tourism introduced a new element to these risks. A study by Jaco Homsy, commissioned by the *International Gorilla Conservation Program* (IGCP), reviewed tourism regulations in light of epidemiological data and the risk of disease transmission between people and gorillas. Studies of captive gorillas show they have a definite susceptibility to human diseases, but not the same resistance as humans. As a result of this shared susceptibility, certain human pathogens can affect gorillas – respiratory diseases (such as measles, herpes, pneumonia) and, equally important, enteric diseases (such as polio, salmonella). Homsy concluded that "together with the high population pressure surrounding the parks, disease exposure ironically makes tourism one of the single greatest threats to mountain gorilla survival" and that "the best hope for a least damaging tourism program resides in the widespread sensitization, awareness and understanding of the catastrophic consequences of unconscious gorilla tourism."

With such a small population of gorillas in the Virungas, an infectious disease could devastate the population, and gorilla eco-tourism has increased the potential threat of disease transmission. While most of the inter-



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national tourists visiting Rwanda are fairly fit, having been inoculated against certain diseases, they may be carrying viruses new to the region, such as influenza. Illnesses to which the gorillas have never been exposed are potentially the most dangerous. While this was recognized as a risk at the start of the tourism program, the loss of habitat was considered a far greater threat to the gorillas at the time and the tourism program was implemented with rules to regulate tourist visiting times and the number of tourists per group.

It is important to minimize stress and risks to the gorillas – no one can afford to endanger their survival. Consequently, there are important rules regarding the distance to be maintained between gorillas and visitors, the number of visitors per group and a strict one-hour limit to the visit. A conscientious tourist should never attempt to get closer than the regulation 7 m, or worse still, to touch a gorilla!

Despite the dangers inherent in tourism, it provides a mechanism for ensuring that the parks and the gorillas are valued for many reasons, and has probably saved the gorillas in the Virunga Volcanoes from further habitat loss or degradation.

**Why is the Cost of a "Gorilla Permit" so high?** The cost of a gorilla viewing permit is often questioned. It is currently US\$ 250, and most visitors will tell you it was worth every penny! There is a very important reason for keeping the price high – it is a necessary means to try to control the high pressures put upon the gorillas and the park authorities. The gorillas are pretty much at their limit in terms of the number of people who can visit them each day, and at certain times of year it is hard to get a booking.

An important means of coping with demand and to assure parks and governments of adequate revenue is to increase the cost of a visit to gorillas.

At US\$ 250, gorilla viewing is affordable to almost all overseas visitors, and few people are discouraged by the price. The mountain gorilla population is too small and too fragile to withstand increased pressure from tourism. Even with high fees, numbers of visitors do not diminish, but some of the pressure subsides, while the revenue accrued by each governing authority increases. It should never be forgotten that the tourism program was begun first and foremost as a means of conserving the gorillas.

*Liz Williamson*

## **The Benefits of Mountain Gorilla Tourism**

From the start of gorilla tourism, everyone has been worried about its potential drawbacks, such as disturbance, increased susceptibility of habituated gorillas to hunting, and of course, transmission of disease from humans to gorillas. Indeed, right at the start of the *Mountain Gorilla Project* in the Volcano National Park, Rwanda, the then Director of the Office of National Parks, Dismas Nsabimana, said that the Office's opinion was that it did not want tourism developed, because the park should be sacrosanct, existing for its animals and plants only, uninvaded by humans. The huge problem was that the park was already invaded then by humans, and their cattle, thousands of them. On balance, the Director quickly decided that well-regulated tourism was the lesser evil, both because it involved so much less invasion of the park, and because the revenue generated could massively improve other aspects of park management. In other words, costs have to be balanced against benefits. Yes, of course, there are potential dangers from tourism, but let's look at some data on the balance of benefits and costs.

1. Parc National des Volcans, Rwanda, 1978 – no tourism. Thou-

sands of cattle, and hundreds of people, poor people heavily infected by parasites and disease because they are poor, far more heavily infected than any tourist, wandered unhindered through the park, defecating, destroying at will. Parc National des Volcans, Rwanda, 1988 – a well-developed tourism program in place. No cattle were in the park; poaching of gorillas was almost non-existent; a revenue from tourism of hundreds of thousands of dollars was being used to run and equip a trained guard force; the gorilla population was increasing; and the country was so proud of its gorillas and the foreign attention to them and their park that the gorilla was on the country's bank notes, and its natural history was being taught in the country's schoolrooms as a means to encourage conservation of the country's natural wealth.

