

Student Publications

John F. Reed Honors Program

Fort Lewis College

Year 2009

Great Ape Bushmeat in the Congo
Basin: The Ecological, Political, Social,
and Environmental Implications

Stephanie L. Harwood
Fort Lewis College, slharwood@fortlewis.edu

The bushmeat trade in the Congo basin is one of the foremost threats to the great apes of Africa today. Chimpanzees, bonobos, eastern, western, cross river and mountain gorillas are all highly endangered species who are looking at extinction as a definite possibility. However, many different factors are contributing to this. Many people would say that hunting these animals is just wrong, and immoral. In the end though there are many different factors to consider in order to truly understand this situation because it is not only an environmental problem, but a human problem as well.

Great Ape bushmeat hunting is a problem, complicated by the fact that the sometimes hunters may have no other choices available. For the purposes of this paper, bushmeat will be defined as the illegal hunting of endangered and protected animals. The economy and local traditions including that which culturally and traditionally determined what is appropriate to eat contribute to the issue of bushmeat. When there is no other way to make money or to feed your family, the apes in your backyard seem to be good targets. Sometimes, the economy allows for little else, and the government often will encourage such practices by just ignoring them. There is also the added factor that the logging companies contribute to this by cutting roads into the virgin forest, allowing people to get closer to these apes. Exporting these apes out from Africa is another huge problem that must be addressed, just due to the fact that this meat is being introduced to new areas and may be fostering an even greater want for it in the future.

Over logging of tropical rainforests is one of the foremost environmental problems facing the world today. This is not only happening in South America either; the tropical forests of Africa are being logged to meet the ever growing demand for tropical wood in Europe and Asia. The forests are being logged at an alarmingly fast rate,

meaning that the logging (at its current rate) is unsustainable. Logging is not something that just affects the trees of the forests though. It affects all aspects of the forests, the logging industry and current practices are taking a massive toll on the great apes of Africa and Asia.

In previous centuries logging in the forests of Africa and Asia was a sustainable practice that was done by the local people who were using the forests in a manner that did not affect its reproduction. Like most things in the world, once logging became a monetary practice, this changed. As Thomas Butynski states in his article entitled “Africa’s Great Apes,” “Low density human populations have, for thousands of years, used apes and ape habitats sustainably. This changed during the 1900’s, particularly since the 1950’s, as Africa’s human population increased rapidly and as western technologies capable of destroying apes and their forest habitats were widely accepted.”¹ Africa’s population has increased dramatically in the last 70 years with a growth rate of 2.9 percent per a year. With an estimated population of 1.5 billion by 2025, the outlook for Africa’s forests is bleak.² The increasing population means that there is a swell in demand for natural resources both for the people living in Africa, and populations in other countries are still demanding timber.

Over 10 million cubic meters of wood are being removed from Africa every year, most coming from Gabon, Cameroon, Congo- Brazzaville, Equatorial Guinea, Central African Republic, and the Democratic Republic of the Congo.³ All of these countries are

¹ Thomas Butynski, “Africa’s Great Apes,” in *Great Apes and Humans: The Ethics of Coexistence*, ed. Benjamin B. Beck, Tara S. Stoinski, Michael Hutchins, Terry L. Maple, Bryan Norton, Andrew rowan, Elizabeth F. Stevens and Arnold Arluke, (Washington: The Smithsonian Institution, 2001), 24.

² Butynski, 24

³ Dale Peterson, *Eating Apes*, (Berkeley: University of California Press, 2003), 115.

home to primates including Great Apes. Most of the countries listed have some population of chimpanzees, one has bonobos, and three have some type of gorilla living there. Yet these are all the countries with the greatest amount of timber being removed from them. The general practice of logging consists of moving into the forest and then cutting roads into the depths. Then there are specific trees that are being searched for. These are generally hardwoods that are in high demand in places like Europe and Asia because of the furniture that they can make with it.

