Gorilla Journal

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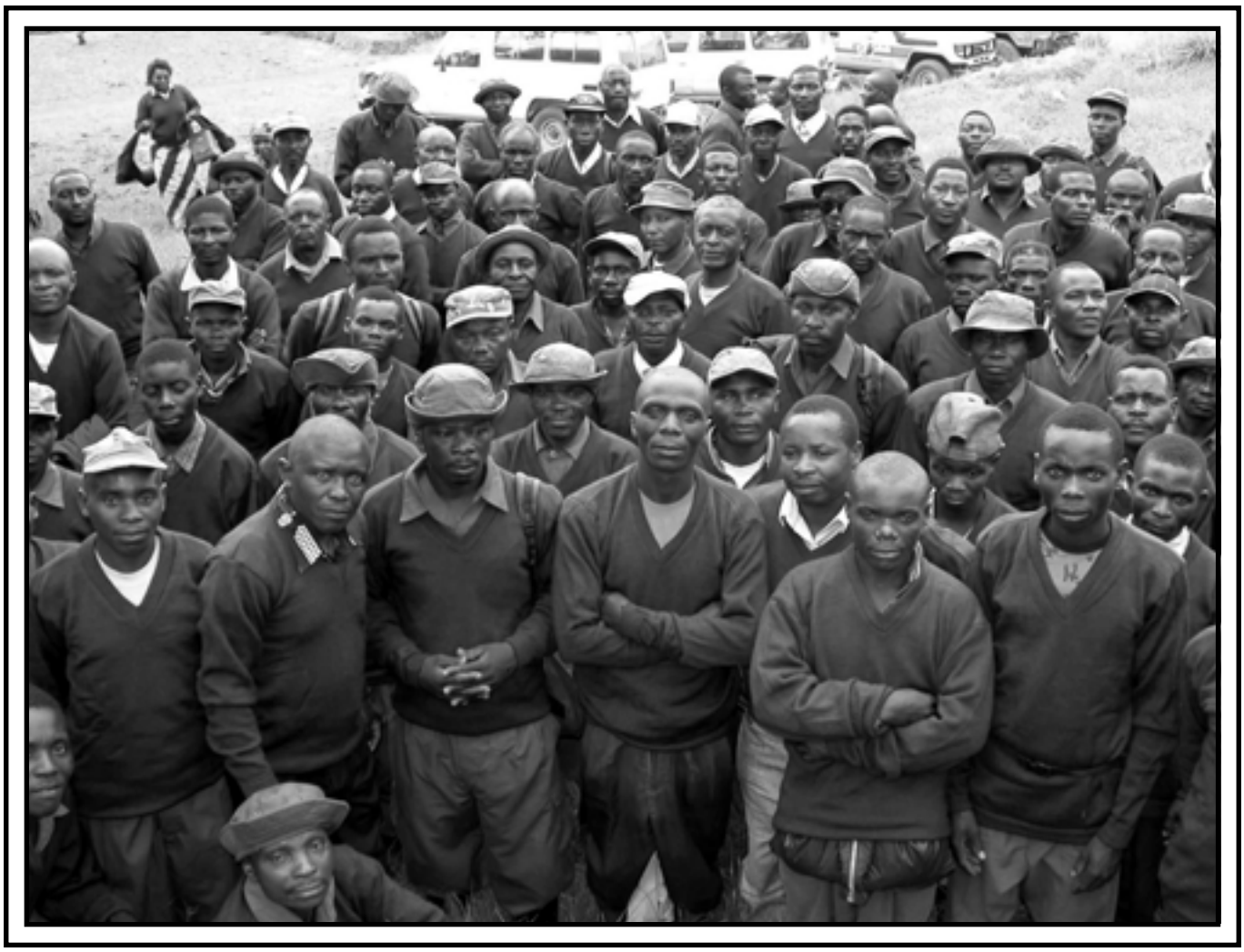

Developments in the Kahuzi-Biega National Park

Mountain Gorilla Confiscated

African Apes and Ethnomedicine

Apes in the Tri-national de la Sangha Conservation Area

BERGGORILLA & REGENWALD DIREKTHILFE

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Organization Address:
Berggorilla & Regenwald Direkthilfe
c/o Rolf Brunner
Lerchenstr. 5
45473 Muelheim, Germany
Fax +49-208-7671605
E-mail Brunnerbrd@aol.com
Website:
http://www.berggorilla.org
Bank Account:
Account number 353 344 315
Stadtsparkasse Muelheim
Bank code number 362 500 00

Authors of this Issue

Don Cousins has had a lifetime interest in the great apes. He has worked in Twycross and Chessington zoos, and in 1957 visited Gabon to look for gorillas. He has researched and published widely on the subject and was a friend and colleague of Dian Fossey.

Bernard Iyomi Iyatshi is a specialist in wildlife management. He has worked for nature conservation in the Zaire/D. R. Congo for 22 years, e.g. in the Salonga, Maiko, Virunga and Kahuzi-Biega National Parks. In August 2002, he became Principal Conservator of the Kahuzi-Biega Park.

Déo Kajuga Binyeri has been working for conservation since a long time. He directed several national park stations, for example the station Rumangabo. At the moment he is the Provincial Directeur of the ICCN *(Institut Congolais pour la Conservation de la Nature)* North Kivu.

Déo Mbula Hibukabake works as Technical and Scientific Director at the provincial ICCN Direction in Goma.

Dr. Antoine Mudakikwa has been working at the *Mountain Gorilla Veterinary Centre* in Rwanda since 1995. He has also been involved with training trackers in the Central African Republic and with health monitoring of the gorillas at Bai Hokou.

Carlos Schuler first worked as a typograph, then became a windsurfing and skiing instructor. In 1983, during one of his last intercontinental travels, he visited Bukavu. There he saw free-ranging gorillas for the first time. Two years later he returned to Bukavu and since 1994 he has been working for the GTZ. Even when the war started in 1996, he decided to stay.

Claude Sikubwabo Kiyengo led a gorilla survey in the Maiko Park from 1989 to 1992, and in 1994 took part in the gorilla census in Kahuzi-Biega. In 1995, he started to work for the ICCN in Goma. Now he works for the IUCN program PPP *(Peace Parcs Project)* in Goma.

Angelique Todd is a Doctorate student at Manchester Metropolitan University. She also assists WWF personnel in the habituation process of two gorilla groups at Bai Hokou.

Dr. Leonard Usongo has been working with WWF for 6 years; before that he worked with WCS *(Wildlife Conservation Society)*.

Paluku Vasangavolo Pavasa is a sociologist and an independent researcher. He is the coordinator of the local NGO CADAK *(Coordination de Activités de Développement Autour de Kyavirimu)* in Kivu, D. R. Congo.

Dr. Lyna M. Watson is Affiliated Scientist at the Zoo of New England, Boston, USA. Presently she is conducting a study on zoo gorillas. Moreover, she is employed as Director of Animal Welfare and Behavioral Management.

Prof. Ernst Ulrich von Weizsäcker is a biologist. He has worked at various universities and international institutions. Since 1991 he has been a member of the Club of Rome. In the 1960s, he began a political career in the SPD (German Social Democratic Party). Since 1998 he has been a member of the German parliament.

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Editor: Angela Meder
Augustenstr. 122, 70197 Stuttgart, Germany
Fax +49-711-6159919
E-mail angela.meder@t-online.de
Translation and Proofreading: Ann DeVoy, Bettina and Andrew Grieser Johns, Colin Groves, Raymond Morrison
Design: Edwin Artho, Angela Meder
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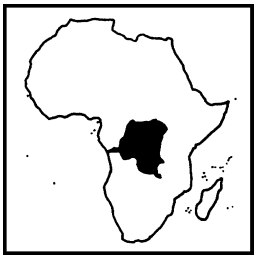

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Developments in the Kahuzi-Biega Park

Since the start of the war, the Kahuzi-Biega National Park has suffered an unprecedented destruction of its natural resources. Both the human population and the park's natural resources have been badly affected during the various conflicts. It has become difficult to carry out the necessary work to protect these resources. In spite of this, park staff have not sat back and done nothing, but have taken pains to implement some conservation activities in the park, development interventions for the population living near the park and public awareness activities; nor have they neglected staff training in seminars.

All parts of the park, in the lower and higher altitude sectors, have been visited in spite of the insecurity. Contacts have allowed us to strengthen collaboration with the population living close to the park.

***Le Gorille No. 6. This issue of the magazine for the population of the Kahuzi-Biega area was funded by* Berggorilla & Regenwald Direkthilfe**

Snares and traps collected in the Kahuzi-Biega National Park are exhibited and their function is demonstrated. Chantal Shalukoma (above, center) explains the problem of bushmeat hunting to the local media.

Pictures: Stills from a video taken by Carlos Schuler

A survey of wild animals illegally held in captivity was conducted in the city of Bukavu and surrounding areas. The survey identified the following species: 239 parrots, 94 monkeys, three chimpanzees, two baboons, two eagles, four tortoises and two antelopes. A good number of them was confiscated. Some patrol posts and the ranger camp were rehabilitated.

Four workshops on improved fuelwood stoves have been organized to introduce and increase the use of this type of stove with the final target of using energy more economically while at the same time decreasing the pressure on the resources of the park. Seven theatre shows demonstrating the importance of protecting the park and of using alternatives have been performed. Local radios produced 32 programmes.