2. Rwanda began to increase protection and management of its sector of the Virunga Conservation Area from 1976, with removal of all cattle from the park. Protection increased hugely in 1979 with the implementation of Rwanda's *Mountain Gorilla Project* of managed tourism, along with improved funding and training for guards, and a conservation education program. Zaire and Uganda did not change policies at this time. We thus have an easy separation of the conservation area, and of gorilla groups, into protected and unprotected, into areas and groups heavily but illegally visited, and areas and groups far less heavily, and legally, visited. Unprotected region – 70% of sampled quadrats contain snares in 1981; protected – 30% contain snares. Unprotected groups – 22% decline in number of immature animals between 1973 and 1981; protected – 17% increase. Unprotected – immatures are 30% of population, below calculated replacement levels; protected – immatures are 39% of the population, at



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replacement levels. These are statistically significant differences. Most importantly in the present context, among the protected gorilla groups, those groups visited by tourists had more infants per female than those visited by researchers. Sample size was not great enough for statistical tests, but all research and tourist groups were counted.

3. Rwanda's Virunga Volcano region can, it has been demonstrated, return a large profit from agriculture, certainly a larger profit than from the trickle of tourists that were using the area in the late 1970s. However, by the late 1980s, tourism had in economic terms overtaken agriculture. When that happened, the danger of the conversion of the Parc National des Volcans to agriculture receded, especially in light of the favorable international publicity engendered by Rwanda's tourism program, and the increased protection it allowed.

Without tourism, the Virungas' gorillas would, I think, be in a far worse state today than they are now. Tourism itself, and especially the increased protection that its revenues allow, seem, on balance, to have been and to be a benefit to Rwanda's gorillas. Let's be aware of the dangers of disease transmission, and of the other drawbacks of tourism. But let's cope with them, let's not let fear of tourism's disadvantages prevent parks and the gorillas in them benefitting from a well-run tourism program.

*Alexander H. Harcourt*

## Habituation of Bwindi Mountain Gorillas

Uganda's mountain gorillas occupy two national parks in southwestern Uganda – in Mgahinga National Park which is part of the Virunga Volcanoes bordering Uganda, Congo and Rwanda, and in the Bwindi Impenetrable National Park approximately 25 km away from the Virungas. Gorilla eco-

tourism was introduced in Bwindi in the early 1990s in order to conserve and protect this critically endangered species of the great apes and to generate revenue for the government and the local people. As a result of civil war in Rwanda and Congo, the Bwindi population of gorillas has been the most stable. Consequently, there has been an increased demand to habituate more groups in order to generate more money and satisfy the growing number of people who want to view gorillas in their natural habitats.

Two groups (Mubare and Katendegyere) were habituated for tourism and by 1993, they were already open for viewing. The Katendegyere group disintegrated in 1997 and another group (Ibaare-Habinyanja) was opened. Currently another group (Nkuringo) is undergoing habituation and may be open for tourism in the near future.

As a result of habituation, gorillas no longer fear human beings and have been seen more often outside the forest. The Nkuringo group, for example, spends about  $\frac{3}{4}$  of its time foraging on vines and herbs from the regenerating forest outside the park. In addition, habituated gorillas have been seen eating exotic food crops including banana pith, eucalyptus bark, sweet potato leaves and fruits from robusta coffee. Crop raiding has been noted as one of the causes of gorilla-human conflict in Bwindi.

The major challenge of gorillas outside the park are risks of disease transfer. The recent outbreak of scabies in the Nkuringo group is associated to a mite suspected to be from humans. When gorillas share the same habitat with humans and domestic animals, they risk cross transfer of their diseases. Human and animal feces have been seen in places visited by habituated gorillas. There is thus a potential for transmission of gastro-intestinal parasites and other diseases from soils and water re-



**Zeus, a Bwindi silverback**

*Photo: Martha Robbins*

sources contaminated with feces. Unlike tourists who are guided and briefed on health regulations and on how to behave while tracking gorillas, and trackers, guides, researchers who are familiar with gorilla eco-tourism regulations, the local people and non-park staff go through the park unsupervised. There is a risk of unfavourable behaviour including defecation and littering the park. In addition, researchers, field assistants and park staff who spend more time with the gorillas are not screened for contagious infections like tuberculosis, which may not exhibit obvious symptoms during early stages of infection. Indeed there have been cases of staff suspected to have had tuberculosis and this calls screening of people tracking gorillas more often to undergo some health examinations as is done with zoo animal keepers.

