Gorilla Journal

Journal of Berggorilla & Regenwald Direkthilfe

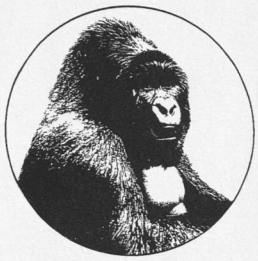
No. 15, December 1997

New Survey at the Mt. Tshiaberimu in 1997

Mushamuka's Story

Endoparasites in the Kahuzi-Biega Gorillas

Gorilla Tourism in Uganda



BERGGORILLA & REGENWALD DIREKTHILFE

CONTENTS

Organization Address:
Berggorilla & Regenwald Direkthilfe
c/o Rolf Brunner
Lerchenstr. 5
45473 Muelheim, Germany
Fax +49-208-762447
E-Mail angela.meder@t-online.de
http://www.kilimanjaro.com/gorilla/brd
Bank Account:
Account number 353 344 315
Stadtsparkasse Muelheim
Bank code number 362 500 00

Authors of this Issue

Ute Eilenberger studied guenons and mangabeys as well as eastern lowland gorillas in 1992 and 1993 in Zaire. After that, she worked as a veterinarian and a scientific assistant at the University of Berlin. Since 1997 she has been a scientific assistant at the German Primate Center in Göttingen and studies lion-tailed macaques.

Dr. Michele L. Goldsmith spent 2 years studying the behavioral ecology of gorillas at Bai Hokou, Central African Republic. She is now Post-Doctoral Fellow in the Dept. of Anthropology at Dartmouth College. Since December 1996 she has been studying the behavioral ecology of sympatric gorillas and chimpanzees in Bwindi.

Dr. Ursula Karlowski has been involved in rain forest conservation in Africa since 1988, especially in south-western Uganda in close cooperation with the Mgahinga National Park Project. She now works as a consultant for environmental impact assessment studies. She is an active member of *Berggorilla & Regenwald Direkthilfe.*

Dr. Liz Macfie was the Director of the Volcano Veterinary Centre in Rwanda from 1989 to 1992, and since 1992 she has been the Project Manager for the IGCP *(International Gorilla Conservation Programme)* in Uganda. This program started working in Bwindi and has gradually expanded operations into Mgahinga since the end of 1995.

Gorilla Journal 15, December 1997
Editor: Angela Meder
Augustenstr. 122, D-70197 Stuttgart
Fax +49-711-6159919
E-Mail angela.meder@t-online.de
Translation: Nina Bahr, Ann DeVoy, Bettina and Andrew Grieser Johns, Jennifer Scott
Design: Edwin Artho, Angela Meder
Production: Gentner-Verlag, Stuttgart
Cover: Nindja, Kahuzi-Biega Park
Photo: Ute Eilenberger

Mbake Sivha worked in the IZCN/GTZ conservation project at Kahuzi-Biega after her biology studies in Kisangani. Then she specialized at Würzburg University in animal ecology, biology of the tropics and sensitization of the population. Since 1994, she has again been working in the IZCN/GTZ project in sensitization and research.

Dr. Angela Meder observed the behaviour and development of captive lowland gorillas for 10 years. Today she edits books about animals and nature. Since 1992 she has been part of the *Berggorilla & Regenwald Direkthilfe* board of directors.

Dr. Craig B. Stanford spent 5 years studying predatory-prey relations of chimpanzees and red colobus in Gombe, Tanzania. Presently, he is an Associate Professor of Anthropology at the University of Southern California. He began studying gorillas and chimps in Bwindi in December 1996.

Iris Weiche is a biologist and geographer. She started her scientific work with primates, in the wild and in zoos, in 1990. At the moment she is finishing her dissertation on the social strategies of female gorillas in zoos. Since 1994, she has been active in the *Berggorilla & Regenwald Direkthilfe*, and in May 1997 she joined the board of directors.

Dr. Liz Williamson studied gorillas in Gabon from 1984 until 1990, when she became the Director of the Nyungwe Forest Conservation Project, Rwanda. She was involved in surveys of gorilla populations in Zaire and Cameroon in 1994 and 1995. Currently she is the director of the Karisoke Center.

Dr. Juichi Yamagiwa has been involved in field work of eastern gorillas since 1978, mainly at Kahuzi-Biega National Park. He studied gorillas at Karisoke in 1981 and 1982 and at Masisi and Itebero from 1987 to 1991. He has been promoting a cooperative research project on gorillas and chimpanzees with CRSN and IZCN/ICCN at the Tshibati area of Kahuzi-Biega.

D.R. CONGO

Mt. Tshiaberimu 1997 – Research Expedition to a Nearly Lost Forest

The slogan of the *Berggorilla & Regenwald Direkthilfe* – direct aid – again proved true in the still politically instable situation of former Zaire. While most large governmental and non-governmental organizations in times of political changes wait until a stability is restored, the *Berggorilla & Regenwald Direkthilfe* wants to take action especially during these states of emergency for the preservation of the African tropical forests and their wildlife.

Mountains of the Spirits

In the montane rain forest of Mt. Tshiaberimu along the westbanks of the Albertine Rift Valley in the east of the newly formed Democratic Republic of Congo, a considerably reduced and totally isolated population of gorillas still exists (see *Gorilla Journal* 13/1996). The area is part of the Virunga National Park and therefore receives international attention, also for conservation efforts. Thus, there is a realistic chance to save these gorillas and – in the long term – for a growth of their population.

In cooperation with the European *Dian Fossey Gorilla Fund* (DFGF-UK), which mainly funded the trip organized by Esteban Sarmiento and Thomas Butynski, the *Berggorilla & Regenwald Direkthilfe* participated in a research expedition to Mt. Tshiaberimu in June/July 1997. We financed the equipment for the rangers and the transport of this material to the area; two researchers participated in the scientific survey. The aim of the expedition, besides collection of basic biological data, was also to help improve the conservation of this region.

Journey into a New Country

With 280 kilograms of ranger equipment, we travelled in convoy together with five other participants to the Democratic Republic of Congo. Our apprehensions were unfounded that the situation at the Kasindi border post would not allow us to pass due to fights in nearby Bundibugyo. After 4.5 hours of customs clearance, we passed the Congolese border.

We were welcomed by Jean-Paul Kambale Shabantu, at that time conservator of the Virunga National Park North Sector. He already had the working permits for every participant and an official ICCN *(Institut Congolais pour la Conservation de la Nature)* document which allowed us to pass every road-block unhindered. Our original schedule had to be changed because some time before Mobutu soldiers had burned the Semliki ferry. Consequently, we had to make a 120 km detour via Beni and Butembo, which took us 1.5 days longer, but this gave us the opportunity to have a look at the general situation in this region. In some parts of the northern Virunga Park we saw smoke clouds, indicating poacher activities as the conservator told us. On the roads as well as in the cities, there was a strong army presence, but the general mood of the Congolese seemed to be good. We also saw a lot of construction work and the availability of supplies seemed reasonable.

In the Gorilla Bamboo Forest

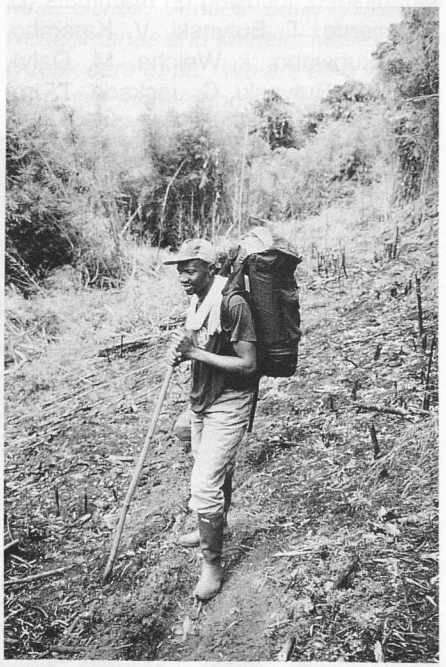
At the park post in Burusi, a village at the edge of Mt. Tshiaberimu, the rangers were already waiting for us. Two days before, Thomas Butynski and Esteban Sarmiento had arrived and started their search for gorillas as well as their survey of birds in the research camp situated at 2,700 m in the central forest area.

Our first impression from the edge of the forest was confirmed inside the park: The extent of human encroachment, such as wood-cutting and -burning and gold mining, was enormous. Thomas Butynski, who had already surveyed this area in 1995, estimated a 10-fold increase of these human activities. We were also informed that the last forest elephants had been killed in spring 1997. According to various sources, during the war, chiefs of the surrounding communities had declared that the park borders no longer existed and encouraged people to use the land for their needs. The unarmed rangers were not able to put a stop to this.

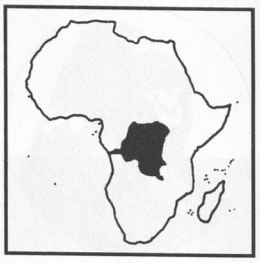
On the first day in the main camp, a gold miner and a poacher were arrested. During our stay, about 40 wire snares were found, one of which had caught a blue monkey, another a black-fronted duiker. During the whole survey, a total of 120 snares were found as well as another blue monkey in a snare.

Direct Aid Works Immediately

In view of this extremely difficult working situation, our delivery of equipment to the rangers was very well appreci-



Vital Katembo on a burned area at Mt. Tshiaberimu, inside the park
Photo: Ursula Karlowski



D.R. CONGO

ated. In order to replace stolen material, the *Berggorilla & Regenwald Direkthilfe* brought the following items: 18 sleeping bags, 5 blankets, 15 rucksacks, 20 pairs of gum boots, 23 T-shirts, 8 ponchos, 60 pairs of socks, 3 tents, 8 water bottles, 3 binoculars, 2 compasses, 5 torches, 5 tarps, 6 water resistant bidons, stationery and other camp equipment. These materials and our acknowledgement of their efforts under difficult circumstances had a big impact on the motivation of the rangers and their superiors.

Claude Sikubwabo was equipped by *Berggorilla & Regenwald Direkthilfe* with 2 binoculars, 2 compasses, some other material and money as a replacement for the losses from the looting of his house. But even this seemed to us like a drop in the bucket. DFGF project assistant Vital Katembo told us that the monthly salary of US$ 20 per ranger had so far only arrived irregularly.

Research teams for the survey were established, focusing on mammals (E. Sarmiento, T. Butynski, V. Katembo, C. Sikubwabo, I. Weiche, M. Daly), birds (T. Butynski, C. Jackson, T. Imboma, J. Fuller) and botany (U. Karlowski, B. Bytebier).

Biology of the "Mountain of the Spirits" – The Vegetation

The survey on the vegetation units of Mt. Tshiaberimu gave the typical impression of afromontane forests. The biggest portion is covered by bamboo, followed by afromontane secondary forest, forest dominated by *Podocarpus*, *Rapanea* and Rubiaceae, and ericaceous belt. An afroalpine zone is lacking because the altitude of Mt. Tshiaberimu is about 3,100 m, whereas the afroalpine zone of other regions starts at about 3,400 m.