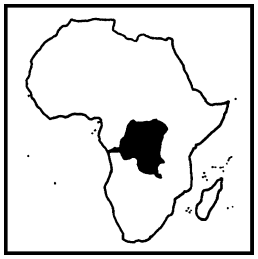
Recent events

On 3 October, the Mai-Mai laid siege to the Tshivanga station and the Mugaba patrol post. For ten days the Mai-Mai stayed there. They never prevented our personnel from carrying out their duties.

On 13 October, RCD (Rassemblement Congolais pour la Democratie) troops attacked the Tshivanga station in order to drive away the Mai-Mai. However, Tshivanga was not only housing these people but also by 15 families of our rangers. Fortunately, no human casualties or material damages were reported.

Following these fights, the RCD soldiers reconquered Tshivanga while the others retreated to the park to the 7th kilometer (saba-saba) situated at the park exit. Each party strictly keeps its position. We have made ef-

Carlos Schuler and Bernard Iyomi Iyatshi, the new conservator of the Kahuzi-Biega National Park, hold the sweaters produced for the rangers by a cooperative in Kisoro



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forts to convince both of them of their obligation to protect the park in spite of the war.

We sincerely thank both sides for the good will they have exhibited towards safeguarding the park's gorillas. The monitoring patrols and the visits to the habituated gorilla groups are being resumed slowly.

Bernard Iyomi Iyatshi, Carlos Schuler

Illegal Exploitation of Natural Resources of Congo

In October, the UN published the final report of the "Panel of Experts on the Illegal Exploitation of Natural Resources and Other Forms of Wealth of the Democratic Republic of the Congo".

The aim was to analyse the situation and to evaluate possible actions that could be taken to help bring to an end to the plundering; in addition, recommendations were to be made regarding specific actions to be taken by the international community, transit countries and end-users. The Panel focussed its work on politically and economically powerful groups involved in the (often highly criminalized) exploitation.

It is concluded that the main forces responsible for the illegal exploitation of Congo are the armies of Uganda and Rwanda, which are closely working together with elite networks in the three countries involved. They have adopted many tactics to disguise their activities. The resources that were exploited are transported to their countries, and the money that is made with those goods is contributing to the arming of rebel groups.

Other nationals also benefit from the resources; for example, senior officers of the Zimbabwean Defense Forces enriched themselves from the country's mineral assets. Moreover, 29 international companies are listed as being involved; the report names companies and persons from Belgium, Zimbabwe, South Africa, UK, USA, Germany and many others. Members of elite networks in Congo,

People of the Forest

Pygmies are traditional rainforest people and are at home in the forest. They also hunt there – not only for their own needs, but also for wealthy customers, to earn some money. Many Pygmies were poachers in the park, especially during the war.

The GTZ/ICCN project has been trying to offer the Batwa alternatives to poaching. Many of them now earn money legally by working for the park, e.g. as guides or labourers.

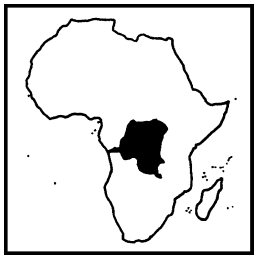
There is a great deal to do in the park. At the moment, for example, some roads urgently need repairs; the rangers use them for their patrols. More than 58 km are in very bad shape. The repair work will take six months. During that time, 30 Pygmies will be employed. Their wages are paid by the project. Apart from this, they need food for the time they spend in the forest – formerly, food was provided by the *World Food Programme* in such cases, but this support was stopped some time ago.

About 1,600 Pygmies of the Batwa people live along the eastern border of the Kahuzi-Biega National Park. In general, they own no land and many of them, therefore, still depend on the resources of the forest which was their home before the national park was created. Most of them cannot earn their living legally because they have not learned a vocation. Only 21% of them have gone to school.

We want to provide the food for 30 Pygmies who work in the park. They should have the opportunity to earn money with conservation work instead of being forced into poaching.

15 US$ per person are needed per months, i.e., 2,700 US$ in total. We promised to fund the food for the next six months, but we would like to continue our support beyond this. **You can help to make this possible!**

Please send your donation to:
Rolf Brunner
Berggorilla & Regenwald Direkthilfe
Lerchenstr. 5
45473 Muelheim, Germany



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Rwanda and Uganda are also named. In Congo, Joseph Kabila reacted to the release of the report by removing those responsible from his government.

The report explains in detail the activities of these networks and the consequences. Recommendations for putting a stop to the illegal exploitation include: support of the Congolese government in its measures against the illegal activities, and promotion of reconstruction and sustainable development of the country; restrictions on the business enterprises and individuals involved: and the regulation of commodity trade from conflict areas.

The document (S/2002/1146) is available in English at
http://daccess-ods.un.org/doc/UNDOC/GEN/N02/621/79/pdf/N0262179.pdf?OpenElement

Poster Campaign for Public Awareness

Posters make one of the best teaching materials. In both concept and format they speak to people of all ages. Anthropologists tell us that they make an important contribution to social awareness. We discovered this for ourselves recently when we distributed posters throughout Kyavirimu (Virunga National Park) and surrounding regions.

"How can Kyavirimu be saved?" is the question on all our minds, wherever we live in the region. Answers will differ according to whether our main interests are in development, science, research, politics or administration. Some believe in a simple authoritarian solution, while others understand that dialogue is a better policy, and this policy is the one applied by CADAK *(Coordination of Development Activities Around Kyavirimu)* since little will be achieved without a sensitive approach at the grass-roots level.

This was the strategy which we applied to our poster called "Mount Kyavirimu". The text is in English, French, Swahili and Kinande: around Kyavirimu the two widely spoken languages are Kinande (the local language) and Swahili (the lingua franca of all the tribes of North Kivu), while French is the official language of the Congo and the medium of education, and English is the official language of neighbouring Uganda.

Primary and secondary school principals and some of the heads of religious orders joined us and provided us with information about their organizations and regional situations.

All of these organizations were invited to a meeting prior to the official launch of the public awareness campaign, to organize who would be responsible for hanging the posters. The posters were displayed for one month. It went well. The posters inundated the entire area.

The most remarkable success was in the town of Butembo, 35 km from Kyavirimu, where CADAK reached a crowd of some 500 people. The opportunity arose during an evening reception and dinner organized by the Tourist Service following an excursion to the Yivugha tourist site, which had been chosen instead of Kyavirimu because of the security situation there. After the excursion, everyone gathered at a restaurant in Butembo to mark International Tourism Day. CADAK had been invited to make a presentation about the conservation and protection of nature. About 100 posters were distributed.

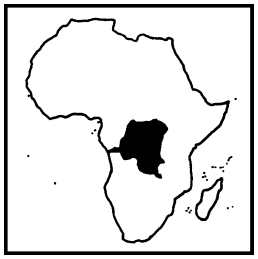
This strong public awareness campaign has helped us to evaluate our effectiveness and to understand where best to target our efforts. It has helped children, adults, and the various organizations that became involved to understand the multiplying effects of conservation and all the benefits to be derived from it. The organizers of the campaign overcame a lot of problems and some hardship, and suceeded in generating a lot of public awareness at the grass-roots level. The long distances travelled by foot or bicycle have paid off. Supervision of all these areas by CADAK, with its limited funds, has not been at all easy but, by careful coordination, in the end the entire region was covered.

Paluku Vasangavolo Pavasa

The Mikeno Gorillas

In the articles we published in 1996 and 1998, we demonstrated the great threat faced by the gorillas in the Congolese part of the Virunga Volcanoes (Mikeno Sector of the Virunga National Park), a threat caused by the state of war and by the demand for baby gorillas. Since then, the situation has deteriorated further as insecurity in the forest continues and the demand for baby gorillas has increased. Since 1995, we have helped to record cases of death among the gorillas due to military operations and to the demand for baby gorillas. In the Congolese part of the Virunga Mountains, the following events were noted:

– 1995: The silverback male Rugabo was killed with two of his females, one baby gorilla was taken away, then confiscated from the poachers and re-introduced to the family.
– In the same year, the silverback male Luwawa was killed for the same motive, i.e. to abduct infants from the group.
– 1996–1997: complete and sudden disappearance of the entire Rafiki family (12 individuals) in the zone of military operations. (In the meantime, the group has been found again in the Mikeno Sector – below the bamboo zone, where no patrols could be made for security reasons.)
– 1997: the silverback male Ndungutse was trapped between two lines



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of fire and killed together with three other gorillas. Several members of this family have not been re-discovered to date. The number of family members fell from 25 to 13 within three months.
– 1998: Two young gorillas of the Lulengo family, one of them a re-introduced baby, were shot and killed quite close to Jomba post.
– 2001: The silverback male Rugendo was also shot and killed between lines of fire of two opposing armies.

Many killings took place in the Democratic Republic of Congo. On the Rwandan side of the Virungas, we know of one or maybe two gorillas which were killed and partly eaten by Rwandan militia and, in May 2002, two female gorillas of the Suza family were killed and a baby was taken away (page 8).

The period prior to 1995 seems to have been much better for the conservation of gorillas. Poachers targeted gorillas only very rarely, or not at all. Although military infiltrations and operations happened frequently in the mountains, the gorillas suffered minimal or no ill consequences.

In December 1994, seven habituated gorilla families, comprising 96 individuals, lived in the Congolese part of the Virunga Massif. By March 1995, their number had increased to 103.

