

Gorilla Journal

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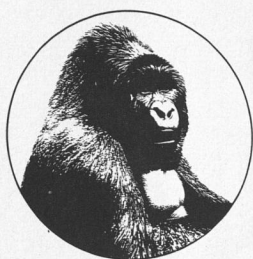


**Family 5: The
Changing Story of
a Mountain Gorilla
Family**

**The Expansion of
the Bantu in
Africa**

Aids in Africa

**Report of the
Gorilla Census in
the Kahuzi-Biega
National Park**



BERGGORILLA & REGENWALD DIREKTHILFE

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The *Berggorilla & Regenwald Direkthilfe* (BRD)

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Authors of this Issue

Jörg Hess (born in 1936) studied zoology and has been observing the behaviour of the gorillas in Basel Zoo since 27 years. In 1986 he studied mountain gorillas in Rwanda for seven months. He is working as a journalist, photographer and as collaborator of the Basel Zoo. He published numerous articles, books and films about his experiences with gorillas.

Dr. Armin Heymer, D. Sc. CR. CNRS (born in 1937) started with 6 years of research in marine biology. In 1965 he joined the Institute for Ecology in Brunoy, France, where he still works to date. In 1970 he habilitated in ethology at the Sorbonne. In cooperation with the Max Planck Institute for Human Ethology in Andechs, he now conducts eco-ethological field research on Central African Pygmies. He has written more than 100 publications, including several books.

Ulrich Karlowski (born in 1959) studied biology at the University of Bonn with emphasis on behavioural research. For 3 years he worked as scientific advisor for the *Deutscher Tierschutzbund* in Bonn and was responsible, among other tasks, for the Mgahinga Project. He is currently involved in public relations for the *Deutsches Tierhilfswerk* in Munich. He works for the *Berggorilla & Regenwald Direkthilfe* since 1992.

Ursula Karlowski (born in 1962) studied biology in Bielefeld and Bonn, Germany, specializing in vegetation biology, conservation and landscape ecology. She has been involved with rain forest conservation in Uganda since 1988. In 1991 she started a long-term study on the natural regeneration of devastated forest in southwestern Uganda. She is presently finishing her doctoral thesis at the University of Bonn. During her stays in Germany she works for the *Berggorilla & Regenwald Direkthilfe*.

Johannes Refisch (born in 1967) studied biology in Bayreuth, Germany, specializing in animal ecology, ecology of tropical regions, and geography of the Third World. In 1991 he collaborated in the GTZ project 'Integrated conservation in eastern Zaire'; he has worked for the *Berggorilla & Regenwald Direkthilfe* since 1992.

Dr. Lucia Reisch (born in 1964) studied economics at the University of Hohenheim in Stuttgart, Germany, and at the University of California. Presently she is research assistant at the University of Hohenheim and is preparing her postdoctoral thesis on ecological investment rating for multinationals operating in Third World countries. She has visited Africa many times since 1980, she has been interested in gorillas since 1989, and she has worked for the *Berggorilla & Regenwald Direkthilfe* since 1992.

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Editor: Angela Meder

Translation: Nina Bahr, Ann Karlowski, Mathias Otto, Lucia Reisch

Advertising: Karl-Heinz Kohnen
Ripshorster Str. 365

46117 Oberhausen, Germany

Tel. +49-202-306911/12

Fax +49-202-307236

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Organization address:

Berggorilla & Regenwald Direkthilfe

c/o Rainer Kleinoeder

Himmelgeisterstr. 59

40225 Duesseldorf, Germany

Bank account:

Account number: 353 344 315

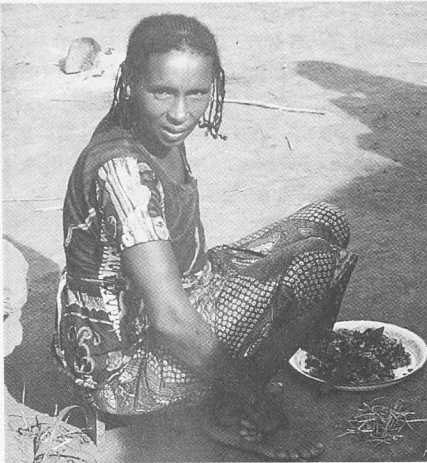
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Woman from today's Bororo nomadic cattle herding people in the Sahel of Central Africa, successors of the europid dark-skinned nomadic cattle herders who lived about 2500 years ago.

The Expansion of the Bantu in Africa

About 6000 years ago, when the ancient Egyptian culture brought forth its first dynastic forms, elephants, giraffes and rhinoceros roamed the area which now comprises the Sahara. This information has been handed down to us through impressive wall engravings of the Tassili Wan Adjar. It is also believed that slender-bodied, dark-skinned people herded cattle, much like the Bororo of the Sahel still do today (photo above).

However, the vast part of Africa was probably inhabited by peoples of shorter proto-negroid gatherers and hunters such as the Pygmies, Hadza, Dorobo, Doko and Bushmen. Due to far-reaching ecological changes, these people have only survived as isolated rest-populations. They must fight their ground against the ever-expanding populations of their taller neighbours, who submit them to strong acculturation.

The Emergence of a New Culture

From what is known from archeological findings, about 4000 years ago the savanna south of the Sahara, extending from the Atlantic to the Ethiopian highlands, was predominantly cultivated with millet, which had been imported from Asia Minor via Egypt to Africa. Initially, the tropical rain forest served as a natural boundary which was not transgressed because millet could not be cultivated there.

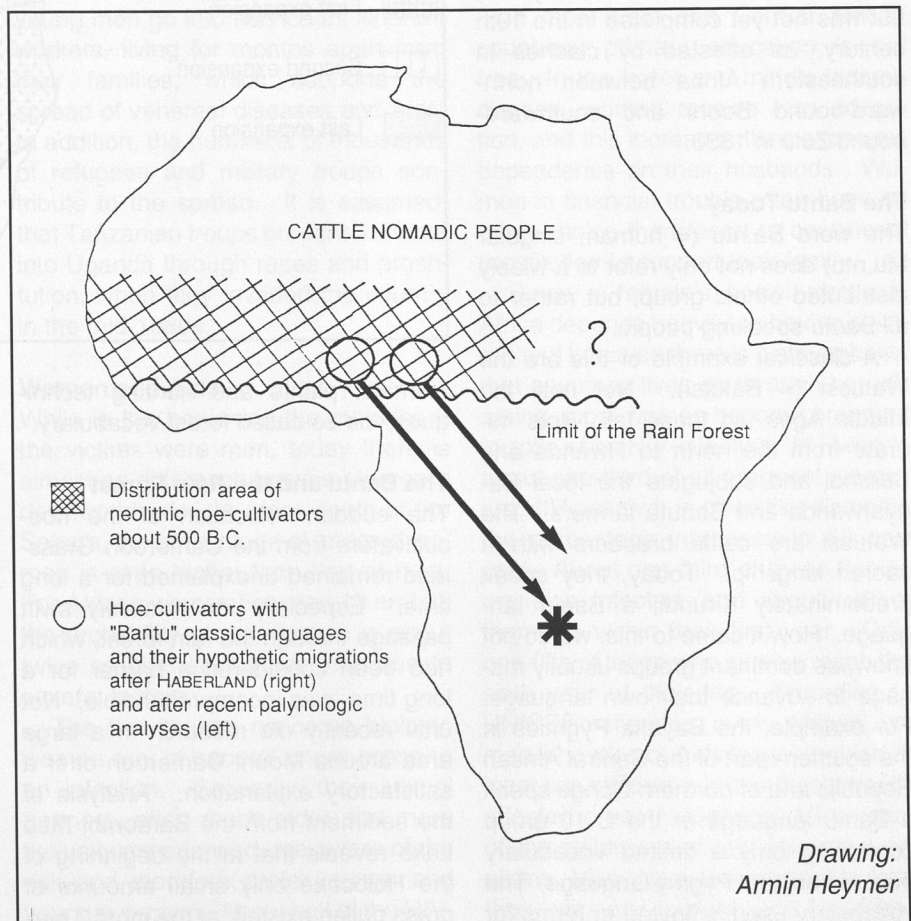
Departure

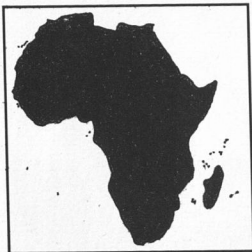
Approximately 2500 years ago there must have been a major relocation. Negroid people who lived in the moist savannas of the Cameroon Grasslands – presently the area of the Bamileke – entered and apparently transversed the

rain forest rapidly. Their relocation coincided with the beginning of the Nok culture of northeastern Nigeria, which is famous for high-quality clay figures and iron-forge, specifically on the plateau between the present-day cities of Jos and Bauchi. This culture is at the beginning of West African sculpture and the Iron Age south of the Sahara.

From what is known to date, it appears that these hoe-cultivators did not settle down until they had arrived in an area which seemed familiar to them. This area was located in the central savanna of Katanga in southern Zaire, in the home of today's Baluba, and is considered the nucleus for the Bantus' subsequent sudden expansion.