During this first new botanical survey by Ursula Karlowski, 124 species out of 41 families were verified. B. Bytebier, who focussed on orchids, found 14 additional orchid species, so that in total the species inventory to date includes 138 species of higher plants. Most of these belong to the families Asteraceae (15), Orchidaceae (14) and Poaceae (8), Rosaceae (6), Rubiaceae (6), Apiaceae (5), Euphorbiaceae (5), Ranunculaceae (5), Acanthaceae (4), Cyperaceae (4) and Lamiaceae (4). The inventory does not take into account mosses, ferns and lichens.

The afromontane rain forests are limited to the mountain regions of Africa and make up the smallest portion of all primary African biotopes. They are therefore among the most endangered tropical regions and a habitat to many endemic species. The conservation of these areas is not only necessary for the survival of many animal and plant species; these areas are also important headwaters of many rivers and play a crucial role in climatic and water conditions of an entire region.

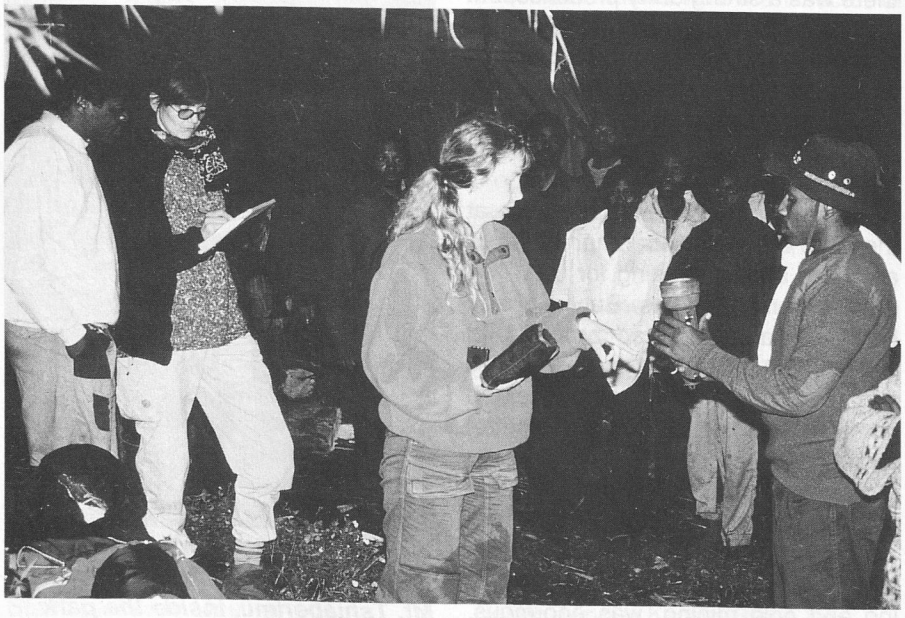
A small overview on the mountain forest vegetation is provided by the following plant communities:

- afromontane secondary forest, mainly at the park edge
- typical afromontane clearings at the park edge
- *Macaranga-Xymalos* montane forest (park edge)
- bamboo zone (main plant communities)
- bracken fern dominated secondary vegetation in the bamboo zone
- *Podocarpus* forest
- *Rapanea-Galiniera* mixed forest
- ericaceous belt

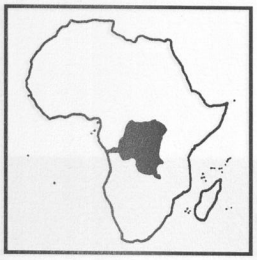
Further on, surveys werer made of the vegetation of a high altitude swamp and of sources at the influx of creeks.

The Wildlife

Thomas Butynski and his group identified 80 bird species, with 15–16 of these endemic to the Albertine (Western) Rift. He stresses the importance of the region for the conservation of mountain forest birds. In contrast to the findings in 1995, there was little sign of small antelopes throughout the area. The only direct evidence was a freshly snared duiker in a poacher's trap. We assume that the increased poaching activities immensely impacted the numbers of these mammals.



Equipment is handed over to the rangers. *Photo: Ursula Karlowski*



D.R. CONGO

Thomas Butynski confirmed the presence of Thomas' galago *(Galagoides thomasi)*. Blue monkeys *(Cercopithecus mitis stuhlmanni)* were seen regularly. The search for the owl-faced monkey *(Cercopithecus hamlyni)* was not that successful. In the Tukote bamboo zone, we found fresh evidence of feeding activity normally ascribed to this species at 2,700–2,900 m.

During his 3-week stay, Esteban Sarmiento found and measured over 100 gorilla nests. He estimated that there were 14 individuals in 2 large groups, one including a 4–5 year old juvenile, and 2 solitary silverbacks. It is feasible that there is another "group" consisting of 2 individuals. The identification of this group is problematic, because they were nesting close to one of the other groups. A DNA analysis of hair, undertaken by Christian Roos/European Primate Gene Bank Munich, proved that the two silverbacks of these nest groups are different individuals. E. Sarmiento found that the groups ranged mainly in the central park area on the slopes of Mt. Tshiaberimu. We also found evidence of solitary silverbacks in the Tukote and M'Pens areas at about 2,900 m in the bamboo zone and mixed forest.

Survey participants (left to right), standing: Chef des Gardes, Colin Jackson, James Fuller, Benny Bytebier, Ursula Karlowski, Jean-Paul Shabantu, Vital Katembo; squatting: Thomas Butynski, Titus Imboma, Claude Sikubwabo, Esteban Sarmiento *Photo: Iris Weiche*

The Future

At the end of our stay we discussed our suggestions for future work in the park with Vital Katembo and the conservator, e. g. the distribution of the rangers on more park posts, training of the rangers, regular patrols with written records, continuous presence of a project officer, sensibilization of the people and local chiefs in the surrounding communities.

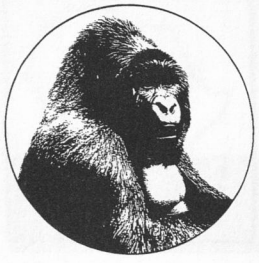
We now want to reinforce our efforts for the conservation of Mt. Tshiaberimu, if possible in cooperation with DFGF-UK. Our main part will be to organize deliveries of equipment. We also want to provide the rangers with another tent for a patrol post and pay top-ups on their salaries. DFGF is trying to find a person who will be constantly present in the park for the next year or so to guide the rangers' work and improve the contact with the villages nearby. With this we hope that the gorillas of Mt. Tshiaberimu and their habitat will have a chance to see the next millennium with us.

Iris Weiche and Ursula Karlowski

For their generous help and support, we want to thank the following donors: Klaus Därr (50 gum boots/1 spade), Coleman Comp./Ms. Bauer (3 sleeping bags, 4 torches), Minolta GmbH/Ms. Adams (1 binocular), Recta SA/Ms. Rüegg (1 compass), M. Reibenspies (1 rucksack), H. Rausch (6 bidons). Mr. Woick and the Süd-West-Versand/Mr. Jung are acknowledged for price reductions. We are grateful for transport and handling of the ranger equipment by Spedition Schenker International/ Mr. Paul and staff. Ms. Schmitter and Ms. Möller/SABENA arranged free surplus luggage. During our stay, Mr. and Mrs. Scholl, Amooti Latif, Waltraud Ndagijimanas and Wilhelm Möller kindly took care of us. We are also indebted to the many donors who supported the delivery of equipment financially. In the field, we were well guided by the officials and rangers of Mt. Tshiaberimu. Thanks also to the ICCN for permission to work in the DRC, DFGF-UK for the funding of the survey, to E. Sarmiento and T. Butynski for the organization of the survey, the possibility to participate and permission to publish some brief results. I. W. was partly funded by the Stiftung für die Deutsche Wissenschaft. Warmest thanks to all of them, also in the name of the rangers and gorilla conservation.

News from the Virungas

We did not get a report from the southern sector of thie Virunga National Park; therefore, we have to summarize the new developments from publications and personal communications.



APPEAL FOR DONATIONS

Dear Gorilla Friends,

You have certainly read in the media and in our last *Gorilla Journal* that the situation in the national parks of former Zaire is disastrous. As a consequence of the war, conservation activities had to be stopped. Park posts were looted, the rangers lost their equipment, and some of them were chased away or even killed. Large areas of forest were stricken by logging, burning and poaching. The forest elephant population was decimated dramatically: In the old part of the Kahuzi-Biega National Park alone, about 200 elephants were killed, and the population on Mt. Tshiaberimu was wiped out completely!

It is still not possible to assess the effects on the sensitive population of the last mountain gorillas because some groups retreated into the forest. As rebels are also hiding in those areas, the rangers have not yet been able to follow many of the gorilla groups and therefore do not know whether they still exist in their former composition at all. In the Congolese part of the Virunga Conservation Area, up to 14 gorillas were killed or disappeared. Researchers are afraid that many animals were caught in poachers' snares.

Our expedition to Mt. Tshiaberimu in July 1997 showed us dramatically how urgently our support is needed there. The rangers who had been disarmed by the ADFL were not able to prevent poaching and other human encroachment in the national park. Their equipment – also most of the material that we had handed over to them in 1996 – had been stolen. They had not received their monthly payment, US$ 20, during the war. We were in the area for 8 days, and during that time we found more than 40 wire snares, with one blue monkey and one black-fronted duiker. Moreover, we noticed fresh traces of burning, wood-cutting and gold mining everywhere. Thomas Butynski estimated that the incidences of human encroachment have increased tenfold since 1995. We were only able to find 12–14 gorillas according to nest counts; their number had been estimated as 16–20 before. Sightings were not possible as the apes were extremely shy because of the increasing presence of humans.

Together with DFGF-UK *(Dian Fossey Gorilla Fund)* we want to ensure the conservation of this almost lost forest area. Our task will be, for example, to further support the rangers with equipment, to provide a top-up to their payment and to help establish a ranger post.

Help us to conserve this last refuge for an isolated population of gorillas, the "Mountain of the Spirits"!

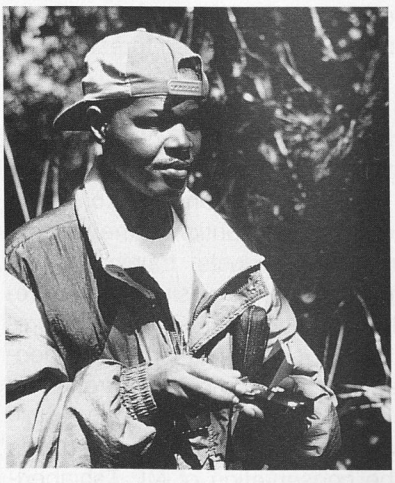
But our support is also urgently needed in the other parts of the Congolese Virunga National Park. We want to increase our efforts to conserve the population of the last mountain gorillas.

This could be achieved by our cooperation with the Congolese biologist Claude Sikubwabo Kiyengo. We have already supported his difficult surveys in the Maiko National Park in 1992. Now we want to provide a complete set of equipment for his work in the southern part of the Virunga National Park. Moreover, we want to support the rangers in that area in their essential conservation activities. At the moment, we are establishing the prerequisites for this support.

