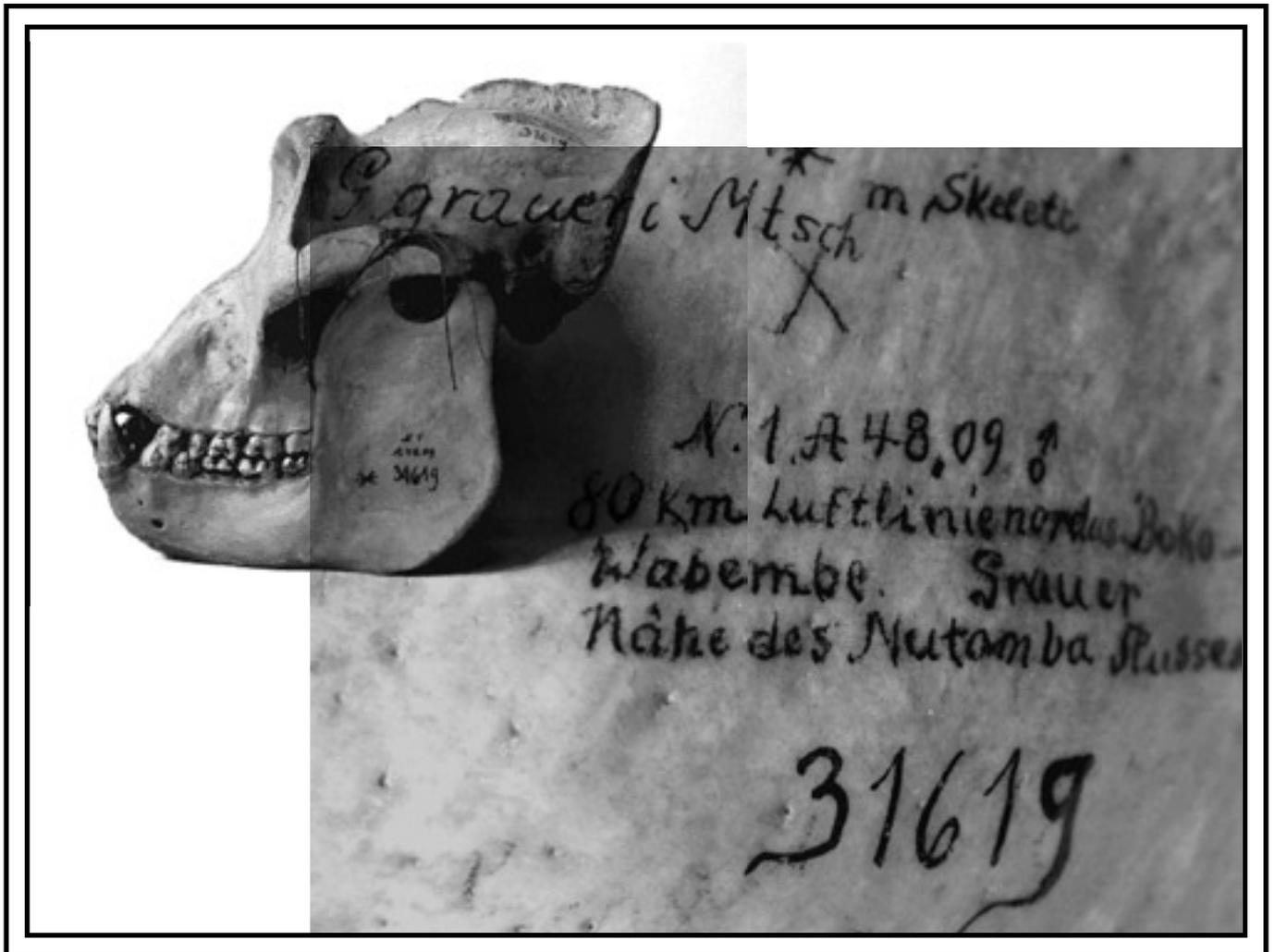




Gorilla Journal

Journal of Berggorilla & Regenwald Direkthilfe

No. 30, June 2005



**Conservation
of Gorillas and
Chimpanzees in
Itombwe**

**Impact of Habituation for Tourism
on Gorillas in
Bwindi**

The Maiombe Forest in Cabinda

Where Are the Gorillas? Type Specimens and Conservation



BERGGORILLA & REGENWALD DIREKTHILFE

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Post-Conflict Inventory of Kahuzi Biega National Park

There are few sites where the potential for conservation of great apes is juxtaposed with such major challenges and uncertainty as in the Democratic Republic of Congo's Parc National de Kahuzi Biega (PNKB). At the outset of the Congo's civil war, nearly a decade ago, this park was the single most important site globally for the endemic subspecies of the eastern gorilla (*G. b. graueri*), containing an estimated 8,000 individuals in both sectors of the park. PNKB also supported a nationally significant population of chimpanzees (Hall et al. 1998) and it is also a major reservoir of biodiversity endemic to the Albertine Rift (Plumptre et al. 2000).

During the past decade of the civil war, PNKB has been a constant theatre of conflict. The park has been overrun by successive waves of militias, Mai-Mai and Interahamwe, some of whom still have local influence today, though open conflict and insecurity have receded in most areas. As the Congolese

National Parks Institute (ICCN) lost control of the park during the war, a wide range of incursions, deforestation and illegal extraction of resources followed, including mining, hunting, logging, charcoal production, agriculture, and grazing.

During the war, much of the park's highland sector (600 km²), and all of its lowland sector (5,000 km²) have been inaccessible to ICCN guards. In the highland sector, fires, cutting and clearing have led to significant habitat degradation. Large areas of the corridor (400 km²) linking the highland and lowland sector of the park have been deforested and settled.

Despite the extreme insecurity and challenges, ICCN, and the park, were supported throughout the war by GTZ (*Gesellschaft für technische Zusammenarbeit*). Further support for park guard salaries came through the UNF/UNESCO program, and over the past several years other NGOs have also been able to provide assistance. While a number of highland sector's habituated gorillas were killed by poachers during the war, including several well-



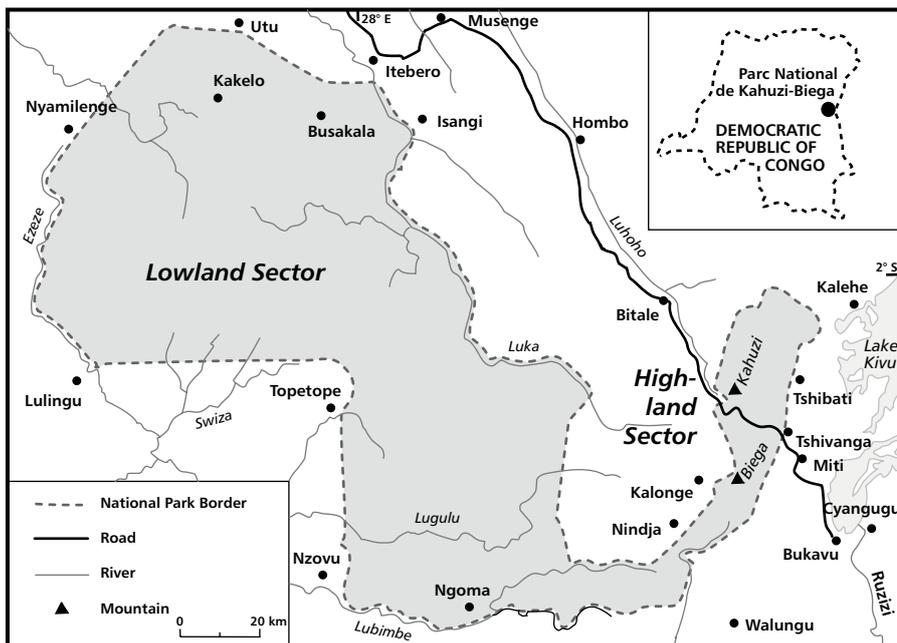
I. Liengola and park guards in front of the former Itebero park office
Photo: Innocent Liengola

known silverbacks, the ICCN patrolling of the gorilla sector, during all but the most dangerous periods, was certainly critical in ensuring the survival of the habituated gorillas in the park.

Within the last year security in the PNKB region has improved. ICCN guards have recovered patrol posts and field teams have returned to the park and surrounding region. Several important new financial commitments have been made to the park, including a renewal of the GTZ program, and further support for the park buffer zone (the area and communities around the park) through the USAID CARPE program and the Congo Basin Forest Partnership.

In November, 2004, a break in the conflict allowed WCS (*Wildlife Conservation Society*) and ICCN teams to survey the highland sector of the park where they found at least 168 gorillas. While this number is less than the 250–270 pre-war population in this area, it was higher than the estimated 130 gorillas counted in a similar survey 4 years earlier. Chimpanzee numbers (as estimated by encounter rates with nest groups) appeared to have remained stable over this same period.

WCS survey teams are now preparing to move into the remote lowland sector where most of the park's gorillas and chimpanzees occur, but where little





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information and essentially very limited patrolling has been possible up to now. These surveys will also be an important step in recovering this sector of the park and securing its great apes.

In February 2004, ICCN re-established the park's two lowland sector stations, Itebero and Nzovu.

In May 2005, the WCS/PNKB site manager, Innocent Liengola, travelled to Itebero station. He was accompanied by the head park warden, Bernard Iyomi, who visited Hombo. This was the first visit by park authorities since 1996. During this visit, park guards, supported by selected elements of the national army from Walikale, conducted a security sweep of the sector, resulting in arrest of over 50 poachers.

Essentially all of the illegal miners had left the sector before the sweep began. Recruitment of locally based staff to join inventory teams was undertaken through the local chiefs and church leaders by the WCS project leader. A camp is now being established near Itebero and training of field teams for the surveys initiated.

The well-being of the gorillas will depend not just upon patrolling, but also upon availability of suitable habitat. The highland sector of the park is currently undergoing an apparent explosion of *Sericostachys scandens*, a native but



Innocent Liengola and Bernard Iyomi talking with Colonel Sadam, former Mai-Mai chief commander, at Hombo Photo: Innocent Liengola

Massacres in Kivu

During the night of 23/24 May 2005, a Nindja village was attacked by an armed group calling itself Rasta that is composed of Rwandan Hutu and some Congolese. 14 people were killed, about 50 kidnapped and 4 injured severely. The massacre followed fighting between the rebel groups FDLR (*Forces Démocratiques de Libération du Rwanda*) and Rasta.

The FDLR have lived in the Nindja region for 2 years and have forced the population to pay "taxes" to them; the Rasta raped women, treated people like slaves, tortured or killed them and stole everything they could get hold of. For each kidnapped person, they demand 100 US\$ payable within three days, otherwise the victims are simply killed.

On 4 July, UN troops launched an operation to drive all armed groups from the territories of Walungu and Kabare, where Nindja is located. The objective is to prepare for the deployment of permanent UN troops at Ninja for as long as there are armed groups in the area. They are to "neutralize" any armed resistance. Local Mai-Mai militiamen, the FDLR and the Rasta operate in the area. The FDLR and Rasta are among the 8,000 Rwandan Hutu rebels who MONUC says fled their country after the 1994 genocide.

Another massacre took place after the UN mission had started: on 9 July, 39 people were burnt alive in their huts and about 50 more injured in Ntulumamba (Kalonge), northwest of Bukavu. Reportedly this was to discourage them from supporting the UN.

invasive liana not eaten by gorillas or chimpanzees. The liana has colonized recent openings caused by fire and cutting, and is now overtopping adjacent canopy, killing trees and bamboo and creating large mono-dominant prairies that are not favoured by the apes. While the causal linkages leading to *Sericostachys* expansion are not yet known it evidently represents a threat to gorilla habitat, and a potential constraint on the recovery of gorilla populations in the highland sector of the park.

The park's great apes are also confronted by a wide range of potential health risks, including snare and other injuries from hunters as well as a number of diseases easily transmitted between humans and apes. These risks are especially high in the highland sector where human population densities up to 300/km² occur in some areas bordering the park, and illegal human movement in the park continues. While both of the park's great apes are at risk, the danger appears to be more significant for the more sedentary gorillas.

Recovery of the park, in particular some areas of the lowland sector, will necessarily require time, as many of the illegal activities, in particular mining, have become entrenched over the years in which ICCN lost control. Indeed, even before the war, large areas of this vast and remote sector were rarely if ever reached by ICCN patrols. As the ICCN moves back it will be faced with choices on where to invest limited resources and staff. Accurate and current information on the distribution of important concentrations of great apes, as well as the distribution and impact of threats, will be essential to develop a realistic strategy for recovery of the site. Effective engagement and collaboration of local populations will be required to ensure that great apes will be protected over such a huge area where ICCN presence has been so limited.

The next 5 years will be decisive for the survival of the park. Damaged by



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war, the park could succumb as peace returns to the region. As open conflict recedes, PNKB will enter a highly dynamic and challenging period as the economic and demographic frontier advances on the region's mineral deposits, forests and agricultural potential. To ensure its integrity, the park's limits must be secured, and effective protection put in place. Well-informed decisions, based on knowledge from the field, will be essential to permit ICCN and its partners to invest in the site and ensure its protection.

John Hart and Innocent Liengola

Dangers to Kahuzi-Biega and POPOF's Artisan Program

The *Pole Pole Foundation*, "POPOF", is a non-governmental organisation created by residents and workers in and around the Kahuzi-Biega National

Park. POPOF's aim is to involve the local communities in the long-term protection and conservation of the park in order to reduce human pressure on its natural resources.

"Empty stomach got not ears" is always the expression used in the different communities living in the park's vicinity; it means that they are poor and jobless. Our attempts to fight against the destructive activities of those people damaging the park was to

1. create jobs or occupations, and
2. to initiate the environmental education program, while
3. increasing public awareness for the importance of the natural resources of the park to all people.

Despite the hardships caused by the wars in the Great Lakes Region in general since 1990 and in the Democratic Republic of Congo in particular since 1996, POPOF and other organisations did not stay inactive, and POPOF has supported the area around the Kahuzi-



Poachers' snares collected in the Kahuzi-Biega National Park

Photo: POPOF

Biega National Park through a number of activities:

- reforestation,
- sewing training for Pygmy women (former poachers in the park),
- wood carvings and embroidery by Bantu and Pygmy men and women (former poachers in the park) and

No Funds for *Le Gorille* Any More

Although protection of the Kahuzi-Biega National Park is considerably better now, the situation of the GTZ project is very critical. The budget for 2005 has been cut substantially, as UNESCO has stopped supporting the project. Carlos Schuler is trying to continue this important work with his Congolese ICCN colleagues, but he does not know how long they will be able to continue like this.

One of the many things that has suffered from the decrease of funding is the magazine *Le Gorille*. Issue no. 12 is almost finished, as Carlos Schuler told us "but I'm afraid it will be the last one (at least for this year's budget). Let's hope that we can find new friends of nature since the birth of the twins."

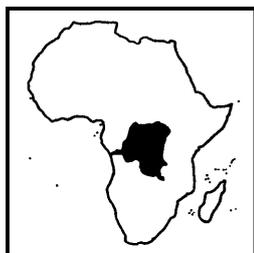


We want to prevent the disappearance of this magazine for the people in the vicinity of the park. Please support us in this effort!

The total costs for one issue (the printing of 25,000 copies and transport) are about 8,500 Euros. We would like to fund the production of no. 13 of *Le Gorille*.

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– environmental education.

All these initiatives are aimed at improving the living conditions of people living in the surroundings of the park and inviting them to participate actively in our struggle for the survival of its natural resources. More projects to create more occupations for these people are still on ice because there is no budget to get them started.

The Main Causes of Park Destruction
Difficulties of the government to promote and ensure the protection of the country's natural resources.

This had many harmful consequences. Since 1970, there have been tracks crossing the park and, until 1996, the park rangers collected taxes from people who wanted to enter the park. Poaching on a high level was also observed.

Wars in the Great Lakes Region.

This caused an increase of the park's destruction. The Rwandan refugees who poured into the area in 1994 remained a major problem for a long time, one which persists until today. The confused situation in Congo also reinforced the difficulties of conservation. The local population has illegal guns, and is hunting in the park. Many animals have been killed and trees cut down for a diversity of purposes. Moreover, 7 silverbacks of the habituated gorilla groups were shot between 1990 and 2003.

Population explosion around the park. The Kahuzi-Biega National Park is located in an overpopulated region. Six different peoples live in the park's surroundings: Bashi, Batembo, Bakano, Banyanga, and Batwa (Pygmies). The Bashi breed cows, goats and sheep; the other five are forest peoples who live from hunting and harvesting fruits, wild vegetables, mushrooms and honey.