The Sapelli tree is one such tree. For centuries it has been valued by the local people for its hardness, lightness and water resistance. The locals often used it to make dugout canoes, and homes. The mature trees also have medicinal values, and they are the only trees in the world that are host to *Imbrasia Oyemensis*, a caterpillar that serves as food during the rainy season when other food can be scarce.⁴ The Sapelli tree was later discovered by the Europeans, who also valued it for its hardness and lightness. Thus, the tree began to be exploited unsustainably. This specific tree takes over a hundred years to grow and reach the top of the canopy, which was not a problem when the trees were being used by the local culture, but now that they are being exploited, logging concessions are cutting in 40 year cycles. Forty years is not long enough for this tree to become big enough to cut, meaning that when loggers return to the areas that they cut 40 years ago, there will be no mature Sapelli trees there to cut. This is just one example of a tree that is being over exploited, there are over a dozen others.⁵

To get to this tree and others like it, logging concessions cut roads into virgin forest, with no consideration for other plants and animals that call it home. To gain access

⁴ Peterson, 196

⁵ Peterson, 196

to these highly valuable trees, they will just down everything else to get to them. This destroys the forest, and thus destroys an ecosystem. As Dale Peterson states in his book *Eating Apes*, “The double irony is that we exchange the wealth of a cash economy (by bringing in big development) for the wealth of a subsistence economy (by removing biodiversity), we are usually not even dealing with the same people. Instead, we are giving the cash wealth to one group, the urban rich, and taking biodiversity wealth from a different group, the rural poor.”⁶ The loss of biodiversity is a huge problem, because once the forests are gone, everything else will start to disappear. Without biodiversity rural populations that depend on this very diversity, and have for several generations, will suffer, and have to relocate. Also, biodiversity is a very important facet to this planet, and without biodiversity we would not be able to survive, because the loss of one part of an ecosystem means that something else will suffer, whether it be plant, animal or man. A perfect example of this is modern day Haiti; the locals logged their forests into extinction, then the rains came and all their topsoil ended up in the ocean. They are no longer able to plant anything, and thus have nothing to eat, with little potable water. This is an extreme example, but something that needs to be considered when a country decides to have unregulated logging.

Only six African countries have more than 20 percent of their original forests left, and the remaining 17 countries have less than 10 percent left.⁷ These forests are being exploited at such a high rate that they have potential to have all but disappeared by 2050. This is a terrifying idea because of what we have seen happen in other countries. There are over 130 logging company’s active in Central Africa, each logging an enormous

⁶ Peterson, 196

⁷Butynski, 25

amount of wood each year. These companies are mostly from Europe, places like Spain, Portugal, Italy, France and Germany, to name a few. They are there to meet the needs of their countries hardwood markets, and since Europe was logged out centuries ago, they have very few alternatives to get wood. This however, on its own is not the main problem. The fact that it is so easy to log in Africa because there are so few laws, and so few people to enforce these laws is the real problem.

As noted by Williams in “The Lost Continent: Africa’s Shrinking Forests,” “many logging companies have exploited the continuing political instability in the region, the lack of coherent forest management, effective conservation policies or enforcement capabilities. Illegal logging and corrupt practices are now prevalent in many areas.”⁸The logging occurring in Africa is not legal in most places, and often is being done under the table with some benefits going back to an authority within the government. In 1998 there was 80,000 cubic square meters of illegal timber from the Congo delivered in Italy, with little to no consequence.⁹ Unfortunately, this is something that happens all too often. These countries do not have the federal infrastructure to promote and sustain logging management. Companies know this, and take advantage of it. Hence, the over logging of Africa is one of the primary reasons that the Great Apes are disappearing in such great numbers.

Logging is opening up the forests, places that were once so remote that it was almost impossible to hunt animals, and then get back out before the meat spoiled. It was just too much work. Commercial logging has changed all of this. Now hunters, and loggers can enter into areas of Africa that they were never able to before, into pristine

⁸ Butynski, 25

⁹ Peterson, 196

forests and untouched populations of Apes. This opens the flood gates for many different factors that affect apes. Logging exposes them to not only to hunters, but the diseases that those hunters carry. Disease is affecting apes in Africa in great numbers, and the fact that most of the diseases that apes carry can transfer back to humans is causing widespread problems. Loss and disruption of biodiversity is another consequence gravely affecting apes. When the forest is destroyed, it also means that those apes that were living in what was then forest and now nothing, must find somewhere to live. They will often move into a neighboring group's territory, causing overpopulation in that area. This causes even more problems for the apes. Jane Goodall observed this with her chimpanzees at Gombe, who later displayed what humans would consider war -- one group systemically annihilated the other.¹⁰ Overcrowding of one individual can also cause disease to become an epidemic with the ability to wipe out an entire group. The other problem with over population is the risk of inbreeding and a decrease in the gene pool. This is just as dangerous to apes as killing them out right, because without a viable gene pool they will not be able to survive on their own.