You can contribute to the conservation of the mountain gorillas on the slopes of Mt. Mikeno!

Berggorilla & Regenwald Direkthilfe e.V.
c/o Rolf Brunner
Lerchenstr. 5
45473 Muelheim
Germany

Account number 353 344 315
Stadtsparkasse Muelheim
Bank code number 362 500 00



Claude Sikubwabo at Mt. Tshiaberimu with a donated compass *Photo: Iris Weiche*

D.R. CONGO

According to an AP message dated 2 October, the conservation of the Virunga National Park has not improved since the government changed, although Laurent-Desiré Kabila declared that the conservation of this park was a priority. The rangers have not received their official salary (less than 50 cents per month) for a year; instead, they have been supported by international organizations with US$ 20 per month.

The AWF *(African Wildlife Foundation)* Newsletter reported that the rangers were given back their guns. The ADFL had ordered that the rangers should only be allowed to carry their confiscated weapons if they wore appropriate uniforms. Therefore, local women stitched together 50 uniforms, and the rangers showed them in a parade. The representatives of the ADFL were so impressed that they returned the guns to all the 140 rangers.

The Congolese authorities decided that the park should be reopened to tourists on 10 September. This was a controversial decision because many heavily-armed rebels were still hiding in the forest (and this has not changed so far). Within about 3 weeks of the return of the gorilla visitors, 125 tourists had booked tours to the apes, and the park collected US$ 15,000.

During the years 1994 to 1996, while the Rwandan refugees from the camps and other individuals plundered the Virunga National Park, an estimated 36 million trees were cut. In order to promote the reforestation of the deforested areas, young trees were grown in local nurseries. These efforts had to be stopped after the start of the war. In the meantime the nurseries have started to work again.

We would like to correct a report which appeared in the last *Gorilla Journal* concerning the killing of 4 mountain gorillas in the D.R. Congo. Contrary to the first reports, the apes were not killed during a gunfight but shot by a patrolling Congolese officer who had been bitten by the silverback male. It is possible that the gorillas were not from the Kabirizi group, as first assumed, but from the Ndungutse group; it is suspected that not only 4 gorillas were killed and buried, but up to 10.

Angela Meder

Podocarpus *on Mt. Tshiaberimu* *Photo: Iris Weiche*

Latest news: *In December 1997 we were told that the IGCP* (International Gorilla Conservation Programme) *has reduced many of its activities in the Virunga National Park because the financial support was finished.*

Mushamuka's Story: The Largest Group and the Longest Tenure

When his appearance was first recorded in 1971, Mushamuka was already fully matured. Adrien Deschryver, the first warden of the Kahuzi-Biega National Park, tried to habituate 2 groups of gorillas in the late 1960s and began taking visitors to these groups in the early 1970s. Mushamuka was the leader in one of the groups. Mushamuka means old and wise man in the Mashi language.

Alan Goodall, who studied the Mushamuka group in 1972, called him Kelele (noise in Swahili) in his book entitled *The Wandering Gorillas*. The group had 20 gorillas with 2 silverback males, 1 silverback/blackback male, 3 blackback males and 4 females at that time.

A big change came in 1975. The leader male of a neighboring group, the other habituated group, was wounded in several fights with a lone silverback and died. Several females were lured away from this group, moved with the lone silverback, and finally transferred into the Mushamuka group. The size of Mushamuka's group rose to 31 with 12 females in 1976 and to 42 with 17 females in 1978, which is the largest group size of wild gorillas in their natural habitats.

From 1979 to 1983, several maturing silverback or blackback males left the group. They took females and immatures to form new groups. Some females transferred into neighbouring groups. These movements resulted in reduction of group size by half until

D.R. CONGO

1983. Another four maturing silverbacks left the group in 1984 and 1985. Mushamuka was tolerant toward these males, who occasionally mated with females. Nevertheless, they emigrated from the group before maturity. Mubalala, a son of Mushamuka, also left the group at 13 years old in 1986 and took 5 females from the group. He stayed in the peripheral part of Mushamuka's range and encountered with other groups frequently. He acquired several females during these encounters and the group size rapidly increased.

Nindja, another son of Mushamuka, gradually left the group. In 1987 he became a silverback at 12 years old and started to copulate with females. Mushamuka was very tolerant toward him, and several females were always around him. The group frequently splitted into two subgroups, one of which included Nindja and females. When he left the group in 1989, five females (1 adult, 2 young, 1 juvenile and 1 infant) followed him and they formed a new group. Nindja encountered with the other habituated group at the end of 1989 and fought with its leader male, Maheshe. After several fierce fights, Maheshe was seriously wounded, and Nindja acquired more females with immatures from the Maheshe group.

Another maturing son (Bwana) of Mushamuka also left the group with a few females in 1992. Maheshe disappeared in November 1993 for unknown reason (later it was proved that he had been killed by poachers), and the Maheshe group travelled without any silverback male. Lambchop and Mintsauce, maturing silverback males of the Mushamuka group, occasionally visited the Maheshe group. Lambchop finally associated with Maheshe's females since March 1995, and Mintsauce started to travel alone at the same period. The number of females decreased in the Mushamuka group probably because of Mushamuka's reproductive inability. Two infants were born in 1993. One infant was born in 1994 but died at 1.5 month old. Since then, no birth was recorded in the Mushamuka group.

Mushamuka disappeared in April 1997 and was estimated to die of old age. He looked very old with lean face, wrinkled neck and lost teeth. His estimated age was 43–46 years at this time. He has been known as a leader male since 1971. It means that he led the group for at least 26 years, which is the longest tenure of male gorillas known. After he was lost, 2 young males at 8–9 years old, 3 females and 3 independent immatures moved by themselves without any adult male.

Mushamuka's story was reconstructed by the data collected by John Kahekwa, Serundori Eloi, Mankoto ma Oyisenzoo and myself. Serundori was one of the guides who habituated Mushamuka in the early 1970s, and John initiated the recording of demography of all habituated groups in the early 1980s. Mankoto has been working as Park Warden since 1987 and established the monitoring system for each habituated group.

The demographic changes recorded in the Mushamuka group during 26 years were similar to those of mountain

Change in Age-sex Composition of the Mushamuka Group

Year	Silver-back	Black-back	Adult female	Immature dependent	independent	Unknown	Total	Source
1972	2	4	4	2	5	3	20	Goodall, 1977
1975	1				5	15	21	MacKinnon, 1978
1976	1		12			17	31	Yamagiwa, 1983
1978	1	4	17	9	11		42	Yamagiwa, 1983
1983	1	4	6	3	6		20	Yamagiwa, 1988
1985	1	2	6	6	5		20	This study
1987	1	2	7	6	7		23	This study
1989	1	1	6	6	5		19	This study
1991	1	2	6	8	2		19	Mankoto et al., 1994
1993	3	0	3	2	2		10	This study
1995	1	1	1	3	3		9	This study
1997		2	3	3			8	This study

Age classes: Silverback: male over 13 years old; Blackback: male 8–12 years old; Adult female: over 8 years old; Independent immature: 4–7 years old; Dependent immature: 0–3 years old

D.R. CONGO

gorillas in the Virunga Volcanoes. They form uni-male cohesive groups. Both males and females tend to emigrate from their natal groups before maturity and only males spend a solitary life before establishing new groups. However, some aspects of individual movements are different from the Virunga gorillas.

Firstly, when leaving their natal groups, some maturing silverbacks took some females away with them and formed new groups without experiencing solitary life. Such cases have rarely been recorded in the Virungas, where most males tend to travel alone for several years before acquiring female partners. Secondly, when females transferred into other groups, they were often accompanied by immatures. Some of them were even accompanied by newborn babies, and they were accepted by the new silverbacks who were not biological fathers of these babies. In the Virungas, immatures rarely transferred into other units with their mothers or by themselves possibly because of frequent infanticide by the new males. All the infants transferred with their mothers were killed by the leaders of the new groups. By contrast, no infanticide has been recorded in the Kahuzi region.

The lack of infanticide may be responsible for relatively free movement of immature gorillas in the Kahuzi region. It may also influence male dispersal after maturity and females' choice to transfer. Most sons of Mushamuka tended to stay in the peripheral part of Mushamuka's range after emigration and form their own groups with familiar females instead of travelling alone. Mubalala, Nindja, Lambchop and Bwana are sons of Mushamuka. All of them have established their range around their father's range to form a patrilineal community.

We are now analyzing the demographic data on the habituated groups of gorillas in the Kahuzi-Biega National Park. Although the data are still insufficient to realize the life history of such long living animals, this analysis will hopefully find some unique features of their social life which seems to be different from that of mountain gorillas.

Juichi Yamagiwa

Nindja Is Dead

The silverback Nindja died on October 30. Soldiers travelling in a truck on the main road which traverses the park saw him feeding in the bamboo and shot him, about 6 km from the park headquarters at Tshivanga. There are several versions of Nindja's death. His head and hands were removed from his corpse. A rumour reports that he was eaten and that the soldiers kept his skin. The person responsible for instigating the killing has gone into hiding. In mid-November, the gorilla group was relocated, and its members were still together, although there was no silverback to lead them. Nindja had been the dominant male in this group since 1989.

Nindja is the third silverback leader of the gorilla groups that have been habituated for tourism in the Kahuzi-Biega National Park to die within the last 4 years. Maheshe was killed in 1995, and Mushamuka disappeared earlier this year. Only Mubalala remains of the four famous silverback group leaders. His group was habituated for tourism in 1986.

Nindja taking a nap *Photo: Armin Heymer*

World Heritage in Danger

At its meeting in Naples, Italy, in December 1997, the UNESCO's World Heritage Committee inscribed the Kahuzi-Biega National Park on the List of World Heritage in Danger – together with the Okapi Wildlife Reserve (Ituri). The Virunga Park was already included in this list a few years ago. As reasons for the inscription of Kahuzi-Biega were given: Portions of the park have been deforested and hunting was reported there, park facilities were looted and destroyed, most of the park staff have left the area, and the park

D.R. CONGO

may serve as a hideout for militant groups.

Short Report on the Research in the Kahuzi-Biega National Park

We resumed our work after the war. However, we did have severe problems in continuing a normal schedule as the research area was not safe. Government forces and Mai-Mai rebels have been clashing in the old part of the Kahuzi-Biega National Park from mid-September 1997 until now (end of October). We have not been able to visit the Tshivanga post very often, and the habituated gorillas could not be visited regularly. At the moment, the heads of the Kahuzi-Biega National Park are negotiating with the authorities in order to be able to locate the gorilla groups for tourists again.

The financial support of the *Berggorilla & Regenwald Direkthilfe* has helped considerably in improving morale in the research team – which is particularly important under the current conditions.