The average number of children in each family is six. During the war that

Silverbacks killed in the highland sector

Name	Date of death	Observations
Maheshe 1	3 November, 1993	flesh and trophies
Mushamuka	17 April, 1997	body not found
Nindja	30 October, 1997	consumed for flesh and for trophies
Mubalala	July 1999	flesh
Lambchop (Maheshe 2)	August 1999	flesh and trophies
Munene	August 1999	flesh and trophies
Mishebere	February 2003	body not found

started in October 1996, several families were displaced from the vicinity of the Kahuzi-Biega lowland sector, and moved to the small highland area for shelter. These and many other people are afraid of looting, rape, and shooting by different armed factions every day. When the gunmen enter the villagers' houses at night, the householders give them money first; if no money is available, the gunmen take goats or cows, and then mothers-in-law, daughters-in-law, girls, old and young are raped.

Today, 500 persons per km² live near the park headquarters. The great majority of this population near the park is illiterate and remains totally ignorant of the importance of natural resources conservation. Because of their poverty, the villagers make incursions into the park and practice illegal activities such as cutting trees and bamboo, as well as trapping animals. At the same time, they look for precious ores, such as gold, coltan and cassiterite. There are also conflicts between the park and the local population; crop-raiding animals, for example, are a common cause of conflict.

Artisan Program

To involve the local population and improve their living conditions, POPOF, with support of its partners and friends, created the artisan program (wood

carving) and instituted environmental education for the communities in the vicinity of the park. As an example of these activities, we will present the artisan program here.

This program was initiated by POPOF in 1993. The main objective is to take care of the population surrounding the Kahuzi-Biega National Park by creating jobs in order to reduce and finally to eradicate human pressure on the park's natural resources.

After a census of poachers, POPOF set up workshops for handicraft training, especially wood carving (for men) and embroidery (for women). The men carved souvenirs, especially of gorillas. During this phase, POPOF received funds from Japan for the plantation of carving wood trees such as *Markhamia lutea* and *Jacaranda mimosifolia*. The plants were distributed to the local pop-



Gorilla sculptures produced by the wood carvers



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ulation to cultivate them in the fields and gardens, or as borders to their fields. POPOF paid US\$ 5 for each mature tree, and received further material for carving through the POPOF office in Japan and PIC (*Partners In Conservation*).

Today, the POPOF artisan production includes the embroidery of patches reflecting different faces of gorillas. The wood carvers produce souvenirs of gorillas, giraffes, rhinoceros, zebras, and other animals. Cow horns and metal are also used for sculpture. Since 1994, the number of items produced has increased from 300 to more than 1900 per year. They are partly used by the environmental education program as teaching materials, but many are sold, mainly at an international level – in Japan and the USA – to provide an income for the project (paying artists etc.) and other activities by POPOF for the long-term conservation of the park's wildlife and habitat.

The project faced many difficulties because of the unstable situation. There have been a loss of people, lootings, rapes, and many hardships, which often disheartened the artisans. Moreover, in May and June 2004 the POPOF office was looted systematically (nothing was left!) including tools for carving, computers, GPS, cameras and the money for the Pygmies' clothes sewing project by the *Dian Fossey Gorilla Fund-Europe*. All our investments of 12 years disappeared in one day.

Another problem is the lack of funds for the project; this unavoidably means that the artisans lose motivation. Moreover, the huts we use as workshops are very old, and leak when there is a little rain. POPOF wants to find more funds to keep this program working and to extend its activities to other villages near the park.

Conclusion

Integrating the local population in the conservation of PNKB is the main

aim of POPOF. To do this, we need to create many more initiatives. The handicrafts programme initiated by POPOF essentially aims at creating jobs for former poachers (Bantu and Batwa Pygmies) so as to progressively reduce their natural resource predation in the park.

The outstanding method that POPOF uses to spread environmental education in the park's neighbourhood is to build schools. The kindergarten, the primary and the secondary schools (which will have a forestry section from September 2005) are already functioning.

We are convinced that this is the only way to promote a harmonious, good and close mutual relationship between PNKB and the population. In this way, human pressure on the park will be progressively reduced.

John Kahekwa

Conservation of Gorillas and Chimpanzees in the Itombwe Massif

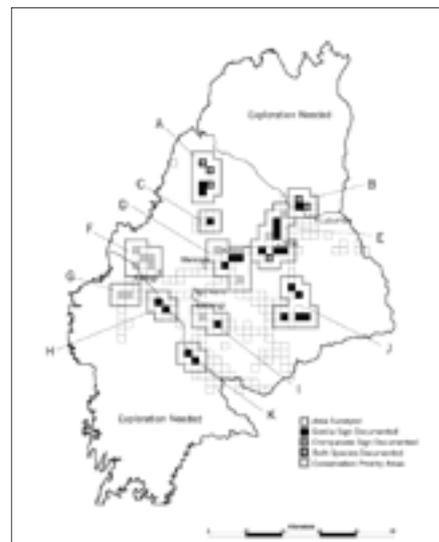
The entire Itombwe Massif and Plateau covers about 12,000 km² of which an unbroken block, covering about 6,500 km², and ranging from 1,500 to 3,500 m in elevation, is covered almost entirely by forests, bamboo, moorland heath and a unique high elevation forest savanna ecotone. This area, which is designated the Itombwe Massif Conservation Landscape, contains the most important ape populations and represents the most significant prospects for conservation of the region's endemic Albertine Rift biodiversity.

1996 surveys confirmed 10 of 17 gorilla populations (9 in the Itombwe Massif Conservation Landscape) identified in 1959 by George Schaller during the first gorilla survey of the region, as well as at least 5 areas containing chimpanzees. Even at that time it was

clear that the Massif's great apes were under threat. At least five of the gorilla populations found by Schaller had already disappeared, the area they had occupied having been deforested.

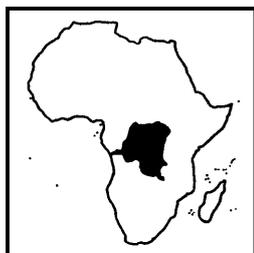
The 1996 surveys were followed in 1998 by the first efforts to establish conservation zones in the region. Four agreements were negotiated with *chefs coutumiers* to protect some of the most vulnerable gorilla populations and their fragmented habitats on the Tanganyikan Escarpment Forest, bordering the Itombwe Massif to the east. The chiefs agreed to cooperate with *Wildlife Conservation Society* (WCS) in controlling hunting and deforestation in these areas. Unfortunately, this pilot project, funded by USAID, was cut short by the resurgence of civil war in the region.

It was not until 2002 that field teams, funded by *Fauna and Flora International* (FFI), and directed by *International Gorilla Conservation Programme* (IGCP) and WCS were able to return to the Massif. This expedition focused



Areas surveyed within the Itombwe Massif Conservation Landscape from 2003 to 2005 and areas with gorilla/chimpanzee signs

Map: Wildlife Conservation Society



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on the Central Massif (Elila Sector), where many of the known great ape concentrations were located. The FFI expedition established that despite the conflict and insecurity centered on the savannas and escarpment above the lake, most of the Massif, in particular the forested highlands remained relatively calm.

During this expedition, Yuma M'keyo, team leader, contacted traditional chiefs, representing 6 groupements, the administrative unit comprising a number of related villages that would be responsible for enforcing and monitoring community conservation agreements. These authorities identified over 50 forest areas, or "maternities" that they considered priorities for conservation, and agreed to work with ICCN and NGO projects to protect these sites and their wildlife. Later, in 2003, Denis Baliwa, coordinator of a local conservation NGO, negotiated further agreements in two groupements near the Ulindi River (Muhuzi-Buzinda).

Unfortunately, few of the "maternities" identified by the traditional authorities could be accurately located on maps, and none had proper inventories to determine the fauna they contained. In addition, significant areas of the West Mwana and North Ulindi sectors of the Massif had never been fully explored, and their conservation potential remained unknown. Between 2003 and April 2005, Leonard Mubalama of WCS led a series of expeditions that began to fill gaps in the knowledge of these areas and confirmed additional agreements from the traditional authorities.

The Mubalama expeditions verified presence of great apes and provided a first consolidation of the maternities into 11 potential community conservation zones, centered on great ape locations in the Massif. At the same time, the urgency for action became ever more apparent. Although the highland forests had escaped the direct impact of the conflict, the war had led to a

major increase in hunting and mining throughout the area, putting the remaining large mammal fauna at very high risk.

At the same time, the Congolese National Parks Institute, ICCN, renewed its interest in having a protected area established in the Massif. In early 2005, ICCN established an Itombwe working group with terms of reference to promote conservation activities, develop a site base map, and coordinate engagement with local communities, across the Massif. A first meeting of the working group took place in Bukavu in April. A second meeting is planned to take place in Miki, in the Central Massif, later this year launching the development of conservation zones through the working group.

While all of this is positive, physical delimitation of conservation zones, agreed regulations determining use and control of hunting, and how these will be enforced have yet to be established. Some traditional authorities have already circulated edicts forbidding hunting of gorilla and buffalo. However the mechanisms to enforce these are still unclear.

The region remains at very high risk. The Itombwe's extraordinary biodiversity could be lost if uncontrolled hunting, deforestation and habitat degradation continue. The war has opened the Itombwe Massif to unprecedented exploitation. As conflict ends and security is recovered, these threats will continue to grow. Community conservation zones represent a potential mechanism to protect the Massif's critical habitats wildlife at this critical juncture in the region's history.

John Hart and Leonard Mubalama

Two Young Chimpanzees Confiscated

The Katoyo sanctuary at Kasugho (the Tayna Gorilla Reserve Research

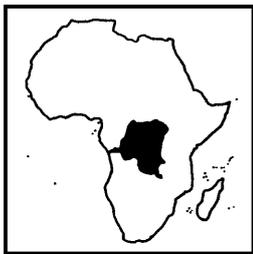
Station) received two more young chimpanzees that were both captured in Lubero territory in the Manguredjipa Forest near Butembo. In February 2005, a young chimpanzee which had been held captive by a Mai-Mai was confiscated by Jacques Mukosasenge; the two new ones were confiscated by Bishweka and by Bolamba, both wardens at the Maïko National Park. They arrived within a few days at Kasugho and were transferred to the Katoyo Sanctuary.

Before their confiscation, these two little chimpanzees were held in captivity by army commandos, who might have killed their parents in the Manguredjipa Forest. It was during the mixing of the soldiers from various army factions into one integrated National Army that local people, who had already been informed that keeping a primate without permission is illegal, alerted guards of the Maïko National Park.

The people of the region also decided to set up a sanctuary at Kasugho for confiscated primates. There is a number of advantages in having this sanctuary; first of all, it is located near the Tayna Center for Conservation Biology (Université de la Conservation de la Nature et du Développement à Kasugho "TCCB/UCNDK"), and students can use it for research.

Another advantage is that the local population, who have by now come to understand conservation principles very well, will collaborate with the personnel of the sanctuary and other conservation agents and guards from the parks in confiscating animals kept illegally.

Government officials visited the Katoyo sanctuary and gave it the green light. The staff will continue organizing public awareness campaigns against poaching, illegal keeping of wild animals, and trafficking of primates for commercial gain. This education will continue at Butembo, Beni and Lubero; these places suffered from the long war



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that made some people live without any respect for the law and for conservation, and still look to earn money by trafficking primates.

To change this mentality, more public awareness campaigns are needed. The country has just come out of a very long and destructive war, many government institutions collapsed, and law enforcement is still not working effectively. To keep up its work, the sanctuary needs partners funding its operation, which is very expensive. For example, the number of staff needs to be increased.

In the Democratic Republic of Congo and other armed conflict areas, many more primates are kept by high-ranking authorities in the local administration and the army. It takes us plenty of time to convince them to deliver these animals to us; it is really a difficult task to convince them to free the animals.

Eating primates has also become a new trend due to contacts with people who came from different regions during the wars. These strangers have transmitted or disseminated this mentality among the local people who are nowadays imitating this behaviour. As a result, some armed men on 7 June, 2005, wiped out an entire gorilla family at Pinga, Walikale Territory – a dominant silverback male, two females and a baby whose sex was not identified. After these killings it was noticed that one of the gorilla females was pregnant.

The poachers took the meat of the dead gorillas for sale to the population who refused to buy and eat it because according to them, gorillas are protected animals and the law forbids killing them; moreover, the local people state that the gorillas very much look like human beings.

To counteract this trend and this new behaviour, we realized that the local people should be educated and trained in conservation philosophy and principles. For this reason, emphasis is put

on training young people at TCCB to prepare them for becoming agents in conservation and protecting nature resources.

It is also in this perspective that the TCCB Wildlife Club is starting in order to prepare our long-term ambassadors for community-based conservation. Our ambassadors need preparation and training in educating and disseminating mesological education to the local population. The aim of this campaign is to allow them to also participate actively in conservation and the protection of nature resources to reduce the bushmeat trade.

Pierre Kakule Vwirasihikya

Gorilla Orphans in Rwanda and Congo: Update

The male eastern lowland gorilla (confiscated in Rwanda, November 2003), the female eastern lowland gorilla (confiscated in Goma, Democratic Republic of Congo, July 2004) and the female mountain gorilla (confiscated in Rwanda December 2004) are all doing well. Each has a dedicated team of caregivers providing round-the-clock care.

Care for the eastern lowland gorillas is being provided by collaboration between the *Mountain Gorilla Veterinary Project*, the *Dian Fossey Gorilla Fund International*, and the wildlife authorities of Rwanda (ORTPN) and Congo (ICCN).

The same organizations, with additional support from IGCP, are caring for the mountain gorilla. Discussions about future options for these orphans are being led by a technical support committee, comprised of representatives of the same organizations.

Mountain Gorilla Veterinary Project



Believing in the power of their ancestors to protect the gorillas, Pygmies organize a mutton sacrificial ceremony at Kahuzi-Biega.

Photo: Carlos Schuler

Twin Boom in Eastern Gorillas

In the last issue of the *Gorilla Journal* (no. 29) we reported of two twin births in Rwanda and Kahuzi-Biega – in the meantime, two additional twin pairs were born in eastern gorillas!

Another Twin Birth in Kahuzi-Biega

After the survey in October 2004, we were surprised and pleased to find that the number of gorillas had increased during the last 5 years of the war (see page 3). This good news reflects the efforts of the PNKB-GTZ Project, which has worked under extremely difficult conditions during the long years of war. Trackers, managers and others connected to the project, and people working in ICCN, took enormous risks without concern for their own safety during this period of uncertainty. And here is their first reward. Their work continues, with other participants.



D. R. CONGO

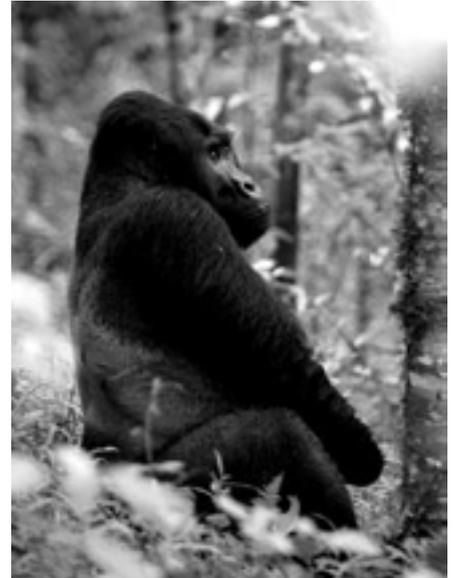
The high-altitude part of the park, the former home of the Bami people (with Kabare and Nakalonge as their chiefs), used to be inhabited by Pygmies. They believe that the gorillas live in symbiosis with the spirits of the dead ancestors buried in this forest. It should be pointed out that 30% of the park's workforce consists of Pygmies. They request periodically that we sacrifice mutton to their ancestors to ask them to protect the gorillas. The last such sacrifice took place at the foot of Mt. Bugulumiza on 21 April 2005.

After the sacrificial ceremony had taken place, we observed the birth of twins on 29 April 2005, in the family of Chimanuka, who is the 19-year old son of Maheshe. The twins' mother is called Nabintu, which means "the one who brings wealth". It is also the name of the wife of the great chief Kabare. Nabintu is a primiparous female who transferred to Chimanuka from the silverback Mugaruka, who is also 19 years old, and has lost one hand.