The exact location of the nucleus was determined by quantitative analy-





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sis of the roots of typical Bantu words in comparison to their geographical occurrence. The basis of this investigation comprised 2300 word stems from approximately 200 languages spoken in the present distribution area of the Bantu. They all stem from one original proto-Bantu language. On the basis of the vocabulary, it was also deduced that they had an advanced culture, crafted boats and iron tools.

From this nucleus they spread all across the continent to the East African coast and to the Congo delta in the west. In a second phase, the northward-bound Bantu reached the East African lakes, whilst southward-bound groups almost reached the Zambezi.

Gradually the Bantu inhabited their current distribution area. This expansion lasted no more than 1500 years, but was not yet completed in the 19th century, as attested by clashes in southeastern Africa between northward-bound Boers and southward-bound Zulu in 1836.

The Bantu Today

The word Ba.ntu (= human, singular Mu.ntu) does not only refer to a widely distributed ethnic group, but rather to all Bantu-speaking people.

A classical example of this are the Watussi (= Batutsi). Not until the Middle Ages did these tall Nilots migrate from the north to Rwanda and Burundi and subjugate the local Banyarwanda and Bahutu farmers. The Watussi are cattle breeders with a sacred kingship. Today, they speak predominately Kirundi, a Bantu language. How it came to this, we do not know, as dominant groups usually manage to advance their own language. For example, the Bayaka Pygmies in the southern part of the Central African Republic and of northern Congo speak a Bantu language of the C-10 group containing only a limited vocabulary from the original Pygmy language. The vocabulary used is limited to terms for

animals, plants and hunting techniques, the so-called forest vocabulary.

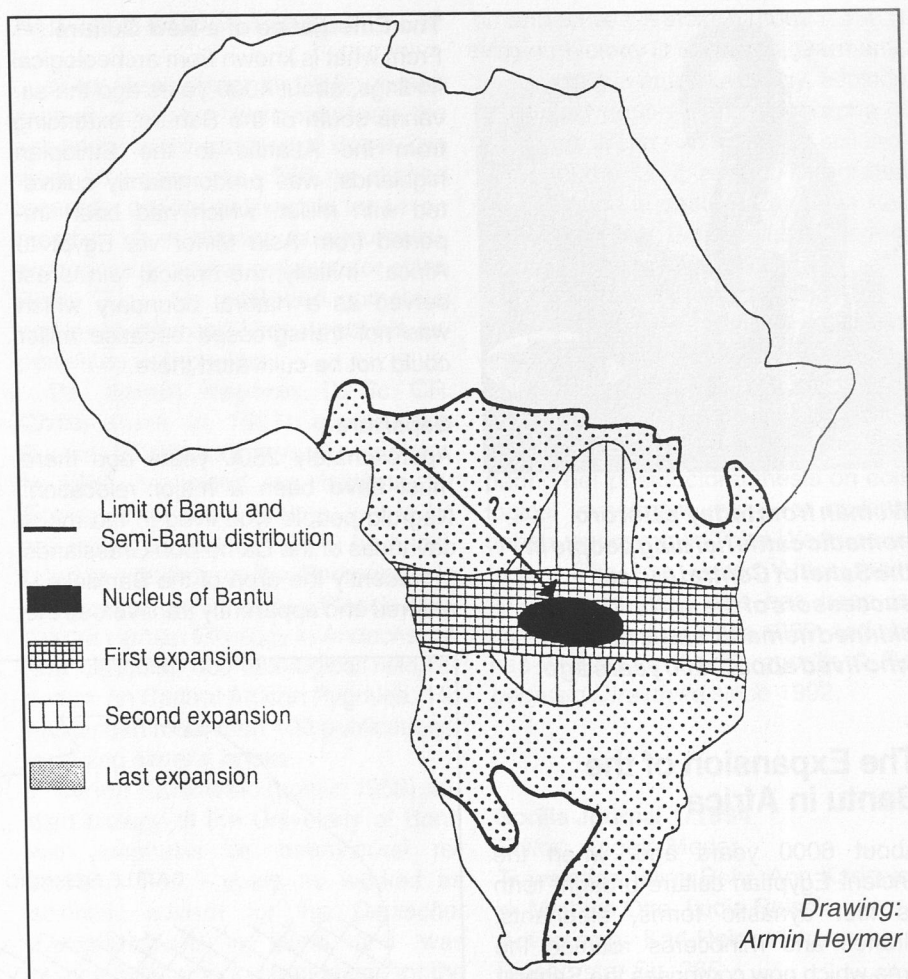
The Bantu and the Rain Forest

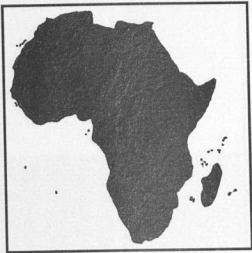
The sudden relocation of the hoe-cultivators from the Cameroon Grassland remained unexplained for a long time. Especially the relatively swift passage through the rain forest, which had been considered a barrier for a long time, was incomprehensible. Not until recently did research in a large area around Mount Cameroon offer a satisfactory explanation. Analysis of the sediment from the Baraombi Mbo Lake reveals that at the beginning of the Holocene only small amounts of grass pollen existed, at the most 2 per-

cent, which substantiates the notion that this area was covered with rain forest at that time.

About 3000 years ago, there was a slight increase of this pollen, which further increased to 20 percent around 2500 years ago and even reached 39 percent 2300 to 2200 years ago. Samples from the nearby Mboandong Lake even produced peak grass pollen portions of 45 percent. The sudden increase in pollen over a few hundred years attests to a radical climatic change followed by a dry period and substantial shrinking of the rain forest.

The temporal coincidence of the expansion of the savanna grassland with the sudden relocation of the proto-





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Bantu hoe-cultivators points to the fact that these people did not have to pass through the rain forest, but were able to travel along a strip of savanna, thereby taking the shortest route to the Southeast. The successive reconstitution of the equatorial rain forest led to the isolation of the southern groups, who then formed a nucleus from which they populated the entire southern part of Africa.

Their actual penetration into the rain forest is fairly new and restricted to areas along the main roads, especially the various transport routes put down by European colonists. The current penetration of primary rain forest is particularly accelerated by the forest and timber exploitation.

Armin Heymer

Aids in Africa

About 10 years ago, the first deaths of Aids victims were recorded. Since then, the public has become aware of the impact and the fast pace with which the immune deficiency syndrome has spread around the world. Today, some of the highest infection rates are reported from the USA, France, Brazil, and in Africa from Congo, Rwanda, Uganda, Tanzania, Zaire, Kenya, and Malawi. The WHO speaks of a "pandemic", i.e. an epidemic not restricted to a certain region. According to WHO estimates, about 2.5 million people worldwide have Aids today, and about 13 million are infected with the HIV Virus; 40 to 100 million cases are expected by the year 2000. By then, Aids will probably be the leading cause of death for young adults in most parts of the world.

In African countries south of the Sahara, approximately 8 million adults are HIV-infected. Today, it is mainly the capitals like Kampala, Kigali, and Nairobi that are stricken with the plague, but, within a few years, the rural areas will probably be afflicted as

well. In Africa, the disease has been transmitted by heterosexuals for the most part. Homosexuality and drug abuse play a minor role. As with other infections, Aids and the typical problems that face developing countries – lack of health resources, poor general health, long periods of social unrest and economic disruption – influence each other mutually.

Two-thirds of Africans have no regular access to medical care. Therefore, curable venereal diseases that increase the risk of an HIV-infection enormously cannot be treated. Poverty leads many women and children into prostitution, even if they are aware of the health risks involved. For street kids and Aids-orphans, the risk of an infection is considered a minor problem in their daily struggle to survive. Many young men go into service as itinerant workers, living for months apart from their families, which supports the spread of venereal diseases and Aids. In addition, the hundreds of thousands of refugees and military troupes contribute to the spread. It is assumed, that Tanzanian troupes brought the virus into Uganda through rapes and prostitution, when they invaded the country in the mid-1980s.

Women and Aids

While in the beginning the majority of the victims were men, today there is almost no difference between the genders worldwide. In Africa south of the Sahara, the percentage of infected women is even higher than that of men. For African women between 19 and 23 the probability of an infection is about twice as high as that for men due to several factors.

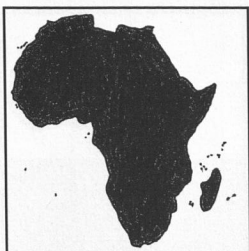
The first reason concerns biology; women are, in general, more prone to an infection. Secondly, their sexual partners, often much older and more sexually experienced, are aware of the risk, and, therefore, prefer younger and younger women. About half of the HIV-

infected African women have never had more than one partner. Thirdly, different value systems and societal norms prescribing "proper conduct" for the two genders – especially concerning promiscuous behaviour – weaken the women's social position and rights. The constantly rising number of female Aids victims reflects this: In male-dominated countries it is especially difficult for women to protect themselves against infections transmitted by sexual intercourse.