Fieldwork

The apes have been disturbed considerably in Kasirusiru and Tshibati since October 1997. Although we were able to resume our activities in February 1997, we have not visited Kasirusiru for 6 months and Tshibati for 4 months. The reason is that the gorillas have left the areas where rebels fight or are hiding. Therefore it is too dangerous to follow the primates, especially because the rangers are not yet officially allowed to carry guns. We do not know anything about the fate of these groups. The chimpanzees were visited until September 1997, when the fighting started, but not on a regular basis. On each occasion, the decision whether to visit them depended on the circumstances at the time.

Gorilla and Chimpanzee Foods

We have made observations on the composition of food, but not on a regular basis because of the security conditions. The dung samples collected in Kasirusiru were burnt during the invasion of the rebels. Our camp at Kasirusiru was set on fire three times and each time we re-built it except for the last one. Now we are waiting until the situation improves.

Forest Phenology

The collection of data had to be suspended because of the problems mentioned above. Some trees along the Kasirusiru transect were felled for firewood, mainly because they were close to the camp which the rebels

Our National Parks are Vanishing and our Gorillas Threatened by Extinction

The community of nature conservation and environmental protection is mourning. Just a reminder: South Kivu and North Kivu, provinces especially interesting for tourists, have recently lost a considerable number of rare animals that have inestimable value for tourism, economy, science and culture.

The Virunga and Kahuzi-Biega National Parks, national fortune and World Heritage Sites, were the scene of violence and massacres of the biological diversity during the war of liberation, expecially for gorillas, elephants and hippos, but also for other animal and plant species.

In the Kahuzi-Biega National Park:

– The famous gorilla Maheshe, patriarch and leader of a group (15 members) was killed in January 1994 by poachers; they have been identified but were not punished in spite of the evidence.

– The gorilla Mushamuka, also a patriarch and family leader of 8 individuals, was killed in April 1997 by poachers that have not yet been identified.

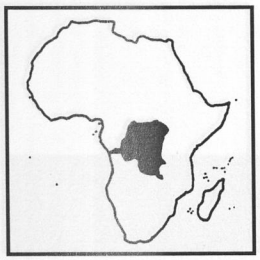
– Very recently, on 30 October 1997, the gorilla Nindja, leader of a family of 29 members, was killed perfidiously with bullets.

Within 10 months, from October 1996 to July 1997, over 150 elephants were killed in the Kahuzi-Biega Park. Not only these species of wild animals are threatened by shameless poaching; the habitat – the forest which contains that biodiversity – is also in danger, because it is systematically destroyed by tree felling and fires that were set aflame by humans.

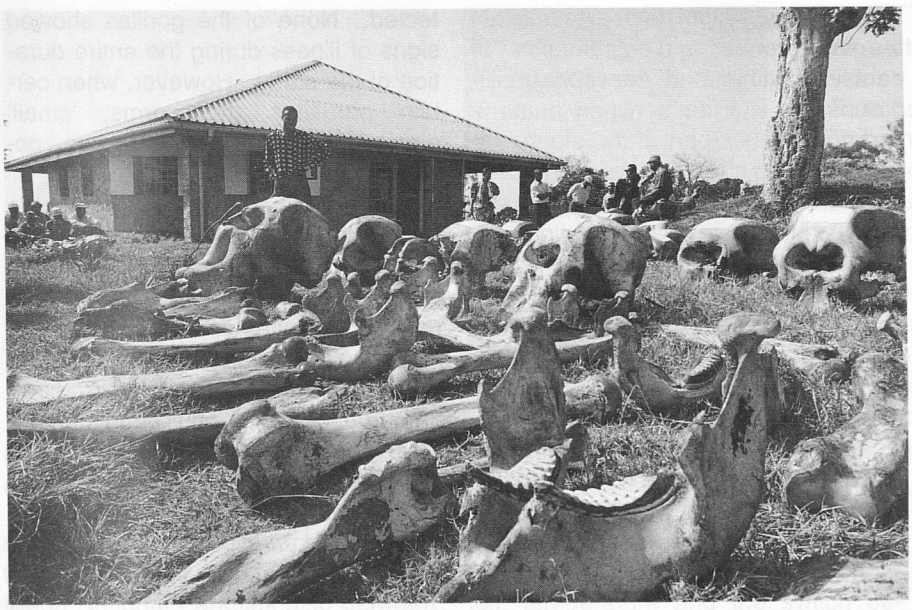
Let's not forget, and this has to be emphasized, that tourism in the east of the Democratic Republic of Congo depends on the national parks. We call these acts, which are disgraceful as well as reprehensible, sabotage of the economy of South Kivu. Their effect is that our province and our country lose natural riches that are unique in the whole world.

This is a real alarm call, a SOS by Mr. Bakinahe Stanislas, ICCN Provincial Director for South Kivu and Maniema, which he directs to everyone (decision-makers, intellectuals, farmers, government officials, military, ...). At the moment, the personnel for surveillance of the parks and nature reserves (rangers) no longer have the working materials at their disposal which would allow them to ensure the protection of our national parks.

If we still do not take our responsibility to nature, how will we answer the questions of future generations?



D.R. CONGO



Remains of elephants poached in Kahuzi-Biega *Photo: Mbake Sivha*

used as a base. At the moment, we are analysing previously collected data for a publication.

Large Mammals on the Tshivanga–Kisangani Road

This study was finished in October 1996. The results showed that large mammals did cross the road. Direct observations of animals on the road proved that at the moment the level of traffic does not impede the crossing by the animals.

From the transect results it could be concluded that elephants occurred somewhat more frequently than gorillas. Results from 3 years of observation (1994–1996) show that the gorillas stay in the secondary forest almost the whole year. The proportion of time spent there decreased in the months September to November because this is when they spend more time in bamboo forest feeding on young shoots. The animals are not evenly distributed in the Kahuzi-Biega National Park because they avoid areas where they are disturbed. Tshivanga is one of the best protected sectors of the park, or used to be before the war. As the fauna and flora of Kahuzi-Biega was disturbed badly over large parts, WCS offered to support a transect survey of large mammals. In this manner the impact of the war on the park is to be determined and the zones that are particularly badly affected will be identified.

Problems and Conclusions

All our activities have been suspended at the three locations. The exploitation of the land has increased. Additional problems are poaching, logging and gold mining. Poaching has become frequent in all sectors of the old park area. It concentrates mainly on elephants: 150–200 of them have been killed there to date. Some sectors of the park have been set on fire by unidentified people. The conflicts which led to this exploitation are discussed locally by the heads of the park by negotiating with the people concerned. Fieldwork has become difficult.

The minister has recognised the extent of the problems and we hope that the Congo Government will react and clarify the situation. We ask the international community to put pressure on our Government to conserve this nationally and internationally important park before it is too late.

Mbake Sivha

Latest news: *In mid-December the situation in Kahuzi-Biega started to improve because several thousand rebels who had been a serious threat for the park left for Rwanda.*

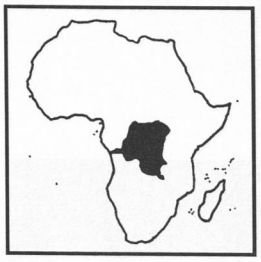
Endoparasites in Gorillas and Humans in the Same Habitat

It has been shown that almost all free-ranging animals have parasites. As sick individuals are actually observed only rarely, the parasites' impact on the host animal had been underestimated for a long time. It is now well known, however, that parasites introduced by humans and those that appear after restriction of the habitat can have a very severe, although perhaps temporary, impact on free-ranging animals.

Primate species are increasingly threatened by the destruction of their tropical habitats. They are forced to retreat to protected areas which are continually decreasing in size. Studies have shown that parasite infestations increase in "stressed" ecosystems or, alternatively, that habitat destruction leads to the disappearance of certain parasite species. This means that parasites can serve as sensitive indicators of changes in the ecosystem.

Parasites of Gorillas

Studies in American zoos and on free-ranging mountain gorillas have shown that in captivity parasites accounted for most deaths in gorillas between 2 and 12 years of age. In free-ranging mountain gorillas, they were the third most frequent cause of death. With the growing risk of decreasing genetic variety in threatened populations, the survival of the individual gains special sig-



D.R. CONGO

nificance. This is particularly true for the gorilla, as all gorilla subspecies are included in the *IUCN Red List of Threatened Animals*. Prophylactic measures for the prevention of new infections and for restricting the spread of existing parasite species may gain considerable importance for free-ranging gorillas in the future.

My Ph.D. study, in which the parasites of a free-ranging population of eastern lowland gorillas *(Gorilla gorilla graueri)* were determined for the first time, was funded by the DAAD (German Academic Exchange Service) and supported by the GTZ (German Technical Assistance). During the study I also collected data on gorilla behaviour and ecology which helped to explain the occurrence and distribution of parasites within and between gorilla groups, as well as between humans and gorillas. As part of the study, the humans living close to the park borders were examined, too. Park staff were also recruited from this population.

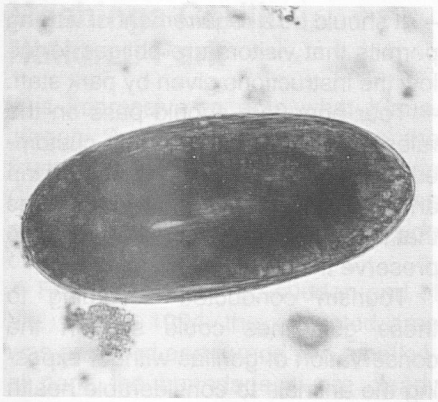
The Kahuzi-Biega National Park is the only protected area in which tourists may visit eastern lowland gorillas. Helminths (worms) were found in 67% of gorilla dung samples, and protozoans (single-celled organisms) in 12%. One tapeworm specific for gorillas which is transmitted by oribatid mites, 5 genera of roundworms and two protozoan genera could be detected. None of the gorillas showed signs of illness during the entire duration of the study. However, when certain parasites (tapeworms, 'small' eggs) were passed, diarrhoea occurred more frequently.