The two babies are called Mushoho, which means "cashier" and which was the name of one of our long serving and famous Pygmy trackers who died in service in 1980, and Busasa in memory of a brave guard who died last year. The twins are still firmly clinging to their mother's breast. They enjoy the



Chimanuka (above) and Mugaruka (below) with injuries after the fights
Photos: Carlos Schuler



Mugaruka; his missing hand is clearly visible.
Photo: Rick Murphy



Nabintu with her twins Mushoho and Busasa
Photo: Carlos Schuler

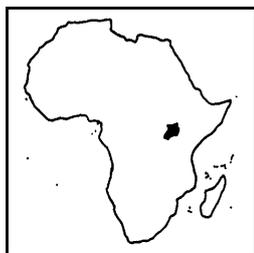
protection of the whole gorilla group and are perfectly well. Mother Nabintu is not yet completely habituated to the presence of people, and she frequently hides with her two babies. Since the wholesale killing of elephants between 1996 and 1999, the undergrowth has closed up and observations have become more difficult, but even so we manage to observe mother Nabintu and her twins almost every day.

Currently, the silverbacks are firmly occupied with the fruiting season, which has just started. The young leaders are busy looking for the best groups of large *Myrianthus* trees. Chimanuka attacked the silverback Birindwa on 10 May 2005. At the end of the two-day

battle, one of Birindwa's females transferred to the victorious Chimanuka, decreasing the number of individuals in Birindwa's group from 8 to 7. Although he won the battle, Chimanuka received two wounds on his left shoulder. Furious with his defeat, Birindwa initiated an interaction with his old rival Mugaruka on 14 May 2005, to try to obtain some females to restore his numbers. But in vain: in spite of his handicap of a missing hand, and contrary to his previous behaviour, Mugaruka defended himself valiantly. He kept all his females but received two slight injuries on the neck and on the left hand.

In the meantime, the two new babies are getting their first experience of the forest of the Kahuzi-Biega National Park. After a few more days of rain the dry season will begin. The end of the rains, and more agreeable temperatures, during the first few months of their lives bodes well for Mushoho and Busasa.

Bernard Iyomi Iyatshi and Carlos Schuler



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Bwindi: Only One Twin Survives

On 25 December 2004, twins were born in the Nkuringo group. On 2 January 2005, the guide Paul Mugisha noticed that one of the babies was dead while he was taking a group of tourists to the gorillas. The cause of death, which had probably occurred one day earlier, is not known. It is the first birth of the mother, Kirungi; the father of the twins is the group's silverback, Safari.

Information by John Makombo and Ghad Mugiri

Rwanda: Twins Have Names Now

During an public official naming event on 25 June, 30 young mountain gorillas from the habituated groups in Rwanda were given names. The twins born in May 2004 were named by Rwandan President Paul Kagame and his wife.



The twins from Barcelona with their keeper Ms. Jarczewski in the Stuttgart Zoo Wilhelma. She is holding Kissa and Makoua in her arms, the twins Kiri and Kera are in the foreground.

Photo: Wilhelma

They were given the names Byishimo (happiness) and Impano (gift).

From an AP report by Edward Rwema

Barcelona Zoo

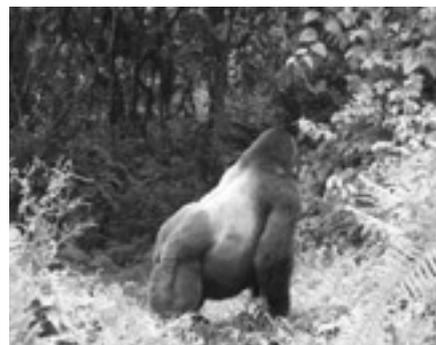
As we already mentioned in the last issue of the *Gorilla Journal*, another pair of twins was born in Barcelona Zoo. They increased the twin ratio in captivity again. In 2004 40 gorilla births were recorded in the *International Gorilla Studbook* and this means that up to the end of 2004 there was one twin birth in 123 births in zoos.

Information by Undine Bender

Impacts of Habituation for Ecotourism on the Gorillas of Nkuringo

The gorillas of Bwindi have been habituated for ecotourism in the region of Buhoma since April of 1993. The original Mubare group is still intact and continues to be visited daily by tourists. Another original group, Katendegere, disappeared from the area and was later replaced by the large Habinyanja group, which has since fissioned (one group retains the original name while the other is called Akatale). Tourism was proposed for a fourth group, Nkuringo, in an area outside of Buhoma (a six hour walk southeast of Buhoma). Although started in 1996, habituation was not complete until 1998 and "mock" tourism was not implemented until April 2004.

My research team began studying the impacts of habituation on the behavioural ecology of this group in 1999, but our work was cut short by the massacre in Buhoma in March of that year. We began again in July 2001 and have been following the Nkuringo group on almost a daily basis since. My aim in this report is not to present scientific data as they will appear elsewhere (e.g., in the upcoming book *Primates of Southwestern Uganda*, ed. by

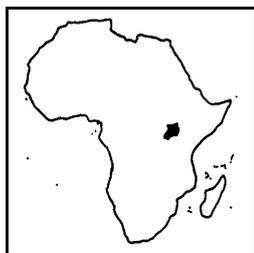


Safari

Photo: Michele Goldsmith

J. Paterson) but to report on some of the experiences from the past 4 years and to provide recommendations for improvement of gorilla well-being.

The main issue of well-being in this group (as well as those in Buhoma) is that after they lose their fear of humans they begin to use of areas outside the park boundary, which can influence both their health and behaviour. With regard to health, studies emphasize the need for more precautions (e.g., Homsy 1999; Woodford et al. 2002) as habituated gorilla groups have been shown to have increased endo- and ecto-parasitic loads (Graczyk et al. 2001; Nizeyi et al. 2001) and complications with respiratory infections and measles (Hastings et al. 1991). With regard to behavioural changes, little research has been conducted due to tight restrictions of visitation to these groups and a policy of "no research" on tourist gorilla groups. This has changed recently as managers and government wildlife officials start recognizing the need for this information. The first such study on direct impacts of actual tourist visits was recently conducted in Volcanoes National Park (Steklis et al. 2004). Among other findings, they demonstrated that tourist gorilla groups spent significantly more time moving at the expense of feeding when tourists were with the gorillas. A similar study has since been conducted in Buhoma



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(page 13) and is in progress on the Nkuringo group.

Our data demonstrate that Nkuringo spends most of their time outside the park boundary (76% of their nest sites; see map below) and although rules and regulations exist for tourism purposes (to reduce potential contact between gorillas and humans) they may not be strict enough (Homsy 1999) and they are not always followed in the Virungas (McNeilage 1996) or Bwindi (Macfie 1997). An even less controlled situation exists regarding contact with local people living in surrounding communities. In Bwindi, gorilla groups used for tourism live close to the park edge; a decision made to reduce impact of the park by providing most of its infrastructure outside the boundary. The area surrounding Bwindi in southwestern Uganda, however, maintains one of the highest densities of rural human habitation (about 200–300 people per km²) and one of the highest population growth rates in the world (ranging from 1.7 to 4.5% in some districts; Ministry of Planning and Economic Development 1997). In addition, agricultural land abuts the park boundary as there



Banana plantation after the Nkuringo group used it

Photo: Michele Goldsmith

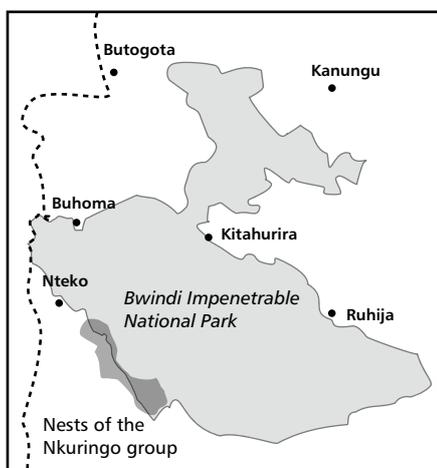
was no buffer zone present during most of this study. This means that if gorillas venture out of the park there is a high likelihood there will be problems with health, safety, crop raiding, tourism (as most tourists are dissatisfied with watching gorillas in people's fields), and relations between local people and park officials.

During our study, gorillas devastated many banana plantations and also fed on eucalyptus and sweet potato. It was up to the rangers (or the HUGO – *Human Gorilla Conflict Force* – team) to chase them out of the fields, which increased risks of aggressive encounters. We also often found gorilla and human dung in close association (e.g., a knuckle print was found in one specimen of human dung). The human dung was loaded with nematodes. Baboons also use these areas and a preliminary analysis found that both gorillas and baboons share many parasites (Hope et al. 2004). Most were of bovine origin, which is not surprising as cattle graze within these areas. It would be interest-

ing to include humans in this equation. While outside the park, the gorillas also tended to nest on and near watersheds, resulting in large amounts of dung entering water sources. The preference for these areas may be problematic in that it can contaminate drinking water and pollute water flowing into the Kashesha River.

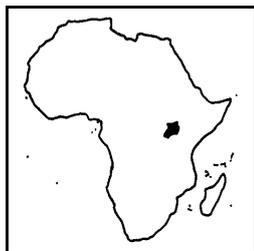
Although Nkuringo tended to stay within 400 m outside the park boundary, they did sometimes venture far, a few times nesting near the main road in the town of Ntungamo (at least 1.2 km from the park boundary). When far from the park or raiding crops, they were often scared off and chased, which could increase stress levels. In addition, the Nkuringo group has suffered chronically from scabies infections that require veterinary intervention. Each intervention resulted in increased path length and more than likely contributed to stress.

Hopefully, data on how habituation influences habitat use will be useful in implementing full tourism on this group



Bwindi Impenetrable National Park with the area where the nests of the Nkuringo group were found

Drawn with data from the author



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in the future. In fact, GIS maps from this study have been used by UWA (*Ugandan Wildlife Authority*) and IGCP (*International Gorilla Conservation Programme*) to help determine where tourist facilities should be set up to ease impact on the group. In addition, past study reports had recommended the implementation of a buffer zone, which has since been completed. Although these 350 extra meters are beneficial, it is important to note that gorillas do range more than 1 km outside the park boundary. Proper management of this zone, which is still in consideration after more than a year that it has been in place, is crucial to keep the gorillas from exiting this area and once again entering agricultural fields. During my last field season in June/July 2004, the buffer zone was being used heavily by Nkuringo. As they used this area they were allowed to feed on and destroy the crop plants (mostly bananas) that had been left behind by the farmers who had moved out. Rangers made little effort to chase the group as this region was now considered a continuation of the park. This is unfortunate. Whereas the gorillas were continually chased in the past, they were now free to eat in peace. Once these plants within the buffer zone are gone, what is to stop them from leaving the zone, once again, to raid fields abutting the zone? It is recommended that rangers continue to chase gorillas from these



Soldiers passing

Photo: Michele Goldsmith

areas until management can cut down and remove all crop plants within the buffer zone.

Daily monitoring of the group has many benefits, including the keeping of health reports on each individual. As mentioned above, this group has suffered chronically from scabies, which is monitored by the rangers and treated by veterinarians. The reporting of health issues is extremely helpful; however, reports are not always followed to their fullest. When I was last in Bwindi a 5-month-old infant died and then her mother was found dead one month later. Neither body was collected for necropsy nor was a thorough investigation into the cause of death conducted. When I left a few days after the female's death, 4 gorillas in the group were coughing. It is recommended that Bwindi managers devise a protocol for health reports and necropsy as one contagious illness could devastate the entire population. Long-term health reports on individuals should be kept and each death should result in an extensive necropsy which should include tissue collection and storage. (UWA may also want to consider donating each skeleton and skull to museums and/or universities in Uganda or other countries as a wealth of information is lost with each individual.)

A major health threat that has not received enough attention is the presence and traveling of army personnel in the area. Since the massacre, the army escorts all visits to the gorillas. Over 100 soldiers are stationed in the Nteko area. During my last field season, we witnessed over 75 soldiers on their journey to Nteko as they walked right through the Nkuringo group, which was spread across the most popular footpath right outside the park boundary (see photo). We were fortunate to be there with rangers who were able to make their passage safe. Many, if not all of the men in the army, have never seen a gorilla and it is frightening to

think what would have happened if one of the gorillas had charged any of the gun-carrying soldiers. We also found them sleeping, cooking, urinating and defecating along the trail as we headed back to camp. Although I understand there is some training for army personnel in relation to gorillas, these troops had not been briefed. It is strongly recommended that all army personnel be trained or be led by UWA rangers before they travel in the park.

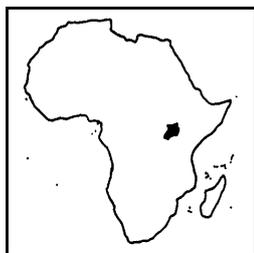
Within the Nkuringo area, conservation issues abound. When gorillas come out of the forest they threaten their own health as well as the health of the surrounding human population. By collecting data on when and why gorillas come outside of the park, we can equip local managers with information on how to reduce the occurrence. By examining the impacts of habituation for ecotourism, we can better protect and manage greatly endangered populations. We must always keep in mind that the benefits of tourism to the gorillas must always outweigh the costs.

Michele L. Goldsmith

I gratefully acknowledge the National Geographic Society, UWA, the Ugandan National Council of Science and Technology, IGCP, ITFC (Institute of Tropical Forest Conservation), my hard working and dedicated research assistants (especially Joel Glick and Evarist Ngabarino), and the wonderfully skillful and patient rangers of Nkuringo.

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The Impact of Tourism on the Behaviour of Mountain Gorillas

Tourism based on gorilla viewing is an important strategy in the conservation of mountain gorillas in Uganda, Rwanda and the Democratic Republic of Congo. High fees are charged for such visits, generating considerable revenue for the Governments. Much has been written about the ecology and behaviour of gorillas, but an area that has received little attention is the impact of tourism on mountain gorilla behaviour.

A recent study assessed the impact of tourism on the behaviour of mountain gorillas and evaluated the possible influence of ranger guides, trackers and tourists. The activity budget (feeding, movement pattern, responses to humans and social interactions within the group) was measured before, during and after tourist visits. In addition, rangers and tourists were evaluated on gorilla rules and regulations during brief-

ing time before the tourists entered the park and while with gorillas in the field to assess their actions/behaviours.

Results

The habituation process itself certainly has an impact on the gorillas and is perhaps the most stressful time for them. Regular visits by people disrupt normal gorilla behaviour in various ways, even after the habituation process has been completed. Any behavioural changes caused by tourist visits represent an undesirable disturbance to the natural behaviour patterns.

There is a high risk of disease transmission to gorillas and vice versa, and of causing behavioural disturbance and stress to gorillas and injuries to tourists and ranger guides since most of the rules for the visits and their justifications are not well explained to the tourists by the ranger guides, and are frequently broken while the visitors are with the gorillas. The ranger guides themselves are not well conversant with some of the gorilla rules and why they were put in place. The tourists tend not to obey most of the rules while with gorillas.

There was a statistical difference in the activity budget of the Mubare group before, during and after tourist visits. The gorillas spent more time with visual scanning when tourists, ranger guides and trackers were present, and we found a significant negative correlation between the proportion of glances and tourist-gorilla distance. Moreover, there was a significant difference of in-group cohesion before, during, and after tourist visits. During the visits, there were on average more gorillas around the silverback; this indicates greater cohesion. The presence of tourists caused increased travel, but there was no significant correlation between the daily path length of the Mubare and Habinyanja gorilla groups and the number of tourists.

Tourists', rangers' and trackers' actions/behaviours (such as approaching

the gorillas to less than 7 m, clearing vegetation, making noise, pointing a finger, and belch vocalisation) cause behavioural disturbances to gorillas such as fleeing, moving off with food in the mouth, charging, flattening vegetation, and shielding their heads. Self-directed behaviours such as self-grooming and scratching occurred more frequently during tourist visits than before and after them. These are indicators of emotional arousal and stress. Indices of high behavioural disturbance should be monitored; in particular, any fleeing observed during visits should act as a warning to guides and tourists not to follow the animals further.

Rangers' compliance with the rules and regulations that prevent disease transmission to gorillas were scored as "fair"; for those rules that minimize behavioural disturbance and stress, and prevent the risk of injury for tourists, they were scored as poor.

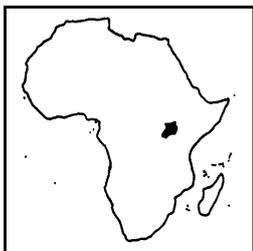
Recommendations

The results suggest that some rules need to be changed, and further rules need to be added, and there needs to be much stricter enforcement of the rules and regulations that concern the minimization of behavioural disturbances and stress, and preventing diseases and risks of injury to humans. This requires independent supervision



A visitor watching a mountain gorilla feeding

Photo: Fortunate Muyambi



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and periodical monitoring at all levels of tourist operations by a well-trained and motivated staff.