Poverty and Commercial Trading

Bushmeat is not only an environmental problem but moral (as in a personal or societal value) and ethical (on a scientific species level) as well. It is an oversimplification to say "that eating bushmeat or killing wild animals to obtain bushmeat is wrong and those who hunt are bad." There are many different factors that have to be taken into consideration. For hundreds of generations the people of Central Africa have been hunting apes and using them and their forest to maintain a livelihood.

¹⁰ Jane Goodall, *Through a Window: My Thirty Years with the Chimpanzees of Gombe*, (New York:Mariner Books, 2000),98-111.

As discussed before, the problem now lies in the fact that the population of these same areas has increased exponentially, and the forest and all things that live in it, are in danger of disappearing completely. This is a problem not only for Africa and the people that live there, but for the whole world. Due to bushmeat, we are in danger of losing three of our closest relatives, chimpanzees, bonobos, and gorillas, who are being confined and hunted to extinction.

People in the Congo Basin and all Central African countries live in two different economies- that of a traditional subsistence and that of cash flow economy. These two often clash and one has won out over the other. There are different ways that apes have been used and hunted traditionally. The Mendjim of the Congo Basin are a traditional group, who pride themselves on the number of gorillas that they can kill in a year. They would kill gorillas for meat, use their skins for belts and collect the bones of their kills for ceremonial reasons.¹¹ They have been doing this for hundreds maybe even thousands of years and it is an important part of their tradition. The M'Betis, who lived 500 kilometers away from Brazzaville, also hunted gorillas for meat. Other groups such as the Bengum, Mahongwe, Bachangui, Sameye, and the Eschira of Gabon, the Fang of Equatorial Guinea, and many different Pygmy groups have hunted monkeys and great apes for generations.¹² This type of hunting was done in a group manner, and supported small populations of native people. They also did not have the technology, or reason, to take large numbers of apes from the forests. The amount of effort that goes into the hunting, killing, preparing and transferring of ape meat is still enormous today, let alone a hundred years ago, thus there was no real reason to kill large numbers of large animals at any

¹¹ Peterson, 39

¹² Peterson, 39-41

given time. As David Wilkie and Julia Carpenter state in their article entitled, “Bushmeat Hunting in the Congo Basin: An Assessment of Impacts and Options for Mitigation,” these types of practices probably only had localized effects, and were not overly damaging to the general ape and monkey populations, which makes sense because they did not need large amounts meat to sustain them.¹³ Hunting generally contributes to 30-80% of the protein consumed by forest dwelling families in the Congo Basin, and almost all of this protein is animal based.¹⁴ This does not mean that they are eating just ape meat though; it shows that these people are hunting to put food on their tables, as well as to sell. Who can blame them? Meat is meat. Or is it?

Prey image is the idea of defining what is acceptable and what is not acceptable to eat. Here in the United States it is perfectly acceptable to eat cows and pigs, but in place like India and Muslim countries one or both of these animals are not necessarily seen as something that is appropriate to eat. The same can be said for the people of Africa. We may not see primates, especially great apes, as appropriate prey, but native peoples have been hunting and eating forest animals, apes and monkeys, for hundreds of generations. For these people a good source of meat comes from the forest, and always has. Gorillas, elephants, cane rats, duikers and other animals are considered appropriate because they are the most readily available. Meat consumption of foragers in the eastern part of the Democratic Republic of the Congo is estimated to be 0.16 kg/person/day. It is estimated that farmers in Gabon consume between 0.10 and 0.17kg/person/day. Farmers in the

¹³ David S. Wilkie and Julia F. Carpenter, “Bushmeat Hunting in the Congo Basin: An Assessment of Impacts and Options for Mitigation,” In *The Apes: Challenges for the 21st Century, Conference Proceedings* (Brookfield: Chicago Zoological Society, 2001), 212.