The gorilla families started to be affected in 1995 when the silverback males Rugabo and Luwawa were killed so that baby gorillas could be abducted. The subsequent armed conflicts worsened the situation. By March 1998, the total number of gorillas had decreased to 66 (and during that time very few births were reported compared to the current period).

Development of the gorilla groups from 1998 to 2002
The period from 1998 to 2002 has shown a remarkable overall increase in the number of gorillas:

	March 98	Dec. 98	Dec. 99	Dec. 2000	Dec. 01	May 02
Kwitonda	10	12	10	11	12	13
Mapua	–	3	7	7	9	9
Lulengo	11	5	5	5	3	4
Rugendo	18	9	11	11	7	8
Kabirizi	11	14	19	27	27	31
Munyaga	12	12	6	6	6	6
Humba	–	10	9	9	9	11
Solitary males	4	4	4	4	5	4
Total	*66*	*69*	*71*	*80*	*78*	*86*

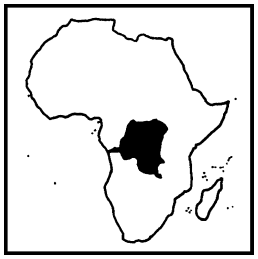
Humba split off from Rugendo. One baby was born, which explains why the total of the two groups was 19 in May 2002. The Mapua family was formed at the onset of interactions between Mapua and the blackback male Lulengo during 15 days in August 1998.

Group Dynamics
The Lulengo family will soon disperse completely. Things started to go downhill in 1995, when Rugabo was killed, the silverback male who led this family with two of his females. Since then, the number of gorillas in this family has continued to decrease and no births have been observed. The family history is as follows:
– beginning of September 1995: 23 individuals
– end of September 1995: 17 individuals
– June 1996: 13 individuals
– July 1996: 11 individuals
– December 1998: 5 individuals
– December 2001: 3 individuals
– May 2002: 4 individuals. The fourth gorilla was a solitary animal who had joined the family but left it again in June, according to tracks, trampled vegetation etc.

After Rugabo's death, an old female led the family before the blackback male Lulengo took over. In August 1998, an unhabituated silverback male who had been roaming on the fringe of the family's home range attacked Lulengo. The interactions between them lasted for 15 days. The silverback, Mapua, succeeded in splitting off one young female and a juvenile. Later, another female and her baby left Lulengo's group and one subadult male subsequently also joined this family. In September 1998, two juveniles were shot and killed close to Jomba post. The last female left in October, perhaps because she was tired of living on her own with only males for company. By now, the number of gorillas had decreased to 5, all of which were males. In the meantime, Lulengo had grown up to a silverback.

Until February 2002, the composition of this family remained the same. In February 2002, two males left the family and became solitary. They were Pilipili, who had also become a silverback by then, and the blackback Karema. This left the family with three individuals: one silverback and two blackback males. We think that, as these two blackback males are also destined to become solitary males, this family has become dysfunctional. The silverback Lulengo has accomplished his task, which was to ensure that the young would grow up.

The Munyaga family seems to exhibit the same trend as the Lulengo



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family. This family was formed in the beginning of 1997, and Munyaga acquired females when the former group leader Buhanga was very weak after a savage fight with the silverback male Kabirizi on 6 February 1998. The group had many interactions with Kabirizi during March and April 1998, in February 1999 and in December 1999, and lost a total of six individuals. Currently (May 2002), the family includes one silverback male, two blackback males, two subadults, whose gender has not yet been determined, and one juvenile. Again, the absence of females and babies is noticeable.

By contrast, the Kwitonda, Mapua and Kabirizi families are entirely stable and their numbers are increasing very quickly. In these families, the number of females is greater than the number of other age/sex classes. The stability of the Kwitonda family dates back to 1994. Mapua's family has been stable since its formation; numbers started to increase with the absorption of females in April and August 1998. This is a young family consisting only of the silverback male, several females and their babies.

The Kabirizi family, which used to be the Ndungutse group until Ndungutse was killed in 1997, contains 31 individuals, the same number that the Ndungutse group contained from 1994 until the beginning of September 1995. Currently, the group includes 13 females and 12 babies.

After having been stable for several years, the Rugendo family is currently decreasing in size. This development was unexpected, as Rugendo, after he had been killed, was succeeded by a habituated silverback from the same family.

Looking at the table above, one cannot but notice that the gorillas went through a comparatively quiet period prior to 1995. From then on, the survival of these apes has been under

Mvuyekure in her cage with mountain gorilla food.
Photo: Christopher Whittier

terrible threat due to the demand for baby gorillas and the pressure exerted by military operations in their habitat. The observed tendencies in the gorilla group structures support the hypothesis that "the number of females determines whether a gorilla group splits up, stays stable or increases in numbers of group members."

Déo Kajuga Binyeri, Déo Mbula Hibukabake, Claude Sikubwabo Kiyengo

Mountain Gorilla Confiscated

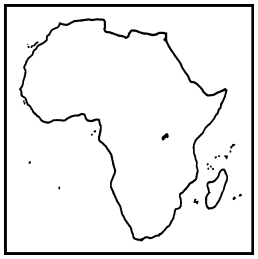
On 4 October the Rwandan national park authority and the police rescued a young gorilla from three poachers who had hidden the infant in a mountain cave while they awaited a buyer. After the confiscation the female gorilla, aged 2–3 years, was checked medically and was found to be in good health. She is under 24-hour care and eating well. It is planned to reintroduce the infant into a gorilla group as soon as her health is confirmed.

The orphan is called Mvuyekure and is doing well. She is being kept in quarantine until it is certain that she is not carrying any obvious infectuous diseases. As she was in contact with many people, it is possible that she was infected with human diseases that could have catastrophic effects on the wild gorilla population.

On 25 October, the poachers led the Rwandan national park authority to the bodies of two adult gorillas in the Democratic Republic of Congo – a female and a blackback. They were probably members of the Chui group, a wild Congolese mountain gorilla group that had already been identified by Dian Fossey. Only about 200 m from this place, two more bodies of a female and a silverback were found. These bodies were much more decayed, so they must have been killed at an earlier date.

At least nine Rwandans were involved in the mountain gorilla poaching, but only a few of them were arrested. An international network for the trafficking of mountain gorilla infants is working in Rwanda, Uganda and Congo; requests for baby gorillas were registered from Butembo, Kampala and Rwanda. This network is still active and the poachers have tried to capture mountain gorilla infants in the Democratic Republic of Congo several times. Moreover, in November three men were arrested in the Bwindi Impenetrable National Park for allegedly hunting gorillas.

A portrait of the mountain gorilla orphan, Mvuyekure
Photo: Christopher Whittier



RWANDA

Ubuzima, a 13-month-old Re-introduced to her Group

On 9 May, two adult females were killed by poachers. Those two females (Impanga and Muraha) were nursing two infants. Impanga's infant was 16 months old and is still missing while Muraha's infant Ubuzima (meaning life/health in Kinyarwanda) was found clinging to her mother's body. The Suza group was obviously disturbed and very nervous. The individuals were dispersed and could not tolerate human presence.

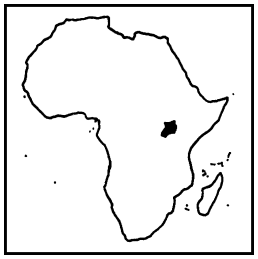
Information was exchanged at a meeting with the park staff and all the NGOs working in mountain gorilla conservation. I explained the re-introduction process and we organized three groups of people: one led by José Kalpers went to track the remaining Suza group, the second was focused on Impanga's infant, and I led the third group to care for Ubuzima. I sedated the infant and removed her from her mother. I gave fluids as her body condition was poor. Physical examination and different vital parameters were taken while she was sedated. Ubuzima was placed in a box covered with tarpaulin. Because of the very stiff slope it was not easy to keep the infant in a comfortable posture. During the time we were carrying the infant, respiration and heart rate were constantly monitored. We were in radio contact with the first group of people, who identified the position of the Suza group. We walked for about 45 minutes to reach the group. Munyinya, a silverback, was not with the group; we found him 150 m from the rest of it. He was sleeping a good deal, neither moving nor nesting with the other group members.

View of the Virunga Volcanoes *Photo: Christoph Lübbert*

The group appeared agitated. Although we identified four good mothers as potential foster mothers, they would not have been able to adopt the 13-month-old infant because they all were nursing their own infants. When Ubuzima was released, the dominant silverback came and the rest of the group surrounded the infant. She was inspected by the dominant male, then he moved away. Her elder brother recognized her and adopted the role of caregiver. On several occasions he was observed carrying the infant, and Ubuzima was seen picking up food from the ground. She made a successful transition to a diet consisting of vegetation. She slept between her brother and the dominant silverback. No aggression has been observed, and she has been accepted and reintegrated in her original group and behaves normally.

Antoine Mudakikwa

Silverback of the Amahoro A group. After the death of Amahoro in May 2002, his group split in two. They are called Amahoro A (13 members) and Amahoro B (4 members). *Photo: Christoph Lübbert*



UGANDA

Golden Jubilee for National Parks

The 50 years jubilee of national parks in Uganda was celebrated on 7 December at Paraa in Murchison Falls National Park. Murchison and Queen Elizabeth, in western Uganda, were the first national parks to be established in 1952. During the week from 2 to 7 December, the *Uganda Wildlife Authority* (UWA) offered free park entrance to all Ugandan nationals and residents and a 50% discount on park entrance fee for non-residents.

