

Gorilla quest in Nigeria

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There had been no news of Nigeria's gorillas for 30 years when in 1987 rumours began to circulate that they survived in the south-east part of the country. At the end of the year the authors conducted a survey in the area and confirmed that gorillas were indeed present. They found evidence of five sub-populations, more or less isolated from each other and living in forests that are increasingly threatened by destruction and where hunting might kill one-and-a-half times as many gorillas as are born each year. Nevertheless, the authors suggest that the future of these attractive animals could be ensured, with adequate control of hunting and the development of gorilla-viewing tourism in the region.

By 1987 no report of a sighting of gorillas in Nigeria had appeared in the conservation literature for 30 years. The last was in *Oryx* in 1957 by E. March, then the Chief Conservator of Forests in Nigeria. The long silence led some conservationists to think that Nigeria's gorillas had gone extinct. Others simply expressed ignorance about their status (Oates, 1986). Then, in early 1987 rumours began to surface of their continued presence in south-east Nigeria. These were confirmed in the middle of the year by the Nigerian Conservation Foundation, a non-governmental organization. (It later transpired that a party of expatriate conservationists had found evidence of gorillas in the region in December 1986 (Harris *et al.*, 1987), but the information had not reached the Nigerian Conservation Foundation, or other conservation authorities in the country.) Realizing the importance of its find to prospects for conservation and development in Nigeria, the Foundation requested a fuller survey, with the backing of the British Council.

Two months work, in December 1987 and January 1988, enabled us to establish the limits of distribution of gorillas in Nigeria, and to obtain some idea of their numbers. The population is large enough to be conserved, and we suggest here how this might be done. First, though, let us

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give some necessary background information about gorillas.

The gorilla in Africa

The gorilla *Gorilla gorilla*, occurs in two main areas of Africa (Figure 1). It is thought that there could be around 40,000 in the entire West African population, and upwards of 5000 in the east-central population (Vedder, 1987). The mountain gorilla, the race about which most is known, is the easternmost population; Nigeria's population is the westernmost. With thousands of gorillas in Africa, spread over such a comparatively large area, it is worth asking why so much effort is expended on protecting 500 mountain gorillas, and why the Nigerian gorilla population is important. One answer is that all of Africa's forest is under threat, as more and more of it is turned over to logging companies, and as the human population increases and has to clear the forest to grow food. Without the forest, gorillas will not survive, and it is impossible to predict which forest patches will be saved. The only way to ensure the survival of the gorilla is to fight for its conservation in every country in which it lives.

Gorilla biology

Gorillas are vegetarians, living largely on foliage

in East Africa, but having a far greater proportion of fruit in their diet in West Africa. They live in social groups that range over 10–30 sq km in a year, normally travelling about a kilometre in a day. The groups contain an average of three adult females, their immature offspring and usually one fully adult male, although about one-third of groups have more than one male. The average number of females differs between regions, and might be smaller in West Africa than in East Africa. In East Africa, the groups are stable for months, sometimes years at a time. Information on the stability of West African gorilla groups is lacking, but it is possible that sub-groups might form and rejoin far more frequently than in East Africa. At maturity, both sexes leave the group in which they were born, the females moving immediately to a nearby male or group, the males wandering on their own until they can attract females. Females do not necessarily stay with the first male that they join, and currently we do not know which sex disperses further over an individual's lifetime. Females start to reproduce when they are about 10 years old and males at not less than 15 years. In the resource-rich, well-protected study area of the Virunga Volcanoes in Zaire and Rwanda, the average interval between births is about four years.

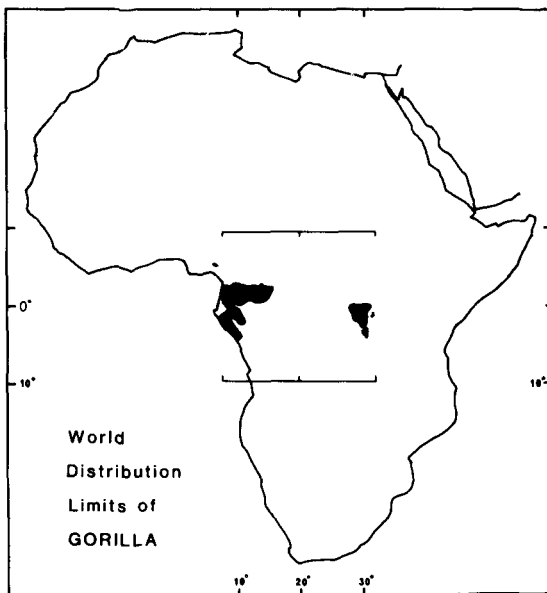


Figure 1. Distribution of the gorilla *Gorilla gorilla* in Africa.