The human population in and around the tourism zone has increased dramatically in the past years. This was mainly due to influx of people working for the park, tourists and tour operators, local people sell-



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ing food and other merchandise, and job seekers. More recently, however, there has been deployment of troops to protect people and their property. The resources for maintaining this growing population are limited. There is a demand for clean water, more food, good housing, schools and health care. Otherwise, a population lacking the basic needs will continue to put pressure on park resources.

The future of gorilla eco-tourism will depend on maintaining their health and their habitat. There is need to purchase land outside the gazetted area where the gorillas range. It is also important to educate all the people who interact with gorillas in one way or another so that there is harmony between all the interest groups dealing with gorillas and so that gorilla eco-tourism impacts and habituation effects are rationally managed.

*John Bosco Nkurunungi*

*The study is funded by the Wenner Gren Foundation.*

## **Combating the Risk of Disease Transmission**

Owing to the close relationship between humans, monkeys and apes, there are many diseases that are easily transmitted between humans and nonhuman primates. Ironically, the susceptibility of nonhuman primates to human diseases has led to the development of very strict husbandry standards in captive settings – yet, in their natural habitat, primate species receive no such protection. There have been a number of disease outbreaks recorded at several ape field sites: polio, pneumonia, scabies, etc. Whereas the source of these outbreaks has rarely been identified, one thing is for certain: without preventive measures, we humans run the risk of inadvertently bringing sickness (and even death) to our primate subjects.

It is the nature of some pathogens to cause a more severe reaction in

those that are most naïve. Thus, foreign visitors may very well present a greater risk to nonhuman primates than do indigenous residents. A community of free-ranging apes can be devastated by a common cold unknowingly spread from a well-meaning visitor. For this reason, the growing trend toward ape "eco-tourism" must be monitored closely.

Of course, tourists are not the only foreign visitors to pose a threat to apes. Some field research methods, such as provisioning for habituation, gaining close proximity for observation, or translocating a population, may place primate subjects at risk for acquiring human-carried diseases. Additional risks arise through inadequate waste disposal or non-hygienic conditions of humans residing at the study site.

The pathogens in question are varied: bacterial, mycoplasmal, spirochetal, fungal, parasitic, and viral. These can be spread by physical contact, airborne transmission, ingestion, and through arthropod vectors. The primates' tendency to chew on novel objects puts them especially at risk for disease transmission through fomites; a discarded toothbrush or tissue can spread a number of potentially deadly pathogens.

As more researchers and conservationists have become aware of the risk of disease transmission, action has been taken in a number of ways. Publications and organized symposia have helped to increase awareness in the primatology community. Just last year, the *American Society of Primatologists* issued a policy statement regarding the protection of primate health in the wild (see <http://www.asp.org>). Increasingly, field researchers are developing a new attitude about primate conservation: the prevention of exposure to infectious disease is an important – and fundamental – aspect of conservation.

Whether in natural or reintroduced settings, it is imperative that we develop proper procedures regarding hygiene, sanitation, and waste disposal of humans living in the animals' habitat. After all, appropriate health standards practiced by humans will ultimately help protect all inhabitants of the area (including humans). Responsible workers, from local field assistants to visiting scientists, should adopt a policy of not entering the animals' habitat when exhibiting any signs of illness. Under no circumstance is a field research project more important than the health and safety of the study subjects – or the humans who work with them. With care and planning, this is one conservation issue we can control.

*Janette Wallis*

## **Competing for Responsible Tourists in the Right Numbers**

By the year 2020, the *World Tourism Organization* predicts that 1.5 billion tourists will travel internationally every year, with a quarter of these people visiting developing countries. Between 1995 and 2020, 75 million international tourists are expected to have travelled to Africa. How many of these will visit gorillas? The high-value-low-impact nature of gorilla tourism today must be maintained, but can a steady stream of responsible tourists be assured?

This article focuses on two areas of gorilla tourism that must be carefully monitored and managed, namely: portrayals in the travel and tourism literature (popular and academic), and development of new gorilla tourism sites. Gorilla tourism has been adversely affected at a number of sites (e.g. war, massacre of tourists), and strategies must be put in place to ensure that all current and future sites receive sufficient funding for gorilla protection, irrespective of tourist numbers. As logging, mining and the bushmeat trade



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**Mountain gorilla silverback, Karisoke** Photo: Martha Robbins

push the remaining populations of African great apes rapidly towards extinction, efforts to focus international attention on their plight must be heightened.

