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Gorilla Journal

The Status of Grauer's Gorilla

In 1959, John Emlen and George Schaller assessed the distribution of eastern gorillas for the first time. Since then, few attempts were made to characterize these populations. In 1991, WCS (with ICCN, *Berggorilla & Regenwald Direkthilfe* and other organizations) began a systematic effort to identify all populations of Grauer's gorilla and evaluate their status.

We identified 11 populations of Grauer's gorilla (*Gorilla gorilla graueri*) across its 90,000 km² range and estimate the total population to be approximately 16,900 individuals. The gorillas found in the Kahuzi-Biega National Park lowland area and the Kasese region represent 86% of the subspecies's total population. The mountain and lowland populations of Kahuzi-Biega are not in reproductive contact but effectively severed.

In the mountain sector at least one individual in each of the tourist groups has lost a hand to snares; this underscores the precarious status of the subspecies. Gorillas were no longer present in some of the regions noted by Emlen and Schaller. There have been reports that many gorillas were killed in the chaos after the civil war. In the lowland sector Grauer's gorillas are also no longer as widely distributed as they were during the time of Emlen and Schaller. Reports indicate heavy hunting of gorillas within the Kasese region.

In the Maiko National Park, the westernmost population is extinct. The northern population has been relatively stable in recent years, and the southern population suffers from poaching and habitat pressure. North of the Lowa river an additional population has recently been confirmed. It is at risk because of its small size and isolation.

The 9 subpopulations in the Itombwe Forest can be pooled into 4 populations that are reproductively isolated from each other by large rivers. There are several small and isolated populations in the North Kivu region. Reports indicate that the Masisi population has recently been eliminated. Until a more complete investigation can be undertaken, the number and location of different populations will remain unknown.

Estimated Sizes of the 11 Grauer's Gorilla Populations

Kahuzi-Biega Park mountain sector	262
Kahuzi-Biega lowland sector + Kasese	14,659
Maiko Park north	826
Maiko Park south	33
Itombwe Forest A	67
Itombwe Forest B	211
Itombwe Forest C	791
Itombwe Forest D	86
Lowa River	13
Mt. Tshiaberimu	16
Masisi (1988)	28
<i>Total</i>	<i>16,902</i>

The Kivu region has one of the highest human population densities in central Africa. A series of reports has documented the threats to Grauer's gorilla posed by hunting and forest conversion; today the most significant threat is the burgeoning human population's increasing need for land. Outside protected areas, people clear forest and eliminate gorilla populations with little regard for their protected status. In areas of low human population density, gorillas are often considered pests and are killed in retaliation for crop raiding and for meat.

The successful conservation of Grauer's gorilla populations will necessitate a multi-disciplinary approach. The combined results from recent surveys indicate that 67% of known Grauer's gorillas are found within the national parks Kahuzi-Biega, Maiko and Virunga. The apparent success in maintaining these populations suggests that they serve as a core for conservation of the subspecies. Creative alternatives to protect other forested lands must be explored.

The negative effects of habitat clearance and fragmentation, as well as hunting pressures, will increase for all Grauer's gorilla populations. Thus, the optimism offered by our population size estimates should not be accompanied by complacency. Without significant and sustained conservation efforts, the opportunity to ensure the conservation of the subspecies will be lost.

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Summary of an article published in Oryx 32(2), April 1998*

Progress at the Kahuzi-Biega Park

Bukavu, May 9, 1998. Security at the Tshivanga Station has steadily improved since the beginning of 1998. The habituated gorillas have been visited on a regular basis, and tourism has started again at the local level. However, as in other areas, security can not be guaranteed because armed poachers and a few rebel groups still wander freely through the areas which are not patrolled by the national army. The park rangers are not officially permitted to carry any weapons and instead are accompanied by the military in the park. Patrols which take several days and monitoring over long distances are also dependent on the availability of military personnel who have to accompany the team in the park. The efficiency of the research work is therefore hampered.

Thanks to the financial support of *Berggorilla & Regenwald Direkthilfe*, the working conditions have improved, and most importantly, so has the morale of the research team, despite the aforementioned obstacles.

Gorilla and Chimpanzee Observations

In December we were able to resume a more or less normal schedule of behavioral observations of the great apes in Kasirusiru and Tshibati. In Tshibati it is now possible to move around more freely, in contrast to Kasirusiru, where rebel groups still patrol the area and thereby hinder our research work.