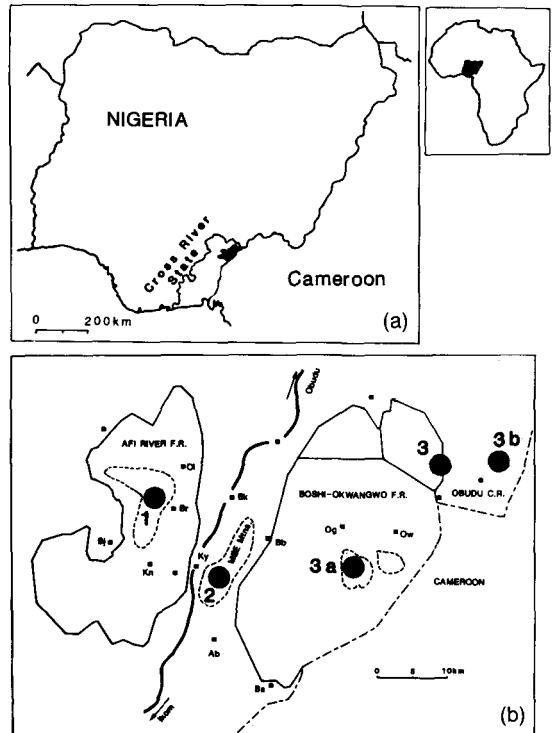


Figure 2. The study area: a) The Sonkwala Mountains (black shading) in Cross River State, Nigeria; b) The study area in detail, showing distribution of Nigeria's gorilla population. Large circles show where recent signs of gorilla were found. Also shown are the two forest reserves, the cattle ranch, the community-owned Mbe Mountains and the various community centres (indicated by two-letter codes) mentioned in the text. Dotted lines indicate surveyed mountainous ground.

Distribution and numbers in Nigeria

Nigeria's gorillas are surviving ('hanging on' might be a better description) in the forests of the Sonkwala Mountains in the Boki Local Government Area of Cross River State, the extreme south-east of the country (Figure 2). They are concentrated in three to five sub-populations in a total of 120 sq km over an area of about 750 sq km, or less than 0.1 per cent of Nigeria's surface area.

We did our survey by visiting villages where report, rumour or guesswork indicated that the animals might be found in the surrounding forest. If questioning of the local people gave us hope of finding gorillas, we bivouacked as deep in the



A typical gorilla group of several adult females and their offspring surrounding the dominant adult male of the group during a midday rest period (A. Harcourt).

forest as possible and, accompanied by hunters who knew the forest well, made sorties looking for signs of the animals' presence. The signs we wanted were the 'nests' of vegetation that the animals make to sleep in at night, and their dung. Both are characteristic, their dung in particular being usually impossible to confuse with any other animal's: as far as we know, no other animal in the world has tri-lobed dung (Figure 3).

In two areas, the Afi River Forest Reserve and the Mbe Mountains, our survey was extensive enough to allow an estimate of numbers. In these two regions we walked an estimated total of 100 km of paths through the forest (calculated by occasionally pacing timed sections of our paths). The 10 sleeping sites and one group of gorillas that we saw enabled us to calculate a density of 1 to 1.5 gorillas per sq km. With 120 sq km available to them, Nigeria's gorillas might number about 150, or, say, somewhere between 100 and 300 given all the potential inaccuracies in the estimates.

Not only could we estimate numbers, but we can also say that the population is reproducing. The *Gorilla quest in Nigeria*

dung gives us this information, for the diameter of a bolus of dung varies with the size of the animal. Infants have dung less than 3 cm diameter; adult males' dung is more than 6 cm wide. We found dung of all sizes. We could not tell the proportion of young animals in the population from these signs, but a reasonable calculation can be made of the reproductive rate, if we assume a composition and reproduction rate similar to other known populations (Harcourt *et al.*, 1981). The answer is a maximum of 10 births per year in a population of 150 animals.

We estimate about 50 gorillas in the densely forested mountains of the Afi River Forest Reserve and also in the Mbe Mountains (populations 1 and 2 in Figure 2b). The Afi population, the most westerly in Africa, is almost certainly completely cut off from the rest of Nigeria's, and therefore Africa's, gorillas by the heavily used tarmac Ikom–Obudu highway. We suspect that the Mbe population is cut off from the others by the intensity of hunting in the intervening forest. The next largest population is probably in the north of the Boshi–Okwangwo Forest Reserve



Gorilla habitat in the Afi River Forest Reserve and the Mbe Mountains (A. Harcourt).

(3 in Figure 2b), although we did not have time to survey the area fully. This area is bounded on its east side by the 1000-m escarpment of the Obudu Plateau, and is also densely forested and hilly, as is population 3a's range, although the

hills here reach only 650 m, compared to the 1000 m peaks of Afi and Mbe. Finally, population 3b is in the middle of a huge government-run cattle ranch, in which small forest patches survive in valleys almost totally surrounded by



Figure 3. Gorilla dung, showing tri-lobed shape and variation in size of bolus with age of animal (A. Harcourt).

grassland. Within Nigeria, population 3 is probably cut off from 3a by cultivation and hunting, and from 3b by unsuitable habitat. However, it is possible that the Boshi–Okwangwo populations (3 and 3a) independently connect with the Obudu Cattle Ranch population (3b) through Cameroon.