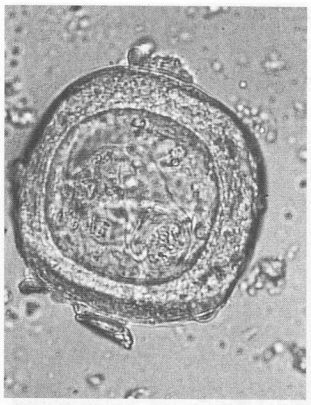
All identified genera of helminths appeared to be the same as those of the other gorilla subspecies. The proportion of eastern lowland gorillas passing parasites lies between that of mountain and western lowland gorillas. The difference in parasite infestations among subspecies may be influenced by ecological and social factors. This has already been indicated by studies on other primate species. With respect to ecological and social factors, the po-

Parasites of Different Gorilla Subspecies

Subspecies *Gorilla gorilla*	*graueri*	*beringei*	*beringei*	*gorilla*
Country	D.R.Congo	Rwanda/D.R.Congo	Uganda	Gabon
Author	Eilenberger	Hastings	Ashford	Landsout-Soukaté
		Redmond/Jolly	Ashford	Goussard
Year	1993	1992/89/84	1996/90	1995/83
Samples studied	1048	128/84/44	305/41	109/84
Infection with parasites	67%	100%	100%	84%
Total helminths	67%	96%	100%	max. 36%
Anoplocephala gorillae	26%	51%	89/84%	
Strongyloides fuelleborni/spp.	7%		16/21%	10%
Strongylides (*Oesophagostomum* spp.)	43%	18%	89/100%	18%
Probstmayria spp.	11%	80%	/100%	
Gongylonema pos.				8%
Oval eggs	3%			
Very long eggs	8%			
Protozoans (total)	11%			
Giardia lamblia	0.8%	x		
Enteromonas hominis	10%			
Entamoeba coli		x		
Entamoeba histolytica		x		
Entamoeba hartmanni		x		2%
Iodamoeba buetscheli		x		

D.R. CONGO





Eggs of endoparasites. Left: a species first discovered in gorillas, right: **Anoplocephala gorillae** *Photos: Ute Eilenberger*

Parasites in the Human Population

Total helminths (n=263)	54%
Thin-shelled worm eggs in intestines:	
Hookworms	2%
Ascaris	41%
Trichuris	29%
Total protozoans (n=209)	29%
Giardia lamblia	11%
Entamoeba coli	12%
Entamoeba histolytica	4%
Iodamoeba buetscheli	5%
Entamoeba nana	2%

sition of the eastern lowland gorillas in the mountainous section of the Kahuzi-Biega National Park lies also between the other subspecies.

In this context it is interesting to note that liver flukes, which are transmitted by ants, do not occur in eastern gorilla populations living at greater altitudes. Similarly, tapeworms transmitted by oribatid mites do not occur in the habitat of the western lowland gorilla. This suggests that either the transmitting species are missing in those areas or the gorillas do not ingest them.

Environmental Effects

Results of the study indicate that in the tropical rain forest, the conditions for the survival and the spread of parasites are favourable the whole year round. Seasonal fluctuations were found mainly in parasite species transmitted by intermediate hosts. For example, in eastern lowland gorillas there was a significant difference in the tapeworm infestation during and after the dry season, as well as during and after the time in which the gorillas ingested mainly fruits and bamboo. Similarly, in a species of roundworm (the transmitting host is not yet known) there were significant differences between the dry season and the rainy season. The reproduction of the intermediate hosts and the ingestion by the final host (i.e. gorillas) is probably influenced by rainfall, temperature and the switch between preferred food plants (*Myrianthus*, bamboo, lianas).

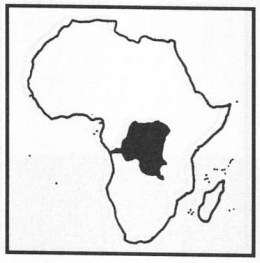
A comparison of the four gorilla groups which I studied showed that the infestation with parasites increased with group size but not with the number of animals. The home ranges of the four groups overlapped to different extents and the groups' day ranges differed considerably in length. The group whose home range overlapped most extensively with those of other groups and who had the shortest daily ranges, was most infested with parasites. Conversely, the group with the longest day range and least overlapping home range was the one with the least parasite infestation. This may indicate that repeated utilization of an area in short intervals results in higher parasite infestation.

If individual gorillas are considered, there is a clear correlation between parasite infestation and the age of the host. However, direct physical contact, such as between mother and dependent offspring, did not seem to have an impact on the transmission of parasites. All parasite species increased from infants (up to 3 years) to juveniles; 2 out of 6 parasite genera increased until maturity. This might indicate the development of an immune reaction to certain parasite genera, but this has not yet been investigated in gorillas.

There were no statistically significant differences in parasite infestations between male and female adults. It was found that females, especially lactating females, tend to pass parasites somewhat more frequently than silverbacks. This might indicate the influence of intrinsic (internal physiological) factors such as hormones. Alternatively, changes in feeding behaviour caused by gestation and lactation, such as increase of food quantity and foraging in more accessible places, may affect the parasite infestation.

Parasites in the Human Population

54% of the human population in the surroundings of the Kahuzi-Biega National Park passed parasites. Although most genera were different from those of the gorillas, all parasites identified in humans may potentially be infectious for primates. Particularly alarming was the high number of potentially infectious protozoans. Three times as many humans were infected with protozoans (*Giardia* and *Entamoeba*) than gorillas. Gorillas are not considered natural hosts for *Entamoeba*. Studies in captivity have shown that these par-



D.R. CONGO

asites can cause severe symptoms and frequently even death, especially in young animals up to 2 years of age. This is exactly the age group that most often approaches tourists and park staff. Protozoans can be transmitted from humans to gorillas more easily than helminths directly via smear infection from faeces to the mouth. *Giardia* is found ten times as frequently in humans than in gorillas. The possibility of transmission of these parasites from humans to gorillas cannot be excluded because of the gorillas' close contact to people.

Conclusions and Consequences

– The studied gorillas are living in balance with their parasites. A reduction of the protected area, which would result in a more intensive utilization of home ranges by the gorillas, might increase the infestation with parasites and disturb the balance.

– In the rain forest, the occurrence of parasites transmitted by intermediate hosts is clearly influenced by ecological factors. Changes in the frequency of these parasites might indicate changes in the ecological conditions.

– The human population close to the park is infected with parasites to a high degree. So far, the human parasites have overlapped only slightly with those of the gorillas. Both populations have parasites which are transmittable to the other population, however, and the risk of infection is considerable.

Practical measures should include:

– Constant monitoring of the parasites of gorillas and park staff. Contact between gorillas and people other than rangers should be prevented. This requires a more careful habituation; the gorillas should always retain a certain shyness of people and their settlements.

– The gorilla habitat should be conserved in its existing size and structure, especially in regard to the variety of food plants.

Tourism

If the concept of tourists visiting gorillas is to be maintained, the following measures should be taken in order to protect the gorillas from parasites and other infectious diseases:

– The minimal distance between gorillas and humans during visits should be increased.

– Park staff and tourists should be informed about the risks of infections and the importance of keeping a certain distance from the gorillas.

– It is urgent that toilets be constructed for tourists and the population in the park's surroundings.

– Park staff have to be paid a sufficient salary which encourages them to inform tourists of the regulations and to ensure that they follow these rules.

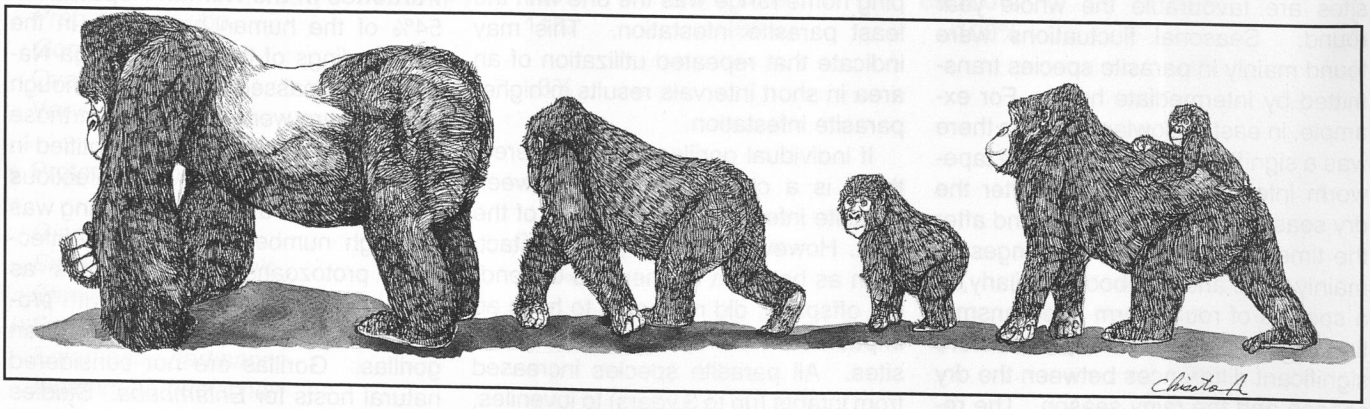
– It should be a requirement of visiting permits that visitors are obliged to follow the instructions given by park staff.

– Tour operators should pass on the rules and regulations to their customers even before they leave for their trip and inform them about the restrictions that they will have to respect in order to preserve the health of the animals.

Tourism conducted according to these guidelines could support the conservation of gorillas without exposing the animals to considerable health risk.

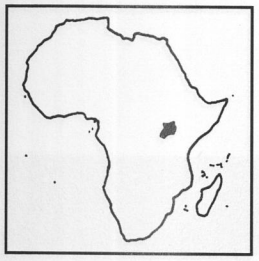
Ute Eilenberger

Numerous people have contributed to the success of this inter-disciplinary study, and I am very much obliged to all of them. However, I owe particular thanks to the DAAD for their financial support. I thank the Berggorilla & Regenwald Direkthilfe *for facilitating the connection with GTZ. I would not have been able to conduct the field work without the support of the GTZ, IZCN, the management and colleagues of the PNKB, and the management and colleagues of LWIRO. For personal support in the field I owe particular thanks to my extraordinarily capable colleague James Safari and pygmy chief Pili Pili and his staff. It was only possible to conduct this study as the fieldwork for a Ph. D. thesis because K.-H. Zessin, University of Berlin, acted as my supervisor.*



Nindja's family

Drawing: Chisato Abe



UGANDA

Mgahinga Gorilla National Park

It is impressive to note what Klaus-Jürgen Sucker achieved during the 5 years that he worked in the Mgahinga Gorilla National Park, a habitat of the mountain gorillas on the northern side of the Virunga Volcanoes.

From 1989 until the sudden end of his work in 1994, the protected area was enlarged and turned into a national park, the boundaries were clearly marked and protected and he ensured that the local people would benefit from tourism in the area.

Three years after the murder of Klaus-Jürgen Sucker, it is still amazingly evident that his strategy for protecting the area was well-planned and optimally suited for the conditions in the area. The forested area, which once was strewn with snares for wild animals and threatened by deforestation to make way for potato farming, is now a promising habitat for rare plant and animal species of the afromontane and afro-alpine region – despite the civil war in this area.

Not only the area of the park covered with primary vegetation appears to thrive; the central region of the area covered with secondary vegetation has also developed into valuable secondary forest (*Hypericum* forest). Noteworthy was the blooming and subsequent mass extinction of the *Mimulopsis arborescens* vegetation at the Sabinyo volcano this year.

However, in vast areas of the succession area, afro-montane grassland predominates, and the natural regeneration of the vegetation is halted. The invasion of Australian plants (*Eucalyptus* spp., *Acacia mearnsii*) continues to spread in an uncontrolled manner.