In African society sexuality plays an important, sometimes even magical role. In some peoples, it is the duty of the sister of a woman who died of Aids to "clean" the husband sexually so that the spirits of the deceased cannot haunt him – a new infection is almost inevitable.

In most East and Central African countries, primary education is not free. In the lower and middle income classes, women receive less education, and this increases their economic dependence on their husbands. Women in financial trouble often have no other choice than resort to occasional prostitution to support their family.

Since a female's social status in Africa depends heavily on having children and because there is a strong belief that a woman lives on through her offspring, most women become pregnant in spite of an HIV-infection. In Rwanda about one-third of all pregnant women are HIV-positive; in cities like Kampala the percentage increases to 40 percent. About one-third of these babies are also infected, and about half of them die within their first year. Only one-fifth of those who survive reach the sixth year of their life. According to UNICEF estimates, every African woman who dies of Aids leaves behind at least two children. In the most heavily affected areas in Uganda, 13 percent of the children and teenagers are orphans. Many have to work hard to feed their younger sisters and brothers,



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leaving neither time nor financial means for formal education.

Social and Economic Effects of Aids

Epidemic diseases like Aids have profound social effects and serious economic implications that differ from one society to another. Aids is not only a medical, but, especially in the poorer countries, a societal problem. The epidemic spreads fast and – unlike most other infections – affects people with both high and low levels of education, income and job performance. A disease affecting the productive part of the population, people between 15 and 50 years of age, results in large numbers of orphans, shortages of labour, the loss of expensively trained specialists, and it increases the unbearable burden of health care. Aids is a development issue reinforcing the vicious circle of poverty. Many companies and mines suffer production losses. In the mining regions of Zaire and Zambia, Aids is already the leading cause of death. Most of the infected men are skilled workers in the "copper belt".

The agricultural sector, responsible for the bulk of the exports, is equally affected. Farming systems start to alter their structure: In many cases, necessary investments, e.g. for seeds, cannot be made due to lost earnings, if the family's main bread winner becomes sick and needs treatment. Children have to leave school. Important crops like plantains and coffee are substituted by easy to grow but less valuable plants like cassava. Often, the basic food supply in the rural households is threatened, even in very fertile areas like southwestern Uganda, although even in the most adverse political conditions of the 1970s and 1980s, food production and supply had rarely been a problem.

In Uganda, the public services sector is especially affected. In the last few years, ten percent of the em-

ployees of the Ugandan state railway died of Aids, and Air Uganda had to cease operation for a while because the last pilot became a victim of Aids. In 1992, 50 highly qualified employees of the Ugandan telecommunications died of Aids. Meanwhile, the number of the trainees has been increased.

The smaller the structures, the more severe the consequences: If the only midwife or teacher in a village dies, the social impact is severe. The cynical statement that Aids is solving the Third World's population problem does not hold true in the long run. In Uganda, the population will probably increase from about 17 million today to 20 million in the year 2000 instead of the forecasted 37 million. But the real problem of overpopulation, economic underdevelopment, will not be solved by a slowed increase. As shown above, Aids inhibits any form of development.

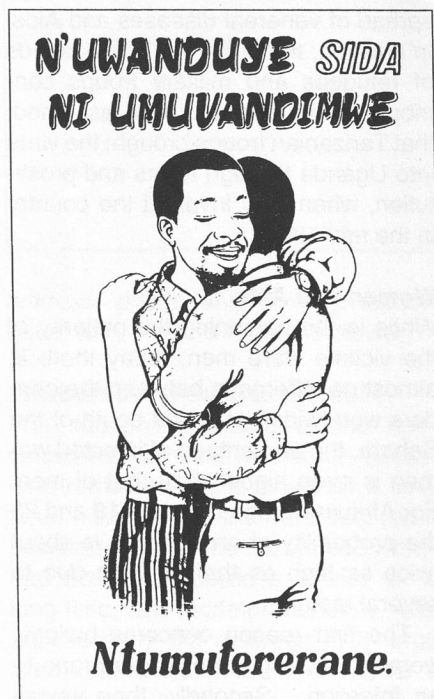
Before the epidemic started, the traditional African extended family could cushion most critical situations. But Aids undermines this vital institution: In many cases, infected women are repudiated by their husbands, sick mothers are not able to care for their children any more, orphans cannot be taken in. The consequences are highly visible: slums, street kids, rising crime rates, child and poverty prostitution.

Coping with Aids: Prevention and Treatment

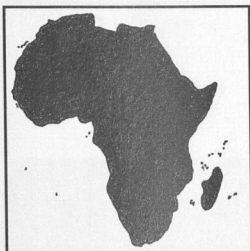
Those few African countries that confronted the Aids problem in an early stage and in a frank manner are able to report some success today. The centre of their programmes is better education and more information about sexuality and Aids. Because of the high illiteracy, information is often conveyed through theater plays, radio or TV shows and other popular information sources. In the case of Aids, information is especially important because the carriers of HIV seem to be healthy but can transmit the virus via intercourse, blood donation or pregnancy.

However, in many countries even the introduction of condom use presents a problem. Some political and religious groups refuse to accept both their use and a franker discussion of sexual matters. In addition, there are practical difficulties of obtaining and using condoms – because of a lack of privacy or money, because men usually dislike them or because of sexual habits or norms. Critics add that with the use of condoms people get lulled into a false sense of security; false because condoms often are of poor quality or are not used correctly. Here, governmental quality control, subsidized prices for condoms and, again, information, may help.

An unconditional prerequisite for any successful anti-Aids campaign is a realistic and frank governmental Aids policy tailored to the country's culture



Information on Aids in Rwanda: "He who has contracted Aids is your brother. Do not reject him."



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and stage of development. Lately, traditional African healers have also been included in Aids prevention campaigns and therapy. This is important as many infected persons are reluctant to consult hospital doctors, not only because of financial constraints but also due to traditional or religious reasons. This strategy also aims at putting a stop to the business of obscure "witch doctors", who make a fortune selling ineffective "drugs" to Aids patients and who sometimes contribute to the spread of the disease, e.g. by using unclean razor blades for rituals.

Consequently, Uganda is one of the first African countries to pin its hopes on intensive information campaigns. Since the late 1980s, data about the disease have been available to the public and the government has worked intensively on information and prevention programmes. This is in sharp contrast to some neighbouring countries (especially those that depend heavily on tourism) where the Aids problem was or is not politically opportune. Although Uganda's aggressive strategy to fight Aids imposed quite a negative reputation on the country in the beginning, it was certainly worth it in the long run.

Since poverty and the general health situation are seen as the root of the Aids problem in the Third World, this is where the fight against Aids has to begin. The few well-equipped hospitals are completely overstrained. In some of them, 90 percent of the beds are occupied by Aids patients. The costs of treatment must be paid by relatives, and this may lead to their financial ruin within a few weeks. Therefore, one aim is to support and extend all forms of decentralized home treatment of the sick which is currently offered and supported by some religious and charitable organizations.

Only five to ten percent of all Aids drugs used worldwide reach the Third World. Africa, the most heavily affected

No Aids in Africa? "The epidemic that never was"

A growing number of Aids experts, doctors and scientists, are questioning the scientific validity of the causes, spread and therapy of Aids that mainstream medicine holds. Specialist Phillipe Krynen maintains that there is no Aids epidemic in Africa at all. According to Krynen, the HIV-virus itself is harmless. Many Aids patients die of the supposed incurability of their disease – because they lack the mental and physical energy or simply the adequate medical treatment to overcome typical poverty diseases. The African Aids problem is seen as an artificially produced one, an hysteria triggered by Western media, charitable and governmental organizations (especially by the WHO itself) and influential Western drug companies for whom Aids is a multi-million dollar business and a possibility to use cheap "human guinea pigs" for Aids vaccine tests. Krynen, in accordance with a number of American colleagues, speaks of a cynical stigmatization of Africans in connection with Aids as concealed neo-racism.

He observed in many cases that HIV-positive patients recovered from diseases like pneumonia or tuberculosis rather quickly if given the adequate medical treatment. He also reminds us that in most cases it is not possible to identify clearly the cause of death. Therefore, many so-called Aids victims really died of one of the typical illnesses, of poisoned alcohol or of malnutrition – and not of Aids. But as everyone seems to be obsessed with Aids (and also because it has financial advantages for surviving dependents of the deceased) it is often uncritically accepted as the cause of death. This, of course, may lead to an overestimation of numbers. In mass examinations in the "epicenter of Aids" in Tanzania in 1992, the scientist found far fewer people infected than assumed: 92 percent of the participants were free of the "deadly" virus.