Despite the difficulties of camping in the forest, our research team was able to locate a habituated gorilla group which had not been sighted for the past 9 months. It should be added that this was the result of joint efforts by the military, park rangers and pisteurs. Before their disappearance in May 1997, the gorilla group had consisted of 9 individuals, but only 4 members had remained. Moreover, it was noted that their home range had shifted closer to the foot of Mt. Biega, in the western part of their previous home range. These changes might have been caused by confrontations with other (wild) gorilla groups, whose home range overlaps with theirs. Two wild groups, one lone silverback and one habituated group, the Mubalala family, are known to live in this area.

On March 24, the gorilla group that we had been observing in Kasirusiru had a conflict with a wild gorilla family with 15 members. After this confrontation, our gorilla group increased from 4 to 9 individuals, including one infant (we counted 8 night nests). On April 7, the same group fought once more against a wild gorilla group, and on April 8, the number of night nests had increased further from 8 to 14. Now the group consists of 16 animals, because one of the new females transferred with her infant.

On April 16, the gorilla family ranged in the general direction of Kalonge – even farther to the west. Our research team lost the group, because in this area the gorilla tracks are obscured by elephant tracks, poachers, other gorilla groups and human invaders. In order to continue our search, we had to wait for military assistance. Our research team attempted to find the gorillas on their own, but without success, until the military arrived the following day.

During our stay, we focused our attention on the home ranges of the gorillas and found that the number of gorilla groups had remained the same as during the census made in June and July 1996. Nevertheless, it was difficult for us to determine whether all the members of each group had survived, and most importantly, whether the populations are still connected. Our estimates seem promising, and we believe that the gorillas have suffered less than the elephants from the war, despite the fact that 2 silverbacks of the habituated groups were killed.

Addition, July 1998: The monitoring of the chimpanzees is proceeding normally, considering the security situation at the research sites. In Tshibati, we sometimes can observe them feeding in a fruiting tree for 30 minutes. It will take a long time until the habituation is finished.

Food Plants of Gorillas and Chimpanzees

Observations on the diet of the gorillas and chimpanzees were made on a more or less regular basis, in the same way as before the war. Regular estimates had not been possible then either. The feces samples that we collected in Kasirusiru and Tshibati will be analyzed in the Laboratory for Primatology in Lwiro. A publication is in preparation which discusses the role of chimpanzees in seed dispersal in the Kahuzi-Biega National Park.

Phenology of the Forest

Data collection for this part of our research was completed in October 1996 and the data are now being fed into the computer for analysis. Unfortunately, a large part of the data were lost due to a computer virus. We are presently trying to re-enter the data into our computer and hope that results will be available by October 1998.

Difficulties and Conclusions

Although our research team has to leave the park when poachers or other intruders stay in the area, we were able to resume most of our research activities. Poaching is still a threat to the animal populations, despite concerted efforts with the military. As long as the rangers are not permitted to carry guns, their work is quite meaningless. In our research area wire snares are found more often. They pose a serious threat to the gorillas, who sometimes lose hands or feet as a consequence of being caught in a snare. Although local efforts to conserve the Kahuzi-Biega Park have been established, the international community must continue to support our efforts and remind our government of the urgency of conserving this World Heritage before it is too late. Moreover, these efforts should be pursued not only in the interest of national conservation, but concern for conservation on a global level.

Mbake Sivha

We heard from Georg Dörken that GTZ had to cut the funds for 1998 substantially. This had also drastic effects on the activities of the project Integrated Conservation Kahuzi-Biega National Park. During his 4-week visit in Bukavu, Georg Dörken had to dismiss about two-thirds of the project staff. The programme is now partly funded by external donors, for example UNHCR, USAID, WCS and USFWS, UNESCO, Berggorilla & Regenwald Direkthilfe and WWF.

The security in Kahuzi-Biega is now generally much better. Even in the lowland area sometimes it is possible to carry out

patrols. Now there are 5 habituated gorilla groups because one family has split. One part is now led by a "wild" male, the other part by a female. Poaching of elephants still continues, especially if they destroy the fields. It is not known exactly how many individuals are still living in the old part of the park, but there still seems to be many. A survey will be done in cooperation with WCS.

Guy Debonnet will become the new director of the GTZ project in Kahuzi-Biega, and Georg Dörken will move to Kinshasa to work as advisor of the ICCN.

Max-Walter Baumgärtel Is Dead

Walter Baumgärtel died a pioneer whose concern was the survival of the mountain gorillas. When he saw them for the first time and recognized the threat to their survival, he developed a concept for their conservation. He realized that it was only possible to protect the gorillas effectively by conserving their habitat. His idea was simply to promote tourism, which would generate foreign exchange and which would then motivate the government to protect the mountain gorillas and their habitat. He was not alone with this idea; for example, at about the same time, Bernhard Grzimek was also trying to achieve the same goal with the establishment and the extension of the Serengeti National Park in Tanzania.