**Recent Portrayals of Gorilla Tourism in the Literature.** UCOTA's (*Uganda Community Tourism Association*) projects located at the gorilla and chimpanzee tourist sites in Uganda are included in Mann's extensive list of community based tourism projects in developing countries (*The Community Tourism Guide*). Unfortunately, gorillas were only fleetingly referred to in the general discussion about what Uganda has to offer, and chimpanzees and other species were neglected all together. Oversights such as these are particularly unfortunate, since responsible and ethical tourists, who are likely to buy a book such as this, remain uninformed about all of the spectacular attractions of Uganda. To attract the right kind of tourist, it is essential that gorilla and chimpanzee tourism be given adequate and accurate coverage in appropriate publications.

Gorilla tourism continues to be portrayed as adventure or high-risk tourism, featuring in Lonely Planet's recent publication, *On the Edge: Adventurous Escapades From Around the World*. Kertscher's chapter encapsulates a visit to a gorilla "clan" in Rwanda (Parc National des Volcans), with an excerpt chosen for Lonely Planet's quarterly newsletter, *Planet Talk*. Entitled "A touching gorilla story", it highlights physical encounters between Kertscher, the "littlest" baby (who ran "his little leathery finger back and forth on my bare skin"), and the "mama" who charged him ("swiping her hand so close to my head that I felt my hair move"). Unrealistic tourist expectations about physical encounters continue to be fuelled by such publications, undermining efforts to raise tourist awareness about buffer distances.

Other inaccuracies continue to plague recent travel literature. Although Nelson (*Let's Get Lost: Adventures in the Great Wide Open*) devotes a significant proportion of his book to a visit to Bwindi Impenetrable National Park, providing details about guidelines for tourists (including the minimum distance rule), an uninformed reader could be led to believe that mountain gorilla numbers have more than doubled since Dian Fossey's death, largely as a result of the "raging eco success story" of tourism. That is, Nelson is comparing an earlier estimate of mountain gorillas, which excludes the Bwindi population, with the more recent estimate, which includes this population.

With the exception of Butynski and Kalina (in: Milner-Gulland and Mace (Eds.), *Conservation of biological resources*) and Litchfield (in: McCool and Moisey (Eds.), *Tourism, Recreation and Sustainability*), recent academic tourism literature largely neglects gorilla tourism, or provides inadequate coverage. Weaver (*Eco-*

*tourism in the Less Developed World*) appears to be unaware of gorilla and chimpanzee tourism in Uganda, focusing instead on the Ruwenzoris, and the lack of a coastline. Gorilla tourism is included in his analysis of the collapse of eco-tourism in Rwanda, but his view that the entire mountain gorilla tourism industry stands little chance of recovery, is overly pessimistic, in terms of a regional multi-site endeavour. Evans (in: X. Font and J. Tribe (Eds.), *Forest tourism and recreation*) confines his discussion of gorilla tourism to Rwanda, questioning whether "visitors trekking through virgin forests armed with machetes" and trackers wielding AK47 assault rifles conforms to eco-tourism.

**Competition between Gorilla Sites.** Although unlikely at present, it is possible that gorilla tourism sites will eventually be competing. Countries able to offer gorilla tourism are able to take advantage of the current trend of tourism marketing and promotion to "shift from mass-marketing to a more focused and niche-oriented approach". If "gorilla-watching" or "primate-watching" could be marketed in a similar way to "bird-watching", a steady stream of passionate tourists could be attracted to all sites available at any given time. Bird-watching, followed by hiking, are the fastest growing recreational activities amongst adults in the USA. Both of these activities arguably form part of the gorilla trekking experience, and could be more aggressively marketed. Gorillas are currently being habituated for tourism in a number of countries, including Central African Republic, Gabon, Cameroon and Equatorial Guinea.