President Yoweri Museveni took part too. He addressed the celebrants, praising the wildlife in the Ugandan national parks that he himself visited during the celebration. Further activities included:

- A joint parade mounted by UPDF, Police and the UWA Ranger Force;
- Cultural music, dance and drama staged by the local communities and school children;
- Bird watching sprint and sport fishing competition;
- Announcement of the honorary wildlife wardens;
- An exhibition at the museum in Murchison Falls;
- A series of public debates on conservation throughout November;
- Wildlife art and photo exhibition in Kampala.

UWA recognised President Museveni's efforts to conserve wildlife and establish more parks despite the pressure from an increasing population.

Opening the Habinyanja Group B to Tourists

The habituation of the original Habinyanja group started in late 1996 and tourist visits began in 1998. By the time of habituation, the group had more than 30 individuals, though not all the individuals were well identified. By the time of habituation, the group had three silverbacks, one of which later died. In January 2002, the group split, each silverback taking some other individuals with him, which resulted in two groups: Habinyanja A and Habinyanja B. Given the length of time the group has been split, it is unlikely that the two groups will merge again to form one group, although because of the fluid nature of gorilla group dynamics there is no guarantee. The groups are continuously being monitored.

Habinyanja A consists of 20 individuals: one silverback, two blackbacks, eight adult females, four juveniles (?) and three infants (?), and is headed by a silverback named Rwatsigazi who was the dominant male in the original group. The original Habinyanja group before separation had never ranged outside the park, but after separation, Habinyanja A left the park and entered the Kasarabandwa region, Democratic Republic of Congo, and was harrassed. Gorilla behaviours change as the individuals become more habituated. This group is visited by tourists and is doing well.

Habinyanja B consists of nine individuals: one silverback, five adult females, two juveniles and one infant. It is headed by the silverback Mwirima, who was not dominant in the original Habinyanja group. This group has good reproductive prospects, with five adult females of which three have offspring and the fourth female has been observed mating several times.

The groups have so far been monitored for three and a half months; they have never met since their split. According to the observations they share the same home range but feed far from one another.

A decision was made on 15 July 2002 by the UWA Management to open the Habinyanja B group for tourism. All reservations will be made from the UWA Reservations Office in Kampala. A maximum of four permits per day will be booked for this group. The existing price structure for Bwindi gorilla permits will apply for the Habinyanja B group as well, including the existing cancellation, refund, payment terms and time limit guidelines.

Due to the fear that the two groups might re-unite, however, only the short-term bookings are allowed (up to 6 months in advance). Regular evaluation will be carried out to assist in making a decision regarding long-term bookings in the future.

Summary of an UWA press release According to a report of John Makombo at an IGCP meeting in November 2002, the Habinyanja A group had 18 members then, the B group 10.

Bwindi Killer Suspect Netted

On 3 October, the Ugandan newspaper *New Vision* reported that the suspected mastermind of the gruesome 1999 massacre of eight tourists and a Ugandan in the Bwindi Impenetrable National Park has been arrested in the Democratic Republic of Congo and handed over to the International Criminal Tribunal for Rwanda. Tharcisse Renzaho, the former Prefect of Kigali and a close confidant of the late Rwandan President Juvenal Habyarimana, has been on the run since their regime collapsed to the Rwandan Patriotic Army in 1994.

Renzaho is also to be tried for his part in the 1994 genocide. He is alleged to have been a top mastermind in the killings. Moreover, he allegedly played a leading role in fomenting the conflicts that have dogged Congo for the past decade. He is believed to have been the leader of the Army for the Liberation of Rwanda (ALIR) that is linked to the killings in Bwindi.

Summary of a New Vision *article*

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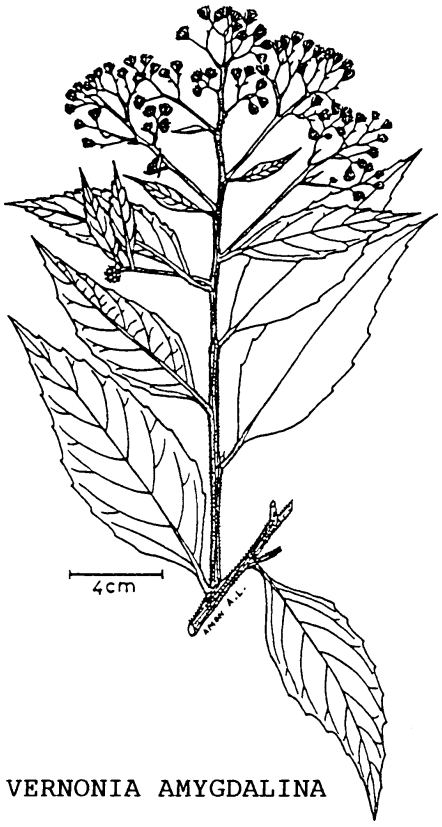
African Apes and Ethnomedicine

Convincing evidence for self-medication in wild chimpanzees has accumulated over the past 25 years or so. Observations have identified self-treatment for parasitosis and related illnesses through leaf-swallowing and bitter pith chewing, and it has been discovered that plants used by the apes are identical to those used by local human populations for their own medications.

Michael Huffman of Kyoto University has demonstrated that the leaves of five different species of plants are employed by chimpanzees to reduce parasite loads. The common factor in all of these leaves is their abrasiveness. Swallowed whole, they scour parasites from the gut wall and are then passed through the animal with the parasite hooked into the leaf.



VERNONIA AMYGDALINA

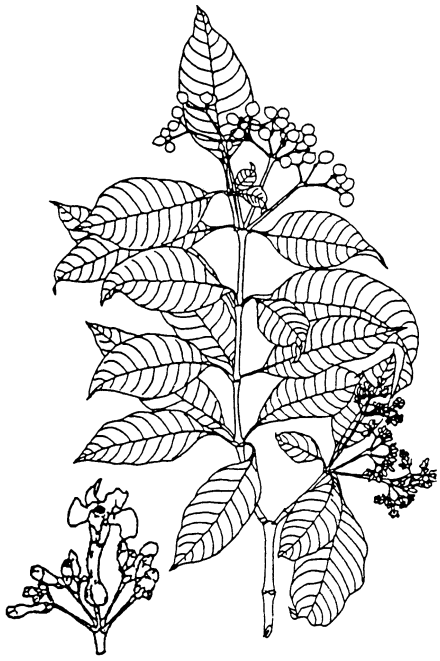
Deparasitisation via a chemical process is believed to occur when chimpanzees chew the stems of some plants. One of these, *Vernonia amygdalina*, has been extensively studied and has been shown to possess antischistosomal, antiamoebal, antileishmanial and antispasmodial properties. The Watongue people of the Mahale Mountain region in Tanzania utilize this plant for the treatment of parasitosis and gastrointestinal upsets, the rate of recovery being 20–24 hours for both man and chimpanzee.

Pygmy chimpanzees or bonobos of the Lilungu-Lokofe region of the Democratic Republic of Congo utilize *Rauwolfia vomitoria*, *Manniophyton fulvum*, *Tabernaemontana crassa*, *Scorodophloeus zenkeri*, *Megaphrynium macrostachyum* and *Bellucia oxinanthera*: all the medicinal plants used by the Mbuti and Mongo-Boyela peoples of the area.

Common chimpanzees living in the Bossou region of Republic of Guinea in West Africa are known to exploit the leaves of two medicinal plant species: *Ficus mucuso* and *Polycephalium capitum*. Complete leaves have been found in chimpanzee faeces, and *Polycephalium* is used by local people for the treatment of diarrhoea. Chimpanzee populations in the neighbouring country Ivory Coast also swallow the whole leaves of this plant, while in the Kahuzi-Biega area, Democratic Republic of Congo, both chimpanzees and gorillas swallow whole the leaves of the herb *Commelina cecilae*.

The similarities in the use of plants by man and apes is highlighted by the employment of leaves *of Hypophrynium braunianum*. The chimpanzees of Bossou break off a leaf, put it into their mouth with one hand, fold it on the roof of their mouth, take it out, insert it into a hole in the base in a tree, then put back the folded leaf with the water into the mouth. Significantly, this leaf is also used by local people when they drink from small streams, although humans make a cup from the leaf instead of folding it.

Drawings on this page from the book Natural Medicine in the Tropics *available at* **www.anamed.org** or *from: anamed, Schafweide 77, 71364 Winnenden, Germany*



RAUWOLFIA VOMITORA

The chimpanzees of Gombe National Park and the gorillas of Bwindi National Park have both suffered from outbreaks of scabies in the past, all contracted from humans or livestock. Both ape populations had to be treated via human intervention, but in some regions there are reports of chimpanzees self-medicating against skin complaints. The Mende people of West Africa gain knowledge of herbal medicine by observing wild chimpanzees that are sick. A forestry worker observed a chimpanzee chew up a certain leaf and spit it onto the affected area of skin. When he later

tested it on himself, the observer found that it was effective against skin irritations. A similar case was recorded in the 1920s when an English woman was travelling through Liberia and was told by an old local woman that she had watched a female chimpanzee treat her infant's skin complaint with some large flat leaves that she had crushed and pounded between her fingers and applied them to the baby's infected area. The old woman later found these leaves to have curative properties.