¹⁴ Wilkie and Carpenter, 218.

Campo Reserve in southwest Cameroon consume 0.19kg/person/day.¹⁵ People are making use of what is around them, they do not live in the big cities where they can buy meat, and they are hunting in the forests that surround them. The fact that we in the west have such a problem with the idea of eating apes may also stem from the fact that we see these animals as wild animals rather than game.

In the United States we have a general taboo against the eating of bushmeat and there are certain groups that do not eat meat at all. This is somewhat of a rarity in our world, and vegetarianism that is not associated with religious taboos, can really only be found in first world countries. It is a luxury here to be able to be a vegetarian by choice. In the present day Congo Basin there is obviously a lack of a taboo against eating great apes, and this may have something to do with language that they use, compared to the language that we use to describe these animals.

Edmund Leach, a renowned anthropologist, wrote an article that addresses this very idea entitled, “Anthropological Aspects of Language: Animal Categories and Verbal Abuse.” In this article he discusses how we describe animals, what words we have for them and how this relates to what certain societies perceive as edible, somewhat edible or nonedible. “the edible part of the environment usually falls into three main categories: 1. Edible substances that are recognized as food and consumed as part of the normal diet. 2. Edible substances that are recognized as possible food, but that are prohibited or else allowed to be eaten only under special (ritual) conditions. These are substances which are *consciously tabooed*. 3. Edible substances that by culture and language are not recognized

¹⁵ Wilkie and Carpenter, 213

as food at all. These substances are *unconsciously tabooed*.”¹⁶ So depending on the culture, there will be certain foods that are tabooed by them, but may not be taboos by another. A good example of this is the fact that in many second and third world societies they eat insects and grubs, as a good source of protein, whereas in the United States we do not think of bugs as food. We also do not see gorillas, chimpanzees, or bonobos as food. This has to do with the fact that we have an unconscious taboo against eating apes, because we see them as our closest living relative, genetically. Many people believe that eating these animals is borderline cannibalism. In general apes are not considered appropriate food to Americans.

The distance from self was another topic discussed by Leach in his article. He believes that the further the distance from self, the less edible something gets. Wild animals (animals not considered ‘game’) are inedible, as are the animals that are closest to us (pets), and the middle ground of livestock, which are specifically raised for the purpose of eating, and game, which can be hunted only for a specific amount of time, are acceptable to eat. This is where the differences between us in the United States and the hunters in the Congo come in. We see them as wild animals, thus not to be eaten, where as hunters see them as game, and perfectly reasonable to hunt and eat. Language plays a huge part in the differences between how we perceive these animals.

When we slaughter a big animal in the west we supposedly feel ashamed, and rename the meat that we get from that animal.¹⁷ A bull or cow becomes beef; a pig becomes pork, bacon, and others, while a chicken still remains a chicken. Leach claims that this happens because of the amount of taboos we have against four legged animals

¹⁶ Edmund Leach, “Anthropological Aspects of Language: Animals Categories and Verbal Abuse,” In *New Directions in the Study of Language* ed. Eric Lenneberg (Boston: MIT Press, 1964), 31.

¹⁷ Leach, 47

that have sex like we do, as opposed to chickens which are birds. When we hear of people eating gorilla, it is still gorilla; its name is not changed. One could argue that the very word 'bushmeat' can be this umbrella term. Elephant, gorilla, chimpanzee and snake are all items that can be found under the term 'bushmeat' making it a different from referring to a specific animal.