Instead of competing for tourists, all sites across Africa must attempt to work together. Regional cooperation has been vital for the management and sustainability of mountain gorilla tourism during recent periods of instability. This regional network must be



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extended to include all gorilla tourism sites. All sites should adopt the carefully established guidelines for mountain gorilla tourism (with changes suggested by Homsy, 1998), and baseline studies (e.g. home-range, parasite loads) should be conducted and results made readily available, if gorilla tourism in Africa is to be economically and ecologically sustainable. The "right" type of tourist must be attracted. This can only be done, if visitor satisfaction and safety is assured, and standardised and up-to-date information is made available to all visitors and tourism agencies. That is, some form of information fact sheet should be provided to all visitors, so that potential travel or tourism authors provide accurate information in their books and articles. Details about the threats posed by the bushmeat trade could also be distributed at tourism sites, allowing tourists to help disseminate this information.

*Carla Litchfield*

## **Potentials and Pitfalls of Tourism in Dzanga-Sangha**

Protected areas are a net cost to local and national economies, as they do not generate significant revenue in contrast to landscapes with, for example, agriculture and logging. Tourism as a long-term sustainable funding source for biodiversity protection was seen as the best option for sustainable development for the Dzanga-Sangha area. The managers felt that ape-viewing could relatively easily complement the unique wildlife viewing and accessible BaAka (Pygmy) culture in the Dzanga-Sangha area.

I estimate that it takes about 2 years to habituate a group of gorillas for tourism in these circumstances. As experience is gained it might be possible to reduce this amount of time considerably. Nevertheless, it is clear that habituating gorillas is a time consuming and expensive endeavor. The

original three-year budget for our program was US\$ 463,800. Although the exact expenditure is not known, it is safe to assume that it will cost at least US\$ 250,000 over a two-year period to habituate a group of gorillas under similar circumstances. This is probably an underestimate if I consider that we did not take into account any health monitoring in this estimate (carried out on a separate budget), which should form part of the overall monitoring.

Prior to the gorilla viewing program in Dzanga-Sangha tourism was unable to become self-financing. Likewise, given the substantial investment needed to develop gorilla tourism and present numbers of visitors, I do not expect this type of tourism to be viable from a purely commercial point of view. However, the donors financing this program are not only interested in commercial viable enterprises. Tourism is an important local industry, both as a source of revenue as well as employment and gorilla habituation is a significant contribution to that economy. The additional jobs and revenue have improved local attitudes towards the national park and reserve and facilitated law enforcement.

Although tourism has become an important economic activity in Dzanga-Sangha, at present levels it cannot cover the protected area management costs. Gorilla viewing is potentially a high revenue-generating type of tourism thought to be able to substantially raise the existing level of revenue in Dzanga-Sangha. Given the fact that tourists are willing to pay fees of US\$ 100 and more per visit, it would take about 8,000 visitors per year to cover the Dzanga-Sangha recurrent management costs. Although the contributions from the gorilla habituation program in covering the recurrent costs could be significant it is unlikely to approach the levels of funding needed, as the gorilla viewing capac-

ity will not surpass 1,500 visitors a year in the near future.

Dzanga-Sangha provides great potentials for eco-tourism, with its combination of visible megafauna and BaAka culture. Although isolated, it does have its own airstrip, making access to this area relatively easy and certainly comparable to most other protected areas in the Guinean-Congolian Forest Region. Overall Dzanga-Sangha certainly provides one of the best opportunities for a successful eco-tourism venture in the Guinean-Congolian Forest Region. Even so, and even though tourism has become an important local industry, it is evident that it will not provide a solution for the self-financing of the protected area management in Dzanga-Sangha. The role of tourism in generating revenue for protected area management is limited at best in the Guinean-Congolian Forest Region.

In the case of Dzanga-Sangha, the development of its tourism program, including the gorilla viewing, is economically questionable, especially in the light of the high risks associated with investments in tourism in Central Africa. Moreover, the risk of serious disturbances to the gorillas makes this option more than only economically questionable. In Dzanga-Sangha tourism has certainly increased local revenue and employment opportunities and as such has helped mitigate some of the local costs and improved local perceptions of the park and reserve. Those are important gains, but managers have to carefully weigh these advantages against the risky economics of tourism and the apes' well-being.

If the international donor community is serious about biodiversity conservation and willing to help implement the vision outlined above it will need to change current funding strategies. They should stop demanding that protected area systems in the





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Guinean-Congolian Forest Region become auto-financed in the foreseeable future. Rather than invest at best in risky alternative economic ventures, such as eco-tourism, donors should invest their money in establishing mechanisms, such as trust funds, for stable and sustainable source of revenue to finance the considerable recurrent costs of the proposed protected area system.