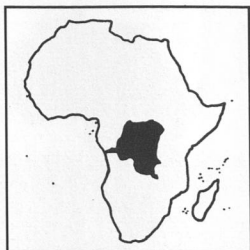
More importantly, the HIV tests showed tremendously differing results, depending on the manufacturer. This unreliability is also stated by Harvard researcher and Aids expert Max Essex. According to him, the two tests most frequently used – Elisa and Western Blot – also react positively to antibodies for tuberculosis, malaria and leprosy. In industrial countries, this incorrectness plays a minor role, but in Africa these flaws are decisive. In one examination in Zaire, out of 40 persons that were identified as HIV-positive by the Elisa-Test, only two were actually infected!

There is no doubt that in Africa Aids does play a major role in Africa. Its frightening and socially disruptive aspects are illustrated by some of the names by which Ugandans describe it: "the robber", "the one that drains", "the cheater" etc. But one also has to seriously consider that Aids research may rely on premature – maybe ethnocentric – assumptions and does not really take into consideration the specific African situation.

continent, receives about two percent. In 1986, the Federal Republic of Germany started programmes to fight the immune deficiency in the Third World. To date, it has made available 100 million German marks for anti-Aids

programmes. Besides direct health care, educational programmes for women and orphans in Rwanda, Uganda, Tanzania and Zaire are being increasingly supported.

Lucia Reisch



ZAIRE

Report on the Gorilla Census in the Kahuzi-Biega National Park

This project, which was initiated by the *Wildlife Conservation Society*, aims to determine the density of eastern lowland gorillas (*Gorilla gorilla graueri*) throughout their distribution range, so as to implement the most effective conservation measures. At the same time, the density of other large mammals (e.g. chimpanzees, guenons, mangabeys, duikers, bushbuck, buffaloes and elephants) will be assessed. Within the next three years, the following areas are to be investigated: the Kahuzi-Biega National Park and surrounding forests, the Maiko National Park and surrounding forests, the forests of northern Kivu and the forests of the Itombwe region. The *Berggorilla & Regenwald Direkthilfe* supports this project.

A methods seminar, the first phase of the census, began in Itebero in January 1994. To do justice to the vast

areas to be investigated, transects are chosen at random and the results are adjusted to account for the whole study area. The uneven distribution of the gorillas, e.g. through human influence, is also taken into account when establishing the total population density.

On 14 January 1994, I arrived in Bukavu where I met Jefferson Hall, the project coordinator, and other members of the research team. The following day we departed for Itebero in the northeast of the new part of the Kahuzi-Biega National Park. It took us two days to travel 180 km on the Bukavu-Kisangani route. Upon arrival we established the first basis camp. From 20 to 25 January, an equalization of methods by all participants took place, and the first two transects were put down. Whilst continuing our work on these transects, the second basis camp was established. Discussions about the preliminary results were held and all participants took part. I participated in the establishment of a botanical transect which was needed to

determine the various types of forest. On 1 February, the participants of the methods seminar departed for their journey home, while others continued the census.

Taking into consideration the current political and infrastructural circumstances in Zaire, this initial phase of the project went well. Due to logistical problems, we had to cancel our initial plan to split up into six independent teams after three weeks of joint work. It was impossible to establish and maintain six separate supply routes, and the group thus remained more or less together. Each group was supplied by camps moving along the same transect.

The number of teams was reduced from six to four as there were neither enough Zairean guides with sufficient knowledge of the region nor enough experienced researchers available.

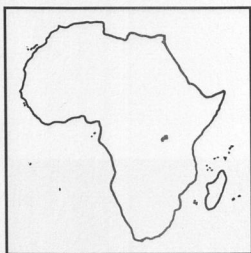
Ursula Karlowski

Iris Weiche was supported by the Stifterverband für die Deutsche Wissenschaft (AZ 40095/705.6.61).



Participants of the first census phase. Standing from left: 1. Claude Sikubwabo, 4. Jean Dieu Bakinahe, 5. Gapira Wa Mutazimiza, 7. Kaleme Kiswele Prince, 8. Gilbert Serukeza, 10. Kathy Sestrich, 11. Inogwabini Bila-Isia, 12. Kristin Saltonstall, 13. John Hart, 17. Yuma B. M'Keyo, 18. Mwanza Ndunda, 19. Hilary Simons Morland, 21. Ursula Karlowski. Sitting from right: 1. Dumbo Bonny, 2. Lee White, 8. Jefferson Hall. Other participants: Cheryl Fimbel, Gilbert Serukeza, Liz Williamson, Juichi Yamagiwa, Iris Weiche.

Photo: Iris Weiche



RWANDA

The Changing Story of a Family

Mountain gorillas live in closely knit families or clans which may have anywhere from 3 to 40 members. It is not feasible to try to define a mean family size, since every family or group, small or large, is a self-contained and complete social organism. The size of the family is simply an indication as to where on the course of social growth they are presently found. The social position or rank of female and male family members is primarily determined by age – it is a so-called age hierarchy. Both genders have one potential mode of leaving their native group.

Between 10 and 13 years of age young males become sexually mature "blackbacks", and slowly move to and reside at the periphery of the group. Meanwhile, the hair on their backs, rump and thighs turns silvery grey, and between 13 and 14 years of age they turn into "silverbacks". Young silverbacks generally leave their native family group – exceptions are especially noted in larger family groups – but remain within hearing distance for up to one year. They then wander off and start a solitary life. Some males stay bachelors for several years, and a few even for a lifetime.

Gorilla females, on the other hand, have the option of transferring from one family group to another. Most often they do this as adolescents and may transfer several times before settling down in a new family group. These transfers are the female's free choice. While it is also possible for older females to transfer, they rarely do so. The sole restriction placed on a female who wants to emigrate is to wait for a neighbouring family to meet hers, as females can only transfer directly from one group to the other. Encounters with lone silverbacks also afford females the opportunity to "change sides".

Should a female decide to join a lone silverback, a new family is formed.

This short introduction to the family history of gorillas shows that birth and death are not the only factors affecting a group's social dynamics, but that emigration and immigration assure constant communication between various families. The finding that the "faces" of the individual families are constantly changing resulted from the long-term studies conducted by George Schaller and, in particular, Dian Fossey.

Those who were fortunate enough to have the opportunity to do independent research at the Karisoke Research Station were obliged to write a daily report for the station's director, thereby also contributing to common research. Incidents of special interest, particularly changes within the groups, were to be noted in the reports. In this way, the fascinating and unique fluctuations within the various families have been documented for decades. A short excerpt from the family history of "Family 5" serves to illustrate this.

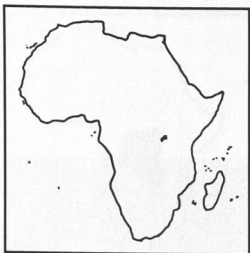
Family 5 (1967 to 1973)

In 1967 Dian Fossey made her first contact with Family 5. At this time, the family had 12 members (some references even mention 15 members, yet only 12 can be confirmed): the two silverbacks Beethoven and Brahms, the young silverback Bartok, the four adult females Effie, Marchessa, Liza and Idano, the three adolescent females Nikki, Baffle and Piper, the male adolescent Icarus and the juvenile Pansy, born to Marchessa in 1966. The family was led by the silverback Beethoven, whose age was estimated to be around 40 years at the time. The highest ranking female was Effie. All names were given by Dian Fossey, who needed one or two years, so she says herself, to habituate the gorillas to her presence and be able to make regular observations.



Effie with baby Photo: Jörg Hess

The first six years of the family history (1967 to 1973) were, as Dian explained, very turbulent. There were many stressful encounters with neighbouring families and lone silverbacks, and a reduction in family size was noted. During this time the family was reduced from 12 to 10 members. In 1970, Brahms and Bartok left and an adult female, Bravado, transferred to the group. The following year Nikki wandered off and a year later Baffle, Piper and Bravado followed suit. Idano fell ill and died of bacterial hepatitis in 1973. These losses were balanced with five births. In 1968 Effie gave birth to her daughter Puck, who was believed to be a male until she gave birth to her first child. In 1970 Quince, the daughter of Liza, and Ziz, the son of Marchessa, were born. 1972, Effie gave birth to another daughter, who was named Tuck, and Bravado had her son Curry who became a victim of infanticide at the age of ten months.



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Quiet Years (1974 to 1983)

Compared to the previous history, the time between 1974 and 1983 was relatively calm. Eight births and three deaths were recorded in these nine years; three members left the family. Although Dian Fossey mentions several encounters with other families, no newcomers were noted. The following females had infants: Pansy (Banjo, 1976; Muraha, 1977; Jozie, 1980), Effie (Poppy, 1976; Maggie, 1980), Marchessa (Shinda, 1977), Liza (Pablo, 1974) and Puck (Cantsbe, 1978). Banjo died at the age of six months. Surprisingly, Liza left the family in 1978, when her son, whom she left behind, was just under four years old. The orphaned Pablo seemed relatively unconcerned, spent most of the time in Beethoven's vicinity and slept in his nest until he found suitable companionship amongst other group members.

Marchessa died in 1980, and in 1983 the silverback Icarus disappeared. It is assumed that he died. The loss of Icarus was quite noticeable

since he had supported Beethoven in his role as leader, as well as in his encounters with strange silverbacks. Their cooperation began in 1976, when Family 5 came across another family and a fight between the silverbacks ensued. Beethoven's arm was badly injured, and it took him almost six months to recover from his injury. During his lengthy convalescence Icarus' help was extremely valuable.