The center of Baumgärtel's endeavours was a hotel called *Travellers Rest*. Visitors included not only tourists, but also scientists who studied the gorillas and who worked towards their conservation. The *Travellers Rest* developed into a base that was used by George Schaller, Bernhard Grzimek, Raymond Dart and Dian Fossey, among many others. The significance of the place becomes clear in Dian Fossey's words:

His Travellers Rest Hotel had been an oasis to many scientists preceding me ... I had met Walter on my first safari in 1963, and during the six-and-a-half-month study in 1967 had grown to think of him as one of the kindest and most endearing friends I had made in Africa.

Walter Baumgärtel was born in Delitzsch, December 22, 1902. After school he started an apprenticeship as a bookbinder. His job as a bookseller did not satisfy him, and so he took drama lessons. He had engagements with reputable theaters in Germany. While studying the classics, his longing grew to see the remote countries he had read about. His first big journey led him through various Mediterranean countries and East Africa to Sri Lanka and Malaysia. In 1927, he started a journey to Cape Town, where he stayed until 1955. He earned his living in South Africa by running a shop that sold photographs and musical instruments, and he also worked as a free-lance photographer. In the Second World War he was a photographer in reconnaissance planes for the British. After the war he stayed in Florence for some time.

During a visit to London he learnt about a post in a hotel at the foot of the Kilimanjaro in Arusha, Tanzania. Happily he seized the opportunity to return to Africa at the beginning of the 1950s. However, discontentment urged him to look for an opportunity to start his own business in 1955. He got his chance in Uganda by taking over a hotel called *Travellers Rest* in Kisoro at the foot of the Virunga Volcanoes. This was the beginning of the most satisfying and probably happiest time of his life. During that time he wrote his first book *König in Gorillaland* (King in Gorilla Land) which was published in 1960.

Political insecurity towards the end of the 1960s forced him to sell his beloved *Travellers Rest* in 1969 with a heavy heart, leaving the gorillas to their uncertain fate. He had meant to provide for his old age with the sale, but because others speculated unsuccessfully, this fell through. On February 28, 1969, Walter Baumgärtel left Africa for good and returned to Germany. His eyesight, which had already started to deteriorate in Uganda, faded completely. In spite of this, he was able to report about his experiences in the book *Unter Gorillas* (Among Gorillas). It was published in 1977 and became a bestseller which was translated into several languages – including, for example, Japanese. He also published two radio plays for children.

Blind and poor, Walter Baumgärtel lived for almost 30 more years in homes for the aged, first in Oberaudorf and later in Brannenburg. Despite his blindness he derived strength from his interest in current world affairs as well as from the recollections of his rich and satisfied life.

On November 8, 1997, the gorillas lost one of their first protectors.

Paul-Hermann Bürgel and Manfred Hartwig

Memories of Walter Baumgärtel

In 1958, the December issue of the German magazine *Kosmos* contained an article with the title *Gorillas im Kochtopf* (Gorillas in the Cooking Pot), written by M. W. Baumgärtel. It was about a small safari hotel, run by the author in the center of Africa, and about the opportunity to observe free-ranging gorillas – mountain gorillas – near Kisoro in Uganda. You could do this in the breathtakingly beautiful landscape of the Virunga Volcanoes which the locals had named "cooking pots".

I was reminded of that riveting account 4 years later, when I set off to the center of Africa to work as a zoologist for several years in the east of Congo. It soon became clear that our route had to pass through Baumgärtel's *Travellers Rest*. This was at the end of April 1963. Disembarking the ship in Mombasa, we – my wife, our two-year-old son and I – had taken our loaded VW bus to the Kigezi massif in southwestern Uganda.

We were welcomed by a rainy season the likes of which I would not experience in Africa again. The last 150 km to Kisoro took us 4 days. At that time, there were only mud roads, and those going through papyrus swamps were all flooded. In the mountains, landslides presented an additional problem. In spite of everything, we reached the pass close to Kisoro at an altitude of 2,700 m during the night of May 1, and soon afterwards we stopped in front of Walter Baumgärtel's gorilla hotel.