The one-hour limit per visit per day rule should be maintained because tourist visits have an impact on gorilla activity patterns. In particular, less feeding is a strong justification for maintaining this limit.

Tourists were frequently between the gorillas and rangers, and this requires one more rule to be added in the current list: "Tourists should not stay between gorillas and ranger guides or trackers". This would be enforced to avoid the risks of injury to tourists and to minimize behavioural disturbances in the gorillas.

Ranger guides and trackers should be trained on visitor handling and on gorilla rules and regulations and their justifications, as well as on gorilla behaviours. Policy issues on tourism operations in protected areas should also be explained to them.

Ranger guides and trackers should stop clearing vegetation with a panga, pointing fingers, making noise and making vocalisations such as the belch vocalisation or mimicking chest-beats so that tourists can photograph the gorillas face on, as this disturbs the gorillas.

To enforce gorilla rules, tourists should be fined and ranger guides punished for every rule broken; this can be policed by the Warden for tourism. After the first warning, cameras should be confiscated when used with a flash in the presence of the gorillas. The issue of corruption must also be dealt with by the management authority, no matter how strict and effective the rules are; if there are ranger and tracker guides who are tempted after tourist visits to break the rules for financial gain (so called tips), then the rules are essentially impotent.

Gorilla rule number 9 (minimum distance of 5 m between gorillas and tourists) should be changed to "minimum

distance of 7 m between gorillas and tourists" because the gorillas reacted less if the distance was 7 m. Even at this distance, the gorillas are clearly visible for the observers. This was also recommended by Jaco Homsy in 1999 to reduce the risk of disease transmission.

The existing gorilla tourist brochure should be improved to include all rules and regulations with their justifications, and should be distributed to tour operators and the booking desk at UWA (*Uganda Wildlife Authority*) headquarters and be given to tourists prior to the visits. This will prepare the tourists before briefing time at the park. The brochure should include fines for each rule that is broken.

The tourism warden should ask tourists verbally or through a feedback form how the visits were conducted, to see if the rules were broken and to assess the quality of interpretation, and of the guides' explanations of the rules and their justifications. This ensures the monitoring of rangers and trackers during tourist visits and exposes areas of tourism operations that need to be improved through training.

Finally, meetings of ranger guides, trackers and the park management should be held once a month to enforce and monitor the rules and management. Through these meetings, the management will come to know the problems the rangers and trackers face during tourist visits and make suggestions for improvements.

Fortunate Muyambi
I did this research for my MSc in Environment and Natural Resources Management at Makerere University Institute of Environment and Natural Resources Management. It was funded by the Compton Foundation, USA. The Institute of Tropical Forest Conservation (ITFC) supervised this research work.

Uganda Losing Gorillas to Rwanda

On April 18, the Ugandan newspaper *New Vision* reported that the Nyakagezi group (the only habituated gorilla group in the Mgahinga Gorilla National Park) had been in Rwanda since October 2004 and the UWA was losing hope that it would return to Uganda. From the start of gorilla tourism, this group had crossed the border to the Democratic Republic of Congo from time to time, but usually it returned after a few days or weeks. This long absence was unusual.

On April 25, the same newspaper reported "Gorillas Return to Mgahinga". During the group's 6-month stay in Rwanda, the number of group members had increased – from 11 to 13 individuals. One of the two additional group members was a new female from a wild group and the other one was a baby.

According to the *New Vision*, an official said "We hope they won't go back" – but he hoped in vain. Six days later the gorillas were back in Rwanda around the Sabinyo. This means that no gorilla tourism was possible during the absence of the apes and that it is uncertain when tourism can start again in the Mgahinga Gorilla National Park.



Virunga gorillas during a visit by a tourist group

Photo: Christoph Lübbert



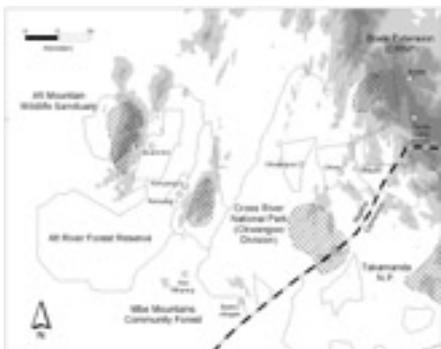
GORILLAS

Update on Nigeria: Recent Work by the Wildlife Conservation Society

In *Gorilla Journal* 16 (June 1998) John Oates summarized the current information on the Cross River gorilla *Gorilla gorilla diehli* in Nigeria. Since then our knowledge of the four sub-populations (Afi River Forest Reserve, the Mbe Mountains, the Boshi Extension Forest and the Okwa Hills – both sites located within the Okwangwo Division of Cross River National Park) has increased significantly. As a collaborative venture between the *Wildlife Conservation Society* (WCS) and the *Nigerian Conservation Foundation* (NCF), the *Biodiversity Research Programme* was established in 2001 to facilitate and support biodiversity research in southeastern Nigeria. Particular attention is being given to endangered primates, including the critically endangered Cross River gorilla.

Afi Mountain Wildlife Sanctuary

Afi Mountain Wildlife Sanctuary was created out of the Afi River Forest Reserve in 2000 specifically for Cross River gorilla conservation, and is managed by the Cross River State Forestry Commission with support from



Approximate distribution of the Cross River gorilla in Nigeria. Topographic relief shown in shades of grey. Map: Richard Bergl

a 'partnership' of conservation NGOs including *Fauna and Flora International* (FFI), NCF, *Pandillus* and WCS.

Our gorilla monitoring work at Afi is currently based on sweep censuses of the mountain every three months. The last census in March 2005 was coordinated by newly recruited research officer, Inaoyom Imong, and with five teams it was possible to survey the entire mountain in only 7 days. A total of 22 gorilla nest sites were found including 10 recent (less than 2 weeks old) nest sites. The data from this survey suggest the presence of one group of at least 23 individuals concentrated in the southern-central area of the sanctuary, and the possible presence of another small group of about 4 animals. Evidence of gorillas was discovered in the Olum area for the first time since a devastating fire swept through the area in 1997. Chimpanzees, drills and three other species of monkey were also encountered. More censuses are needed to increase the reliability of our estimates, and further insights should come from the genetic analysis of faecal samples collected at Afi by Richard Bergl (*Gorilla Journal* 29, December 2004).

Despite the creation of a wildlife sanctuary and support from a number of NGOs, Afi is currently beset by a number of conservation problems including poaching, habitat loss and fragmentation due to logging and agricultural expansion. Fortunately no recent reports of gorilla poaching have been received.

The Cross River State Forestry Commission, supported by the tourism plans of the dynamic Governor of Cross River State, Donald Duke, is currently advocating a program of gorilla habituation at Afi; with fewer than 30 gorillas remaining, however, we believe that until the mountain is effectively protected against poaching the habituation of such a small and vulnerable population is extremely risky. With support from the

United States Fish and Wildlife Service it has been agreed that FFI will coordinate a full and independent review of the biological and socio-economic context of gorilla-based tourism at Afi before any habituation programme is attempted.

Mbe Mountains

Occupying a key position in the landscape linking Afi Mountain Wildlife Sanctuary to Cross River National Park and Cameroon, the Mbe Mountains are community-owned land that currently lack any formal conservation status. WCS has supported gorilla monitoring work in the Mbe Mountains since 2002, and a small team of field assistants has been able to track two small groups of gorillas, one of at least 7 individuals and one of at least 5. More recently a mountain-wide census of Mbe found recent clusters of 7 and 5 nests, and also discovered sites of 11 and 2 nests in other areas of the mountain. This would indicate a total population of at least 25 individuals, similar to previous estimates.

In 2005 the *Biodiversity Research Programme* recruited five eco-guards from the surrounding villages in an effort to reduce levels of poaching and reinforce community rules and regulations that currently govern wildlife management on the mountain. Based at a simple research camp high up on the slopes of the mountain these eco-guards collect basic gorilla monitoring data and their presence also acts to deter poaching. However, hunting is not the only threat facing gorillas and other wildlife in the Mbe Mountains. The mountains are poorly protected and are subject to logging, encroachment for agriculture, fire, erosion and landslides. As farms from surrounding villages slowly spread up the steep hillsides, the Mbe Mountains are gradually becoming more and more isolated from the surrounding forest blocks. Deprived of links to Afi Mountain Wildlife



GORILLAS

Sanctuary and Cross River National Park, the small population of gorillas that survive in the Mbe Mountains are vulnerable to extinction. WCS is working closely with the USAID-sponsored *Sustainable Practices in Agriculture for Critical Environments* (SPACE) project to improve the protection of the Mbe Mountains. As part of this collaboration a number of options for the most effective long-term protection of the mountain, including a community-based conservation initiative, are currently being considered. At the same time the feasibility of protecting a forest corridor linking the Mbe Mountains through to Afi River Forest Reserve is also under investigation.

Cross River National Park

The *Biodiversity Research Programme* signed a new Memorandum of Understanding with Cross River National Park (CRNP) in 2004 and since then two joint surveys of the Boshi Extension Forest of the Okwangwo Division of CRNP have been completed. Evidence was found for the continued presence

of at least 12 gorillas in that area although these findings are only preliminary and further surveys are required. Similar to the situation in Cameroon, gorillas in Nigeria seem to prefer the steepest most inhospitable terrain and avoid more accessible lowland areas. A reconnaissance survey of the poorly-known Okwa Hills area in April 2005 found evidence for at least one group of gorillas in the very heart of the Okwangwo Division, the largest nest site located contained 16 nests. This sub-population was previously thought to be centered in the Takamanda Forest Reserve in Cameroon, with Okwangwo forming only a peripheral part of the population's range, but we now believe that this recent survey shows the sub-population in the Okwa Hills to be clearly separate from the gorillas of Takamanda. Unfortunately, the Okwa Hills and the Boshi Extension Forest are gradually becoming more and more isolated from each other as farming activities within the enclave communities of Okwangwo and Okwa threaten to sever the forest link between these two gorilla sub-populations. These enclaves were created when Okwangwo was originally gazetted as a forest reserve in 1930.

The *Biodiversity Research Programme* currently provides support (field rations and fuel for their ageing vehicle) to a team of 10 park rangers based at Anape on the edge of the Boshi Extension Forest in the Okwangwo Division of Cross River National Park. The team collects basic monitoring data in addition to their normal anti-poaching patrols. Improved training in gorilla monitoring techniques for these rangers is planned, together with assistance for the production of a management plan for this critically important protected area. As part of the planning process, a study of the various long-term options for the management of the existing enclaves is also proposed.

Like many other government services in Nigeria, the National Park Service is chronically underfunded and routinely struggles just to survive. In 2005 *Berggorilla & Regenwald Direkthilfe* sent CRNP a quantity of much-needed field equipment (comprising 30 tents, 102 day-packs and 33 sweaters) to boost morale and strengthen levels of protection. This new equipment, and the tents in particular, will allow rangers to increase the extent to which they were formerly able to protect the Okwangwo Division of CRNP.

As reported in *Gorilla Journal* 26 (June 2003), Kolmården Zoo in Sweden recently donated funds to Cross River National Park for the construction of a ranger post at the village of Anape on the edge of the Boshi Extension Forest. The region is remote and so isolated that all building materials have to be carried in on the heads of local porters; as a result progress has been difficult and slow at times, but we can report that the ranger post is now almost complete. Rangers were previously based some distance from the edge of the park, so the new ranger post should dramatically improve the levels of protection provided for the Cross River gorilla and other endangered wildlife species.

Future Prospects

With as few as 90–110 Cross River gorillas remaining in Nigeria there is clearly little room for complacency. But a new spirit of cooperation now exists in south east Nigeria between government institutions responsible for the management of key protected areas, such as the Cross River State Forestry Commission and Cross River National Park, and conservation NGOs such as WCS and FFI. We believe that this bodes well for the future.

Andrew Dunn

The Berggorilla & Regenwald Direkthilfe recently made further donations for the



John Oates hands over equipment for the rangers to Alhaji Marguba, the Conservator-General of the Nigeria National Parks Service

Photo: Andrew Dunn



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renovation of ranger posts at Afi and the Mbe Mountains.

The Maiombe Forest in Cabinda: Conservation Efforts, 2000–2004

The Maiombe Forest (also spelt Mayombe or Mayumbe) forms the southwestern part of the African tropical rainforest in the Congo Basin. It constitutes the southwestern margin of distribution of a great variety of West-Central African flora and fauna, including two species of the great apes – chimpanzees (*Pan troglodytes troglodytes*) and gorillas (*Gorilla gorilla gorilla*). Despite its importance in terms of biodiversity, in the local, national, regional and global contexts, it enjoys very little protection. Following decades of still unresolved political and economic instability, and as a result of high human population densities, the Maiombe Forest suffers from a high rate of degradation, mainly through heavy logging and poaching, for subsistence as well as commercial use.

Nearly four decades of armed conflict in Angola have resulted in severe environmental degradation and biodiversity loss. Since the peace agreement was signed in April 2002, Cabinda has remained the only province in Angola which is still subject to armed conflict. While biodiversity conservation may be considered as low priority during times of war, ensuring the long-term survival and welfare of resident communities as well as national and regional economic sustainability and stability requires the protection of natural resources and biodiversity.

Biodiversity conservation efforts in the Maiombe Forest were initiated in October 2000 with a public awareness campaign and a consultation process with the resident communities in the forest. The key to the protection of the forest and its biodiversity lies in



A view into the Maiombe Forest

Photo: Tamar Ron

a strong commitment by the Government and the active participation of the resident communities, accompanied by substantial international support. In particular, the importance of developing alternative livelihood sources to the non-sustainable consumption of flora and fauna is being addressed. Cooperation between the countries that share the Maiombe Forest (Angola, Congo Republic, Democratic Republic of Congo and Gabon) within the framework of a transfrontier conservation approach may be essential.

Biodiversity

The Maiombe Forest, a part of the Guineo-Congolian biome, covers around 2,000 km² in the internal, mountainous northeastern part of the Cabinda enclave. It is a multi-storied closed, dense forest. Most of the area has been utilized during the last century and is, therefore, comprised of various phases of succession of secondary forest, up to the climax primary forest, in small remnant patches.

There is a wide faunal biodiversity and the forest is home for species of outstanding universal interest, such as chimpanzee and lowland gorilla. The Maiombe Forest in Cabinda is the southwestern margin of the distribution of both species in Central Africa.

Most of the existing information is historical, and summarized in particular in Brian Huntley's reports from the early 1970s. Among other mammal

species there are the forest elephant (*Loxodonta cyclotis*), the forest buffalo (*Syncerus nanus* [= *S. caffer nanus*]), moustached guenon (*Cercopithecus cephus*), red-tailed white-nosed guenon (*C. ascanius*), Bosman's potto (*Perodicticus potto*) and golden potto (*Arctocebus aureus*), several species of bushbabies (*Galago alleni*, *Euticus elegantulus*, *Galagoides demidoff*), several small forest duiker species (*Cephalophus sylvicultor*, *C. dorsalis*, *C. nigrifrons*, *Philantomba monticola*), water chevrotain (*Hyemoschus aquaticus*), sitatunga (*Tragelaphus spekei gratus*), bush pig (*Potamochoerus porcus*) and forest hog (*Hylochoerus meinertzhageni*), several genet species (*Genetta* spp.), two-spotted palm civet (*Nandinia binotata*), leopard (*Panthera pardus*), giant pangolin (*Manis gigantea*) and tree pangolin (*Manis tricuspis*), flying squirrels (*Anomalurus derbianus*, *Anomalurus beecrofti*), and a variety of squirrels, rodents, and bats. The African manatee (*Trichechus senegalensis*) is found in the Congo River.



The author in the Maiombe Forest in Cabinda with Andre Bumi, a Soba (traditional head of village) and hunter, who works with the project team since 2000



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The gray parrots (*Psittacus erithacus*) are of special interest, and there is a variety of at least 95 bird species, including eagles, owls, hornbills, sunbirds, bulbuls, weavers, small parrots, the great crested lorie (*Corynthus cristata*), and others, some of which are listed in the IUCN red data book as threatened, but many are insufficiently known.