*Allard Blom*

## Can Eco-tourism Help Tourists Understand Conservation?

E. Boo (1990) of the *World Wildlife Fund* defined eco-tourism simply as "travelling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring, and enjoying the scenery and its wild plants and animals". This approach to eco-tourism, according to M. B. Orams, is a passive one whereby tourists "must simply be unobtrusive and seek to minimize their damage to the environment." He prefers a more active approach which pushes "the visitor experience beyond mere enjoyment to ... [facilitating] attitude and behaviour change". For Orams, then, more attention must be paid to the educational potential of eco-tourism.

More commonly, we hear about the economic rationale for eco-tourism (whereby it is hoped that governments and local communities, encouraged by the potential income to be made, tend and protect the wildlife and natural features that are attractive to tourists) and much has been written about both the potential and pitfalls in that regard. Increasing attention is now also being paid to the educational aspects of eco-tourism, including my own research on orangutan-focused eco-tourism and whale watching.

**Orangutan-focused Eco-tourism.** In 1992, I conducted research on tourist-orangutan interactions at the

*Orangutan Research and Conservation Project* in Indonesian Borneo. Through analysis of participant observation data, guided conversations, and post-trip questionnaires, 3 ways of perceiving the apes emerged: orangutan as child; orangutan as the embodiment of pristine nature; and orangutan as photographic collectible. Each approach, quite logical in particular cultural and historical contexts, had different implications for environmental education and conservation practice, not all positive.

For example, some tourists imagined young, ex-captive rehabilitant orangutans to be much like human infants and sought out every opportunity to hold and cuddle them. While these young orangutans undoubtedly did need comfort, many of the tourists seemed unable or unwilling to acknowledge that the orangutans could become infected by human diseases or humans could be hurt by habituated animals. Further, I was concerned about the educational message that seemed to prevail: do we really want tourists to think that it is acceptable to cuddle wild animals?

Other tourists were more interested in the wild orangutans to the point of dismissing the ex-captives because they were less "real." Their days were thus spent in the forest seeking out wild orangutans. This emphasis on pristine nature can put increasing pressure on rare and endangered species and can lead to further exploitation of natural areas as tourists push into wilder areas. For those tourists fixated on getting the perfect photograph, much on the periphery of their camera lens was overlooked, giving them a decontextualized, fragmented view of nature.

**Whale Watching.** I conducted a case study of whale watching in the small town of Tadoussac on the St. Lawrence River in Canada. Data was collected on whale watchers through

participant observation, interviews and pre-trip, post-trip, and follow-up questionnaires. Since most whale watchers showed strong commitment to whale conservation prior to the trip, they did not have their attitudes significantly shifted – it seemed to be a matter, really, of preaching to the converted. In fact, there was little evidence of much learning of any kind on the boats. In pre- and post-expedition tests of whale knowledge, many fared more poorly **after** whale watching. As well, close to a third reported in the interviews that they learned very little or nothing on the trip, and expressed desire for more emphasis to be placed on educational interpretation.

With such minimal educational gains and growing concerns about the negative impacts of whale watching on whales, one must ask whether whale watching is really worth the potential costs? I am tempted to simply answer "no". If, however, educational interpretation shifted from providing basic information (e.g., naming the species of whales seen, their size, and what they eat) to explicit discussion of recent scientific research on the impacts of whale watching on whales, current threats to whales, and concrete suggestions for activism on behalf of whales, it might hold more possibility.

**Conclusion.** Eco-tourism is unlikely to go away. I thus believe that greater attention must be paid to educational interpretation. A strong educational program ought not stop with the simple relaying of facts but ought to explore the complexities of the conservation of the particular primate species and other members of the natural community. Further, education needs to explicitly address the negative impacts linked to primate-focused eco-tourism (e.g. disease transmission, habituation, trash, habitat destruction). This will require an investment of thought, time and money.

*Constance Russell*



## READING

**Colin Groves**

**Primate Taxonomy.** Washington, DC (Smithsonian Institution Press) 2001. 368 pages. Hardcover, US\$ 65. ISBN 1-56098-872-X.

This book was especially written for primatologists who are not specialized in taxonomy. Primate taxonomy has changed during the last few years (and is still changing), therefore all the books published a few years ago or earlier are outdated. It was more than necessary to write a new comprehensive book about primate taxonomy for primatologists (but also for taxonomists, mammalogists ...). But the book not only lists all primate taxa with diagnosis and distribution as well as the history of their names (but no pictures). It also gives an overview about the theory of primate taxonomy. This 60-page introduction is especially valuable for non-taxonomists in the community of primatologists. Regarding the gorillas, Colin Groves uses the latest taxonomy.