From Beethoven to Ziz

During the late summer of 1985, only a few months before Dian Fossey's tragic death, the silverback Beethoven, who was about 60 years old, left his family and is assumed to have died of old age. However, his physical remains have not yet been found. Following Beethoven's death the leadership went over to Ziz, a son of Marchessa and Beethoven, who had already relieved his father of many family duties during the years before his death. Ziz took over the family in a prosperous and promising state. In the previous

two years (1984/85) the group had prospered through the addition of several adult females without having lost any members to neighbouring families. The above-mentioned females included Picasso, Simba, Walanza, Flossie, Kwiruka and Pandora. In addition, Liza, Pablo's mother, returned.

A memorable year in the annals of Family 5's history was 1986. Ten infants were born in the family, and with the exception of Effie and Tuck, who had to look after the somewhat older Mahane and Ndatwa, none of the adult females remained without progeny. Also noteworthy is the fact that Walanza, a newcomer, gave birth to twins. This was the first time that the birth of twins was recorded among mountain gorillas. Unfortunately, the twins were born during the rainy season and did not survive for more than a week. They both died of pneumonia which was confirmed by an autopsy performed on the first-deceased infant. Nyiranshuti, the new daughter of Liza, also died before her first birthday, and in the spring of the following year, Flossie's son Vatri passed away.

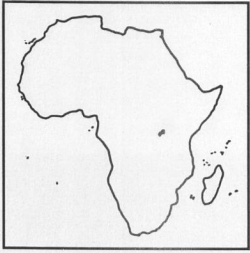
Ziz most likely sired all these offspring. Already four years before his father Beethoven's death, he had begun to show interest in the oestrous females. In a few cases, Pablo may possibly have sired an infant, as he was already a sexually mature blackback at the time. Despite the above-mentioned deaths, the family increased to 25 members during the first year of Ziz's leadership.

1986 was also a very special year because population estimates in the Virunga mountains showed the first, albeit small, but nonetheless highly desired increase in the mountain gorilla population. Yet more hopeful than this small growth, were other findings that became evident with the count. In almost all families more infants were being raised than previously noted, and the relationship between male and



Beethoven (? to 1985) within his family

Photo: Jörg Hess



RWANDA



Ziz (1970 to 1993) with his family

Photo: Jörg Hess

female adults was in favour of females. The previous decline in population size was associated with a threatening increase in males. Sadly, Dian Fossey died before this first important milestone, a clear result of her life-long work and dedication to the mountain gorillas, was ascertained.

What was to follow was equally promising. In 1987 both Liza and Wanzan gave birth, and one year later Simba followed suit. Meanwhile Tuck left the group together with her son Ndatwa, and Jozie, the adolescent daughter of Pansy, was caught in a snare set by poachers and succumbed to the wounds of this tragic incident. With regard to births, 1989 can be considered the year of "Effie's family". Once again Effie and her daughter Puck became mothers, and Maggie, Effie's youngest daughter, had her first infant. At the beginning of 1990, Family 5 counted 28 members.

Years of Political Upheaval

1990 was the year that small rebel groups began infiltrating Rwanda.

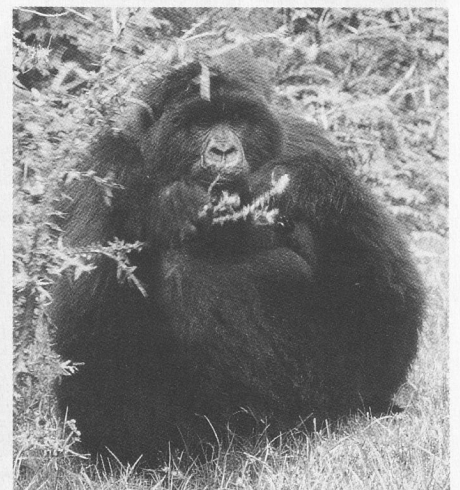
Local civil-war-like nuclei of conflict emerged, and numerous people living in the vicinity of the Virunga forest fled and found meager shelter in refugee camps in the outskirts of Kigali. The mountain gorillas and the Karisoke Research Station were also affected by these sudden outbursts of conflict which, despite numerous efforts, could not be halted. The station had to be evacuated on numerous occasions, and only the local staff made great efforts to maintain everyday life at the station and maintain contact with the gorilla families. It is understandable that little verifiable data were collected on the development of the individual families during this time.

The mountain gorillas themselves were especially affected by the disruptions in their habitat, and the rebels almost exclusively used the Virunga forest to enter into the country unnoticed. In addition to the temporary renunciation of control and surveillance, there was the danger that poaching would increase and involve the gorilla families, although they were not the

direct aim of the poachers' attention. The above-described situation lasted until 1993. Fortunately, no direct military attacks on the gorillas are known – with the exception of Mrithi's death, the silverback of Family 13. In 1993 there was hope that the conflicts would be resolved and the government would make truce with the rebels.

Demise of Family 5

In the spring of 1993, Ziz, in the prime of his silverback years, passed away. The cause of his death, most likely due to illness, is still unknown. With his death the original formation of Family 5 also ceased to exist. Many experts consider Ziz to be the most successful silverback of all times. Shortly before his death, Family 5 comprised 37 members, this including the three younger silverbacks Pablo, Shinda and Cantsbe. Unfortunately, Ziz' death coincided with the political upheaval, and little is known about the fate of Family 5 except that it split up, this being the first time the dissolution of a family has been documented. A fraction of the old Family 5 was taken over by Pablo, and this fraction primarily comprises members of Effie's clan, including Cantsbe, the youngest of the three silverbacks. The



Shinda when young

Photo: Jörg Hess



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second fraction with 17 members now is under the leadership of Shinda, the last infant born to Marchessa.

The two families reside in neighbouring ranges, and on occasions the families meet. It is evident that Pablo tries to avoid contact with Shinda, while Shinda remains fairly undisturbed about encounters with Pablo's family. One explanation is that all adult females in Shinda's family are currently nursing infants and are therefore fairly stably integrated. When Shinda initiates contact with Pablo's family, he runs no risk of losing females to Pablo, but rather may gain females that decide to transfer. This is a desirable situation, as all Shinda's females are occupied with their young, and the addition of new females would increase Shinda's reproductive potential. For Pablo the situation is different. His family has four females who are not raising any offspring and thus are not as closely connected with the family. Pablo runs the risk of losing these females if one of them should decide to transfer. This is probably the reason why Pablo avoids contact with Shinda's group.

The Present Situation of the Gorillas

We heard on 13 June that the Morris Animal Foundation and the Dian Fossey Gorilla Fund are about to set up a temporary camp in a country neighbouring Rwanda. They want to operate from there and continue their work in the Virunga volcanoes until they can go back to Rwanda. Its mission is to monitor the gorillas' health and to coordinate anti-poaching patrols and the work of Karisoke – together with the Park Rangers of the ORTPN (the Rwandan National Parks authority).

In the meantime, the Rwandan staff at Karisoke has continued the patrols as far as possible. They reported only one major change in the gorilla groups since the splitting of group 5 – a very sad incident: the female Effie died. Although no veterinarian could examine the corpse, it is assumed that she died of a natural cause. Her age was probably about 40 years.

Epilogue

For over 25 years Dian Fossey, later joined by other gorilla specialists, has followed and documented the destiny and development of Family 5 with great care. The real story-makers are, however, the gorillas themselves. Effie, who defended her title as "boss" for all those years; the silverback Beethoven, who as leader of the group reached a legendary old age; the silverback Ziz, Beethoven's son, who inherited the fa-

mily from his father, carried it to new realms of prosperity and himself sired numerous offspring; and last but not least, all the other family members who, at one point in their lives, were a part of Family 5.

Ziz and his Family 5 entered the hearts and minds of people all over the world through the movie *Gorillas in the Mist*. From the original core of members that Dian Fossey encountered in 1967, only two individuals remain: Liza and Pansy. They and all the other progeny of Family 5 will carry the family heritage into the two newly-established families.

On 6 April 6, a horrible civil war broke out in Rwanda. It is impossible to put into words what is currently taking place in Rwanda. One can only hope that for the millions of people involved, this state of darkness and hopelessness will soon be over. As for the two new mountain gorilla families who emerged from Family 5, one can hope that the consequences of this war and human foolishness will not hinder them on their path to new growth.

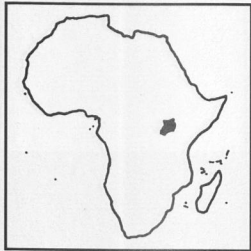
Jörg Hess

The information for this contribution was taken from numerous publications and unpublished data from Karisoke. A list of these references is available upon request from the author.



The blackback Pablo with members of Family 5

Photo: Jörg Hess



UGANDA

Reports by Klaus-Jürgen Sucker from the Mgahinga Gorilla National Park

Report 16 (1 July to 31 December, 1993)

The gorillas expanded their distribution range within the Park and the utilization of zone 2 has increased (see below). One group spent most of December in this area.