Information on the status of species in the Maiombe Forest, especially recent information, is very scarce, and there is an obvious need to study the biological diversity in the forest. During 2000–2004, in several field visits, the following species were observed by the project team: elephants, gorillas, chimpanzees, red-tailed white-nosed guenons, moustached guenons, blue duiker, water chevrotain, cane rat, gray parrots, crocodile. Spoor of chimpanzees, gorillas, guenons, elephants and forest buffalo is wide-spread. Spoor of other species recorded includes leopard (rare), genets, civets, duikers, water chevrotain, bushpig, porcupine, cane rat and squirrels.

In October 2000, we saw a family group of 6 gorillas in the Maiombe Forest in Cabinda – it was the first published record in close to two decades, indicating that they (and other endangered species) have survived there, although, of course, this was common knowledge to the resident communities. In all our one-day excursions during 2000–2004 – first only in one limited area in the center-north of Cabinda, but in 2003–2004 also in several other areas from the southwest of the Maiombe Forest to the northeast – we recorded gorilla spoor, so we can assume that the species is well distributed all over the Maiombe Forest in Cabinda, as confirmed by the resident communities. There is no value in giving the specific locations of these sightings, since it will reflect mostly the areas of allowed access rather than gorilla distribution, while the areas where access

is restricted are, in fact, much more likely to serve as “safe haven” for this and other species. There is currently no information or even estimations of gorilla population sizes. A more thorough survey will be done when security conditions allow it.

Human Population

Most of the residents in the forest area rely mainly on subsistence cultivation of peanuts, bananas and cassava, small-scale husbandry, hunting and participation in logging operations. Following decades of armed conflict, the resident communities suffer from severe poverty, lack of employment opportunities, lack of commercial networks, lack of substantial infrastructure and access to basic services and commodities. The immediate, as well as long-term, needs of the local communities residing in the forest must be addressed as a high priority, within the objectives and framework of the conservation initiative.

Threats

The Maiombe Forest's resources are heavily utilized, and it suffers from severe degradation caused by decades of legal and illegal exploitation – logging for agriculture, development and timber, and poaching for subsistence as well as commercial trade. The main species hunted for bushmeat are duikers, water chevrotain, porcupines, bushpig and forest hog, buffalos, civets, genets, pangolins, guenons, cane rats, game birds, snakes, and freshwater fish. Many of these species, as well as the two great apes, are also smuggled as bushmeat across the borders, although the consumption of apes is not traditional in Cabinda. Elephants may be hunted sporadically for ivory, as well as because of crop raiding, but there are no reports on massive hunting of elephants.

Infant chimpanzees and gorillas, guenons, and especially gray parrots,

as well as several other species, are hunted for the commercial pet trade. Apes are hunted by the local population, invaders from both the Congo Republic and the Democratic Republic of Congo, and the armed forces. It is illegal, but law enforcement is very weak. There is a proposal (pending on substantial funding) to establish a wildlife sanctuary for the rehabilitation of captured chimpanzees, gorillas and other orphaned wildlife, to facilitate the enforcement, education and awareness.

The following reasons for poaching were indicated by resident communities and by the armed forces in the forest: poverty, lack of alternative livelihoods, youth with no access to education and employment, loss of respect for old traditions, absence of commercial network (difficulties in selling agricultural produce), the easy income from bushmeat and wildlife trade, soliciting by national and international networks of illegal traders, lack of effective law enforcement and control mechanisms, human–wildlife conflict (mainly with elephants, forest buffalo, apes, cane rats, porcupine, bush pig and duikers), hungry soldiers (lack of meat), fear of wild animals (in particular apes, elephants, buffalo, snakes), and patrolling mistakes.

Recent increase in legal and illegal logging activities in various parts of the forest, including inside the forest reserve, is apparently the result mainly of the improved security conditions, while enforcement/control mechanisms were not strengthened yet. This situation, in turn, causes increased human–wildlife conflict, as well as increased poaching.

Conservation Activities

The only designated protected area in Cabinda is the Caongo Forest Reserve, declared in 1930. A second forest reserve (Alto Maiombe), declared at the same time, was cancelled in



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1963. A proposal to establish a strict nature reserve over at least 45,000 ha (Huntley, B. J., 1973a: Proposals for the Creation of a Strict Nature Reserves in the Maiombe Forest of Cabinda. Serviços de Veterinaria, Luanda, Angola) has not been implemented to date.

Efforts towards biodiversity conservation in the Maiombe Forest in Cabinda were initiated, on a shoe-string budget, in October 2000, led by the Provincial Department of Agriculture, Fisheries and Environment, together with the provincial environmental NGO, Gremio ABC, in coordination with the Ministry of Fisheries and Environment, with an international biodiversity consultant and further support provided by UNDP and NORAD. Oil companies (the CABGOC Association) and private donors supported specific project activities. The project is being developed through on-going consultation and collaboration with resident communities, in particular the traditional leadership, and with other stakeholders. All these activities are supported by the Provincial Government of Cabinda, several Municipal and Communal Administrations, the armed forces, church leaders, and the traditional authorities of the resident communities.

Objectives are the conservation and study of the Maiombe Forest in Cabinda and its flora and fauna, with focus on apes (as part of the international efforts to protect these species), the active participation of the resident communities in the conservation of the forest and increased awareness on the local, national and regional levels, sustainable improvement of the socio-economic conditions of local communities through participation in the project, and regional cooperation for the joint protection of the Maiombe Forest, between the four countries that share it.

Awareness campaigns and a process of consultation with the resident communities were initiated in October 2000, as well as awareness activities addressed to decision-makers and officials at the national level and Provincial Government, local administration teams, church leaders and traditional leadership. The consultation process with communities and traditional leaders serves to guide the planning of further activities. During November 2003 and September 2004, an extensive awareness campaign for the armed forces and communities was implemented throughout the forest.

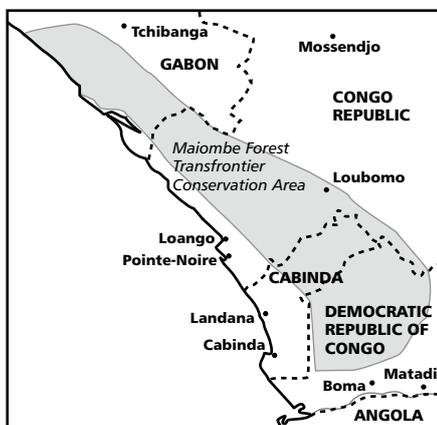
Reduction in poaching and non-sustainable utilization of biodiversity must be linked with support to the communities in developing sustainable alternative livelihoods. This aspect has been identified as one of the basic components of the initiative for the protection of biodiversity in Cabinda. In discussions with resident communities, the local authorities, the Provincial Government, Gremio ABC, and the Provincial biodiversity project team, several optional alternatives have been identified.

The "alternative livelihoods to hunting" pilot sub-project was launched on 10 June 2004, within the "CABGOC Protocol" framework, with the first delivery of 26 goats and sheep to families in Sinde, the Municipality of Buco-Zau.

The livestock was provided to families who have constructed a fenced area, guided by a technical team consisting of a zoo-technician and a veterinarian, who are following the project. The livestock delivered is of the same breeds that have been kept for decades by communities in the forest. The beneficiary communities commit themselves to reduce hunting, in particular of endangered species. The traditional authorities of these communities are subcontracted to follow-up and report. The plan includes the future distribution of a portion of the livestock offspring to other communities, as well as participation of the beneficiary communities in the IDF (*Instituto de Desenvolvimento Florestal*) programme of cultivation of tree species for the future rehabilitation of the forest after logging. To assure sustainability, the Provincial Department will also initiate its own breeding program of livestock for future delivery to communities.

The great potential of the Maiombe Forest for tourism is recognized as a major alternative livelihood in the future, which could significantly improve the socio-economic status of the forest residents. The realization of this potential may become feasible only after the termination of the war and the establishment of suitable conditions and infrastructure. Other alternatives must be developed until then, so as to allow the protection of wildlife.

The realization of a detailed study will depend on improved security conditions, as well as on availability of adequate financial resources. A long-term comprehensive study of the forest and its biodiversity should include the following: systematic digitized recording and mapping of all existing historical and current information; a preliminary aerial and ground survey of the forest, combined with interviewing of resident hunters, to evaluate current flora and fauna composition and status, as well as threats; use of satellite



The proposed conservation area
Drawn with information by Tamar Ron



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images and aerial photos for analysis of habitat types and status; census of specific species in the different parts of the forest; social study of the resident communities – population size, distribution, income sources, utilization of the forest and its species, hunting trends, human-wildlife conflict, and other aspects; collecting information on trade in Maiombe Forest species within the province, across the borders, and in the rest of the country, as well as available information on export; and development of long-term monitoring programs. Finally, such a program should encourage long-term national and international research projects on the forest and its flora and fauna. A detailed management and conservation programme should then be developed, based on study results.

Plans for the establishment and training of a provincial community-based law-enforcement unit are being developed by the IDF as highest priority for urgent funding by the Provincial Government. In order to increase the enforcement capacity, alliances are being established between the provincial IDF and the armed forces as well as with traditional authorities, legal loggers, the customs authorities, and NGOs.

To assure the sustainable study, conservation, and management of the Maiombe Forest, there is an urgent need to increase the human resources capacity in the province to undertake all the relevant tasks. A comprehensive training programme should be developed and supported.

The Maiombe Forest Transfrontier Conservation Initiative. The concept of developing the conservation of the Maiombe Forest within the framework of a transfrontier conservation initiative (TFCA) was first raised by the traditional leadership of the resident communities of Buco-Zau and Inhuca in November 2000. Discussing the constraints related to the conservation of the forest

within the Cabinda enclave, they indicated that since the forest in Angola is less degraded than in the neighbouring countries, its natural resources are often illegally harvested by residents of these countries. Protection of the Maiombe Forest therefore requires cooperation among all the countries that share it.

This concept was then presented to the Government, the Provincial Government and other stakeholders in Angola and accepted enthusiastically. It was also discussed with resident communities and Government officials in a UNDP mission to Congo-Brazzaville in April 2002, with a positive response. The traditional leadership and resident communities in both countries expressed their keen interest to take active part in developing this initiative, with a focus on exploring the options to develop in the long-term a well managed community-based joint eco-tourism program.

Security conditions have recently improved and the Provincial Government of Cabinda is interested in developing a full project for the study and conservation of the Maiombe Forest, with focus on apes, in cooperation with the neighbouring countries. If security conditions allow, and pending on availability of financial support, we hope to be able to collect more data, and develop a comprehensive conservation program. We will need all possible help.

Tamar Ron

Where Are the Gorillas?

It was not long after the discovery of the gorilla, and its description (under the name *Troglodytes gorilla*), that zoologists began to think that there might be more than one single species. In those early days, many species were described with very poor material. Sometimes no place of origin was given at all or the person who published the description had no idea of the

geography of Africa, and confused or misspelled places in his publication. Nowadays such descriptions would not be acceptable, but standards were different until the beginning of the 20th century, and even beyond. It is not easy, in many cases, to find out where a particular gorilla type specimen was collected.

A type specimen is an individual that serves as model for the description of a new species or subspecies – usually the skull or skin is the main basis for description in mammals. Gorilla taxonomy is today based mainly on skull measurements; in the past few years, DNA sequences had begun being used too, although this method is not as easy and reliable as experts had hoped and is still being improved.

At the turn of the 19th to the 20th century, taxonomy was still interpreted very individually. Paul Matschie, of Berlin, was convinced that each river valley had its own gorilla species – he is the person who described more species/subspecies than anybody else (Groves 2001). Many type specimens are still in the Museum für Naturkunde, where he worked. Cameroon was a German colony at that time and many Germans who collected gorillas there gave them to Matschie for study; understandably, therefore, most gorilla type specimens are from Cameroon.

This article was inspired by Hendrik Turni's studies of the gorilla type specimens in the Berlin Natural History Museum. The descriptions of the specimens he studied as well as all other gorilla type specimens are discussed with a focus on the places where they were found, and the present situation at each place is explained, in as far as it is known. The headings give the names of the currently accepted taxa.

***Gorilla gorilla gorilla* – Western Lowland Gorilla**
***Troglodytes gorilla* Savage, 1847.** Thomas Savage described the first



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gorilla on the basis of a specimen (skull and skeleton) that is now in the Museum of Comparative Zoology in Harvard.

It was collected in “Mpongwe, Gaboon estuary” or “Empongwe, near the river Gaboon”. Mpongwe is not a town, but the name of a people living close to the southern bank of the Gabon river (about 0° 4' N, 9° 39' E).

When Tutin & Fernandez (1984) censused the gorillas of Gabon more than 20 years ago, they did not find any gorilla signs in the regions north and south of the Gabon river. The southern bank of the river is now the Pongara National Park, famous for its mangroves and beaches, but with no gorillas. In the Wonga-Wongué Presidential Reserve further south, Tutin & Fernandez (1984) found no gorillas either, but Blom et al. (1992) later confirmed the presence of gorillas there.

Synonyms of this species are *Troglodytes savagei* Owen, 1848 and *Satyrops adrotes* Mayer, 1856. The authors of these names were not describing new species, but merely renaming *Troglodytes gorilla*. In the mid-19th century, before the institution of formal rules of nomenclature, it was all too common for authors to substitute names which they preferred for names which others had previously bestowed.

Gorilla Gina Geoffroy Saint-Hilaire, 1853, is probably also just an objective synonym of *Troglodytes gorilla*. Geoffroy Saint-Hilaire stated that this species is found at the “West coast of Africa – Gabon”, a very vague locality, but as he explained that the gorillas he analyzed came exactly from the same region as the type specimen of Savage, and he never explicitly stated that he regarded them as a new species, the name should probably be regarded as another replacement name. He was convinced that the gorilla should not be included in the same genus as the chimpanzee (*Troglodytes* at that time), and described a new genus *Gorilla*. As

tautonymy was not usual in those days, Geoffroy Saint-Hilaire felt himself justified in giving a new specific name. At first he used Owen’s name *savagei*, but later he substituted his own name, referring obscurely to motives “que l’on comprendra facilement”. “Gina” was, he noted, the name of the gorilla in Gabon – spelt Gina, Engina, N’gina, En-Gina, D’jina, Engé-ena, Ngena or Ingé-ena.

Gorilla castaneiceps Slack, 1862.

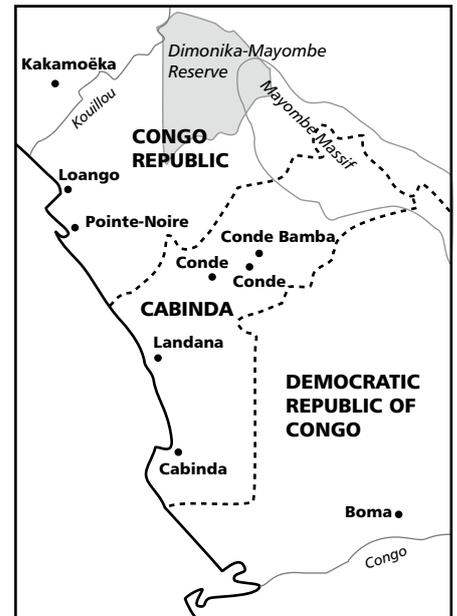
In this case, the species description comprises only the following sentence: “Dr. Slack called the attention of the members to a coloured cast of the head of a gorilla, which he characterized as a new species under the name of *Gorilla castaneiceps*.” He did not mention where this gorilla had been found.

No skull exists, only the cast mentioned in the description; it is at the Academy of Natural Sciences in Philadelphia. Slack classified this specimen as a new species because of its reddish hair on the head. During the following decades, however, it became clear that the colour is not a good criterion for taxonomy (Rothschild 1905). When C. P. Groves saw the cast in 1965, it had been painted entirely black!

Gorilla mayëma Alix and Bouvier,

1877. This specimen included the skeleton and skin of a young female that was originally at the Muséum d’Histoire Naturelle in Paris, but it had disappeared already in 1920; in 1964, C. P. Groves found a very small female gorilla skull, no. 9772 in the old collection of the Laboratoire d’Anatomie Comparée, which according to a catalogue entry by Rode may be the type skull. The reputed type skull, if that is indeed what it is, is the smallest fully mature gorilla skull ever studied by C. P. Groves, only 206 mm in total length. The next smallest skull, in the Naturhistorisches Museum in Vienna (from the Ogooué River), measures 215 mm.

The description of the skull led Rothschild (1905) to identify this form as a



Locations mentioned in the description of *Gorilla mayëma*

chimpanzee, not a gorilla (“the *Gorilla manyema* of Alix and Bouvier I believe to be a very large ape of the group of *Simia vellerosus* Gray, and not a Gorilla at all”).