**Thor Hanson**

**The Impenetrable Forest.** Ingram Internat. 2000. 264 pages, paperback, US\$ 18.95. ISBN 0-595-13018-6

The author describes what he experienced during his work as a *Peace Corps* volunteer in the tourism program in Bwindi. His stories are written very well and fascinating, especially for anyone those who does not know what it means to live in Uganda as an expatriate. However, it sometimes becomes clear that Thor Hanson's point view is biased – it is the IGCP's point of view because he was working for the IGCP. Therefore, some of his remarks should be read with this bias in mind. Another weakness: It is a pity that the pictures were printed in very bad quality.

**Frans de Waal**

**The Ape and the Sushi Master:** Cultural Reflections of a Primatologist.

New York (Basic Books) 2001. 256 pages. Hardcover US\$ 26, ISBN 0465041752. Paperback US\$ 16, ISBN 0465041760.

**Alexander Wood, Pamela Stedman-Edwards, Johanna Mang**  
**The Root Causes of Biodiversity Loss.** Earthscan 2000. 399 pages, paperback, US\$ 29.95.

**Gisela Kaplan, Lesley J. Rogers**  
**The Orangutans:** Their Evolution, Behavior, and Future. Cambridge, MA (Perseus Publishing) 2000. 192 pages, hardcover, US\$ 23.

**Carel P. van Schaik (ed.) and Charles H. Janson**  
**Infanticide by Males and its Implications.** Cambridge (Cambridge Uni-

versity Press) 2000. Hardcover US\$ 130, ISBN 0521772958. Paperback US\$ 47.95, ISBN 0521774985.

**Daniel J. Povinelli**

**Folk Physics for Apes:** The Chimpanzee's Theory of How the World Works. Oxford (Oxford University Press) 2000. Hardcover US\$ 85, ISBN 0198572204.

### News from the Internet

*African Websites* has a new address: <http://www.africanconservation.com>. The Canadian Trent Heintz is managing the website of the *Great Ape Conservation Awareness Group*: <http://www.great-apes.com>. *Conserve Africa International* has its website at <http://www.conserveafrica.org>.

*This Gorilla Journal issue is also available in French – thanks to the invaluable help of*

### Nouvelles Approches

*Nouvelles Approches*, a Belgian based NGO, works to safeguard the national parks of the Democratic Republic of Congo. We are the only NGO currently active in Upemba and Kundelungu National Parks of Katanga Province and we collaborate with the German Cooperative GTZ in Kahuzi-Biega National Park.

As a coordinator of the Democratic Republic of Congo Parks Relief Mission, we will soon be active in all the national parks of Congo by organizing the logistics of an effort initiated by the *Lukuru Wildlife Research Project*. This effort, called "Outfit a Ranger", aims to produce and deliver uniforms to all the guards of the national parks of Congo.

The fact that almost every member of our Board of Trustees has lived or is still resident in the Democratic Republic of Congo, is an asset that gives us good knowledge of the country. We maintain permanent contacts in Bukavu, Lubumbashi, and Kinshasa. We keep excellent relationships with the *Institut Congolais pour la Conservation de la Nature* and all national and international organizations involved in conservation in Central Africa.

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## BERGGORILLA & REGENWALD DIREKTHILFE

### Finances

#### Income 2000

Subscriptions	18,827 DM
Donations	19,994 DM
Bushmeat exhibition	3,500 DM
Sales	3,786 DM
<b>Total</b>	<b>46,107 DM</b>

#### Expenses 2000 – Administration and public relations

Administration/coordinat.	2,349 DM
Publications	17,309 DM
Items for sale	2,522 DM
Postage	3,574 DM
<b>Total</b>	<b>25,754 DM</b>

#### Project support

Equipment	8,514 DM
Pay W. Mugisha	6,954 DM
Kisoro office	1,800 DM
Transport of material	5,895 DM
JGI chimpanzee project	1,986 DM
<i>Le Gorille</i>	4,287 DM
Support Tayna	1,075 DM
Support Sarambwe	2,000 DM
Support C. Sikubwabo	287 DM
<b>Total</b>	<b>32,798 DM</b>