A night guard with a spear came to meet us. The owner who had been woken up by the sound of the engine showed up in a billowing night gown with a bright petroleum lantern behind the window. When he came out and started talking, his Saxon dialect was unmistakable. In no time at all there was a relaxed, almost familiar atmosphere. The "boys" who had been woken up by the night guard had to serve original Westfalen blood sausage, bread and tea and to set up a child's bed in our room.

Baumgärtel told stories from his adventurous life until long after midnight and at breakfast the next morning. He talked about the gorillas and his guests and about the situation in Congo, where we wanted to go to the next day.

Half a year later we were his guests again, when we passed by on a safari from Rwanda, and in 1966 my journey to Congo took me to the comfortable hotel on two occasions. In this way I learnt about the progress and the problems of gorilla habituation. Naturally, Walter Baumgärtel also told many stories about the primatologists who had stayed with him and who had benefited from his experience. I still remember talking about Louis Leakey, George Schaller, Raymond Dart, Adriaan Kortlandt, Urs Rahm, Bernhard Grzimek, Alan Root and others. Later we lost contact.

This energetic, original, humorous and kind man deserves a special place in our memory: He was the person who welcomed and accommodated us, newcomers to Africa, in such an unforgettable way at the gate to Congo 35 years ago.

Fritz Dieterlen

Is Gorilla Tourism Sustainable?

Although nature tourism has been promoted as a sustainable, important and necessary "tool" for conserving species, it is now often viewed as a growing conservation problem. The number of well-documented cases linking nature tourism both to the loss of species and degradation of natural habitats is growing rapidly.

Promoters of tourism on habituated, free-ranging gorillas state that the gorillas and their ecosystems will benefit if tourism generates significant revenues. This is an emotionally appealing, high-profile activity that can generate substantial revenue. It also appears to nicely bridge the gap between conservation and economic and social development objectives. Thus, ape tourism has been an "easy sell" to almost everyone, not only politicians, donors and the public, but also conservationists. The several serious problems of tourism based on habituated, free-ranging gorillas are less publicised.

In a recent paper, we examined the benefits, problems and risks of gorilla tourism, and assessed whether this kind of tourism is likely to be a sustainable activity as now practised (Butynski, T. M. & J. Kalina. 1998. Gorilla tourism: A critical look. In: Conservation of Biological Resources, E. J. Milner-Gulland & R. Mace, eds. Blackwell Science, Oxford, UK, pp. 280–300). Here we summarize the findings and conclusions for three of the topics examined in our review. These are: (1) the information base for the implementation and development of gorilla tourism; (2) the ability to control tourists and guides; and (3) the role of money and politics in gorilla tourism.

Research and Information

The sustainable use of natural resources requires the accumulation and assessment of information on the impact of use on the target population and ecosystem.

Since 1978, millions of dollars have been provided by donors to develop and support gorilla tourism. It is surprising, therefore, that little research has been conducted on the effects of tourism on gorilla behaviour, ecology, health and survival. This is especially so as all five current gorilla tourism programmes are based on small, restricted populations of 240–340 individuals that are already particularly vulnerable to extinction.

Here is one of numerous examples of the problem of insufficient data. There has been a sizeable loss of gorillas from one of the two tourist groups in the Bwindi-Impenetrable National Park, Uganda. The Katendegere group has declined from nine gorillas to three as a result of emigration and death (also, a tenth gorilla was born and died during this decline). In addition, this group now ranges 10 km east of where it occurred in 1993 prior to visits by tourists. Disturbance, stress and disease (scabies) related to tourism may be responsible for the decline in the size and considerable change in home range of this group. Unfortunately, the research vital to assessing the contribution of tourism to these changes was never undertaken.

The continued expansion of gorilla tourism in the absence of scientific information is not unique to the programme in the Bwindi-Impenetrable Forest. While there has been a long-term, extensive research programme on the gorillas of the Virunga Volcanoes, this work has focused almost solely on groups that are not part of the tourism programme. Nonetheless, the number of gorilla groups habituated for tourism in the Virungas increased from none in 1978 to ten in 1997. Further, the official number of tourists visiting some groups has increased from six to eight, and an increase to ten or more is being considered. This increase in the size of tourist groups was made despite strong recommendations by scientific advisers to keep group size limited to six people.

In addition to insufficient research data, all gorilla tourism programmes suffer from a total lack of comprehensive and independent risk assessments, environmental-impact studies, and programme evaluations. Under these circumstances, no one can advance models for sustainable gorilla tourism, or be confident that the gorilla tourism programmes are not now, or will not become, detrimental to the gorillas or their ecosystems.

