

# GORILLA



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*Ndume*

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## GORILLAS—WHERE AND WHAT?

Colin P. Groves

Dr. Colin P. Groves is a professor of Prehistory and Anthropology at the Australian National University in Canberra, Australia. He agreed to join the Gorilla Foundation Board of Scientific Associates in 1984. Dr. Groves wrote his Ph.D. thesis, entitled "Variations in the Skulls of Gorillas With Particular Reference to Ecology," at London University in 1966. He didn't see free-living gorillas, however, until 1971 when he visited Dian Fossey's research camp in Rwanda, Africa. The gorillas were very kind to him, although he was bluff-charged by an elephant. The majority of his scientific work has focused on taxonomy and evolution of mammals, including primates and humans. Groves has published several books: *Gorillas* (1970); *Horses, Asses and Zebras in the Wild; Ancestors for the Pigs*; and most recently, *A Theory of Human and Primate Evolution* (1989, second edition in 1991). He has also written approximately 150 scientific papers. He is the author of "Systematics of the Great Apes," published in *Comparative Primate Biology*, Volume 1, edited by J. Erwin and D. R. Swindler (Alan R. Liss, 1986). Groves states that his chief loves are gorillas, rhinoceroses, and gazelles, and that his greatest disappointment is "the unthinking cruelty that people show to each other and to other animals."

There has been a lot of controversy about gorillas lately: which other species they are related to, and what they are capable of. Like chimpanzees, they are adapted for knuckle-walking; their normal method of locomotion is on all fours, with the weight resting on the backs of their middle finger-joints; and aspects of the elbow joint, wrist, and digits are modified for this, which those of humans and orangutans are not. This suggests that gorillas are closely related to chimpanzees and that gorillas and chimpanzees together are our nearest living relatives (1).

A great deal of biomolecular evidence, however, contradicts this suggestion. DNA analysis, for example, seems to indicate that gorillas' ancestors separated from our own before the chimpanzees' (2); my own survey of a large number of anatomical features also points to an earlier separation of the gorilla line, before humans and chimpanzees had begun to diverge. Or, to put it another way, humans and chimpanzees together are gorillas' closest relatives.

There is no fossil evidence of gorilla evolution; an 8-million-year-old maxilla (upper jaw) from the Samburu Hills, northern Kenya (3) has been compared to that of a gorilla, but I am not convinced—I tend to think it is part of the common stock from which gorilla, chimpanzee, and human evolutionary lines all emerged. The human fossil record is abundant and shows that our line was separate by 4 million years ago; if we want to trace the evolution of gorillas, or of chimpanzees for that matter, we are obviously looking in the wrong place.

Gorillas today are found spottily from Nigeria to

Uganda. The most westerly population lives in the Cross River district, on the Nigeria-Cameroon border; there are also populations in the west-central forest bloc that covers southern Cameroon, the mainland part of Equatorial Guinea, Gabon, and Congo, extending into Angola (the Cabinda enclave), Zaire (Mayombe district), and Central African Republic (the far southwestern corner). Despite deforestation and extensive hunting, gorillas do seem still to exist in most of this area. There is, or was at the turn of the century, an

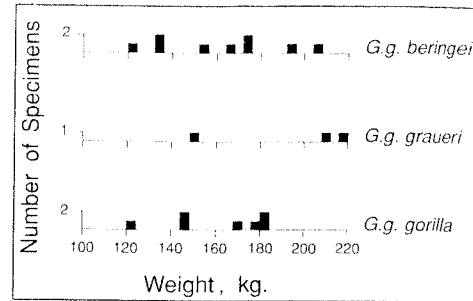


Figure 1. Recorded weights of gorillas.

isolated population near Bondo in northern Zaire. In eastern Zaire, populations extend from the Lualaba (upper Zaire) river into the mountains that line the western shores of the great Western Rift lakes: the Tshiaberimu highlands, Mt. Kahuzi, and the Itombe mountains. They occur in the Virunga Volcanoes, which lie astride the Zaire/Rwanda/Uganda border, and in an isolated forest, the Bwindi (or Impenetrable or Kayonza) Forest, in southwestern Uganda.