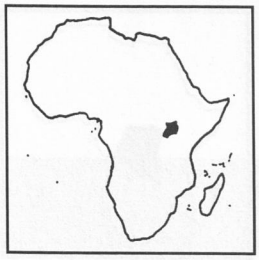
The positive development of the flora and fauna in this area that we were able to observe since 1989 can only persist if the local population living close to the boundaries of the national park continue to accept the park as such. The park is an important source of income for the villagers and the benefit sharing program that the management has implemented supports the people living near the park: 20% of the entrance fees to the Mgahinga Gorilla National Park are used to support projects within the communities adjacent to the park. The money is currently being used to support the construction of schools in three adjacent communities. This has strengthened the hopes of the people in the Kisoro region that their situation will improve, which was indeed one of the reasons why they agreed to establish the park in the first place. Substantial financial independence was also achieved for the management of the national park: The salary for all the park rangers can now be covered with the proceeds from tourism. This fortunate situation – being independent of external funding – is the basis of a sense of confidence that prevailed among the people we came in contact with during our visit.

Mgahinga National Park office in Kisoro *Photo: Iris Weiche*

Richard Bukowa (Warden for Law Enforcement and Tourism) informed us of a failed attempt by tourists to bribe the rangers. These tourists wanted to arrange an illegal tour to the mountain gorillas, but instead were escorted out of the park, and their money was not accepted. (In July 1997 the number of visitors to the habituated gorillas in Uganda was exceptionally high, since gorilla tourism in Rwanda and the Democratic Republic of Congo was temporarily halted at that time.)

On the other hand, the flourishing business with gorilla tourism has produced massive changes in the daily duties and priorites of the rangers. At the moment, they are primarily concerned with managing the problems which have ensued due to the high number of visitors to the park. The consequences of this may be that the control of the boundaries of the national park, anti-poaching patrols and measures against wood-cutting in the area are neglected. We frequently found damage in the border wall along the park and traced small used paths which led into the park.

Our starting point for cooperating with the management of the park is our



UGANDA

Ignatius Achoka with Iris Weiche
Photo: Ursula Karlowski

interest to ascertain the number of unhabituated gorilla groups and solitary animals in the park. Except for the composition of the habituated gorilla group (2 silverbacks, 3 adult females, 2 juveniles and 2 babies), there is no recent information on the number of unhabituated gorillas in the Mgahinga Gorilla National Park. We suggested that the population of unhabituated gorillas should be monitored with financial support from *Berggorilla & Regenwald Direkthilfe*, and this was favorably received. Ignatius Achoka, the new head of the park, started to organize patrols that are especially concerned with these issues.

Despite this encouraging news about the successful preservation and conservation of the Mgahinga National Park, it should not be forgotten that this park only comprises a small area of the total habitat of the mountain gorilla. To ensure the survival of the whole population, improvements in the two other parks of the Virungas, the Parc National des Volcans (Rwanda) and the Virunga National Park (D.R. Congo) are urgently needed.

Ursula Karlowski and Iris Weiche

Gorilla Tourism in Uganda

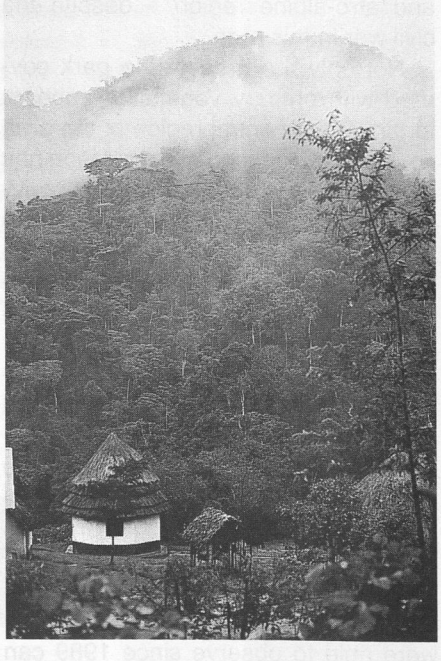
In Mgahinga, there is still one group of gorilla visited when they are in Uganda – the limit is 6 visitors a day for 1 hour. In Bwindi, there are 2 groups of gorillas open for tracking, the Mubare group and the Katendegere group.

In Uganda, gorilla tourism has had a difficult summer due to the security situation in Democratic Republic of Congo and Rwanda. During the high season June to September, Uganda was the only country that was officially open for mountain gorilla tracking, and this has led to enormous pressure on Mgahinga and Bwindi. At times there have been up to 5 overland lorries waiting on stand-by lists for gorilla permits in Mgahinga and Bwindi. The wardens of both parks are trying to deal with pressure from pushy tourists and tour guides/drivers who attempt bribery to convince park staff to allow double visits and extra visitors above the limit. There have been cases in both parks, and park wardens, UWA Headquarters, and IGCP are trying to prevent recurrence of these problems as it puts the gorillas at risk. The IGCP *(International Gorilla Conservation Program)* is working on a programme of education for tourists, especially the overland lorry companies, in an attempt to reduce the incidence of corruption.

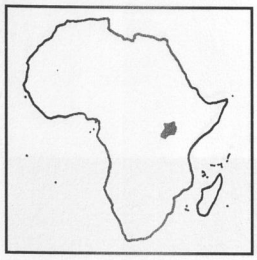
The Mubare group currently has 16 members after a new baby was born in August. This group is visited by 6 tourists a day, and all of these permits may be booked in advance from Kampala. Up to 60% of the permits have been sold a year in advance, with 40% held back to be sold 3 months in advance. This was an attempt to prevent having all the permits sold to tour operators a year in advance so that individuals, Ugandan citizens and residents, and smaller tour companies would have a chance to book permits at shorter notice. In reality, this is not yet functioning as the tour operators are lining up to get the 3 month permits as well. Any permits not sold in advance are sold in Buhoma on a stand-by basis on the morning of the visit. Policy revisions are underway currently and this system may change by January of 1998 for bookings for January 1999.

The Katendegere group fragmented in spring of 1996 with the departure of 2 of the blackbacks and the death of an old silverback, leaving only 4 animals: 1 silverback, 1 female, 1 juvenile male, and 1 infant. The infant later died during the scabies outbreak, leaving only 3 animals. We feel that 3 is stretching the definition of the word "group" and that we must consider closing this group to tourism as soon as possible. With a view to eventually closing this group, we have done two things: reduction in tourist numbers, and habituation of a new group to eventually replace the Katendegere group.

After the reduction in group size, the number of tourists visiting the Katendegere group was reduced to 4 per day from August 1996, and further one-year advance bookings to this group were stopped. Since August of 1997, the 4 permits a day are sold on a stand-by basis only as we cannot guarantee



Buhoma: bandas for tourists run by the community



UGANDA

that the group will not fragment completely and cease to be visitable. In November 1997, there was a birth in the group, but the infant died in December. Although the mother is likely to give birth again in about a year, it is unlikely that the group will significantly increase in number in the foreseeable future, so plans should go ahead to close the group to tourism as soon as there is a replacement group.

The current 4 stand-by places a day can also be used by official visitors to the park. This has led to frustration for stand-by tourists who wait for their turn to go, only to be delayed by the arrival of official visitors – the park warden is trying to solve this problem.

IGCP is currently habituating 2 new gorilla groups – the habituation teams are made up of park rangers and IGCP field staff. The first group to be ready will replace the Katendegere group, leaving us again with only 2 tourist groups. It is likely to be the Habinyanja group, accessible via a long walk from Buhoma up and over a very steep hill. The booking systems will have to be set up carefully as the group is sometimes a difficult one-day's journey from Buhoma, but at other times is too far and might require an overnight camp for the tourists. This system will be worked out once the habituation goes a bit further and the entire home range of the gorillas is known. The Habinyanja group is not yet fully habituated, so there is time to work out a booking system, but it would certainly be better if it was stand-by only. As with the other tourism groups in 1993 and 1994, we will start with a small number of tourists on stand-by only and work up to the maximum number of 6 a day.

The other group under habituation in Bwindi is in the area that we had always thought would be the location of the "third tourist group", as specified in the Tourism Development Plan and Bwindi Management Plan. This group is taking longer to habituate due to various factors, and again its geographical location at a long walk's distance from Buhoma will affect booking systems and the type of tourist who can successfully track this group.

Liz Macfie

New Gorilla Census in Bwindi

A team of scientists has found that nearly 300 gorillas are still living in the Bwindi Impenetrable National Park. A similar number (290–310) had also been found during the period of 1987 to 1993 when all groups were identified and monitored by Thomas Butynski and his team.

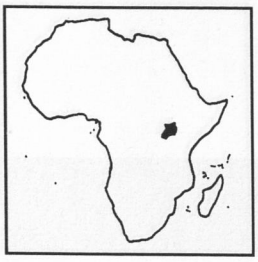
The new census, conducted in October and November 1997 by WCS *(Wildlife Conservation Society)*, IGCP, ITFC *(Institute of Tropical Forest Conservation)* and UWA *(Uganda Wildlife Authority)*, resulted in 292 gorillas from 28 groups, along with 7 lone silverback males. The researchers followed trails and counted nests. To reduce the possibility of missing groups or counting them twice, more survey teams were used than in the past, and the counting took place over a shorter period of time. They also collected hairs from every nest for DNA fingerprinting, to confirm that no groups were counted twice, and to understand the genetic differences between the populations in Bwindi and the Virungas. Teams consisted of national park staff from Uganda, Rwanda, and D.R. Congo as well as visiting scientists from conservation organizations.

Angela Meder
Taken mainly from an article published by WCS

Comparative Behavioural Ecology of Bwindi Gorillas and Chimps

In December 1996, a research project was started on the comparative behavioural ecology of gorillas *(Gorilla gorilla beringei)* and chimpanzees *(Pan troglodytes schweinfurthii)* in the Bwindi National Park, southwestern Uganda. Bwindi is biologically unique – an Afri-

Members of the Mubare group *Photo: Ulrich Karlowski*



UGANDA

can montane forest with high levels of biodiversity. It is also the only forest in the world where mountain gorillas and chimps live sympatrically. These apes are classified as 'critically endangered' and 'endangered' *(1996 IUCN Red List)*. In spite of this, little information is available on their behavioural ecology.

The Bwindi gorillas are a vital part of the natural heritage of Uganda and have become the centerpiece of Ugandan wildlife-based tourism. For the Bwindi National Park to be preserved, along with its great apes and eco-tourism program, basic information on the apes' ecological and behavioural requirements must be obtained.

Our field study of gorilla and chimpanzee habitat use will provide urgently needed information in three areas. First, basic research on the behavioural ecology of the Bwindi gorillas is essential for evaluating habitat requirements as a basis for future conservation policies. Second, the degree to which gorillas and chimpanzees in Bwindi share food resources or compete for critical foods is unknown. If sympatric populations share and/or compete for resources, this implies that the foraging effort, group size, and grouping patterns of one species may affect the other. In other words, the behavioural ecology of sympatric apes may be quite different from that of allopatric populations. Third, the most basic details of chimpanzee population size, community territory requirements, diet, and other aspects of behavioural ecology are unknown in Bwindi. Our study will address all three topics, providing ecological and behavioural data necessary for effective monitoring of both species within the park. In addition, this information will be used to address the recent claim by Sarmiento and others (1996) that the Bwindi gorillas are morphologically and ecologically distinct from the Virunga mountain gorilla population and therefore warrant separate taxonomic status.