Control of Tourists and Guides

Sustainable use will not occur unless effective regulatory structures are adopted and enforced. Gorilla-based tourism is exceptionally difficult to control, particularly over the long-term. The fact that adequate control over gorilla tourism is often lacking is most clearly demonstrated by the many statements, photographs and videos of tourists and guides close to, or touching gorillas. In some cases, tour operators and tourists pressure and bribe park staff to ignore the rules. In other cases, tourists are actively encouraged by park staff to break the rules and have more of a "gorilla experience" than the regulations allow. The benefit to the guide is a larger gratuity at the end of the day.

Infringements of the regulations have been documented in all gorilla viewing programmes. The main concerns are physical contact between gorillas and tourists, extended visits with the gorillas (far beyond the one hour limit), large numbers of people in the tourist groups (up to at least 32 people), twice-daily visits to groups of gorillas, visits by obviously sick tourists, and unauthorised visits to non-tourist gorilla groups.

Money and Politics

The wide-spread perception is that gorilla tourism is guided by science and by concern for the survival of gorillas. A closer look, however, reveals that science frequently has little presence (see above) or influence, and that conservation is often relegated to a place behind politics, power struggles and short-term financial gains.

For some politicians and tour operators, gorilla viewing is a bonanza from which to reap as much profit as possible. Not surprisingly, those calling for more science, for impartial evaluations, and for greater caution and restraint in the development and operation of gorilla tourism programmes have been routinely ignored, and sometimes targeted for attack by those bent on suppressing the problems in order to make political and monetary gains. The high demand to see gorillas, and to obtain the money that gorilla tourism brings, are two extremely powerful and destabilising forces that seriously hamper efforts to make gorilla tourism sustainable.

The most recent and extensive data indicate that the 300–350 gorillas on the Virunga Volcanoes are the only representatives of the mountain gorilla subspecies *Gorilla gorilla beringei* – and that the gorillas of the Bwindi-Impenetrable Forest do not belong to this subspecies. One critical concern now is the suggestion to convert some or all of the three research (Karisoke) groups of gorillas in the Volcanoes National Park to tourism groups and/or to increase further the numbers of tourists visiting each group. If all three research groups become tourist groups, Rwanda would have six groups of gorillas available for tourism. This could increase to eight groups if the two habituated groups that emigrated to the Virunga National Park in the Democratic Republic of Congo expanded their range back into Rwanda. Under those circumstances, nearly all of the gorillas in the Volcanoes National Park, and about 70% of the world's remaining mountain gorillas, could be visited daily by more than 100 tourists, and by a similar number of guides, porters and rangers.

Whatever the risks associated with tourism on this small population now, these risks would be increased considerably. In addition, the valuable and well-known long-term research on these three groups would be severely restricted and jeopardized. Perhaps most importantly, the concept of gorilla tourism as a sustainable activity contributing to the survival of the Virunga gorillas would undoubtedly lose much credibility and support, not only from the international conservation community, but also from those tourists who thought they were benefiting gorilla conservation through their visits.

Another concern now involves the two new groups of gorillas under habituation for tourism in the Bwindi-Impenetrable Forest. The home range of both groups lies entirely, or almost entirely, outside the "tourism zone" as agreed upon widely in the Tourism Plan and in the Bwindi Impenetrable National Park Management Plan (1995–1999). Indeed, these groups live within a controlled research area where data on unhabituated gorillas were to be collected for use in assessing the impact of tourism on gorillas. This research and monitoring programme, which according to the Tourism Plan was to begin in 1992, has not been initiated.

The expansion of the gorilla tourism programme in the Bwindi Impenetrable National Park without sufficient baseline data, and without the benefit of professional, independent evaluation, is particularly worrying in light of the circumstances surrounding the decline of the Katendegere group (see above). This suggestion calls into question not only the sustainability of this programme, but also the veracity of one of the Tourism Plan's guiding principles, that "tourism is secondary to conservation."

Conclusions and Recommendations

In our review paper we conclude that tourism based upon gorilla viewing is not the conservation panacea that many people believe. There is too much emphasis now on generating revenues, while far too little attention is given to either demonstrating or ensuring the long-term sustainability of any of the five current gorilla tourism programmes.

Tourism on free-ranging, habituated gorillas has been in effect for two decades, yet the recognized cornerstones to ensuring that this activity is sustainable have not been laid. There continues to be enormous disparity between what needs to be done and what the implementing governments, managers and supporting international conservation bodies are willing or able to accomplish.