In April 1993, the Ugandan Government gave their permission to introduce nature tourism in Mgahinga National Park. After careful preparation, eco-tourism started on 10 August, 1993. Since this date, visitors can climb the volcanoes Muhavura and Mgahinga, hike the nature trail at the foot of the Sabinyo and visit a cave which was formerly used by Pygmies. In order to minimize the impact on the environment, only a limited number of tourists are allowed to make use of this offer per day. A small camping ground has been erected at the main station of the Park. The Park offers its visitors two picnic areas, three shelters, one toilet and two latrines.

Six additional Park Rangers have been employed to replace those who are now busy guiding the tourists.

Report 17 (1 January to 31 March, 1994)

In March 1994, the first seminar aimed at establishing a management plan for

Obituary: Klaus-Jürgen Sucker

On 20 June 1994, Klaus-Jürgen Sucker was found dead in his house in Kisoro.

Klaus-Jürgen Sucker was born on 12 November 1956 in Minden, Germany. He studied biology and history in Bielefeld; since 1984 he was especially interested in rain forest conservation. In 1987 he finished his thesis on the social structure of a captive gorilla group. In 1988 he carried out a study on the destruction of the montane forest in the Ugandan part of the Virunga Volcanoes, and in 1989 he took charge of the Mgahinga Gorilla Project.

With his committed and persistent work, he was able to achieve the following: nearly all the intrusions in the montane forest were stopped, an illegally deforested area of almost 10 km² was effectively protected, and the Game Reserve was declared a National Park in May 1991. Since then, Klaus-Jürgen Sucker worked on the development of a concept for eco-tourism in this area. Since August 1993, tourists can visit the Park, and the concept has proved very useful. But he still wanted to improve the conservation of the gorillas and of the whole Park, and had already made plans for this. He was not able to implement them, however.

We, his friends and members of the *Berggorilla & Regenwald Direkthilfe*, are stunned by his sudden and unexpected death. In Klaus-Jürgen Sucker many of us lost a friend for many years, as well as a model for determined and courageous conservation work, which is so badly needed in our time.

the National Park was held in Kisoro. Representatives of Ugandan and international authorities participated.

The Rangers working in the Mgahinga Gorilla National Park and those from Zaire's Virunga National Park jointly took part in training sessions about gorilla tourism. As of April 1994,

they shall also share the responsibility of patrolling the Park's boundaries.

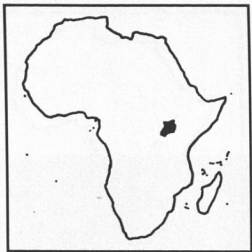
Success of the Work for Nature Conservation

Within one year after the illegally-used area of zone 2 was incorporated in the Mgahinga National Park, the gorillas expanded their habitat to 80 percent of this area. From November 1993 to mid-February 1994, the gorillas stayed primarily within the new area, including areas where they had not been sighted for over 20 years. One group, which had been habituated to humans, ventured very close to human settlements. Adjacent to them, another group and a lone silverback intermittently spent his time within zone 2.

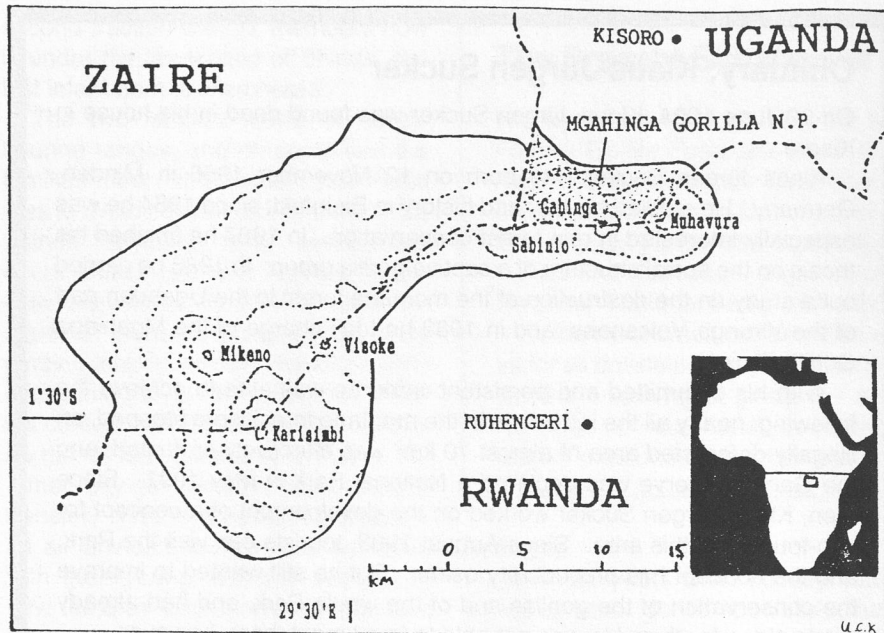
If the animals are not disturbed, a permanent group could become resident in the Mgahinga Gorilla National

Tourists in Mgahinga Gorilla National Park between August 1993 and February 1994

	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Climbing of Muhavura	12	5	2	1	1	1	1
Climbing of Mgahinga	6	2	0	2	0	4	4
Nature trail	9	1	17	18	2	8	5
Visiting of the cave	2	0	0	1	0	—	—
Gorilla visitors	—	—	—	—	—	14	16



UGANDA



The Virunga Conservation Area with Mgahinga National Park

Drawing: Ursula Karlowski

Park. Reforestation measures involving indigenous tree species in the area of Mgahinga National Park not used by gorillas would support this development as well as accelerate the reintroduction of other large mammals, such as elephants.

Development of Gorilla Tourism

After a phase of intense preparation with responsible governmental agencies, gorilla tourism commenced in January 1994. 20 percent of the income is funneled back to the communities adjacent to the Park, and the remaining 80 percent goes to the authorities of *Uganda National Parks* and the state of Uganda.

Tourists are led to a group of six animals which was habituated in Zaire, but travels between Uganda and Zaire. In January and February a maximum of 2, in March and April a maximum of 4, and in May a maximum of 6 visitors were allowed to see the gorillas per day. A visit can be booked at the National Park Services office in Kisoro,

and it is possible to be placed on a waiting list at the *Uganda National Parks* office in Kampala. Foreigners pay US\$ 120 (+ US\$ 23 entrance fee to the Park) per guided visit. Ugandans pay 20 percent of this amount and people living in communities near the Park pay 10 percent.

Before entering the Park, explicit rules of conduct are explained to the visitors. In general, it takes less time to reach the gorillas here, than in the Bwindi Impenetrable National Park, and the view of the animals is less obscured by dense vegetation.

Trip to the Gorilla Projects in Uganda

The trip, supported by the *Berggorilla & Regenwald Direkthilfe* (6 August 1993 to 5 November 1993), led to projects in the Bwindi Impenetrable National Park, the Mgahinga Gorilla National Park, and the Kahuzi-Biega National Park. The main purpose of the journey was to

get a detailed picture of the nature conservation activities in these areas. With the official membership meeting in February 1994 in mind, I also worked out a biogeographical survey of the two National Parks in Uganda. Moreover, I had the chance to discuss the possibilities of further cooperation on site; in this context the clarification of the formalities for the land purchase in Buhoma was of major importance. The following is a summary of my activities in Uganda.

Impenetrable Forest

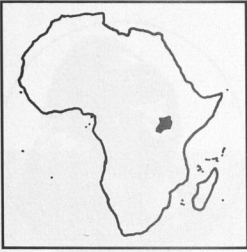
I used the first two weeks of my stay in the Impenetrable Forest to prepare a report on the Impenetrable Forest Conservation Project together with Thomas Butynski. As far as we can judge, human influences on the Park were minimized during the last few years. The Park Rangers confirmed that no gold prospectors are operating in the Park at the moment. Even pit sawing and poaching have decreased considerably. The good relationship between T. Butynski and the Rangers as well as the committed work of all the persons involved made it possible to keep out nearly all human influences on the Park.

The overall positive impression should not, however, hide the fact that



Gorilla in the Impenetrable Forest

Photo: Rita Student



UGANDA

the Park is still threatened by the pressure of high population density. During a visit to Byumba (northern sector of the Park), we found that the Park borders were being violated by the burning of fields at the end of the dry season. In the mid 1980s, people settled in the region close to the Mbwa River Tract, which adjoined the Park in the southern sector at this time and became part of the National Park in 1991. A further expansion of the cultivation at this place should be inhibited or a relocation of the population, involving compensation payment, should be considered.

During the gorilla census, we also noticed illegal logging activities in the southern part of the Impenetrable Forest north of Rubugudi. In general, we can say that the protection of the Impenetrable Forest has been considerably improved since it became a National Park.

At present, the project "Development through Conservation" is introducing a new kind of management concept (multiple use) into four parts of the Park. It allows local communities near the Park to make use of certain resources of the National Park for their

own needs. So far, no studies on the effects of this new management exist.