Goals

Specifically, the main objective of our research is to collect data on both ape species at a low and high elevation site to test hypotheses relating to population density, dietary overlap, ranging behaviour, and grouping patterns. First, we are determining how the availability and distribution of plant foods at both elevation sites influence the density of these great apes. Second, overall the Bwindi-Impenetrable Forest is higher in fruit diversity than the Virunga Volcanoes and Bwindi gorillas appear to include more fruit in their diet than do Virunga gorillas, at least seasonally. Third, we are determining the influence diet has on gorilla and chimpanzee ranging and grouping behaviour.

Preliminary Data

From January to February 1997, M. L. Goldsmith, A. Hanke and J. B. Nkurunungi collected data on the Mubare (tourist) group at Buhoma (1,450 m) and the Kyaguliro (research) group at Mubwindi Swamp (2,150 m). The objectives were to collect preliminary data on climate, vegetation diversity and density, ape diets, ranging and grouping behaviour, and to select sites for the long-term field study.

The climate in Buhoma was relatively rainy and warm compared to Mubwindi. In January, during the study period in Buhoma, rain fell on 11 of 24 days, for a total of 125 mm and minimum and maximum temperatures averaged 14 and 27 °C, respectively. In February, during the observations at Mubwindi, rain fell on only one day, for a total of 15 mm and minimum and maximum temperatures averaged 7 and 22 °C, respectively.

Preliminary analyses of the vegetation (a random sample of 60 of the 600 1 m^2 quadrats tested along a 3 km transect at each site) showed that species diversity was only slightly higher in Buhoma than in Mubwindi (Buhoma mean: 4.3 species/m^2 and Mubwindi mean: 3.6 species/m^2). The two sites differ rather dramatically, however, in stem density with Buhoma having twice as many stems per plot than Mubwindi (Buhoma mean: 18.3 stems/m^2 and Mubwindi mean: 9.3 stems/m^2).

Stream in the Bwindi Impenetrable National Park *Photo: Angela Meder*

Although the vegetation in their environment is slightly more diverse, the Buhoma gorillas ate a less varied diet during January (25 species, including introduced banana and eucalyptus trees) than the Mubwindi gorillas did in February (30 plant species, none introduced). Data on daily path lengths (complete follows from morning to evening nest sites) demonstrate that the Buhoma group traveled shorter daily distances (mean: 697 m, n=13) than the Mubwindi group (mean daily distance: 902 m, n=12). In addition, gorilla sleeping sites were more cohesive in Buhoma (mean nest site area: 329 m^2, n=21) than in Mubwindi (mean nest site area: 877 m^2, n=19), regardless of the fact there were 11 nesting individuals in Buhoma and only 9 in

RWANDA

Mubwindi (the number of nesting individuals does not equal total group size since it does not include non-weaned group members).

We had predicted that gorillas at lower elevations would be more frugivorous and would therefore travel farther and less cohesively than those at higher elevations. Therefore, it is important to point out that during our study, the gorillas at the lower elevation in Buhoma spent a large percentage of time out of the forest, in and around the tourist camps, where herbaceous vegetation was extremely abundant (and fruits absent) due to artificial forest clearings. This most likely explains the less diverse diet, shorter day ranges, and more cohesive groups of Buhoma tourist gorillas.

Preliminary observations suggest that chimpanzees occur at higher density at Buhoma since they were seen or heard or fresh nests were encountered on 75% of days, and the chimpanzees were often heard pant-hooting in proximity to gorillas. On one occasion the gorillas nested only 15 m from a day old chimpanzee nest site of 8 individuals. Analysis of chimpanzee fecal samples demonstrated, however, that many of their foods (mainly figs) were not important food items for gorillas during this month. In contrast, at higher elevations in Mubwindi at the beginning of the dry season in February 1997, chimpanzees were not observed or heard, nor were fresh nest sites found. In addition, trackers have reported no evidence of chimpanzees near the gorilla research group since November 1996.

From June to August 1997, C. B. Stanford, M. L. Goldsmith, and J. B. Nkurunungi visited another low elevation area, Nteko, where tourism is not present, gorillas spend more time in the dense montane forest, and chimpanzees are frequently encountered. During a previous three-day visit to this area by Goldsmith in January 1997, large amounts of fruit were found in gorilla dung and chimpanzees were heard pant-hooting nearby on all days.

During July 1997, chimpanzee parties were contacted daily by Stanford; party size was greater than or equal to 15 for one 7-day period, during which time they fed almost exclusively on fruits of two tree species (*Maytena indicata* and *Chrysophyllum* sp.). Follows of gorillas during this time showed they also fed on the same two fruit species. Honey eating was inferred for chimpanzees from the presence of two types of tools found at bee hives that were apparently used to extract honey of two bee species (*Apis mellifera* and *Melanopula brocaudei*). This is the first record of tool use by chimpanzees in the Ugandan portion of the Albertine Rift region of East Africa. Data on 140 chimpanzee nests and 15 fecal samples are presently being analyzed.

Field research will continue in December 1997 and will include setting up a field camp in the Nteko region. We will examine the influence of frugivory and sympatry on the gorillas' dietary, ranging, and grouping behaviour in order to compare it to similar data collected at the higher elevation of Mubwindi where there are fewer fruits and chimpanzees.

Michele L. Goldsmith and Craig B. Stanford

We would like to acknowledge the National Geographic Society, Primate Conservation Incorporated, *and the* Claire Goodman Fund *of Dartmouth for funding and the UWA and the ITFC in Uganda for permission and logistical support.*

Karisoke Research Center

June 1997: The security situation in the Parc National des Volcans deteriorated considerably; exchanges of gunfire occurred with increasing frequency. The staff of the Karisoke Research Center *(Dian Fossey Gorilla Fund)* suspended all monitoring and anti-poaching activities on June 17th, two weeks after the government parks service, ORTPN, stopped all tourism.

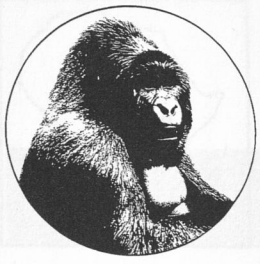
July 1997: Some people living around the park took advantage of the lack of protection for the park's flora and fauna, and the intensity of illegal activities became extremely worrying. There were cattle grazing in the forest, substantial areas of bamboo were cut, and large quantities of antelope meat were coming out of the park for sale in local markets. Evidently many snares have been set.

August 1997: Karisoke staff negotiated access to the gorillas with a local army commander. This was agreed to as no infiltrators had been encountered during preceding military patrols. On August 4th, Karisoke staff located all three research groups, but the gorillas fled at the approach of the trackers. One new baby was seen in Beetsme's group. We have had no detailed information about the gorillas since.

It goes without saying that the Government of Rwanda is doing all it can to restore peace and stability in the northwest of Rwanda, however, it is still impossible for us to work in the park. One of our trackers, Nshogoza Fidele, who began work with Dian Fossey in 1978, was murdered by the Interahamwe.

The mountain gorillas are more threatened by armed combat now than ever before. But another great danger comes from poachers, whose antelope snares can easily trap a gorilla, at a time when they are particularly vulnerable. In the last 2 weeks (October) a young female gorilla at Jomba, Virunga National Park, D.R. Congo, has been observed with a serious snare injury. This injury was detected as guides with ICCN are now able to visit three gorilla groups from Jomba, and in fact reopened to tourists on September 10th. All activities in the Parc National des Volcans, Rwanda, remain suspended.

Liz Williamson



GORILLAS

Young gorilla in the Brazzaville orphanage *Drawing: Chisato Abe*

The Gorilla Orphans of Brazzaville

On 5 June 1997, fights started in Brazzaville. They continued for about half a year and completely destroyed the capital of the Congo. Before the war begun, 11 gorillas and 6 bonobos were living in the Brazzaville orphanage which was located at the corner of the zoo and managed and funded by Howletts Zoo in England. Soon after the start of the fighting, French soldiers allowed a few scientists to save the last apes from the orphanage. Within only 20 minutes, 4 gorillas were sedated and removed. One adult individual who had to stay because there was no crate large enough is now dead. Today the buildings of the zoo as well as the orphanage are badly damaged and cannot be used.

The young gorillas were taken to the orphanage of the Jane Goodall Institute near Pointe Noire. Now the babies are living in a forest patch a few kilometers from the Institute and can go outside during the daytime. One of them died, but another one was obtained additionally, so there are still 11 gorillas on the coast that Howletts cares for.

Some time ago, gorillas from the orphanage in Brazzaville had been introduced to the wild in the Lefini Reserve, about 150 km north of Brazzaville. It was the first attempt to rehabilitate gorillas to the wild, and so far it has been the only attempt, in contrast to a number of attempts for orang-utans and chimpanzees. Some of the gorillas which were transferred to Lefini died, but 6 animals are still alive. At the end of November, the project manager and the release site manager visited the forest camp and found that the 6 gorillas are still alive and well. However, the camp was looted by Cobra militia and the project manager robbed and threatened with execution. He was able to leave, but the future of the project looks very uncertain.

Angela Meder

Many thanks to Chris Furley, Shirley McGreal and Hiromi Uzu for their information.

Certification Withdrawn

For many years, the timber company Leroy Gabon (a subsidiary of the French company Isoroy, owned by the German company Glunz AG since 1992) has had permission to log in a vast area of primary forest in and around the Lopé Reserve in Gabon.

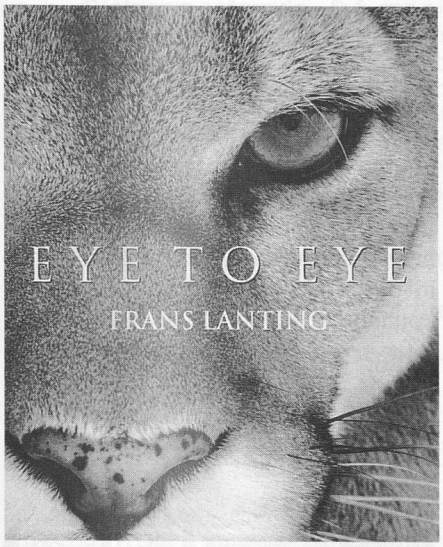
In October 1996, the FSC *(Forest Stewardship Council)* granted Leroy Gabon a certification for their scheduled logging in the Lopé Reserve. This certification approves the sustainable and careful management of the forest. Many rain forest organizations strongly complained about this certification and questioned the credibility of the certifier SGS which had assessed the logging operations of Leroy Gabon. Scientific investigations had shown before that Isoroy did not manage the forest in Gabon sustainably and that the requirements for a certification according to the FCS principles were not fulfilled.

In September 1997, the situation was reviewed again by the FSC; they came to the conclusion that Leroy did not qualify for the certification and that it should immediately be withdrawn. FSC stated that SGS had made a mistake. To prevent this from happening again, FSC also decided to suspend any certification of logging in primary forests for 6 months.