Tourism based on small populations of gorillas is likely to be sustainable only:

- Where gorilla conservation is always given priority over economic and political concerns,
- Where decisions affecting gorilla tourism are based on sound and objective science,
- Where the regulations governing this activity are enforced rigorously,
- Where the conservation benefits from gorilla tourism monies are considerably greater than at present.

If these basic pre-requisites cannot be met, then tourism on small populations of gorillas should be stopped until they can be met.

We are particularly concerned that all five of the established gorilla-viewing programmes are based on small populations of gorillas. Given the many problems and the management deficiencies observed, we suspect that gorilla tourism, as practised today, is likely to be sustainable only where gorilla populations are large. We suggest that limited tourism on the large lowland population of gorillas (14,550 gorillas) of the Kahuzi-Biega National Park and adjacent Itebero-Kasese region of eastern Congo would do little damage.

While tourism may contribute to the survival of some of these small populations of gorillas, it is at the same time undoubtedly putting them at additional risk. As a conservation priority, therefore, each of these programmes should be reviewed and evaluated thoroughly by multi-disciplinary teams of independent and impartial professionals. The teams should assess whether these programmes can be made sustainable and specify how this might be achieved. Such an undertaking would bring to light more facts about gorilla tourism and further address the arguments, both for and against, that gorilla tourism has raised.

Tom Butynski and Jan Kalina

We thank Debra Forthman and Jim Sanderson for their comments on the draft manuscript.

A copy with the complete references of this article is available on our web site or can be ordered from Angela Meder .

A Report from Nigeria

In Gorilla Journal No. 12 (June 1996), Angela Meder summarized information on the status of gorillas in Nigeria and Cameroon. She noted that Nigeria's gorillas are the most northerly and westerly in Africa, occurring in four small populations close to the Cameroon border in Cross River State.

I visited Cross River State in January 1998 and investigated some of the gorilla research and conservation efforts in progress. I am happy to be able to report that, although the Nigerian gorillas are still in a precarious position, they are hanging on; studies are in progress (or have recently been completed) on the three main populations, and hunting pressures appear to have eased. The three main populations are in the Afi River Forest Reserve, the Mbe Mountains, and the Boshi Extension area of the Cross River National Park; the fourth population occurs in the Okwangwo part of the Cross River National Park, adjacent to Cameroon's Takamanda Forest Reserve.

Afi Mountains

Because of the rugged terrain in the hill country where these gorillas live, and because they are shy as a result of a long history of hunting, it has been difficult to make robust estimates of the number of gorillas surviving in Nigeria. However, the tentative conclusion of surveys in 1987–1988 and in 1990 was that the largest remaining population lived in the mountains in the north-western part of the Afi River Forest Reserve, where perhaps 40–50 gorillas survived.

City University of New York graduate student Kelley McFarland conducted a pilot study of the Afi gorillas in 1993. She found many gorilla signs, but she also learned of the recent killing of several gorillas. In March 1996 she returned to the Afi mountains to begin a thorough ecological study of this population, working under the auspices of the Cross River State Forestry Department and supported by the *L. S. B. Leakey Foundation, Primate Conservation Incorporated* and the *Wildlife Conservation Society*. Kelley McFarland established a base camp in the mountains above the town of Buanchor and, with a team of local assistants, began cutting survey lines up and down the precipitous Afi slopes.

The study was interrupted at the end of 1996, but resumed again in October 1997 and soon after this Kelley McFarland and her team began to find many sleeping nests and feeding sites.

Surveys over the whole Afi mountain area are suggesting that this population may be divided into three more-or-less isolated units, and Kelley McFarland is finding that nest clusters in Afi vary greatly in size, lending weight to the hypothesis that gorillas in Nigeria have flexible grouping patterns. The largest nest cluster found so far contained 38 nests, strongly suggesting that there are more than 40 individuals in the Afi mountains as a whole. In addition to censusing the population and studying patterns of habitat use, Kelley McFarland is collecting fecal samples from which to analyze diet. The northerly position of the Nigerian gorillas means that they inhabit a strongly seasonal environment and this is expected to be reflected in the animals' diet. Hair samples from nests are also being collected for genetic analysis by Jean Wickings in Gabon.

Prior to the start of Kelley McFarland's study, Peter Jenkins and Liza Gadsby of the *Pandillus* drill rehabilitation programme in Calabar, Cross River State, had worked with the Forestry Department and villages around the Afi mountains to establish a ranger programme, under which local men (particularly former hunters) were recruited to enforce a hunting ban.