All gorillas belong to one species: *Gorilla gorilla*. But there are three subspecies, which look rather different from each other. A subspecies is a geographically separate, physically distinct, segment of a species. Western lowland gorillas—the ones from the Cross River, the West-Central bloc, and the Bondo region—are called, irritatingly, *Gorilla gorilla gorilla*. Eastern lowland gorillas, from eastern Zaire, are *Gorilla gorilla graueri*. The mountain gorilla, from the Virunga Volcanoes, is *Gorilla gorilla beringei*. The three differ in color and in skull shape but not really in size. The two eastern subspecies are much blacker than western gorillas, and the males have sharply marked silvery-white "saddles"; in western gorillas, the color is more brown- or grey-toned, and the male's "saddle" is less marked, and grades more into the body color, especially down the legs. Mountain gorillas have huge jaws and teeth; Eastern lowland gorillas have a long, narrow face. Mountain gorillas have long shaggy hair, especially on the arms and around the face.

There is surprisingly little information on how much gorillas weigh under natural conditions. Big, bold, white hunters shot hundreds of gorillas in the first half of the century and wrote thick books about how delighted with themselves they were for having been so brave. The only excuse for killing a gorilla—and, to our way of thinking these days, a flimsy one at that—might be for scientific enquiry. Yet very few of them even thought to weigh or measure their victims. Zoos worry a great deal about whether their gorillas are too fat or undernourished; without good data on how healthy free-living gorillas measure up (literally), it's all a bit hit-and-miss. Well, for what it's worth, I include diagrams: recorded weights of

males of each subspecies; recorded heights for males of each subspecies and female western lowland gorillas; and arm spans relative to heights.

As far as weights go, free-living adult males weigh from 120 to 219 kilograms, averaging about 165 kg. Two eastern lowland gorillas (*graueri*) weighed more than any other free-living gorillas: 209 and 219 kg—but this may be just chance. Three eastern lowland, nine mountain, and seven western gorillas, not much of a sample!

For females, it's much worse. We have just three records of weights of free-living female gorillas, all western. The weights are 72.5, 57.5, and 42.3 kg; but we don't even know whether they were fully mature or not. Male gorillas are much heavier than females, but probably not that much.

For heights, the data are a little better: Male western gorillas vary from 138 to 176 cm, females from 124.5 to 152.4 cm—so they overlap in height. Eastern lowland gorillas are larger in height as in weight; the largest of five measured was 196 cm high, a real giant (He was raiding crops in the Tshiaberimu highlands at a village called Alimbongo and was speared by the villagers as a Belgian scientist was visiting). Mountain gorillas are in between in size. But we have no height measurements for any but lowland gorillas.

The third diagram shows how wide the arm span is for a given height. The two enormous eastern lowland gorillas did not have particularly wide spans; that record went to a western gorilla of only 147 cm high, whose arm span was 272 cm.

I am interested, as you can see, in variation and in evolution, but it is difficult not to be obsessed with records. So here's another question: How old can gorillas live to be in their natural habitat? I think the oldest we know about was my friend Beethoven, who led Group 5 around Karisoke, in the Virunga Volcanoes in Rwanda. I met him in 1971. He died of natural causes in 1985, still in his group, although by that time his son Icarus, born

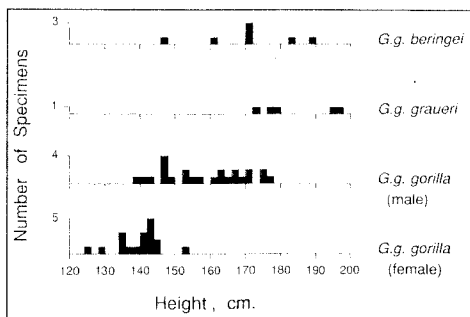


Figure 2, Recorded heights of gorillas.

about 1961 or 1962, had taken over the leadership. In his lifetime, Beethoven is known to have sired 15 offspring; the eldest of them could not have been conceived until Beethoven was fully in charge of his troop, which does not happen until a male is a mature silverback at 13 to 15 years of age. Prior to Icarus, Beethoven had sired at least two other sons: Brahms and Bartok. In 1967, when Dian Fossey first encountered Beethoven's group, Brahms was still a blackback, but Bartok was newly silvered (about 13 years of age). If Bartok was born about 1954, Beethoven must even then have been at least 13, i.e., he cannot have been born later than 1941. When he died in 1985, he was at least 44 years old.

Beethoven was truly a phenomenon. Through all the tribulations that beset the Virunga Volcanoes and their gorillas, he kept his group together. Other groups lost members, either through poach-

reserves and passing laws to protect them, though this is essential: it depends on a better life for human beings in Africa, too.