Although observations of self-medication in gorillas is meagre, these great apes must also benefit from phytochemicals which inhibit certain pathogens. In Mgahinga Gorilla National Park, Ugandan gorillas share a number of the same medicinal plants with humans. Park wardens have noted that 35 plant species form the core diet of gorillas in this region, and that several of them are also medicinal plants. The bark of one of these, *Dombeya quinqueseta*, is used to combat diarrhoea, and analysis has identified a mixture of fatty acids (including palmitic, stearic, linoleic and linolenic) and phytosterols (including beta-sitosterol). These compounds are potent antimicrobials. Other gorilla foods from this area found to possess active medicinal properties are *Rubus rigidus* and *Brillantaisia kirungae*. Local medicine men watch what gorillas and other animals do when sick to discover herbal treatments.

Jessica Rothman of Cornell University researching gorilla diets in neighbouring Bwindi National Park found that local people employ 22 plants ethnobotanically, and that some of these are also ingested by gorillas; the same plant parts are exploited by the apes as are used medicinally by humans. They include *Rytigynia kigiensis*, the rotten wood of which is used by locals to make into a drink to treat worms and intestinal problems; *Ocotea usambarensis*, whose bark, wood, rotten wood and leaves are used to alleviate conditions associated with parasites; *Vernonia* spp., of which the whole leaves of different species are employed as a drink for worms and intestinal complaints; and *Rubus* spp., the young stems being mixed in warm water and given to infants for colic. A few species of wood/rotten wood consumed by gorillas are used locally in preparations for intestinal parasites: *Sesbania sesban*, *Maytenus* spp. and *Myrica* spp.

The use of rotten wood medicinally could be significant. Decaying plants are broken down by saprophytes (fungi and bacteria), which release the nitrates from the proteins. One of the most important products of this decay is ammonia which, when taken orally in small doses, acts as a rapid and diffusable stimulant, acting on the heart, respiratory system, and on the bowel wall. In medicine it is usually given to those colics which are due to an atonic condition of the intestinal wall, resulting in overloading or stoppage, when its stimulating effect on sluggish bowel movements is well noted.

The Bwindi gorillas also frequently use a cyanogenic bracken fern for nesting material, and local people employ these plants as insect repellents.

A primary source of food in the diets of gorillas and chimpanzees in many regions is the wild ginger *Aframomum*. Current research indicates that there are about 80 species throughout Africa, approximately 40 of these being found in the Cameroon-Gabon area. The most preferred species appears to be *A. angustifolium* (also known as *A. sanguineum*), being exploited by gorillas in at least seven distinct and widely separated regions. The few species of *Aframomum* that have undergone bioassays have revealed a broad spectrum of antiparasitic, antibacterial, antifungal and antiviral properties, and it may well prove that these plants not only furnish apes with nourishment, but also provide them with a source of preventative medicine. John Berry of Cornell University has established that citric acid accumulated in the fruits of *A. an-*

Aframomum fruit *Photo: Angela Meder*

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gustifolium act as an antimicrobial principle.

In a paper in *African Study Monographs* (Vol. 23: 65–89; 2002) on the medicinal properties in the diets of gorillas, Michael Huffman and I suggest that gorillas may have a penchant for plants bearing caffeine and theobromine, particularly the so-called ”nuts” of cola trees. The seeds of these fruits usually contain 2–2.5% caffeine and theobromine, both stimulants, and in some areas gorillas are very fond of these seeds. Gorillas, especially adult males, are large primates that have been found to frequently climb very high trees during fruiting seasons in lowland rainforests. In montane regions they traverse steep slopes in oxygen-thin atmospheres, and it is not difficult to surmise that under both of these environmental conditions, cardiac stimulants would not only be desirable, but also adaptive. The importance of certain compounds and alkaloids in natural gorilla diets is emphasized by mortality rates in captive gorillas, where poor diets may be a contributory factor. A survey in 1997 of diseases in gorillas in North American institutions revealed that 41% of females aged seven years and over, and males aged nine years and over, died from cardiovascular disease.

Zoopharmacognosy (the use of medicinal plants by animals) is a science still in its infancy, and new data is being gleaned only slowly. So far, the plants that have been identified and pharmacologically screened barely scratch the surface. Many more plants, particularly in the world’s rainforests, no doubt possess the chemistry to combat a much greater range of pathogens. Yet these forests are fast disappearing to satiate the West’s appetite for tropical hardwoods. The relentless pressures of the timber industry will result not only in the decimation of food sources for humans, primates and other species, but also in the total loss of precious medicinal plants essential to the well-being of man and apes in tropical regions.

Don Cousins

Johannesburg in the Media

The World Summit on Sustainable Development was widely covered in the media – not only in Europe, but in Africa as well. In general, the conclusions were disappointing. The following example is a an excerpt of a report by Elizabeth Roxas (Executive Director, Environmental Broadcast Circle; Co-Chair, Civil Society Counterpart Council for Sustainable Development) published in the Ugandan newspaper *The Monitor* on 18 November 2002.

When the World Summit ended in South Africa on September 5, the United Nations understandably called it a success – that the WSSD was a "major boost" to sustainable development, with the Implementation Plan providing "a solid foundation for action." On the other hand, international NGOs painted the summit as a "missed opportunity" for setting binding global commitments, a goal that was much ballyhooed at all the preparatory meetings. *Friends of the Earth International* particularly decried the inability of governments and the United Nations to set specific targets on energy access and renewable energy use.

Clearly, the Summit was a big disappointment for opponents of business-led globalisation and the continuing corporate take-over of public space. Governments failed to support proposals that would have made environmental agreements take precedence over WTO *(World Trade Organization)* trade rules. Proposals to regulate and ensure corporate accountability were also rejected in the face of strong business lobbying against such proposals. Corporations fought fiercely against international regulation, saying such regulation should be the prerogative of national governments.

At the same time, UN Secretary General Kofi Annan praised the fact that "the Summit represent(ed) a major leap forward in the development of partnerships." Some activists vehemently reject such partnerships because experience has shown that corporations use them only to further their brand strategies.

In the protracted war of Mao's revolution, "one step forward, two steps back" was a positive accomplishment. In the current environmental crisis, however, it can hardly be taken as such. There is still more work to be done. More research... more information... more communication... and education.

NGOs Feel Betrayed

The UN *International Regional Information Networks* wrote about this international event:

The summit was attended by 104 heads of state and government, about 9,000 delegates, and 8,000 NGOs. Delegates worked towards the adoption of a Plan of Implementation, which would detail actions needed to fight poverty and protect the environment. The highlights of the summit, listed by the UN, included the commitment to halve the proportion of people who lack clean water and sanitation by 2015, and the expansion of modern energy services to the two billion people who are currently without access.

They also agreed to support the New Partnership for Africa's Development (Nepad) objective of ensuring access to energy for at least 35 percent of Africans within 20 years. Countries also agreed to phase out, by 2020, the use and production of

A local market at the roadside in Uganda. In many regions of Africa, people have no access to such food at all. *Photo: Angela Meder*

chemicals harmful to health and the environment.

Other highlights were commitments to reduce biodiversity loss by 2010, the restoration of fisheries to their maximum sustainable yields by 2015, the establishment of a representative network of marine protected areas by 2012, and a commitment to improve developing countries' access to environmentally sound alternatives to ozone-depleting chemicals by 2010.

Many activists, however, expressed concern that the important challenges of tackling poverty, and opening Western markets to the developing world, were not adequately addressed. There was no commitment to raise aid levels, and neither was the challenge of HIV/AIDS given prominence. *Oxfam* described the summit as a wasted opportunity, and said the world's leaders had turned their backs on the poor.

The organization said that apart from "some gains on a few environmental issues, and on sanitation for the poor", rich countries had shied away "from targets, timetables and money".

"We feel betrayed. We were expecting world leaders to deal with issues like poverty and the destruction of natural resources, but governments are more interested in promoting trade at the expense of social issues," commented Richard Navarro of *Friends of the Earth International*.

The WWF (*World Wildlife Fund*, Washington) published a critique even before the meeting. These are the main points:

Key negotiations in Johannesburg are in danger of being stitched up by a controversial deal struck between US trade officials and trade mandarins in the European Commission. With over 90% of issues surrounding Trade and Finance remaining undecided at the time of the summit, the European Commission has jumped in with a new set of proposals which fail to address key NGO concerns.

The new proposals, which have now been agreed as the basis for discussion, do not tackle the fundamental inequalities of global trade. For example:

– There is no recognition of the potential dangers, particularly to developing nations, of globalisation.
– There is no commitment to eliminate the EU systems of subsidies that damage the environment and make it harder for developing countries to compete in the global market place.
– There is no reference to the use of the precautionary principle, already established in the 1992 Rio Declaration on Environment and Development.

Although the Commission does have the authority to negotiate on certain trade issues, in most cases it is Member States which should be leading the WSSD negotiations, rather than having to comment on secret agreements between the US and the EU Trade Commission. Many individual European states are now waking up to the fact that some of their key concerns have already been traded off with the US, in pursuit of the short-term economic interests of globalisation.

According to IRIN, the FAO *(Food and Agriculture Organization)* warned that there could be no sustainable development as long as millions of people suffered from chronic hunger and extreme poverty. More than 70% of the poor in developing countries live in rural areas and depend mostly on agriculture for their livelihoods. FAO forecasts that world demand for food will increase by 60% by 2030. Most of the additional demand and production would be expected to originate in developing countries. The agency anticipated that close to 20% of the extra production would come from an expansion of land used for agriculture, mainly in Africa and Latin America,

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10% from more frequent harvests, and 70% from higher yields.