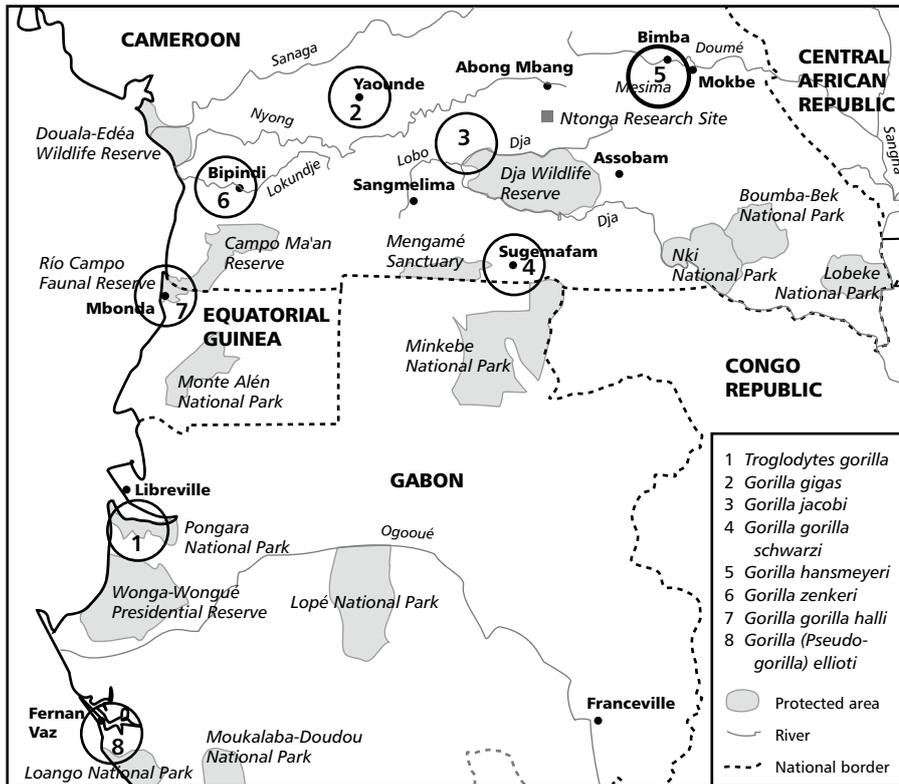
Elliot (1912) created a new genus and called the species *Pseudogorilla mayëma*, because some additional specimens in Frankfurt seemed much smaller than the other gorillas that were known at that time (see below). We will return to a discussion of these particular specimens below.

According to the description, the type specimen was collected in “Congo, Landana, sur les rives du Quilo, 4°35' S, près du village du roi Mayëma”. This locality is confusing, as Landana is (and also was at that time) not in Congo and not near the Kouillou (Quilo) River, but in Cabinda. Later, Famelart (1883) stated that the specimen was bought at Conde near Landana, and Matschie (1904) wrote that it was from the Mayombe area.

Several places called Conde exist now in Cabinda (Microsoft Expedia



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Gorilla type localities in Cameroon, Equatorial Guinea and Gabon. The areas where the specimens were collected are indicated with circles.

map), and it is not clear at which one the type specimen was found. But probably the gorilla came from the Mayo-mbe Forest (which is not too far from any of the places called Conde). A few years ago, during the first survey for many years, Tamar Ron saw gorillas in Cabinda's Maiombe Forest (see page 18). This confirmed that gorillas are still living there, although their number and distribution remain uncertain and their situation is critical.

Gorilla gigas Haeckel, 1903. The type specimen is now in the British Museum (Natural History). According to Haeckel, the gorilla was shot by H. Paschen at "Yaunde, im Hinterlande von Kamerun" – Yaunde, in the hinterland of Cameroon. Although Haeckel published a photograph of the dead gorilla in an African village,

there is no evidence that this settlement was Yaunde itself, which may have been only the place from which it was shipped to Europe. Nowadays, there is no forest left around the town of Yaunde (Eerens et al.).

Gorilla gorilla matschiei Rothschild, 1905 is an objective synonym of *Gorilla gigas*. Haeckel (1903) stated that Paschen's gorilla had been purchased for the Tring Museum (owned by Lord Rothschild) for 20,000 Marks. When Rothschild (1905) described *Gorilla gorilla matschiei*, he did not specify a type; but a skeleton in the Tring Museum (formerly numbered A.D.15, now no. 1939.3406 of the Natural History Museum, London, with associated mounted skin no. 1939.3405), labelled as type, is the Paschen specimen from Yaunde – in other words the same



Skull of the Gorilla jacobi type specimen in Berlin

Photo: Hendrik Turni

specimen that had been used by Haeckel as type of his *Gorilla gigas*. Rothschild created a new subspecies including all the gorillas from southern Cameroon (at that time only *Gorilla gigas* had been described) to discern them from the Gabonese gorillas – who represent the typical *Gorilla gorilla*.

Gorilla jacobi Matschie, 1905. The type specimen is in the Berlin Natural History Museum (Matschie's no. 28051; now no. 83558). The skull is the largest gorilla skull in any museum seen by C. P. Groves, with total length of 340 mm (the next largest scale is that of a mountain gorilla in the Teruren Museum measuring 338 mm).

This skull had been collected by lieutenant Jacob "auf der Station Lobo-Mündung, die nicht weit von den Zuflüssen des Njong gelegen ist, aber schon im Flußgebiet des Dscha" – at the Lobo Mouth station, watershed of the rivers Dja and Nyong, but closer to the Dja region. The Lobo Mouth station was not found on old maps.

No gorilla survey has been made recently in the area where this specimen was collected, but the Dja Reserve, which is very close by, is an important protected area for gorilla conservation (Williamson & Usongo 1996).

Gorilla gorilla schwarzi Fritze, 1912. The type specimen, a large male, originally in the Karlsruhe Natural History Museum, Germany, was destroyed during the second world war.



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In the description, the type locality is "Sogemafarm am Djahfluss, Süd-kamerun" (Sogemafarm at the Dja River, southern Cameroon). The place called "Sogemafarm" is correctly spelt "Sugemafam" (approx. 2° 25' N, 12° 50' E; Andrees Handatlas 1912).

During a survey in 2002, a high gorilla density was found in the Mengamé Reserve. The density was especially high in the swampy regions in the southeastern part of the reserve, which is close to the type locality (Ellis 2003). Gorillas are threatened in this area by hunting and forest destruction. The distance to villages and therefore to human activity appears to determine the distribution of the gorillas: They are absent from areas where there is regular human activity and noise.

Across the border in Gabon's Minkebe area, Walsh et al. (2003) reported a catastrophic decline in gorilla density around the year 2000. The reason was bushmeat hunting and, even more important in this case, Ebola. According to Huijbregts et al. (2003) the number of gorillas decreased by 90% prior to and after the 1994 and 1996 Ebola epidemics in the Minkebe Forest. It is unknown whether Ebola also affected the gorillas across the border in Cameroon.

Gorilla hansmeyerii Matschie, 1914. The type specimen, an adult male, was mounted in the Berlin Natural History Museum, and the skeleton is no. 17960 (now missing). The skull, 333 mm long, is not as large as that of *G. jacobi*, but is nonetheless one of the largest gorilla skulls in any museum.

The type locality is "Straße von Assobam zwischen Mensima und Bimba südlich des Dumefflusses westlich von Mokbe" in Cameroon (Assobam Road, between Mensima and Bimba, south of the Dume River, west of Mokbe). Mensima is correctly spelt the Mesima region. The type locality is about 4° 4' N, 14° E (Andrees Handatlas 1912).

No gorilla survey has been made so far in the area where this gorilla was

collected. The nearest area outside of the Dja Reserve where the presence of gorillas was confirmed recently is the Ntonga Research Site, south of Abong Mbang. At this site, Dupain et al. (2004) found high densities of both gorillas and chimpanzees; these densities are amongst the highest reported so far in Cameroon. Recently, this gorilla population was reduced by an Anthrax outbreak (page 28).

Gorilla zenkeri Matschie, 1914. The type specimen, a young male, is in the Berlin Natural History Museum (no. 30260/30261). The type skull, no. 30261 in the museum, is only 299 mm long, a small specimen even though it is not completely mature.

It was collected at "Mbiawe am Lokundje, 6 Stunden flußabwärts von Bipindi am weißen Berge" (Mbiawe on the Lokundje River, 6 hours downstream from Bipindi at the white mountain), at about 3° 11' N, 10° 21' E.

The type locality is situated between the Campo-Ma'an Reserve and the Douala-Edéa Wildlife Reserve of today. Gorillas are present in Campo-Ma'an but are absent from Douala-Edéa.

Gorilla gorilla halli Rothschild, 1927. The type specimen is a mounted skin, no. 1939.3415 (formerly G 15), in the British Museum (Natural History); the skeleton which according to Jenkins (1990) almost certainly represents the same individual is no. 1986.757; when C. P. Groves was studying gorillas in the 1960s it had not yet been identified, so we have no measurements for it, nor did Rothschild give any length measurements.

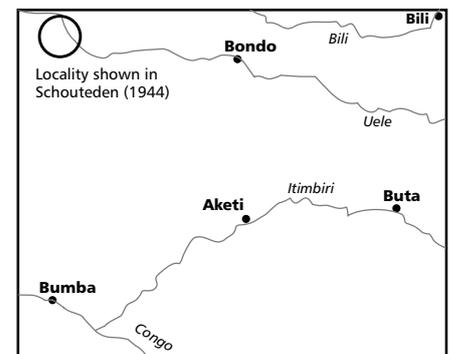
It was collected in "Punta Mbouda, Spanish Guinea", which is in fact Punta Mbonda in the north of Río Muni, Equatorial Guinea (2° 6' N, 9° 46' E).

The most recent gorilla census in Equatorial Guinea was conducted in 1990 by Gonzalez-Kirchner (1997). He found gorillas along the river Ntem (Campo), not far from Punta Mbonda; the gorilla density there was higher

than anywhere else in Equatorial Guinea. According to his study, gorillas were hunted for food everywhere in Río Muni, and their number and distribution area was reduced considerably during the second half of the 20th century (and probably this is still continuing). The Río Campo Faunal Reserve includes a part of the gorilla distribution area confirmed by Gonzalez-Kirchner, however, and it is hoped that gorillas still live there. Matthews & Matthews (2004) found that the gorilla density across the border in the Campo Forest, Cameroon (which includes a logging concession and the southern part of the Campo Ma'an National Park) is very low.

Gorilla uellensis Schouteden, 1927. This species was described from three or four specimens in the Tervuren Museum, Belgium. They are labelled "Près de Djabbir (= Bondo)" and "Mobebe, Itimbiri". The latter locality is also cited by Schouteden (1930) as "Mobili, Itimbiri (Mbili)". Neither "Mobebe" nor "Mobili" or "Mbili" could be found in old maps. It is possible that it means in fact the town of Bili – although this is far from the river Itimbiri.

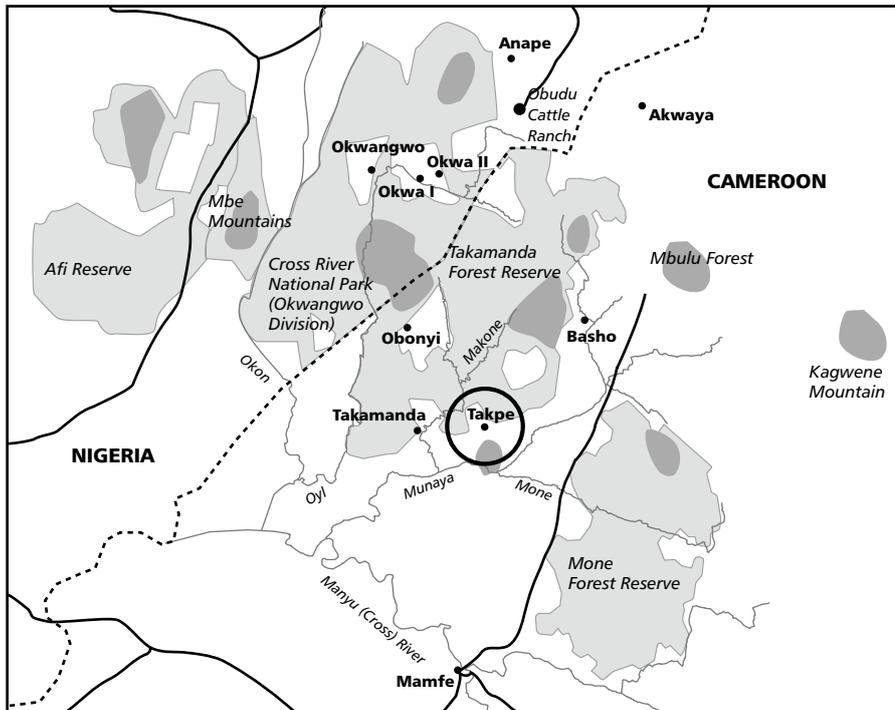
There are in fact four specimens in the Tervuren museum which are labeled as syntypes of *G. uellensis*. No. 100 is the blackened cranium of an adult male, evidently kept for some time in a smoky African hut; no. 101



Locations mentioned in the type description of *Gorilla uellensis*



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Present distribution of Cross River gorillas (dark) and type locality (circle)
Map drawn with information from Richard Bergl (p. 14) and Dan Slayback

is a subadult male cranium, similarly treated. These two are both labelled "Djabbir (Bondo)". No. 102 is an adult female cranium, this time with a mandible, not smoke blackened. No. 103 is a mandible of an adult male, not smoke blackened; curiously it fits exactly with number 100. 102 and 103 are both labelled "Mbili, Itimbiri". The possibility remains, therefore, that three specimens were involved rather than four; another possibility is that there were indeed four, and that they were from two localities, the two from Bondo being trophy skulls, kept in the hunters' huts for some time, and the other two were shot at the localities stated. The skulls are ordinary western gorillas, with nothing particularly to distinguish them; the adult male skull is 311 mm long, the adult female 217 mm.

While Coolidge (1929) first doubted that the gorilla was really from that area, he later accepted the type lo-

cality given by the collector (1936). It remains a mystery whether gorillas still lived there in the 20th century. During a recent survey by George B. Schaller and others in the Bili district, no traces of gorillas were found. Makassi, a citizen of Bili, surveyed forested areas in the Bondo district in 2002, but likewise found no trace of gorillas; he told Colin P. Groves in 2003 that his survey was incomplete and that he intended to return at a later date.

Gorilla (*Pseudogorilla*) *elliotti* Frechkop, 1943 (*Pseudogorilla mayema* Elliot). The type specimens are in the Senckenberg Museum, Frankfurt.

Under the impression that the skulls in Frankfurt were intermediate between gorillas and chimpanzees, Elliot hypothesised that they represented Alix & Bouvier's *Gorilla mayema*, and erected a new genus, *Pseudogorilla*, but he admitted that there was no real guarantee



Skull of the Gorilla diehli type specimen in Berlin

Photo: Hendrik Turni

that his *Pseudogorilla mayema* was in actuality the same species as Alix and Bouvier's; anyone thinking they were different would, he noted, be at liberty to rename his (Elliot's) species. Frechkop (1943), normally the most cautious of zoologists, did exactly what Elliot had anticipated (Groves 1985).

The type locality given is "Gabon: delta de Rembo Nkomi, au sud de Fernan Vaz" (south of Fernan Vaz or Omboué, which lies 1° 34' S, 9° 15' E). In the Petit Loango Reserve (Loango National Park), south of the type locality, Furuichi et al. (1997) conducted a gorilla survey in 1995. They found gorillas there, although in low density; they attribute this to the low density of herbaceous food.