Threats

The local people, the Boki, are primarily farmers, but many hunt also. Game meat is favoured over domestic meat, and fetches higher prices, the main market being local restaurants. Thus hunting is a lucrative occupation, enabling the younger, fitter men to earn more from it than they would as manual labourers. A reasonable monthly wage in the capital, Lagos, is 150 naira per month; a duiker, one or two of which could be shot in a night's hunting, can be sold for half that and a gorilla carcass will fetch at least 300 naira. A number of the villages have poor communications, some being unreachable by road, especially in the rainy season. The further from the road that the communities live, the more efficient it is for them to transport game meat rather than farm produce to market.

The Boki hunt intensively throughout the Sonkwala Mountains. All mammal species are targets, and it is not too much of an exaggeration to say

that the ground is littered with shotgun cartridges. Except in the government-run cattle ranch, we found the gorillas only in the most inaccessible parts of the mountains. In the cattle ranch, the forest patches are so small that there is nowhere for the gorillas to retreat to.

Without doubt, the gorillas are under threat. About 15 communities hunt in the gorillas' range in Nigeria. In 1986 one community alone killed eight gorillas; in 1987 another killed six. Others kill one or two every year or so. And these figures count only those gorillas butchered. From the number of times we were told of gorillas being shot at close range, but not being killed outright, by the twelve-bore guns in use, it is obvious that a large number of animals are lethally wounded and left to die in the forest. If only one gorilla is killed per year by each village, a minimum we think, then one-and-a-half times as many gorillas are killed each year as are born in a population of 150 animals.

The Nigerian peoples' rate of birth is the sixth highest in Africa (World Resources, 1987). The resultant increase in the human population will not only intensify hunting. Forest is being cleared for agriculture around all the villages and will be destroyed at an increasing rate (see also Anadu, 1987). Slopes are steep; the soil is thin; the rains



Valley forest in Obudu Cattle Ranch (A. Harcourt).



A remote village with no access by road (A. Harcourt).

are heavy. Extensive forest clearance will threaten not just the gorillas, but the people also.

Solutions

Any conservation plan for the region needs to take into account both the financial value of hunting to the Boki, and also their need for economic development and better communications. Conservation measures are required that will not only protect the gorillas and the forest on which they and the people depend, but will also bring development to the region.

- (1) Current laws banning the killing, capture or trade of endangered species must be advertised and enforced.
- (2) The core of each gorilla sub-population's range should be gazetted and maintained as a sanctuary in which no hunting of any species is allowed. Surrounding these sanctuaries should be hunting zones for non-endangered species where forest clearance is banned, which is what the current Forest Reserves are. These moves would have the benefit of protecting the gorillas, the game populations, and the forest on which the local people depend for the integrity of the region's watersheds.
- (3) Because the Boki people are primarily

agriculturalists, and because their population's increase is so recent, no traditions exist that might limit overexploitation of the forest. Conservation awareness programmes



A guide and tourists viewing wild gorillas in Zaire's Virunga National Park (A. Harcourt).

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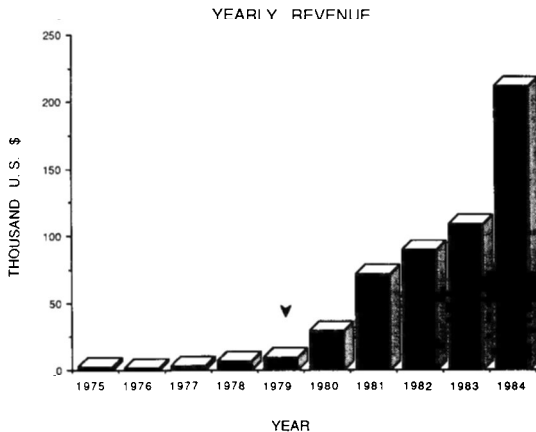


Figure 4. Revenue received by Rwanda's Volcano National Park before and after the start (arrow) of a major tourist programme.

should be initiated in order to provide the people with the knowledge that they require for informed decisions about their own and the forest's future (Aveling, 1987; Harcourt, 1986; Harcourt *et al.*, 1986; Weber, 1987).

- (4) In Rwanda and Zaire, tourism based on gorilla viewing has markedly improved the park's economy (Figure 4), and also the local economy by providing jobs and a market for local skills and produce (Harcourt, 1986; Aveling and Aveling, 1987; Weber, 1987). Tourism based on gorillas is possible in the Boki region, especially in the Obudu Cattle Ranch, and a tourism programme should be implemented.

Accounts of the 'rediscovery' of Nigeria's gorillas have appeared in the international press in Africa, Europe and North America. Gorillas are intrinsically no more important than are other organisms. Indeed on biological and conservation grounds, our confirmation of the presence of the far rarer and more endangered drill *Papio leucophaeus* should probably have received wider coverage. However, gorillas are attractive animals, as the success of the Mountain Gorilla Project in Rwanda, and the similar projects now being run in Zaire and Uganda, demonstrate. Conservation organizations in Nigeria and elsewhere should use the international interest to begin immediate conservation and development programmes in the area.

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