We thank everybody who supported us from 1 November 2000 to 31 May 2001. Larger contributions were given by Chisato Abe, *Australian Nat. Univ. Gorilla Club*, Pamela Beitz, Fritz Dieterlen, Johannes Dönges, Horst Engel, Jürgen and Irmgard Friedrich, Diana Glasow, Gabriele Holzinger, Volker Jährling, Edelgart Kipka, Hartmann Knorr, Karin Linke, Margarete Lord, Angela Meder, Brunhilde Praeckel, Wolfram Rietschel, Herbert and Marianne Weber, Peter Westermeyer and Heinz Zaruba. Erwin F. Reisch (*Gentner Verlag Stuttgart*) took charge of the costs of reproduction and composition for the *Gorilla Journal*. Many thanks for your confidence in our work!

### Activities

There is still great interest in the bushmeat exhibition *Gorillas in the cook-*

### An Exhibition by Chisato Abe

An exhibition of paintings of gorillas called *The Great Faces of Gorillas* was presented at the Gallery Inoue, Japan, from 30 October to 4 November 2000. Chisato Abe, an artist who specializes in gorillas, showed 27 large oil paintings and drawings. She has the rare gift of bringing gorillas to life, particularly their facial expressions, through her paintings. Colourful flower arrangements presented by her friends, Jane T.R. Dewar and C.E. Stuart Dewar, amongst others, enhanced the vivid paintings.

The largest and most eye-catching of the paintings was a portrait in oils of a female gorilla's face, which was larger than life. Visitors were impressed by the size of this painting and Chisato Abe's detailed brushwork. One visitor wanted to buy this painting but was rejected by the artist, who felt unable to part with it because she had an emotional attachment to this particular piece of work. More than 1,000 people visited the gallery during the exhibition period. The proceeds from the exhibition are to be donated to various zoos and organizations concerned with gorilla conservation.

On 3 November, Tomoaki Nishihara came from the Republic of Congo to Japan to give a talk at the exhibition on the ecology of western lowland gorillas and conservation of rainforests in Congo. Mark and Helen Attwater, Tamaki Maruhashi and Juichi Yamagiwa took part in the meeting. More than 50 visitors attended the talk. Tomoaki Nishihara illustrated his talk with photographs of western lowland gorillas and of the logging of the rainforest and a pile of corpses of elephants killed by poachers for their tusks. He criticized the illegal import of ivory to Japan and the carelessness of a control system that turns a blind eye to these dishonest transactions. He furthermore highlighted Japanese zoos' poor understanding of the role of conservation. Finally, he appealed to visitors to raise awareness of conservation in Japan.

Miki Matsubara



*ing pot*. In the meantime 14 zoos have requested it. On several occasions we were invited to give lectures or inaugural addresses. In summer, Karl Ammann, who documented the alarming extent of the bushmeat trade, will come to a press conference at the Karlsruhe Zoo in connection with the campaign of the *European Association of Zoos and Aquaria* (EAZA) and with our exhibition. We also met with a very good response in the media.

In January, the Director of the *Ugandan Wildlife Authority* (UWA) visited Germany in order to present the new five-year plan for nature conservation work in his country to governmental and non-governmental organizations. We also had the opportunity to talk to him. At the moment, the regulations in Uganda are undergoing a radical change, and we will try to make detailed arrangements for our future work there as soon as possible.



## A NEW SAFARI ALTERNATIVE

**Mgahinga Safari Lodge** is a new luxury lodge, perched at the tip of a peninsula jutting into the waters of Lake Mutanda, in southwestern Uganda. The lodge is the ideal setting from which to track the mountain gorilla in nearby Mgahinga Gorilla National Park; venture deep into Bwindi Impenetrable Forest; search for savannah antelope in Lake Mburo National Park; or visit Lake Bunyonyi – renowned as the 'lake of little birds and sweet water fish'.

The lodge complex consists of a main building – which houses the reception, restaurant, lounge and bar – and six spacious, twin-bedded tents. All equipment at the lodge is of the highest European standard. The tents are en suite, with hot showers and flush toilets, and have continental quilts and pillows. Soft drinks and laundry service are provided. The restaurant serves a high standard of continental and traditional cuisine accompanied by a selection of local and international wines and spirits.

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If you become a member, you will receive the journal regularly. If you want to subscribe without becoming a member, we would be grateful if you could make a donation to cover our costs. The costs to send the journal overseas are about US\$ 20. Please send your application with a cheque to Rolf Brunner (address below).

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