Gorilla gorilla diehli, Cross River Gorilla

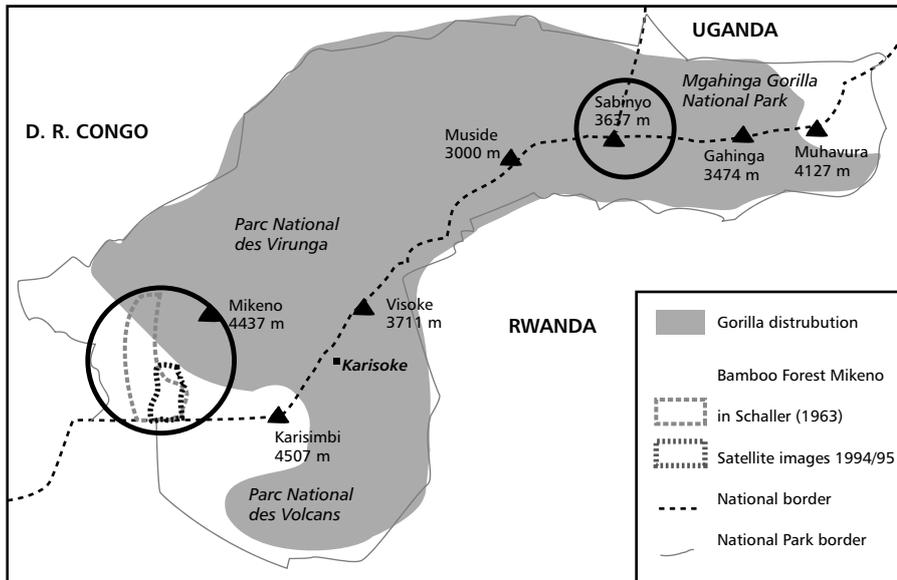
Gorilla diehli Matschie, 1904. The type specimen, an adult male, is in the Berlin Natural History Museum (no. 12789). The skull is only 300 mm long, but this is in fact fairly large for this subspecies, which is the smallest taxon of gorilla.

It was collected at "Dakbe, Kamerun", which is nowadays pronounced "Takpe" (or Nfakwe) and lies at the southern edge of the Takamanda Forest Reserve (6° 2' N, 9° 25' E).

In the Cross River area at the border between Nigeria and Cameroon goril-



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Present gorilla distribution in the Virungas with type localities of Gorilla beringei (circle above right) and G. b. mikenensis (circle left)

las still live in several small populations. Sunderland-Groves & Oates (2003) made surveys in the Takamanda Forest Reserve recently and found one gorilla population very close to Takpe.

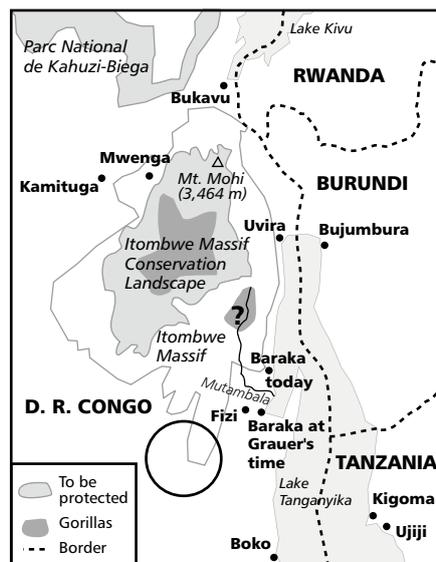
Gorilla beringei beringei, Mountain Gorilla

Gorilla beringei Matschie, 1903. The type specimen (a young adult male) is in the Berlin Natural History Museum (no. 13254). It was killed by Capt. Robert von Beringe on the "Kirunga ya Sabinyo, 3000 m hoch" (at an altitude of 3,000 m; about 1° 26' S, 29° 37' E). Von Beringe climbed Sabinyo from the side that is now in Uganda.

The most recent gorilla census was conducted in 2003 and confirmed the continuing increase of the population. Several groups range on Mt. Sabinyo; one of them is the Habinyanja group (page 15).

Gorilla beringei mikenensis Lönnberg, 1917. The type specimen (an adult male) is no. 5/37 in the Svenska Naturhistoriska Riksmuseet (Stockholm Natural History Museum). It was

collected by Captain Elias Arrhenius in the bamboo forest of Mt. Mikeno. Though fully mature, the skull is rather



Approximate type locality (circle) of Gorilla graueri according to the description

Gorilla distribution area taken from WCS maps (see page 6)



Skull of the Gorilla beringei type specimen in Berlin

Photo: Hendrik Turni

small for a mountain gorilla, only 309 mm in total length.

A photo of Mikeno that Lönnberg included in his publication shows a view from the west. Bamboo grew on the western slopes during Schaller's study in the 1950s (Schaller 1963) and is still growing in certain areas, therefore it is likely that Arrhenius climbed Mikeno from the west.

The remaining bamboo forest on the western slope of Mt. Mikeno does not lie within the distribution area of the Congolese mountain gorillas. If the encroachment stops and the habitat remains suitable for gorillas, they may spread back into the area.



Skull of the Gorilla graueri type specimen in Berlin

Photo: Hendrik Turni

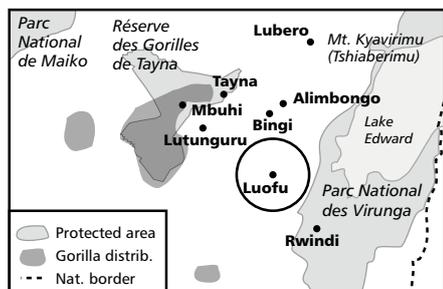


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***Gorilla beringei graueri* Grauer's Gorilla or Eastern Lowland Gorilla**
***Gorilla graueri* Matschie, 1914.** The type specimen, an adult male, is in the Berlin Natural History Museum (no. 31618/31619). The skull is rather small in size, only 306 mm long.

It was collected "80 km nordwestlich von Boko am Westufer des Tanganjika" (80 km northwest of Boko on the western shore of Lake Tanganyika), between 2,000 and 3,000 m. On the skull, the inscription says also "Nähe des Nutamba-Flusses" (near the river Nutamba). Possibly it was the river Mutambala.

On an old map dated 1912 (Andrees Handatlas) there is only one "Boko" on the western shore of Lake Tanganyika (at 5° 5' S, 29° 4' E). 80 km northwest of that place leads one to the extreme south of the Itombwe Massif. It is unknown whether gorillas live there nowadays, a new census confirmed them only further north (page 6). Doumenge (1998) found no primary forest remaining in the area that Matschie gave as the type locality. According to Eerens et al. (n. d.), there is a little rain forest patch left in the area, but no signs of gorilla presence are known. Even Schaller (1963) did not find gorillas there. In other areas of the Itombwe Forest, gorillas are still present in several populations according to a new census.



Gorilla distribution and conservation areas near the type locality of *Gorilla rex-pygmaeorum*
 Drawn with information from P. Kakule

***Gorilla gorilla rex-pygmaeorum* Schwarz, 1927.** The type specimen is a young adult male skull and skin in the Tervuren Museum, Belgium (no. 8187).

It was collected in "Luofu, à l'ouest du Lac Albert" (Luofu, west of Lake Albert; 0° 37' S, 29° 7' E). The skull is 305 mm long, about average for its age.

According to Eerens et al. (n. d.), there is no primary forest left in the immediate vicinity of Luofu. Schaller (1963) indicated in his map that the montane forest started north of Luofu, but that gorilla distribution started even further north. Since then, the deforestation has continued, and gorillas live in only a few areas where forest has remained.

A Little History of Gorilla Taxonomy

Thomas Savage called the gorilla *Troglodytes gorilla*. The genus *Troglodytes* had first been described, by Étienne Geoffroy Saint-Hilaire, for the chimpanzee; when, over half a century later, it was realised that this generic name had been assigned to quite a different animal – the wren! – 6 years earlier, it had to be changed (the names *Anthropopithecus* and *Simia* were in common use until Elliot [1912] instituted the use of *Pan* Oken, 1816). Isidore Geoffroy Saint-Hilaire transferred the gorilla to a new genus, *Gorilla*, in 1852. According to Elliot (1912), Rothschild in his publication of 1905 was the first one to use the name *Gorilla gorilla*, but we have found an earlier use of this combination – Forbes (1895).

The first one who clearly distinguished two forms of gorillas – the western and the eastern gorilla – was Coolidge (1929): "By way of summary, the following important measurements indicate a division into two groups ... *Gorilla gorilla gorilla* from the coast and *Gorilla gorilla beringei* found in the mountains of the eastern Congo". Even today, experts do not totally agree on gorilla taxonomy: while some recognise

only one gorilla species – with 4 subspecies – (Tuttle 2003), most people working with gorillas now distinguish two species, each with two subspecies.

Although large parts of the original gorilla distribution area have been deforested already, gorillas still live in or near all the places where the type specimens were collected. They even have been confirmed recently in areas where they never were found before, especially in western Cameroon – even though most type specimens are from various parts of Cameroon. Surveys also showed, however, that they are threatened by various factors almost everywhere and only will be able to survive if they are protected efficiently.

If a new gorilla subspecies would be described today, the procedure of description would be essentially the same as in the 19th century. But the form would certainly be different.

Angela Meder and Colin P. Groves
 Many thanks to everybody who helped to collect all the information necessary for this overview: Tom Butynski, Fritz Dieterlen, John Hart, Pierre Kakule, Innocent Liengola, Leonard Mubalama, John Oates, Sabine Petri, Tamar Ron, Hendrik Turni

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Sudden Great Ape Die-Off in the Periphery of the Dja Biosphere Reserve

Great ape die-offs have been occurring throughout Central Africa, with the Ebola filovirus as one of the main causes. We here report the first documented case of such an outbreak for Cameroon, where sympatric gorilla and chimpanzee populations were affected by Anthrax.

In November 2001, the Royal Zoological Society of Antwerp (RZSA-CRC) set up a new great ape research site on the unprotected periphery of the Dja Biosphere Reserve, through the integrated conservation and development project *Projet Grands Singes* (PGS; Dupain 2001). The site is delimited on the south by the Dja River. Preliminary surveys indicated great ape densities of 2.1 gorillas/km² and 0.9 chimpanzees/km² (Dupain et al. in preparation). Since then, research on great ape socio-ecology has been going on continuously (PGS 2005).

In November 2004, when following the previous day's traces of a group of gorillas, we found the fresh carcass of an adult female gorilla, her 2-week-old son lying alive and whining close by. No injury was apparent. The carcass was situated barely 20 m from the group's nest site (5 nests) in young secondary vegetation. Two of the nests were elevated (height 4 m and 1.5 m) in lianas on saplings; the others were ground nests. We feared a possible Ebola outbreak, contacted the Yaoundé-based PGS office and set up basic quarantine. Nonetheless, the following day, we rescued the infant who had survived the night, taking all possible basic precautions.

The gorilla group was tracked for the next two days, and we noticed some unusual behaviour that we want to describe here. On day 1, they had made their nests (6 ground nests and 1 tree nest, height 7 m) at just 150 m



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distance from the infant, and had then continued moving south for over 2 km while feeding regularly on several Marantaceae species, *Aframomum*, *Aframomum* fruits, *Uapaca*, *Nauclea* and mushrooms. During a feeding session (16.10 h), when some of the gorillas were in the *Nauclea* trees and others on the ground, 20 consecutive “whaa-hoo” calls were heard and some gorillas tapped the soil with their hands or feet. We were at a distance of approximately 50 m and had approached the group quietly, so we had no reason to assume the gorillas had noticed us. Between 16.24 and 16.35 h, still on the same spot, we witnessed several high-pitched vocalisations (“whii-hoo” once, “whiih-whiih” 3 times). The experienced trackers confirmed that it was unusual to hear gorillas vocalise that much, and they had also never heard these specific vocalisations before, which were clearly distinct from the “wraagh” alarm call, barks, screams or grunts. At 17.05 h we left the group still at that same spot. On day 2, we followed the tracks again for about 1 km, and found that the gorillas had spent the night in tree nests ($n = 6$, average height 8 m) and elevated nests (on saplings and lianas, $n = 4$, average height 2 m); this might be due to the high elephant activity in that area. (These observed fluctuating differences in nest group size often occur in our site and suggests sub-grouping). We finally lost track of the group that same evening as they continued heading south toward the Dja River. We never observed this nesting and travelling behaviour before and never heard such vocalisations; we think that it may be related to the loss of a group member.

A tissue sample was taken from the gorilla body by a *Cameroonian Wildlife Aid Foundation* (CWAFF) vet. We limited personal contact with the infant as much as possible to one caretaker, improvised diapers, and fed him powdered milk. The baby gorilla spent almost

3 weeks in our base camp and regained strength quickly when adequate nutrition was brought in.

By mid-December, during routine research activities, 2 chimpanzees were found dead; they were located by their decay smell. Neither showed signs of injuries. One was lying on its back in a ground nest, as part of a ground nest group of at least 6 individuals in swamp vegetation. The team was evacuated and our baby gorilla was taken to CWAFF quarantine. At the request of the Ministry of Forestry and Fauna (Cameroon), a team was organized jointly by the Great Ape Health Monitoring Unit (GAHMU, Max Planck Institute, Germany), Centre International de Recherches Medicales de Franceville (CIRMF, Gabon), Limbe Wildlife Centre (Cameroon), Centre Pasteur (Yaounde), John Hopkins Institute (Yaounde), *Wildlife Conservation Society*, Institut Recherche Développement, *The Last Great Ape Organization* (LAGA) and PGS to collect samples from the three carcasses.

Research was re-activated on 6 January, 2005. On 7 January another dead chimpanzee, again showing no obvious injuries, was discovered. Once again samples were taken. All samples were sent to CIRMF and GAHMU on 17 January for analysis.

After CIRMF had excluded Ebola as the cause of the mortalities, samples from all 4 apes were sent to GAHMU for analysis, and tested positive for Anthrax (Leendertz et al., submitted). Several other animals (incl. forest duiker, pangolin and guenon), but no more apes as yet, have been found dead in the forest in February and March. Since April, no more carcasses have been discovered. The Conservator of the Dja Biosphere Reserve, H. Nlegue, visited the nearby villages to inform them of the possible risks, and provided information on what to do. Based on nest counts on the line transects over the months concerned, we estimate great

ape densities to have dropped by approximately 50% (Guislain et al. in preparation).

Anthrax is caused by the presence (in a sufficient amount) of spores of *Bacillus anthracis* in the body. The spores can stay dormant in the soil for many years. As a result, Anthrax is generally reported in and transmitted by cattle (through faeces, their decomposing bodies or the eating of their meat). At present, it is uncertain how the apes in our research site were infected.

As the *Projet Grands Singes* is the only research project studying great apes in the northern periphery of the Dja Biosphere Reserve, it is unknown whether the Anthrax die-off occurred in a bigger part of the surrounding forest. Anthrax could be identified as the cause of mortality for all great ape carcasses that were found in our research site (i.e. between the end of November 2004 and the beginning of January 2005).

By the end of February, the baby gorilla was transferred to CWAFF's Mefou Sanctuary, close to Yaoundé. He had recovered well and will be joining the social group of gorillas there in the future.

Patrick Guislain and Jef Dupain
We would like to thank MINFoF, MINRESI, the Service de la Conservation de la Réserve du Dja and the International NGOs for their support and encouragement to keep on monitoring this remarkable great ape population. PGS is currently seeking the necessary funding to continue monitoring large mammals and great apes in this non-protected area.

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This is not the first time that great apes were infected with Anthrax; previously, in a series of sudden chimpanzee deaths 2001–2002 in the Tai National Park, Ivory Coast, Anthrax was confirmed as the cause of death. At least 6 chimpanzees had died from the disease there (Nature 430, 2004, pp. 451–452).

Ebola in Congo Republic

In May, WHO confirmed an Ebola outbreak in the Congo Republic at the end of April. This new outbreak was in Etoumbi and Mbomo, south of the Odzala National Park. It is assumed that the virus was transmitted to the human population following the consumption of nonhuman primates. The number of people who died during this outbreak stayed rather low – 10 in total – because of the good management. On 8 July, the WHO was to declare that the outbreak was over.

Between 2001 and 2003 gorillas and chimpanzees died from Ebola in large numbers in northern Gabon and western Congo, especially in the Lossi Gorilla Sanctuary (*Gorilla Journal* 26). Researchers were extremely worried at that time that the disease could spread further, and this has now happened: in March 2005 Ebola spread through the Odzala National Park in the Republic of the Congo and devastated the great ape populations there. It is even feared that the disease could infect all great ape populations in western Africa within a few years.

Ebola expert Peter Walsh estimates that 20–35% of all western gorillas may have died from Ebola during the last decade. In Minkebe National Park, northern Gabon, probably more than

90% of the gorillas died in the mid-1990s from Ebola.

Experts discussed possible interventions against the further spread of the virus. Most agree that a vaccination would be the most promising method, but so far no vaccine exists. One of the other measures suggested is that rivers could be cleared of fallen trees to prevent infected apes from crossing.