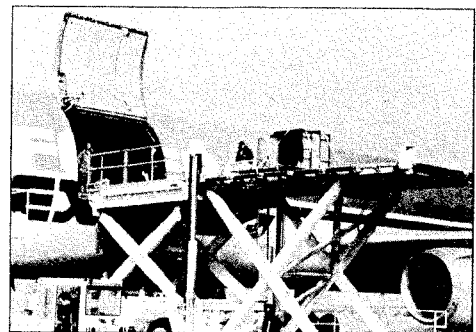
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## INTRODUCING NDUME

Ray Rooney

On December 10, 1991, Ndume, a 10-year-old male gorilla on breeding loan from the Cincinnati Zoo, arrived at the Gorilla Foundation. From the moment I met his plane at the San Jose Airport, I became Ndume's primary caregiver. His medical and behavioral records had preceded him, and we felt we were as prepared for his arrival as we could be.



Ndume arrives from Cincinnati via Federal Express.

We had been told that Ndume had acquired some unappealing habits. He would regurgitate into his hand and either re-ingest it or leave it in piles on the floor. He would also throw vomit or feces at the public when stressed or angry. We were optimistic that we would be able to alleviate the stress and reduce the frequency of these aberrant behaviors.

Along with his behavioral problems, however, Ndume was also harboring an internal parasite known as *balantidium coli*. Because of this, the routine one-month quarantine period had to be extended for an additional 90 days. Neither of our other gorillas has ever been exposed to *balantidium*, and we wanted to explore every avenue available to rid Ndume of this parasite before introducing him to Koko and Michael.

Although some of Ndume's behaviors are not always pleasant to be around, the same is not true of the gorilla himself. Ndume is extremely intelligent and has a wonderful sense of humor. Our priorities during his extended quarantine period were to work on correcting his aberrant behaviors and to promote his physical and psychological well-being. As a first step, we altered his diet by providing smaller portions at more frequent intervals with a wider variety of choices. Between

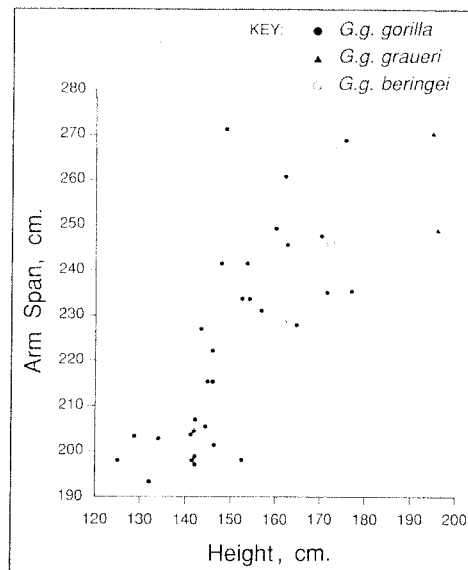


Figure 3, Gorilla arm spans compared to heights.

ing or through "kidnapping," the method by which a male acquires new female troop members (there is more female choice in the matter than is implied by this word!). But Beethoven kept his females—or, may we say that his females chose to remain with such a strong male rather than elope with neighboring young swaggerers on the make? His troop consisted of 15 members in 1967, had reduced by a few deaths to 10 in 1973, and had risen again to 12 in 1981. Today it is led by another son, Ziz, whom everyone describes as the largest gorilla they have ever seen. I wonder how much he weighs.

Gorillas are threatened today more than ever. Eighty-five percent of Gabon is still forested, and here live some 35,000 gorillas (4); but they are still hunted for meat, and logging is beginning to increase. WWF/IUCN estimates suggest 1,000-2,000 gorillas in Equatorial Guinea, the same number in Cameroon, rather more in Congo, rather less in the Central African Republic, and a couple of hundred at most in Nigeria. The *graueri* total may be 3,000-5,000; the *beringei* population in the Virungas has increased under protection from 250 to 320, and Bwindi Forest (of subspecies uncertain) has about the same number. The maximum 50,000, which is not too many when you consider that in any one of these countries the human population is ten or a hundred times this number.

And this really puts the finger on the ultimate danger: We may bemoan illegal logging, hunting, or the clearing of forest for pyrethrum, and rightly so; but even were these problems solved, lurking in the wings is the inexorable increase in the human population. Despite everything which an unfair world can throw at them—famine, poverty, military dictatorships, and now AIDS—the African people are still increasing their numbers. How can they do otherwise, when their whole subsistence way of life needs children to work in the fields or do menial jobs for cash? The future survival of gorillas depends not just on setting up