But not all summit participants were disappointed. UN Secretary-General Kofi Annan said on the final day that the real test of the success of the UN World Summit was what delegates did on their return to their communities. In reply to criticism that the summit had failed to win real progress on key development issues, he said that although the package of proposals made at the summit "were not everything", it was not a failure.

"We must be careful not to expect conferences like this to produce miracles", he said. "We came here to get commitment for sustainable development and [we must] go back home to take action. It is on the ground that we will be able test how we did".

But not all reports were worried, there were also positive reports. The following one was written by a participant from Germany.

Let's Hope Johannesburg Was the Turning Point

The World Summit on Sustainable Development was worth it. The press disagrees; they think the summit did not achieve anything and most certainly did nothing for the environment.

So what did the summit achieve? The first result of the summit was a political declaration and an action plan which makes a number of points more concrete that remained non-binding in the Rio Agenda. The topic of drinking water, for example, has finally been awarded the significance that it deserves. As a result considerable funds, including private funds, are now flowing into this area through "Type 2 Agreements"; approximately Euro 1.4 billion have been made available for these Type 2 Agreements. In the case of energy, in spite of the crass obstructive attitude of the USA and Saudi Arabia, over 100 countries joined together voluntarily to achieve a speedy and tangible increase in the use of renewable energy sources. What is more, the worrying recent global trend away from awareness of environment and development was reversed both by the preparation for the summit and by the summit itself. In developing countries, in particular, the summit has been received very positively – including sessions on the changes required to avoid further losses in biodiversity in the period up to 2010.

The German government has negotiated well. Chancellor Schröder was warmly applauded in particular because of the one billion Euro that he made available for renewable energy sources and for energy efficiency in developing countries.

One shortcoming of the summit was the weakness of the EU. It was accused of agricultural protectionism; the conservative majorities including the Danish Presidency appear to have lost their enthusiasm for environment and justice.

The bushmeat scandal was not an item on the agenda as such. But the indefatigable Jane Goodall appeared in several events and continued to hammer away at this topic. The main speaker in one event in the German pavilion, on the conservation of forests, was Parliamentary Minister of State Matthias Berninger. This event highlighted the importance of the FSC *(Forest Stewardship Council)* seal, which, needless to say, does not permit any logging which is suspected to support the bushmeat trade.

Obviously, I cannot reproduce in a few lines what 40,000 people experienced in these 10 days, but I came away with the impression that this great gathering of peoples was worth it for almost all the participants.

Ernst Ulrich von Weizsäcker

Logging road through a forest in the Democratic Republic of Congo's Equateur Province

Photo: Angela Meder

GRASP Reporting

During the World Summit, a GRASP *(Great Ape Survival Project)* report was released by UNEP *(United Nations Environment Programme)* Executive Director Klaus Töpfer. It concludes that less than 10% of the habitat now inhabited by the great apes of Africa will be left undisturbed by 2030 if road building, mining camps and other infrastructure developments continue at current levels.

A new method of evaluating the wider impacts of infrastructure development on key species was used in this study. The key species studied are the chimpanzees, the bonobo or pygmy chimpanzee, the gorillas and the orangutans.

The scientists looked in detail at each of these species to assess the current remaining habitat deemed relatively undisturbed and able to support viable populations of apes. The

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Trees from the Congo Basin ready for transport. Logging is one of the causes of forest destruction

Photo: Angela Meder

experts then mapped the likely impact at current levels of infrastructure growth, and the area of healthy habitat that would be left to the apes in 2030.

The study estimates that around 28%, or some 204,900 km^2, of remaining gorilla habitat can be classified as relatively undisturbed. If infrastructure growth continues at current levels, the area left by 2030 is estimated to be 69,900 km^2 or just 10%. It amounts to a 2.1%, or 4,500 km^2, annual loss of low-impacted gorilla habitat in countries including Nigeria, Gabon and Rwanda.

The report *The Great Apes – The Road Ahead* was edited by Christian Nellemann of UNEP Grid-Arendal in Norway and Adrian Newton of UNEP World Conservation Monitoring Centre in Cambridge, UK. It is available at **http://www.globio.info/download.cfm?File=region/africa/GRASP_5.pdf**. As the study was launched at the summit, supporters of GRASP announced more cash backing for the project. More funding was announced from the Government of the United Kingdom, and new money from the *United Nations Foundation* (UNF) and the *International Fund for Animal Welfare* (IFAW) was earmarked for great ape survival.

The strategy aims to cover all of the two dozen range states of the great apes and draw up national recovery action plans in collaboration with the governments concerned, wildlife groups and local people.

CITES and Elephants

At the CITES *(Convention on International Trade in Endangered Species)* conference in Santiago de Chile, from 28 October to 15 November 2002, the elephants' fate became darker. The attempt to improve their conservation failed – with the help of the EU, among others.

There are two appendices to CITES: Appendix 1, which bans any trading in elephant products, and Appendix 2, which allows controlled trading. How to control it is a vexed question. The elephants of four countries – South Africa, Botswana, Zimbabwe and Namibia – are on the Appendix 2 list. In a motion strongly put by Kenya and supported by India it was suggested that these four join the rest of the world in listing their elephants in Appendix 1. But Botswana raised its own motion calling for the 4 countries to remain on Appendix 2. This was passed.

Photo: Sylvia Wladarz

When elephants were downlisted during the last CITES conference, elephant hunting increased dramatically in many countries. It seems no problem to "launder" elephant products by smuggling them into one of the countries on Appendix 2.

The EU countries did not vote because they did not agree on how to vote. By abstaining, they allowed the votes for the trading of elephant products to become the majority. As the Ugandan newspaper *New Vision* reported on 23 November, the Ugandan delegation also did not vote – although the minister had ordered them to vote in favour of retaining the ban on ivory trade. *New Vision* even reported that the Assistant Commissioner of the Ministry responsible for CITES, who ironically has been a member of the UWA board up to then, was moving round telling people to vote for lifting the ban.

Funds to Protect Congo's Forests

The world's five wealthiest countries, working with the *World Bank*, international conservation groups and logging companies, will provide up to US $100 million to try to save the forests of the Congo Basin, the largest stretch of unbroken forest in the world after the Amazon. This was announced in connection with the World Summit on Sustainable Development in Johannesburg.

Although negotiations between the partners are still taking place, it is understood that the US will take the lead, providing more than US$ 60 million over the next five years (at least US$ 36 million in newly allocated money over the next 3 years), with France committing up to $US 30 mil-

A view of the Congo Basin rainforest in the Equateur Province
Photo: Angela Meder

lion. Germany, Japan and the EC will also contribute.

The Congo Basin until a decade ago comprised virtually untouched forest, but European-based logging companies have since moved in from West Africa and Asia. The timber is exported mainly to Europe, and almost all of it is known to have been felled illegally, said *The Guardian*, with little or no monitoring.

The scale of destruction in the Congo Basin is now thought to be so serious and rapid that up to 20% of the forest could be lost within 15 years, with potential implications for climate control, flooding, and loss of plant species.

A recent report by *Global Witness*, the Cameroon government's official forestry monitors, found that almost all companies working in the country had been acting illegally. Some were working in protected areas, while others were falsely declaring the amount of timber they were taking, and bribing officials. The situation in the Democratic Republic of Congo is believed to be even more serious, with up to 400 illegal concessions having being granted.

The international plan to save the Congo Basin will concentrate on monitoring concessions and exports, setting up new protected areas, beefing up legislation and developing a certification system.

The Congo Basin Forest Partnership is a United States government initiative to promote the conservation and responsible management of the Basin's tropical forests. US government funds will be used to protect eleven priority areas in six countries – Cameroon, Central African Republic, Democratic Republic of Congo, Equatorial Guinea, Gabon and the Republic of Congo.

Government funds will be provided mostly through USAID's *Central African Regional Program for the Environment* (CARPE). In addition, *Conservation International* (CI), the *Wildlife Conservation Society* (WCS) and the *World Wildlife Fund* (WWF) all announced their intention to raise an additional US$ 37.5 million of new money over the next ten years for their joint efforts in the Congo Basin. The three groups worked closely with the governments involved to set priorities for protecting the most important landscapes in the region.

The US and non-governmental organization (NGO) funds will support a wide range of activities within the eleven targeted areas, including the creation and management of protected areas, capacity building for local communities and development of an ecotourism industry. These efforts are part of a broader partnership – involving other governments, the private sector and additional NGOs – that aims to support a network of up to 10 million ha of effectively managed national parks and protected areas and up to 20 million ha of well-managed multiple use forests, while promoting economic development, poverty alleviation and improved governance for people who depend on natural resources for their livelihoods. The priority landscapes are:

– Monte Alen – Mont de Cristal Inselbergs Forest Landscape (Equatorial Guinea, Gabon)
– Gamba – Conkouati Forest Landscape (Gabon, Congo, D. R. Congo)
– Lopé – Chaillu – Louesse Forest Landscape (Gabon, Congo)

A male Bonobo in Salonga National Park
Photo: Angela Meder

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– Dja – Minkebe – Odzala Tri-national Forest Landscape (Cameroon, Congo, Gabon)
– Sangha Tri-national Forest Landscape (Cameroon, Congo, Central African Republic)
– Lac Télé-Lac Tumba Swamp Forest Landscape (Congo, D. R. Congo)
– Bateke Plateau Forest Savanna Landscape (Congo, Gabon)
– Maringa/Lopori – Wamba Forest Landscape (D. R. Congo)
– Salonga – Lukenie – Sankuru Forest Landscape (D. R. Congo)
– Maiko – Lutunguru Tayna – Kahuzi-Biega Forest Landscape (D. R. Congo)
– Ituri – Epulu – Aru Forest Landscape (D. R. Congo)

Summary of various articles

Apes in the Proposed Tri-National de la Sangha Conservation Area

The forests of equatorial Africa are highly significant from a biodiversity conservation point of view and they are at the same time an important economic resource for the nations possessing them. Logging and its consequences are the cause of the loss of almost 4 million hectares per year in the Congo Basin and the degradation of much more. The opening up of the forest to hunting and trapping has led to a burgeoning bushmeat trade with important negative impacts on the biodiversity of the area.