Summary of several articles and papers by various authors

Reintroduced Gorillas: Reproduction, Ranging and Unresolved Issues

Sixteen years after the conception of the *Projet Protection des Gorilles* (PPG) in Brazzaville in 1987 (Attwater 1990), on 18 January 2003 a group of 5 adult western gorillas (*Gorilla gorilla gorilla*) was released into the southwestern Lefini Reserve in the Republic of Congo. This landmark release was a major step forward in a long-term program to reintroduce the species to the Batéké Plateaux, an area from which it has been absent for at least 50 years. On 8 September 2004, a second group was released, containing 9 sub-adults and juveniles. The two released groups are made up of orphan gorillas that have been rehabilitated in the neighbouring Lesio-Louna Reserve (Attwater 1994, Courage et al. 2001, Cousins 2002, Watkin 2002, Courage and Harvey 2003, King 2005a). Both the rehabilitation and the reintroduction programmes are managed and funded by the *John Aspinall Foundation* (JAF), a UK-based charity founded by the late John Aspinall, in collaboration with the Congolese Ministry for Forest Economy and the Environment.

Site Selection

During the 16 years prior to the first release, one major lesson was learnt that stands out above all others: the

need to ensure major ecological barriers between the released gorillas and any human activity. This lesson was learnt following several excursions by adult males into local villages surrounding the Lesio-Louna Reserve (Watkin 2002, King 2005a) and the amputation of the hand of one adult female that had been caught in a snare (King 2005b) during the rehabilitation of the bushmeat orphans. Therefore, while the general area for the reintroduction was identified through consideration of several ecological, sociological and political criteria, the specific site for release was chosen due to the presence of large rivers on three sides, and a vast expanse of non-forested savannah on the fourth. Without such barriers, the human-gorilla conflicts that could have arisen would have been unmanageable.

Release Procedure

Group 1 was released in the north-eastern corner of the reintroduction site, at the confluence of the Lefini and Louna Rivers. To facilitate the transfer, the group had been caged for two months at the Lesio-Louna Reserve prior to the release. At first light on the day of the transfer, the 5 adult gorillas were darted by an experienced vet. Following medical checks, the gorillas were transported by lorry and then by boat to the release site. The following morning, the group was located about 300 m from the release site, and all appeared in good health and spirits.

Group 2 was released into a forest patch known as 'Abio', south of the territory of group 1 and separated from it by 2 km of savannah. This transfer was notable in that the group of 9 free-living sub-adult and juvenile gorillas was anaesthetised, caged and transported without the need for darting. The use of an oral sedative (medetomidine) prior to the intramuscular injection by hand of the anaesthetic (zoletil or ketamine) eliminated stress to the gorillas and



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also the dangers of darting in a non-enclosed area. As with the first release, all members of the group were located the following morning in good health.

Rapid Reproductive Success

The highlight of the reintroduction programme so far was the birth on 13 April 2004 of the first baby successfully born to a reintroduced gorilla (King 2004). The mother, Djembo, almost 17 years old at the time of the birth, is the oldest member of the group. During the rest of 2004, the baby remained healthy and gained strength, and in September, at 5 months old, was observed on his mother's back for the first time.

Ranging

During the first year following release, group 1 was tracked almost daily by project staff, and remained together and in good health. Their ranging behaviour was found to be similar to that of wild western gorillas. Over the course of 2003, the group developed a range containing no more than 4 km² of forest, and spent a period of 6 months,

including almost the entire dry season, in a single forest patch of 1.34 km². During the subsequent wet season, the group travelled regularly between forest patches, remaining in any one forest patch no longer than 3.5 weeks. This ranging behaviour is typical of wild western gorillas, who have been shown to travel further during the wet season, to take advantage of the high availability of fruit, than during the dry season, when fruit is scarce and low herbaceous vegetation is the staple part of the diet (White et al. 1995, Tutin 1996, Kuroda et al. 1996).

In 2004, the birth on 13 April appeared to precipitate major changes in the social dynamics within group 1. Within 8 days of the birth, one of the two adult males became separated from the rest of the group. During the following months, he became increasingly solitary, and his encounters with the group increasingly tense. During the same period, the dominant male became more defensive, and for the first time began to threaten staff members if they approached. By October, the movements

of the solitary male became completely independent of the rest of the group, and in November he suddenly and rapidly expanded his ranging activities. He increased his range from 6.4 to 23 km² within a month, only ceasing when he encountered group 2, with whom he has remained.

The disruption of the social dynamics within group 1 appeared to impact their ranging behaviour, conceivably in reaction to the mounting tension between them and the increasingly solitary male. Nevertheless, they continued to utilise the range they had established during 2003, while extending it westwards to include approximately 6.4 km² of forest during 2004.

The social dynamics of group 2 were also disrupted, this time following the encounter with the solitary male from group 1 on 2 December 2004. Three of the younger members of the group split from the rest on the day of the encounter, and a fourth the following day. A few days later project staff succeeded in reuniting the 4 gorillas near the release site. This small sub-group remained together for the rest of December, south of the release site, occasionally being led back towards the release site by project staff. The two sub-groups have since rejoined, although the regular presence of the solitary male often results in temporary splits within the group. However, the long-term impacts of the encounter with the solitary male are unpredictable, and only further daily monitoring will determine how the social relationships within the group evolve.

Strangely, in February 2005, the remaining adult male in group 1, and the presumed father of the baby, also became solitary. As has always been the case with solitary males, he suddenly increased his ranging, following the Lefini River west for 31 km in 12 days. In doing so, he crossed the western boundary of the reintroduction site, arriving in an unprotected area of for-



Major ecological barriers are required between adult rehabilitated gorillas and human activity.
Photo: John Watkin



GORILLAS

est. To avoid danger to him and to local users, he was tracked, anaesthetised, and returned to his former territory. For the past 2 months he has remained within the limits of the reintroduction site, but his movements, and those of the first solitary male, require constant monitoring.

Carrying Capacity

These initial results indicate that the reintroduction site, containing 47 km² of forest in the core area plus a further 53 km² of associated forests, will be able to support a much larger population of gorillas. This is encouraging in terms of the long-term objective of establishing a viable, self-sustaining gorilla population in the area, and it is clear that further groups can and need to be released in the area to achieve this. Three gorillas within the PPG orphan rehabilitation program in the Lesio-Louna Reserve, all females of 4 to 7 years old, are currently being prepared for future release. Arrival rates of orphan gorillas at PPG-Congo have reduced to just 1 or 2 a year in recent years, compared to the levels of 10 or more per year in the early 1990s (King et al. in press). With this trend in mind, the potential for the sustainable restocking of the southwestern Lefini with rehabilitated orphans needs to be assessed. The reasons behind the reduction in orphan gorilla arrivals at PPG-Congo also need to be investigated.

Impacts of Visitors

One issue raised during the past 2 years concerns the negative impacts of visitors on the behaviour of the gorillas. On one occasion in 2003, a group of 4 tourists was charged by one of the male gorillas, an event which may have precipitated the attack by that male on one of the patrol staff the following day. In 2004, after half an hour of calm observation, this same adult male jumped from an overhanging tree into a pirogue containing 3 visitors and



First baby born to a reintroduced gorilla at a) 3 days old, b) 4 months old, c) and d) 7 months old.

Photos: Tony King (a, c, d) and Lucas Caviglia (b)

5 staff members. While eventually no one was seriously hurt, and the gorilla showed no aggression towards either the staff or the visitors, the incident could easily have resulted in serious injury to the gorilla, the visitors or the staff. Therefore, finding the balance between disturbance of the gorillas and the very positive impact on awareness building amongst visitors remains a serious challenge for the project.

Unresolved Issues

The past 2 years have been very encouraging in terms of assessing the success of the reintroduction program. Observations on ranging and social dynamics, and the first birth to a reintroduced gorilla, all indicate that the released gorillas have adapted well to the site and that their behaviour is similar to that of wild gorillas. Three major issues still remain unresolved.

The first concerns the genetic viability of a population based on small numbers of rehabilitated individuals, the second the capacity of the area to contain the extensive movements of solitary males, and the third the impact of human presence, especially of visitors, on the behaviour of the released gorillas. Therefore continued research and monitoring are essential to give a true indication of the long-term success of the program.

Tony King, Christelle Chamberlan and Amos Courage

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READING

Dawn Prince-Hughes

Songs of the Gorilla Nation: My Journey through Autism. New York (Three Rivers Press). 227 pages. Paperback, US\$12.95. ISBN 1-4000-5058-8

This is not a book that is primarily about gorillas, but a book of a human who discovered her own identity by studying gorillas. Dawn Prince-Hughes has Asperger's syndrome, a form of autism, and observed gorillas for a long time – she dealt with these studies in her first book *Gorillas Among Us*. Her new book is about herself. She describes her life before she met the gorillas and how the gorillas changed it.

An autistic person experiences the world in a very different way, and for Dawn Prince-Hughes the life of “normal” humans is as strange as the life of a gorilla – or even stranger. She wanted to understand gorillas by observing their behaviour (although her way of seeing them is probably different from that of most people observing gorillas), and she learned to practise human social behaviour based on observation of people and on observation of gorilla behaviour.

Readers who mainly want to learn more about gorillas will probably be disappointed in this book; but anyone who wants to understand the variety of human ways of seeing the world and living in it will find it fascinating.

Angela Meder

Barbara J. King

The Dynamic Dance. Nonvocal Communication in African Great Apes. Cambridge, Mass., London (Harvard University Press) 2004. 304 pages, 7 halftones. Hardcover, US\$ 29.95, £ 19.95, Euro 27.70. ISBN 0-674-01515-0

This is a book about the meaning of gestures, especially dyadic exchange (like between a dancing pair), not about rhythmic movement as the title might suggest. Such an exchange of gestures

is the subject of the dynamic systems theory the author is using here.

Barbara King presents many interesting examples and tells stories about various forms of ape non-vocal communication (especially gorilla behaviour, because the author observed gorillas herself). Although she has much to tell, it becomes clear that a lot of research is still necessary before we fully understand great ape non-verbal communication.

The book is useful especially for people who already have some knowledge of the subject – others may have difficulties in following the author. She usually introduces the people she writes about only with their last name, and often she does not explain theories and models concisely. But she communicates the fascination of her subject very well and it is certainly worthwhile to study it in more detail.

Angela Meder

Raymond Corbey

The Metaphysics of Apes. Negotiating the Animal–Human Boundary. Cambridge (Cambridge University Press) 2005. X, 227 pages. Hardcover, £ 40.00, US\$ 65.00. ISBN 0-521-83683-2. Paperback, £ 14.99, US\$ 23.99. ISBN 0-521-54533-1

Raymond Corbey discusses the dividing line between apes and humans, especially the development of anthropology and its position regarding this line from the mid-17th to the late-20th century. He shows how boundaries were constructed again and again, each time with different material – and torn down as soon as this material proved to be not substantial enough. The central question is: What makes us human? And subsequently: Is this enough to separate us from the apes?

The diversity of answers to these questions across the centuries and subjects is very interesting. Cultural and physical anthropology are not the only subjects discussed; primatology,

evolutionary biology, taxonomy, philosophy, ethnography, archaeology, linguistics, psychoanalysis and other fields of research that dealt with the nature of human beings are included.

The book is interesting for anthropologists in general as well as primatologists who want to know more about the history of views of great apes.

Angela Meder

Chilla Bulbeck

Facing the Wild. Ecotourism, conservation and animal encounters. London (Earthscan) 2005. 288 pages, many photographs, figures and tables. Hardcover £ 65, US\$ 120. ISBN 1-84407-137-5. Paperback, £ 18.99, US\$ 35. ISBN 1-84407-138-3.

R. J. Fisher, Stewart Maginnis, W. J. Jackson, Edmund Barrow and Sally Jeanrenaud

Poverty and Conservation. Landscapes, People and Power. Landscapes and Livelihoods Series No. 2. IUCN 2005. <http://www.iucn.org/mdg5/docs/PCbook.pdf>

Herbert S. Terrace and Janet Metcalfe (eds.)

The Missing Link in Cognition: Origins of Self-Reflective Consciousness. Oxford University Press 2004. 364 pages. Hardcover, US\$ 75.00. ISBN 0-19-516156-4

William McGrew

The Cultured Chimpanzee: Reflections on Cultural Primatology. Cambridge University Press 2004. 262 pages. Paperback US\$ 29.99. ISBN 0521535433. Hardcover US\$ 90.00. ISBN 0521828414

Carel Van Schaik

Among Orangutans: Red Apes and the Rise of Human Culture. Harvard (Belknap Press) 2004. 272 pages. Hardcover, US\$ 29.95. ISBN 0674015770



READING

Jonathan Kingdon

The Kingdon Pocket Guide to African Mammals. Princeton (Princeton University Press) 2005. 272 pages. Paperback, US\$ 24.95. ISBN 0-691-12239-3

Camilla De La Bedoyere

No One Loved Gorillas More: Dian Fossey Letters from the Mist. With photographs by Bob Campbell. National Geographic Society 2005. 192 pages. Hardcover, US\$ 30. ISBN 0-7922-9344-4

Clara B. Jones

Behavioral Flexibility in Primates: Causes and Consequences. New York (Springer Press) 2005. 184 pages. Hardcover, US\$ 149.00. ISBN 0-387-23297-4

Human Rights Watch

Seeking Justice: Prosecution of Sexual Violence in the Congo War. Washington, DC 2005. 52 pages. Available online at <http://allafrica.com/peaceafrica/resources/view/00010407.pdf> (1.3 MB).

International Crisis Group

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Broken Promises – The World Bank and Forests. 2005. The report can be downloaded at:

<http://www.rainforestfoundationuk.org/s-Broken%20Promises%20-%20The%20World%20Bank%20and%20Forests> or at http://www.forestpeoples.org/Briefings/World%20Bank/wb_forests_joint_pub_apr05_eng.pdf (2.3 MB).

Human Rights Watch

D. R. Congo: Gold Fuels Massive Human Rights Atrocities. Washington, DC, 2005. The report can be downloaded at <http://allafrica.com/peaceafrica/resources/view/00010656.pdf> (size: 586 kB).

Réseau des Femmes pour un Développement Associatif, Réseau des Femmes pour la Défense des Droits et la Paix, International Alert

Women's Bodies as a Battleground: Sexual Violence Against Women and Girls During the War in the Democratic Republic of Congo, South Kivu (1996–2003). 2004. Available for download in PDF format (572 kB) at <http://www.reliefweb.int/library/documents/2005/ia-cod-02jun.pdf>

New from the internet

Updates are available for the FAO report *State of the World's Forests* (2005) at www.fao.org/forestry/site/21407/en and of the IUCN's Red List (2004) at www.redlist.org

The Bushmeat IMAP (*Bushmeat Information Management and Analysis Project*) is a web portal with many resources interesting for people concerned with the bushmeat problem. It makes the BCTF Research Archive and Projects Database searchable. In partnership with *Global Forest Watch* (GFW), BCTF is also able to provide a mapserver for GIS datasets in Central Africa, which give context to the crisis and are important to understanding, analyzing and demonstrating the scope of the issue. Users can search and view data, create and print custom maps, and link to additional information in the Research Archive and Projects Database.

PASA (*Pan African Sanctuaries Alliance*) has a new website: www.pan-africanprimates.org. It offers information on African sanctuaries: information on PASA members, workshops, spon-

sors, contact details, links and volunteer opportunities.

And the download address for this issue of our journal: www.berggorilla.de/gj30e.pdf (1.9 MB).

Congress of the International Primatological Society 2006

The 21st Congress of the *International Primatological Society* will be held in Entebbe, Uganda from the 25–30 June 2006. The meeting will be co-hosted by several Ugandan Institutions and Conservation NGOs. Its theme is **Primate Conservation in Action**, which reflects three broad interests: 1) the need for a forum for primate researchers, conservation practitioners and students to get together to exchange recent information in the field of primatology, 2) the need for the society to actively contribute to the conservation of primates around the globe, and 3) the desire for a congress to support and encourage conservation efforts in the country and region in which it is held.

The deadline for symposium/workshop submissions is 1 August 2005 and for presentations and early bird registrations 1 September 2005. More information at: <http://www.ips2006uganda.org>

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Total	Euro 37,125.82

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<i>Gorilla Journal</i>	6,229.49
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Total	Euro 38,778.03

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We are very grateful to Nouvelles Approches for the translation of the Gorilla Journal to French again!

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

The fact that almost every member of our Board of Trustees has lived or is still resident in the D. R. Congo, is an asset that gives us good knowledge of the country. We maintain permanent contacts in Bukavu, Lubumbashi, and Kinshasa. We keep excellent relationships with the ICCN and all national and international organizations involved in conservation in Central Africa.



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