Although this programme has been temporarily suspended, Kelley McFarland's field team is presently acting as an informal protection force and she reports finding no evidence of a gorilla having been killed in the mountains since 1993. Other species, including drills and chimpanzees, continue to be hunted, however, and the low-lying parts of the Afi River Forest Reserve are coming under increasing pressure from loggers. Farms continue to extend into the reserve, while fires started in the course of clearing farms have in recent years badly damaged parts of the forest, including the gorilla habitat.

The Cross River Forestry Department is considering a proposal to create a Wildlife Sanctuary in the Afi mountains and Kelley McFarland's findings should contribute information for the planning of that sanctuary. At this point, however, there is no guarantee that the gorillas and their habitat will be protected after her field work ends in mid-1999.

Mbe Mountains

In her earlier article, Angela Meder reported that in 1989 WWF-UK had initiated a project in collaboration with the governments of Cross River State and the Federal Republic of Nigeria to establish a National Park in the former Boshi-Okwangwo Forest Reserves and adjacent areas. One of these adjacent areas is the Mbe mountains, about 12 km southwest of Afi, where the *Nigerian Conservation Foundation* started a project in 1988 to study and protect what is probably Nigeria's second largest Nigerian gorilla population. The Boshi-Okwangwo Forest Reserve became the Okwangwo Division of the Cross River National Park in October 1991, but the Mbe mountains were excluded from the park despite planners' recommendations.

However, park officials still expect that Mbe will eventually be incorporated into the park, and in December 1995 the WWF-Cross River National Park Okwangwo programme initiated a one-year survey of the gorillas in these mountains. This survey was led by Ernest Nwufoh, whose team spent 309 days in the field in 1995–1996, censusing nest sites along transect lines in a continuous rotation. Further sampling was done by Gabriel Ogar in March–April 1997.

I saw Ernest Nwufoh's report during my January 1998 visit and discussed his findings with him. I learned that he had estimated a population of 24 to 32 gorillas in Mbe. This is similar to an estimate I made after surveys of the Mbe mountains in 1990. Nwufoh's team found that farmlands were continuing to encroach on the Mbe forest and that the area being used by the gorillas is probably less than 40 km², smaller than the area estimated in earlier surveys. On the other hand, there is no strong evidence that any gorillas have been killed by hunters in the Mbe mountains since 1991.

Cross River National Park

Compared with the gorillas in the Afi and Mbe mountains, those within the Cross River National Park itself have been relatively neglected. There are two distinct populations in the park. These populations were probably in contact in the past but are almost certainly isolated from each other today. One occurs at the northern end of the park in the forests of the former Boshi Extension Forest Reserve, a reserve originally established as a gorilla sanctuary in 1958. The other is found in the southwest-

ern part of the former Okwangwo Forest Reserve, immediately adjacent to Cameroon's Takamanda Forest Reserve; these Okwangwo and Takamanda gorillas are probably a single population unit.

In early December 1997, Ernest Nwufoh initiated transect surveys of gorilla nests in the Boshi Extension forest and in January 1998 I was able to spend six days in this area with him and part of his team. We divided ourselves into two small groups and surveyed parts of the upper Mache and Asache valleys, where the gorillas seem to be concentrated.

Although we found several old nest clusters we were not able to locate any fresh gorilla signs. It was the dry season, and, according to hunters, gorillas at this time move into the lowest and most inaccessible parts of the valleys. The low density of nest sites that all researchers have found in Boshi Extension (relative to the numbers found at Mbe and Afi) strongly suggests that there are very few gorilla groups in this area. In 1990 we estimated a total population here of about 20 individuals in 60 km²; my impression is that the population is still close to that size, and therefore in a perilous position. I was given a report that one gorilla was killed in Boshi Extension early in 1996, but I did not learn of any having been killed since then. However, hunting and trapping of other wildlife continues at a high intensity in most parts of the National Park, and park managers have tended to give more attention to issues of rural development than to the rigorous control of poaching.

Although hunting is a problem in Boshi Extension, the forest here is largely intact. Growing on very steep slopes, it is not threatened at present by loggers or farmers but it has suffered fire damage on its extreme northern edge where the forest meets the grasslands of the Obudu Plateau.

These grasslands have come under increasing use by Fulani cattle herders who burn the grass in the dry season. Gorillas once visited the montane forest patches on this high plateau (1,500–1,700 m), but these forests have been badly damaged by farming and fire and the gorillas have not been seen on the plateau for some years. An NGO, *Development in Nigeria*, has begun a project to stabilize and promote regeneration of the plateau forests, so it is not impossible that the gorillas could one day return to the plateau. Here, they would be within easy reach of a tourist hotel located at the headquarters of the moribund Obudu Cattle Ranching Company.