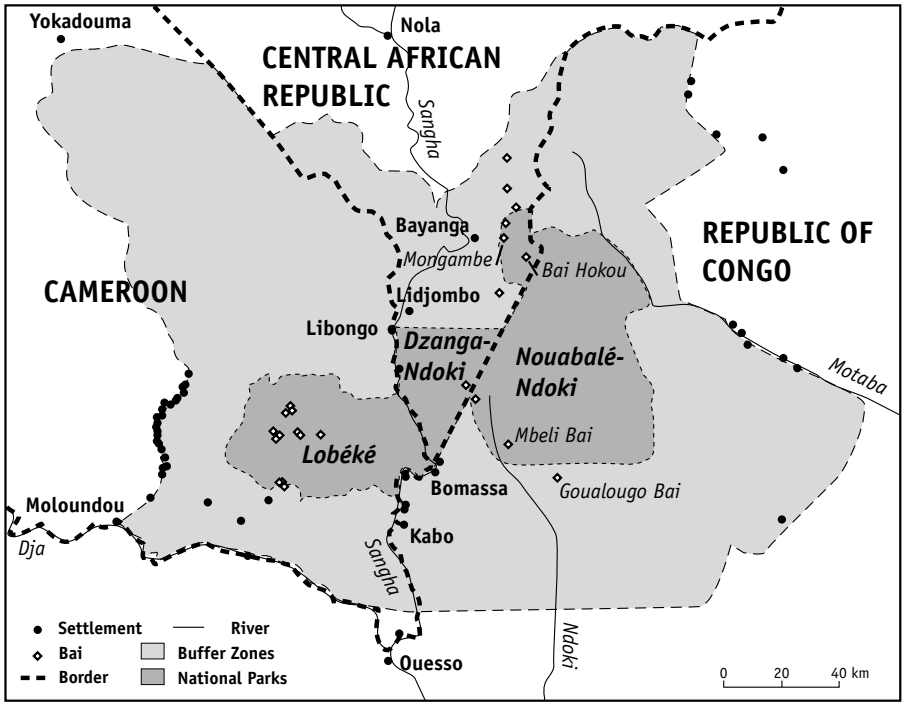
In response to some of these pressures, the idea of a tri-national park connecting protected areas in Cameroon, Central African Republic and Congo was first floated in the 1980s. The idea was to create a large and extensive trans-border protected area surrounded by peripheral zones in which logging (and other activities) would be carried out sustainably with the goal of avoiding a number of protected areas surrounded by a sea of degraded and destroyed forest.

Two great ape species live in this region of the Congo Basin, the western gorilla, *Gorilla gorilla* and the robust chimpanzee, *Pan troglodytes*. These two species, like other non-human primates, play a vital role within forest ecosystems as major seed dispersers, and constitute a significant proportion of the mammalian biomass. Other important functions include their vital contributions towards the understanding of human evolution and of human diseases (Goa et al. in Butynski 2001), and they are, for better or worse, important sources of protein for local populations in the region.

Description of the Tri-National de la Sangha

The Yaounde declaration was signed by the Heads of State of six Central African countries on 17 March 1999, and committed these countries to the creation of trans-border protected areas and to reform of the forest sector and sustainable forest management. This agreement led to the establishment of a trans-border conservation initiative known as Tri-National de la Sangha (TNS) comprising the protected areas of Lobéké in Cameroon, Dzanga-Ndoki in the Central African Republic and Nouabalé-Ndoki in the Republic of Congo. Ministers in Charge of Forests of the three countries signed a formal protocol on TNS in December 2000.

The TNS comprises a core protection zone in which human activities are either forbidden or controlled and a peripheral zone in which participatory and sustainable management of wildlife and forest resources is practised. The core protection zone of the TNS comprises the three protected areas



Map of the Tri-National de la Sangha Conservation Area. The location of some bais is indicated, e.g. those of the Mongambe area (page 21)

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with a total area covering some 7,750 km^2. The peripheral zone includes production forests, sport hunting concessions, community-hunting zones, agro-forestry areas or any other compatible activity and covers about 21,000 km^2.

The limits of the TNS are those established by the respective national legislative acts creating the three protected areas and their respective peripheral zones. The section of the Sangha River included in the TNS remains an international boundary and as such is regulated by international law.

Population estimates of western lowland gorilla and robust chimpanzee in three Central African countries of the western moist Congo Basin forest

Region	Population estimate		
	Gorilla	Chimpanzee	
		Low	High
Cameroon	15,000	8,500	10,000
Central African Republic	9,000	800	1,000
Republic of Congo	34,000	6,000	10,000

Data for the Central African Republic and the Republic of Congo from Teleki (1991) and Butynski (2001), for Cameroon from Usongo (1998)

Population Status of Great Apes in the TNS Zone

The forest areas of the TNS region harbour some of the highest densities of chimpanzees and gorillas. The concentration of chimpanzee and gorilla populations for the three countries is greater in the protected areas of the TNS than in the buffer zones. The lack of systematic surveys countrywide and notably in the forests surrounding the protected areas makes it difficult to give a very good estimate of numbers, but the protected areas making up TNS have been widely censused.

Based on these studies, the chimpanzee and gorilla populations within the entire TNS zone that comprises the national parks (7,750 km^2) and the surrounding buffer zones (21,000 km^2) are estimated at 1,500 and 10,000 individuals, respectively. The multiple-use zones include farmlands, logging and sport hunting concessions. Logging concessions make up more than 40% of the multiple-use area with the largest concession being the one of CIB (*Congolaise Industrielle du Bois)* close to the Nouabalé-Ndoki National Park (12,000 km^2). Low populations of chimpanzees compared to gorillas could be attributed to large-scale commercial logging operations in the region, as chimpanzees are largely primary forest dwellers, whereas western lowland gorillas prefer secondary or disturbed vegetation types.

Gorillas feeding in a bai in Lobéké National Park, Cameroon
Photo: Leonard Usongo

In the region, gorillas are also strongly attracted by large forest clearings known by the Baka name "bais", where they feed on grasses and sedges. The bais possess enormous potential for eco-tourism development, especially if the gorillas can be habituated.

Existing Threats to the Ape Populations

Logging. Logging concessions close to the TNS cover more than 35,000 km^2 of forest, the largest concessions being those of CIB with 12,000 km^2. Commercial logging accounts for a significant amount of the revenues generated by Central African governments; for example more than 12 billion Euros is provided for state revenue by timber exports from southeastern Cameroon. The greatest threat from commercial logging is the opening up of most forest areas for poaching and destruction of primary forest that represents a vital habitat especially for chimpanzees.

The opening of hitherto inaccessible forest areas with construction of roads, transport provided by trucks inevitably encourages settlers, notably poachers, who hunt great apes and other bushmeat. Timber from CIB and other logging concessions in the Central African Republic is transited through the Lobéké region to the port of Douala. This transport network maintained by logging trucks has strongly encouraged the bushmeat trade as truck drivers transport meat to neighbouring towns such as Ouesso in Congo, and Douala and Yaounde in Cameroon. They also furnish the poachers with snares, cigarettes and other basics for their subsistence.

Hunting and bushmeat trade. According to IUCN classification, the central chimpanzees and western lowland gorillas are considered "vulnerable". This category includes taxa

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whose populations are decreasing because of over-exploitation, extensive habitat destruction or other environmental disturbance, taxa with populations that have been seriously reduced and whose ultimate security has not yet been assured. Throughout their ranges as reported by Butynski (2001), chimpanzees and gorillas are officially protected under both national and international law from being hunted, captured, or moved across international boundaries.

More than 70% of the entire population in logging towns in the region (Libongo, Kika, and Moloundou for Lobéké in Cameroon, Kabo, Pokola and Ouesso for Nouabalé-Ndoki in Congo, and Bayanga, Mbebarit and Nola for Dzanga-Ndoki in the Central African Republic) depend on ape hunting and the bushmeat trade for income generation. For example, Noss (1998) reported that local hunters of Dzanga-Sangha earn between US$ 44 and US$ 700 annually from the bushmeat trade; that is far higher than the annual earnings of a government civil servant. In the CIB concession area with a resident population of more than 3,000 inhabitants, the proceeds of the bushmeat trade accounted for about US$ 300 per household per annum (Wilkie et al. 2000, unpublished report to WWF). The high incomes from the bushmeat trade make it extremely lucrative. The number of logging roads and easy access across the largely unmanned borders has also encouraged trade and illegal trafficking, especially in arms and ammunitions.