This does not mean that Leroy will stop their activities in this area. Indeed, there are reports of former Isoroy managers who say that the company has completely given up the idea of having their timber certified because they would not get enough profit from their activities if they had to accept restrictions. Due to financial problems, Isoroy now apparently no longer plans to manage their concessions in Gabon sustainably, but instead intends to extract as much money as possible as quickly as possible – also in the Lopé Reserve.

Angela Meder

READING



Frans Lanting
Eye to Eye. Cologne (Benedikt Taschen) 1997. 252 pages, 136 photos. Hardcover. $ 39.99, £ 24.99.

Close, long lasting looks into the eyes of all kinds of wild animals – who doesn't dream of such an experience? Photographer Frans Lanting has turned this dream to reality for himself. He tried to get acquainted with insects, penguins, crocodiles, elephants, apes and many, many others by approaching them with his camera. On the brilliant, large photos in his book, those animals are looking at us. Their direct looks into our eyes make us shiver. They affect our feelings because of the unique quality and expressiveness of the pictures, but also because the photographer has tried to establish an emotional relationship with the individuals he met. He did not look at them as objects but as personalities who have to be treated with respect. It took Frans Lanting 20 years to take the pictures for this book, and he himself selected the photos and arranged them.

Victoria J. Taylor and Nigel Dunstone (eds.)
The Exploitation of Mammal Populations. London (Chapman & Hall) 1996. 415 pages, 55 illustrations. Hardcover, £ 45, $ 79.95. ISBN 0-412-64420-7.

In this book 38 (mostly British) authors with different opinions describe various examples of mammal exploitation. The dominant subject is sustainable use – including a discussion of its meaning. Some of the subjects are game ranching, sport hunting, impact of illegal hunting, fur trade and ecotourism. Historical developments and the positive and negative results of exploitation practices are discussed in detail too. A very interesting book.

Jonathan Kingdon
The Kingdon Field Guide to African Mammals. London (Academic Press) 1997. 465 pages, more than 480 colour paintings, 280 maps. Paperback. £ 29.95. ISBN 0-12-408355-2.

Melvin Bolton
Conservation and the Use of Wildlife Resources. London (Chapman & Hall) 1997. 296 pages. Hardcover, £ 49, $ 89.95. ISBN 0-412-71350-0.

G. Cowlishaw, Robin I. M. Dunbar
Primate Conservation Biology. London (Chapman & Hall) 1997. Ca. 256 pages, 40 illustrations. Hardcover, £ 35, $ 64.95. ISBN 0-412-71340-3.

Michael Tomasello and Josep Call
Primate Cognition. Oxford (Oxford University Press) 1997. Hardcover: £ 57.95, ISBN 0-19-510623-7; paperback: £ 27.95, ISBN 0-19-510624-5.

Janine R. Clemmons and Richard Buchholz
Behavioral Approaches to Conservation in the Wild. Cambridge (Cambridge University Press) 1997. 398 pages. Hardcover: £ 55, ISBN 0-521-58054-4; paperback: £19.95, ISBN 0-521-58960-6.

The Last Frontier Forests: Ecosystems and Economies on the Edge. New York (World Resources Institute) 1997. 80 pages. Paperback. $ 14.95. ISBN 1-56973-198-5.

Jonathan Baillie and Brian Groombridge (eds.)
1996 IUCN Red List of Threatened Animals. Gland (IUCN) 1996. 448 pages. ISBN 2-8317-0335-2.

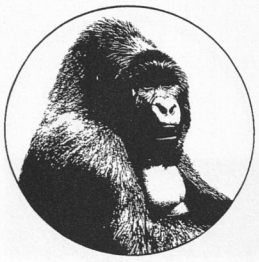
A New Journal in Primatology

Recently the interdisciplinary journal *Primatologie* was created under the auspices of the *Société Francophone de Primatologie*. The main objective is to develop contacts between French-speaking primatologists from around the world. Papers will primarily be published in French, but each article will be accompanied by an abridged version of 2–3 pages in English. Various fields of primatology will be included, such as physical anthropology, behavioural sciences, biology, biomedical sciences, cognition, conservation, ecology, paleontology, neuroscience and welfare. More details can be obtained from:

Joel Fagot
Center for Research in Cognitive Neuroscience
31 ch. Joseph Aiguier
13402 Marseille cedex 20, France
Fax: +33-4-91714938
E-mail: fagot@lnf.cnrs-mrs.fr

Backbone: A Newsletter for the Albertine Rift

In November 1997 the first issue of the newsletter *Backbone* was published by ARCOS *(Albertine Rift Conservation Society)* or SCORA *(Société de Conservation du Rift Albertin)*. It is also available in French, called *Le Pilier*. The goal of this publication is to ensure that the core areas of the Albertine Rift, the centres of the greatest diversity,



BERGGORILLA & REGENWALD DIREKTHILFE

uniqueness and endemism are able to survive. Especially important among those areas are the montane forest ecosystems like Ruwenzori, Tshiaberimu, Nyungwe, Kahuzi-Biega and Itombwe; many of them are homes of eastern gorilla populations. *Backbone* wants to promote collaboration through sharing experience on the status, conservation and sustainable use of natural resources in the region. It is edited by Wenceslas Gatarabirwa and Tharcisse Ukizintambara.

For detailed information contact:
ARCOS, c/o WCMC
219 Huntingdon Road
Cambridge, CB3 0DL, Great Britain
Tel.: +44-1223-277314
Fax: +44-1223-277136
sam.kanyamibwa@wcmc.org.uk

News from the Internet

Latest news from Africa is provided on the site of *AfricaNews online* **(http://www.africanews.org)**. The *Panafrican News Agency* lists news from all over Africa **(http://www.africanews.org/pana/news)**. For more regional or country-specific newspaper articles and press releases, *AfricaNews online* has created many special sites for certain regions and countries. One of them is the Uganda site **(http://www.africanews.org/east/uganda)** which mostly includes articles from the latest issues of the newspaper *New Vision*.

Birdwatchers certainly will be interested in the web site *Birding in Congo* **(http://home.sol.no/~stingray)**. It was designed at the end of 1996 by a pilot and birdwatcher who worked for some time in Zaire/D.R. Congo.

Careers in Primatology

The *Primate Info Net* has created a new web site called *Careers in Primatology* **(http://www.primate.wisc.edu/pin/careers.html)** and it is still being developed. Its objective is to provide realistic and encouraging advice to those seeking careers in primatology. Many useful links take the reader to other sites.

Items are: most frequently asked questions – undergraduate and graduate programs – other educational programs – introductory courses – education and employment related resources – careers in zoos, research, conservation, veterinary medicine and education – field work – video interviews – primatological societies – employment opportunities – related career sites.

Contributions and critical remarks are welcome. Anyone who would like to help with the development of the site should contact:

Larry Jacobsen
Careers in Primatology Coordinator
Wisconsin Regional Primate
Research Center
University of Wisconsin, Madison
jacobsen@primate.wisc.edu

Finances

Income 1 Jan. to 31 Oct. 1997

Subscriptions	DM	18,774
Donations	DM	14,058
Sales	DM	3,335
Total	*DM*	*36,167*

Expenses 1 Jan. to 31 Oct. 1997

Journal	DM	8,472
Subscriptions	DM	1,099
Freight costs	DM	1,520
Project support		
Mgahinga, Virunga	DM	7,650
Research Mbake Sivha	DM	6,000
Postage	DM	1,264
Equipment Tshiaberimu	DM	4,316
Exp. board of directors	DM	475
Poster printing	DM	1,301
Various expenses	DM	1,293
Total	*DM*	*33,390*

We would like to thank each person and organization who has supported us so generously between 1 June and 31 October 1997. Larger contributions were given by Angela Meder, Marianne Paul, H. J. Reich, Artur und Geraldine Reischl and Peter Waldner. Erwin Fidelis Reisch *(Reisch Tours)* took charge of the costs of reproduction and composition for the journal. Many thanks to all the above mentioned and all the other donors for their confidence in our work. We hope that you will continue to support us in 1998!

Order form

☐ ***Special offer:***
SOS T-shirts. 100% cotton, gray. Print in three colours.
$ 10. Available sizes: XL – XXL. Number and sizes:

Sticker postcards. With BRD logo in green, yellow and black. $ 5 per piece
☐ Number with the print *Mgahinga Gorilla National Park*
☐ Number with the print *Institute of Tropical Forest Conservation*
☐ Number sets of sticker postcards (2 *Mgahinga* + 2 ITFC + 10 with incorrect colour). Special offer, $ 12.

Picture postcards. $ 1 per piece
☐ Number with feeding Rwandan gorilla by Gabriele Holzinger
☐ Number with mountain gorilla by Markus Weiss
☐ Number with Mushamuka (Kahuzi-Biega National Park)
☐ Number with Bwindi gorilla mother and young
☐ Number sets with 20 postcards (10 Mushamuka, 10 Bwindi). $ 15.

Set of primate stamp postcards (4 picture postcards; see page 22). $ 4. number of sets ☐ ***new***

☐ **Infoe study**. Deforestation and the Forest Peoples of Central Africa. $ 7.

☐ **Check-list of the Birds of the Bwindi-Impenetrable Forest, Uganda**. $ 5.

☐ **Second issue of *African Primates***. Free-of-charge (only $ 5 for postage).

All prices include postage and shipment. Please send a cheque together with your order.

Where did you hear from us?

Name and address ______________________________

____

Declaration of Membership

Starting with the following date ______ I declare my membership in *Berggorilla & Regenwald Direkthilfe*

Name ______________________ Affiliation ______________________

Address ______________________________

____

Birth date ______________ male ☐ female ☐

Yearly subscription (please mark)

Date and signature ______________________

☐ $ 25 (Student)
☐ $ 75 (General member)
☐ $ 120 (Family)
☐ $ 180 (Donor)

Please send to:
Rolf Brunner
Berggorilla & Regenwald Direkthilfe
Lerchenstr. 5
45473 Muelheim, Germany
Fax +49-208-762447

Bank account:
Berggorilla & Regenwald Direkthilfe
Account number 353 344 315
Stadtsparkasse Muelheim, Germany
Bank code number 362 500 00

More than 70 years of experience in Africa and more than 60 years of scheduled services.
Already in the early twenties, Sabena built up an Intra-African network. The first flight with a three-engined Handley-Page started from Brussels to Kinshasa, the former Leopoldville, in February 1925. It took, however, ten more years until regular services were introduced on this route and thus connected the European and the African Networks.

"Out to Africa" - Sabena takes you along on 33 flights a week serving 22 African destinations.
Today, Sabena links, via its Brussels hub, more than 100 cities in Europe, America and Asia to 22 destinations in Africa, from Casablanca in the North to Cape Town in the South and from Dakar in the West to Nairobi in the East. Excellent connections and a modern fleet, on longhaul flights Airbus A330, Airbus A340, Boeing 747-300 and Boeing 767-300, offer passengers short flying times and high comfort.

For more information and reservations please contact your travel agent or Sabena (phone Brussels: 02/723.23.23, Germany: 0180/525.85.20).

enjoy our company **sabena**