Land Purchase

The discussions with Thomas Butynski and Jonathan Baranga, who was in charge of the land purchase, focused on the actions of the *Berggorilla & Regenwald Direkthilfe* in Buhoma. An inspection of the land purchased so far showed that some of the plots are still covered with rain forest and that the vegetation in those areas is already showing considerable regeneration. On this land, it was possible to establish a tourist infrastructure without disturbing the forest within the National Park. On top of that, the purchased land also serves as a buffer zone between the rain forest on the one hand and the agricultural area on the other.

All the persons involved agreed that it would be beneficial to continue the land purchase in Buhoma. The following critical zones should be considered if land is going to be bought in the future:

- The area at Buhoma up to the Zairean border;
- The cultivated land close to the Mbwa River Tract. As nearly all fami-

lies own land outside the Park, a relocation is being considered;

- An extension of the Kitahurira Corridor is likely to improve the exchange of animal populations;
- The Ngoto Swamp in its full range;
- The extension of the Ishaya Corridor is important for the same reasons as the Kitahurira Corridor.

Gorilla Census

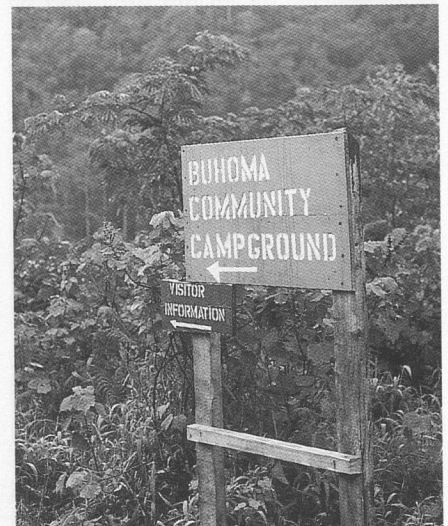
With the gorilla counts I made in the south of the Impenetrable forest, the gorilla census, carried out under the supervision of T. Butynski during the last few years, was completed.

As it is almost impossible to count unhabituated gorillas directly by sight, the group size was determined by counting the nests at sleeping sites. The diameter of the dung found at the sites provides information about the age classes of the individuals. A differentiation between a silverback and a large female can be made if hairs are found. However, the sleeping sites of three successive nights have to be investigated in order to obtain reliable data about the size and structure of the gorilla family.

Johannes Refisch



Starting regeneration on purchased land in Buhoma at the National Park's border; in the foreground the campground is prepared



**Photos: Johannes Refisch (left)
Angela Meder (right)**



CONSERVATION

Actions to Protect the Rhinos in Zimbabwe

In the last issue of the Gorilla Journal, we briefly reported on the threatening situation of the rhinos and the numerous worldwide efforts to ensure their survival. Today poachers are even killing the rhinos which were dehorned in the hope that they could be saved.

Clever dealers in Taiwan and China have already been hoarding enormous amounts of horn for years (approximately 8 tons in China and 5 to 10 tons in Taiwan) and are speculating on these supplies, as the increasing demand for rhino horn will lead to an explosion of the market price as soon as natural supplies have been depleted. For this reason, the animals are being poached with their extermination as the single aim. At present rhino horn is already worth five times more than gold.

Boycott

Little has happened since our last report. Taiwan has refused to accept the CITES conditions, whereupon Bill Clinton placed a boycott on all animal and plant species which are protected by CITES. This is the first time in the history of international conservation that a country (USA) responded with commercial sanctions against another country (Taiwan) because it refused to stop the illegal trade of endangered species. The consequences of this very restricted boycott, and whether it will exert enough pressure on the Taiwanese government remains to be seen. The precious horn powder or even whole horns can still be obtained without difficulty, and horns are illegally exported from China or Hong Kong to Taiwan.

Paradoxically, China has thus far undertaken the most far-reaching measures to stop this illegal trade, and 230 kg of confiscated horn was even

burnt while this action was documented with TV cameras. Nonetheless, 18,000 offenses against conservation regulations are suspected by the Chinese Forest Ministry, since the ban on national and international trade has come into force. However, penalties (fines and disciplinary penalties) have been very mild.

Yet more important than the surveillance of illegal trade is the distribution of information about the ban on the import and any type of commercial trade with horn. Public television is especially helpful in getting this message across.

The Situation in Zimbabwe

Unfortunately, these measures come too late or their impact is too slow to ensure the survival of the rhinos. In the National Parks where every effort is taken to save these threatened animals, an open war is being fought between fully equipped and perfectly organized poachers and very poorly equipped Rangers.

Despite the fact that Park Rangers in many National Parks are free to use their weapons whenever necessary, poaching has not decreased. The latest news from Zimbabwe, where poachers have reduced the rhino population from 2,100 to 400 animals within three years, is that in the Mana Pools National Park, on the border to Zambia, three out of eight reintroduced rhinos were killed within three weeks of their reintroduction. In another protected area, rhinos are individually guarded by armed guards. Despite these precautions some animals, habituated to humans because they had close contact to them for a long time, became victims of poaching.

The National Park authorities have almost given up hope that the rhinos in Zimbabwe will be saved from extinction, especially due to lack of foreign support. Great effort is all the same being made to maintain protective

measures in the areas where the rhinos are still living, and the motivation among Park Rangers is still high. Sadly, motivation alone does not suffice to protect the rhinos against poaching.

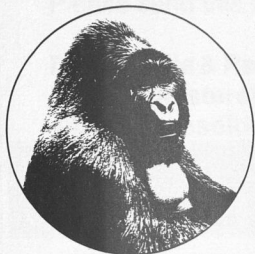
The Rangers' equipment is appalling. The most basic things, such as shoes, socks, shirts and jackets, are lacking, not to mention four wheel drive vehicles and radio-transmitters. Without these necessities, the surveillance of the vast Parks and Reserves is almost impossible. Only weapons and ammunition are available in abundance.

In view of the alarming situation, the *Berggorilla & Regenwald Direkthilfe* has decided to help by calling for donations in order to provide financial aid and supplies. Due to our valuable contact with a local conservation organization in Zimbabwe, the foundation *Environment 2000*, as well as our direct contact with Harare, the capital, we can guarantee that all the donations will be received by those who need it most, namely the Park Rangers.

Environment 2000 was founded by four young women from Zimbabwe. They received their first support from Julie Edwards and Charlene Hewat, who rode the 22,000 km from Scotland to Zimbabwe on bicycle in 1990, in an attempt to draw attention to the plight of the black rhinos. In addition to local developmental and education projects, the newly established organization has started a special program to save the remaining 260 black rhinos in Zimbabwe, and are highly dependent on foreign support.

Ulrich Karlowski

You can help save the rhinos in Zimbabwe by making a donation to Berggorilla & Regenwald Direkthilfe. Please write the catchword "rhino protection" on your check. (Stadtsparkasse Muehlheim/Ruhr, Germany – Bank code number 362 500 00 – Account No. 353 344 315).



BERGGORILLA & REGENWALD DIREKTHILFE

The *Berggorilla & Regenwald Direkthilfe* (BRD)

BRD (Mountain Gorilla & Rain Forest Direct Aid) was founded in 1991. The organization was intended to replace the *Berggorilla Patenschaft* which had worked for the conservation of gorillas since 1982. The board of directors consists of three persons. These active members have skills and experiences from various backgrounds. This is important because effective conservation efforts need to address biological as well as social, economic and political aspects.

In cooperation with other organizations, BRD supports projects for the conservation of tropical rain forests where the eastern gorilla subspecies live. We urgently need support from the local people, and we feel that this support should be mutual.

Our conservation efforts are financed by subscription fees and donations. After expenses for administration are covered, our funds are spent in ongoing projects in Africa and in supplying the public with information. Even small donations are effectively used – most often in such situations where other organizations are unable to react quickly.

Report from the General Meeting

On 26 to 27 February, 1994, the *Berggorilla & Regenwald Direkthilfe* held its general meeting in Riedenberg, Rhön (Germany). At the time, the society had 154 registered members.

The board of directors reported on the society's activities in 1992/1993 and the latest developments in the projects supported by the society. It was emphasized that despite overall positive tendencies, precarious political circumstances precluded the most favourable outcome in many projects

funded by *Berggorilla & Regenwald Direkthilfe*.

Johannes Refisch talked about his 5-week-stay in the Impenetrable Forest, which was supported by *Berggorilla & Regenwald Direkthilfe* (for more details, see his contribution in this edition.). Afterwards, Rüdiger Braun and Karl-Heinz Kohnen talked about their trip to Zaire in the summer of 1992, during which, among other things, they tried to assess how far the Strabag road had been completed. This topic already received attention in previous editions of the Gorilla Journal.

Iris Weiche showed us slides from her involvement in the initial phase of the census of Eastern Lowland gorilla (and other large mammals), which is being carried out in eastern Zaire under the supervision of Jefferson Hall. *Berggorilla & Regenwald Direkthilfe* has partially funded this project.