In Lobéké the seizure of meat and the arrest of five poachers by game guards uncovered more than 20 cases of gorilla hunting. There were fewer cases for chimpanzees – eight cases, with the arrest of one poacher, in 2001 – probably because of the more restricted distribution of chimpanzees in the core part of the primary forest area. The numbers could have been even higher in Lobéké, and an extrapolation to the entire TNS region could be tenfold what was officially recorded for Lobéké. No good data exist on great ape hunting within the entire region; this information would permit a better assessment of the degree of threat posed by hunting.

Arms proliferation. In most parts of the Republic of Congo and the Central African Republic there is widespread possession of arms and ammunition. This has greatly encouraged hunting with guns in these two countries, notably of great apes. Not only are these weapons cheap but, more importantly, they can easily be bought in local black markets, notably in Ouesso, where an automatic rifle (AK47) costs US$ 250. If smuggled across the border to Cameroon, it is sold at least for twice this price. The long and relatively unmanned borders between the three countries, and the busy road transport fuelled by the booming timber business, greatly facilitates illegal trafficking in arms and ammunition. The truck drivers supply arms and food, and transport the bushmeat to various destinations and markets.

Arrested local poacher in Lobéké with smoked chimpanzee meat destined for the market

Photo: Leonard Usongo

Pet trade. Commercial trade in baby chimpanzees and gorillas is gradually gaining ground within the TNS region. Most of the pets confiscated last year were from Ouesso where there seems to be a ready market for young orphans whose parents have been killed. There is a regional network in the sale of pets destined mainly for zoos in Europe and to a lesser extent the Gulf States. The pets are transported in very inhumane conditions in little wooden cages with poor aeration and stuffed in between the logs in timber trucks. Pet trade in great apes is quite organized, with intermediary agents working with counterparts in Europe and other destinations where they have been requested.

Density estimates of western lowland gorilla and robust chimpanzee in the TNS national parks

Site	Approx. area (km^2)	Species			
		Chimpanzee		Gorilla	
		Density	Number	Density	Number
Lobeke (Cameroon)	2,200	0.17	<500	2.98	>5,000
Nouabalé-Ndoki (Congo)	3,866	0.13	>500	0.2	<1,000
Dzanga-Ndoki (CAR)	1,221	0.001–0.13	<200	0.8–2.7	<3,000

Density: individuals/km^2. Data for Lobéké from WCS (1996), for Nouabalé-Ndoki from Fay and Agnagna (1992) and for Dzanga-Ndoki from Carroll (1986)

Future Conservation Measures

The threats facing the great ape populations in the tropical forests of

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Chimpanzee intercepted in a logging truck (background) from Kabo heading for the port of Douala. The baby was rescued from a sack squeezed behind the logs on the truck.

Photo: Leonard Usongo

Africa will continue to worsen if very strong remedial measures are not taken. One of the fundamental problems is the poor shape of the economy of most of these countries, coupled with numerous wars that have made most of the rural people more dependent than ever before on forest products like wildlife for survival. Butynski (2001) observed that the ultimate cause of the decline of Africa's apes is the continent's rapidly expanding population and the related poverty and insecurity.

The international community has a vital role to help support African governments to address some of the burning issues of poverty alleviation, population control, health and so on, in order to curb the current trends of natural resource exploitation. As Butynski stressed, it is especially urgent for the conservation community, national governments, donors, logging companies, trade organizations and the public to address the two main threats to ape populations: hunting and deforestation.

Within the Tri-National de la Sangha Conservation Ares some of the immediate actions to be taken to redress some of the threats to ape populations in the region include:

– Carry out systematic surveys, especially in the buffer zones, to ascertain the size and distribution of the ape populations in order to design better protection measures;
– Reinforce the existing TNS joint anti-poaching patrols in the three countries and establish trans-boundary control posts that will ensure law enforcement and control of various products transported in and out of the respective countries;
– Develop collaborative partnerships with all commercial logging and transport companies operating in the region to ensure strict respect for the law and punishment of law-breakers, especially those involved in hunting and the bushmeat trade;
– Compel logging companies to provide matching funds to support conservation initiatives such as anti-poaching programs, replace bushmeat consumption within concession areas with cow meat, and construct refrigerated stores for the sale of beef and fish to their numerous workers, who are the people largely responsible for hunting and the bushmeat trade;
– Establishment of a long-term funding mechanism, such as a trust fund, with aid from the international donor community, to secure long-term protection and management of the TNS national parks system;
– Request the international community to support broad-based landscape conservation programs, such as the TNS, that seek to protect and ensure the sustainable management of large trans-boundary forest areas with similar conservation problems;
– Harmonization of the existing laws and their enforcement by the three countries, to help to guarantee that more effective control measures are implemented, notably concerning hunting, illegal timber exploitation and bushmeat trade under the TNS;
– Establish a reliable communication system, especially at the border control posts, to ensure efficient coordination, by the protected area authorities of the respective national parks, of anti-poaching patrols and the fight against illegal trans-border trafficking such as in great ape pets, ivory and so on.

Leonard Usongo

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Survey Results of Gorillas Frequenting the Mongambe Bais

Dense tropical vegetation has been a confounding factor in the collection of adequate behavioral observations of western lowland gorillas *(Gorilla gorilla gorilla).* However, in recent years, studies concentrating at forest clearings (open, grassland areas called bais or salines), such as Mbeli Bai in the Nouabalé-Ndoki National Park and the Maya North saline in the Odzala National Park within the Republic of

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Congo have provided excellent viewing conditions for studying western lowland gorillas' population dynamics and socio-behavioral ecology.

From October 1998 through February 1999, a pilot study was conducted within the Central African Republic's Dzanga sector of the Dzanga-Sangha Special Reserve at the Mongambe research site (2° 55' 04" N, 16° 23' 20" E). The reserve is under the collaboration management of the government, the *World Wildlife Fund* and LUSO consult for the German Technical Cooperation (GTZ). The Dzanga sector has one of the highest documented densities of western lowland gorillas at 1.6 weaned individuals/km^2 (Blom, 1999 and personal communication). Previously, Mongambe was a base for a primate eco-tourism program, concentrating on the habituation of gorillas via tracking. This project was relocated in 1997 to another site (Bai Hokou) within the same sector (Alma, et al., 1999; Blom, 1999; Cipolletta, 1999).

Based on the frequency and duration of gorilla observations recorded within the adjacent Nouabalé-Ndoki Park, this pilot study was conducted to determine whether gorillas at Mongambe similarly use bais and, if so, the feasibility of a long-term investigation. It was hoped that like similar studies, the continual proximity of researchers at platforms located next to the bais would acclimate the gorillas to human presence and hence, passively provide a means of habituation.

Using a global positioning system (GPS), Mongambe's 50 km^2 area was surveyed, and the bais' locations and dimensions were mapped. A total of five bais were located. One of these, a larger clearing connected by narrow corridors, was further divided into three areas to facilitate observations, resulting in a total of seven.

The bais range in size from the smallest at approximately 0.15 km long x 0.1 km wide to the largest of 0.7 km long x 0.4 km wide. For observational and recording purposes each bai was arbitrarily categorized in size as small, medium or large. Temporary platforms at the edge of four of the seven bais ensured good viewing to the major parts of the clearings. A total of 460.5 hours of observation time was logged. Both direct contacts (visual and/or auditory) and indirect evidence (prints, feeding traces, fecal matter, and nests) were noted at the bais and within close proximity (0.5 km). Evidence of gorillas, either as groups or solitary males, occurred at six out of the seven bais.

A silverback in a clearing of the Mongambe area

Photo: Angelique Todd

The sample set was too small for statistical analysis. All direct (visual and/or auditory) contacts were made either in the early morning or late afternoon and the number of elephants visiting the bais increased three-fold during the study period for the duration of the dry season. The frequency of visual contacts totaled 15 (11 of solitary males and 4 of groups) and the frequency of auditory contact for both groups and solitary males totaled 46. Determination of auditory contact as being either from one or more animal was not always possible. Indirect evidence (prints, feeding traces and nests) for both groups and solitary males totaled 53, 31 and 3, respectively (54 of solitary males and 33 of groups). The tendency to encounter or find evidence of solitary males, rather than groups, is also apparent when the data are broken down according to bai size. Combining visual contacts with indirect evidence, the frequencies were 31, 19 and 15 for solitary males vs. 23, 7 and 7 for groups at small, medium and large bais, respectively.

The results indicate that gorillas do visit bais in the Mongambe area; however, it appears that these visitations are less frequent than those recorded by observers at Mbeli or Maya North. Possible contributing factors to these differences, both within this study and between sites, may be population demographics, elephant density, variation of food plants, poaching, and proximity of human populations.

Due to the number of bais at Mongambe and the distance between them, a long-term behavioral investigation of the gorillas at the bais would necessitate either an increase in the number of researchers and/or the installation of surveillance-type cameras at every platform. These cameras would be used to record the presence of any animals, including gorillas, which visit the bais when researchers are not present.

Lyna M. Watson, Angelique Todd

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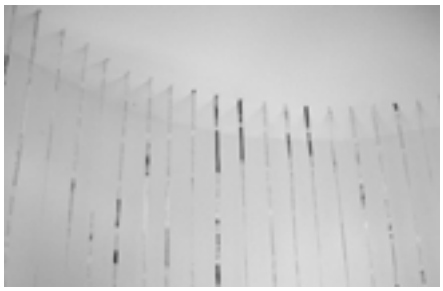

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