Takamanda, Cameroon

The gorillas in the southwestern part of the former Okwangwo Forest Reserve have not been the subject of special study, but brief surveys in that area have found only a small number of nest sites. It is likely that the gorilla population in this area is centred in the Takamanda Forest Reserve, and that Okwangwo is a peripheral part of the population's range.

In early 1996, Jacqui Groves of the Limbe, Cameroon branch of the *Pandrilus* project made a brief visit to Takamanda and obtained reports about the continued presence of gorillas. This led to a plan for a more thorough survey, funded by WWF-Cameroon, which Jacqui Groves began in late 1997.

The numbers of gorillas in the Takamanda-Okwangwo population are unknown, but it seems unlikely that this population exceeds 100 and it could be much smaller. Hunting of the Takamanda gorillas may have continued until quite recently; in Nigeria I received a report of one killed there in September 1996.

Future Prospects

It is encouraging that all four of the small gorilla populations in the Nigeria-Cameroon border region are now getting some attention. At least in Nigeria this outside interest seems to have played an important role in reducing the hunting of gorillas, which was the most immediate threat to their survival. But the gorillas remain in a precarious situation, given that each population unit is so tiny, that their habitats are still being eroded at their margins, and that there is as yet no effective plan in place to combat hunting on a long-term basis. Continued attention must therefore be given to each population, with efforts being made both to better understand their status and ecology, and to establish sound and durable protection schemes. The atmosphere for establishing such protection seems to be improving.

During meetings I had with Clement Ebin, the General Manager of the Cross River National Park, and with John Barker, the Manager of the WWF-Okwangwo Programme, these officials both acknowledged that the emphasis given by the park management project to community development projects had not resulted in effective wildlife protection, and that more rigorous efforts would have to be made in future to control trapping and hunting in the park. Clement Ebin expressed an interest in finding modest outside support to improve the equipment and support facilities for park rangers and I have therefore begun exploring ways of obtaining this support and maintaining it over the long term.

John Oates

For their assistance during my visit to Cross River State I would like to thank Peter Jenkins, Liza Gadsby, Simon Camp and other staff of the Pandrilus project, and Clement Ebin, John Barker, Ernest Nwufoh and other staff of the Cross River National Park and the WWF-Cross River National Park Okwangwo Programme. I am grateful to the Research Foundation of CUNY and WCS for financial support.

Gorilla Conservation in Río Muni

The Spanish biologist Juan Pedro Gonzalez-Kirchner, who had agreed to write an article for this issue, tragically passed away in March 1998. Instead of his article, his publications are summarized here.

Large parts of Río Muni (Equatorial Guinea) are populated only sparsely and 59% of the country is covered by undisturbed rain forest. However, in the last 25 years, the number of gorillas in Río Muni has decreased considerably. In 1989/1990, the gorilla population was estimated at 1,000–2,000 individuals. They live in approximately 17% of Río Muni's area, in 5 distribution areas which have become isolated from each other since the 1960s. The highest gorilla population densities were found in the Río Campo region in the northwest and in the Nsork region in the southwest of the country.

The isolation of the populations constitutes a severe threat if they include fewer than 500 individuals. The unusual frequencies of genetic anomalies and malformations that were observed may result from such isolation. Missing toe joints, for example, have been linked to inbreeding.

They are threatened mainly by the slow but continuous destruction of their habitat by the local people and by other human activities, such as hunting, capture of infants for sale, and other activities for commercial purposes. Primate meat is important in the local markets; sometimes it amounts to more than 50% of the total meat. Gorillas and chimpanzees are hunted (gorilla meat amounts to about 5% of the meat offered) and are considered a delicacy by the human population of Río Muni, the Fang.

The 800 km² area of Monte Alén has only recently been gazetted as a National Park. Since 1992 it has been one of the areas protected under the ECOFAC programme. Within the framework of this programme, Juan Enrique Garcia and Jesus Mba studied the primates and the nature conservation in this area in 1994. They were able to show that gorillas occur throughout the park. While gorillas used to be killed on a regular basis, this obviously is no longer the case. However, slash-and-burn cultivation is frequent and is a threat to the rain forest and its inhabitants. Nevertheless, the park is protected quite well and the hunting pressure on animals remains low. The conservation of Monte Alén is developing exceptionally well, and the sombre prediction made by Jorge Sabater Pí in 1981 – "We can predict a very tragic end for the gorilla," – hopefully will not come true in the near future.

Angela Meder