As Klaus-Jürgen Sucker regularly sent us comprehensive updates from the Mgahinga National Park, the organization was well informed about the developments there. The board of directors informed about the introduction of tourism in Mgahinga National Park and the nature of the problems that the *Berggorilla & Regenwald Direkthilfe* is currently tackling there.

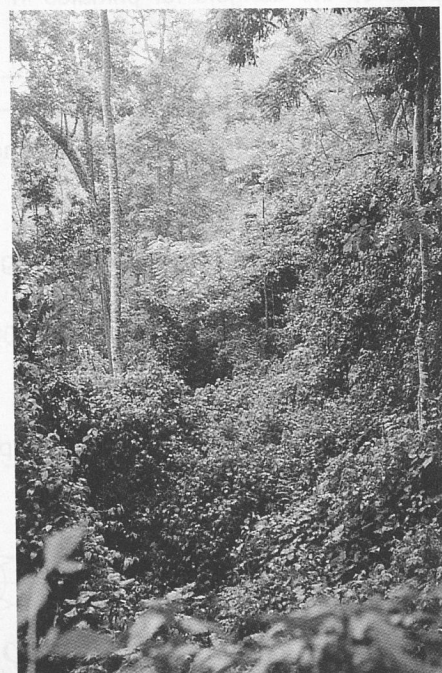
Following each contribution, attending members were given the opportunity to ask questions and make suggestions aimed at improving ongoing projects. Personal discussions were held in a more informal atmosphere in the evening. An information desk offered participants a chance to browse through books and other publications dealing with various related topics. Moreover, it was possible to view an exhibition which will soon be completed and provided with professional fair stands with the help of Pastor Schindelin.

In the official part of the general meeting, our treasurer Rolf Brunner gave details regarding the present

financial situation of the organization. The members approved of his activities as treasurer. Last, but not least, a new board of directors was elected. Karl-Heinz Kohnen, Angela Meder and Ulrich Karlowski will chair the society until the next general meeting in 1996.

Donations

During the last half year (1 Nov. 1993 to 31 May 1994) we again received many donations. Larger amounts were given by Hildegard Bretschneider, Roswitha Cossel, Prof. Dr. Dönges, Gabriele Flegaric, Hartmann Knorr, Angela Meder, K. L. Otto, Gerhard Paulsen, Harald Pfeiffer, Kurt Rathfelder-Möller, Hans-Joachim Reich, Paul Ruoff, Jörg Schaaf and Elisabeth Zaruba. The printing of our journal was effected by Erwin Fidelis Reisch (*Ivory Reisch Tours*). We thank all these and all the other generous supporters for their confidence in our work, and we will try our best not to disappoint it.



Impenetrable Forest

Photo: Angela Meder



READING

Michael Bollig and Doris Bünnagel (eds.)

Der zentralafrikanische Regenwald. Ökologie, Geschichte, Gesellschaft, Wirtschaft. Münster, Hamburg (Lit Verlag) 1993. In German. 231 pages, 28 figures and maps. ISBN 3-89473-390-X.

25 authors (ethnologists, geographers, biologists, forestry experts, historians, economists, political scientists etc.) write about the rain forests of Central Africa from their own viewpoint. Because of the variety of subjects, this ecosystem is presented in all aspects, and the problem of its destruction is viewed from different sides.

The book begins with the description of the forests' characteristics. Most important for persons who are especially interested in mountain gorillas is the contribution by Ursula Karlowski, Ulrich Karlowski and Klaus-Jürgen Sucker on the montane forests in Central Africa, especially those in Uganda. This contribution is followed by two reports on the dangers for primates in general and for gorillas in particular in Zaire.

Several authors continue with descriptions of how the rain forest and its resources have been utilized traditionally, and how this exploitation has changed since the colonial period. The political and economic background which have contributed substantially to the devastation of nature, are presented clearly. In the last chapters various authors depict their (opposed) opinions on the exploitation of tropical forests, particularly selective logging.

This book was written for persons who are interested in African forests not only superficially, but want to know more about the various aspects, in order to form their own opinion. Each contribution includes a list of references for further reading.

Jacques Verschuren

Les habitats et la grande faune: évolution et situation récente. Exploration du Parc National des Virunga (Zaire), deuxième série, Fasc. 29. Brussels 1993. In French. 133 text pages, 104 photos. Available from: Fondation pour favoriser les recherches scientifiques en Afrique, Rue

Defacqz 1 boîte 5, 1050 Bruxelles, Belgium.

In this publication, the zoologist Jacques Verschuren describes the Parc National des Virunga, Zaire, which he has studied several times since the 1940s. This Park comprises an area of 7,900 km² and includes a large savanna, the Zairean part of the Virunga Volcanoes and the Rwenzori Mountains.

To begin with, the climate and the various habitats are described. Then the author depicts how the various parts of the Park have changed during the last few decades, by comparing photos of the same areas from various decades and by summarizing his own studies and other publications.

He is able to show that the regeneration of the vegetation, especially in the savanna, has proceeded very well since the National Park's area is protected effectively. Besides he describes the situation of the elephants and other large mammals in detail. He explains in detail how these animals and humans, residents and tourists, affect the ecology of the Park.

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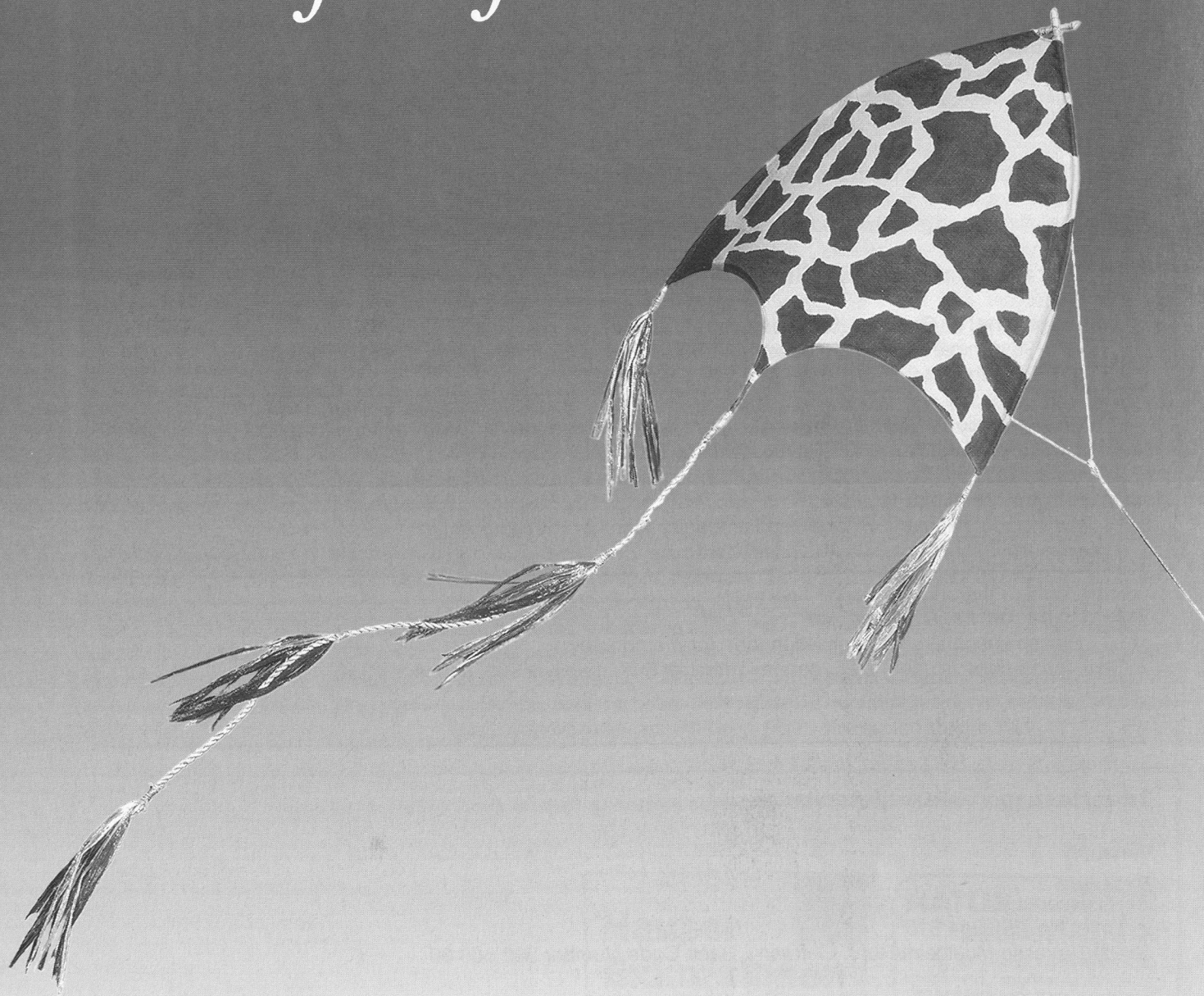
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