Leach goes on to further explain how we use language to add the element of prestige to ourselves. He claims that the eating of remote wild animals is equal to a taboo against sex relation with remote strangers. What about the other way around though? If those who see sex with random strangers as exciting and exotic, would eating tabooed animals also be considered exciting and exotic? If this meat cost a lot of money and was from an endangered animal, it gains a similar exotic status. Within the United States, an example of this can be found in the wearing of mink fur coats is a sign of social status, even though minks are on the endangered species list. People will travel all over the world to have sex with random strangers that they perceive to be exotic. Sushi is still seen as something for the upper middle class to eat. All of these things are expensive. So why not apes? Apes are the cream of the crop when it comes to exotic animals, much like elephant, so why not eat them? Prestige plays a role like this in the urban African markets as well, because it was found that people would pay more money "for the privilege of eating bushmeat."¹⁸ In Libreville, Gabon bushmeat was \$3.70/kg-which was more than 1.6 times the price of the most popular cut of beef. ¹⁹ This is not true for all cities in the Congo Basin, nor is it true for all types of bushmeat, but the evidence is there. Prestige is a part of the bushmeat trade in Africa as well. Leach would claim that

¹⁸ Wilkie and Carpenter, 218

¹⁹ Wilkie and Carpenter, 218

the fact that we see them as zoo animals in the United States is one reason why we do not eat them, but what about for those who are traveling, visiting, and live in the areas that these animals live in? ²⁰ These areas were heavily colonized, and the eating of apes, gorilla especially, was seen as a luxury to these upper classes of white men.²¹ It is of no surprise then that the main countries that own the logging companies in the area, and are allowing hunting to go on are the countries that used to own the land. Not to be mistaken as justification for eating apes, but the use of language theory as considering another aspect in the controversial subject.

The real problem is the commercialization of hunting in Africa. Hunting was obviously a sustainable practice before the advent a global desire for bushmeat. Less human population and higher ape population made hunting in the first half of the 20th century much more sustainable. In 1987, the number of chimpanzees was estimated at around 30,000, significantly fewer than original population estimate of 600,000 at the turn of the last century. The number of bonobos is down from 200,000 to 50,000, western gorillas are estimated to be 95,000 but this too is down from an original population of around 900,000. Eastern gorillas are estimated to be around 17,500, down as well from a population of 500-600,000 individuals.²² These numbers are astonishing when you think about them, because there are so few left compared to what used to exist. It is reasonable to assume that there would be a drop in the population due to the increased population of humans in these areas, but the majority of this population decrease has happened in the last 50 years, and the rate of population decrease increases every year. This increase is due to many things, including a direct correlation to the poverty of the people of this area.

²⁰ Leach, 41

²¹ Wilkie and Carpenter, 219

²² Butynski, 19-21

Ever since the end of colonialism in Africa, the countries that were left have struggled with poverty. In 1988, cocoa prices dropped on the international market, and there was a huge spike in bushmeat hunting and selling in the Congo basin. The gross domestic product declined 6 percent and the number of families (in Africa) living below the poverty line increased from 50 percent to 70 percent.²³ Any type of economic downfall like this generally means an increase in the amount of bushmeat being exported from the forest and into homes and onto the market.

For privileged people eating apes seems a moral issue. However for poverty stricken people it is about survival. In the last 20 years, there has been a significant fall in the economy of most of Africa, and this has in turn meant an increase in the bushmeat trade. Due to the weak government systems of these areas it is much easier to exploit and thus logging companies have been increasing their productivity. For this reason, hunters are really the little guys in this big problem. The majority of these men are hunting because it makes more money than working any type of job for the government, especially a poaching ranger. Poaching rangers are generally paid very little, and when there is turmoil they are often the last ones paid, if they are paid at all. When situations like this arise, they generally revert to poaching as well.²⁴ The forest is a free area to exploit because it's right outside in their back yards. They have few options and it costs little to hunt. Many government officials supply the ammunition and guns to hunt these apes, and because apes are considered such a delicacy in most areas, missionaries have also been documented asking for gorilla for special holidays.²⁵ These people cannot often

²³ Peterson, 194

²⁴ Robert M. Sapolsky, *A Primate's Memoir: A Neuroscientist Unconventional Life Among the Baboons*, (New York: Simon and Schuster, 2001), 30

²⁵ Peterson, 220

help but hunt especially when the domestic meat costs so much more than that which comes from the forest.

In most markets the selling rate of bushmeat, especially ape meat, is 10 to 25 cents higher than that of any other meat.²⁶ For the people of the cities, where the forests are not as accessible, bushmeat is something that has to be paid for rather than hunted. Most bushmeat in the Congo doubles in value once it enters into the city.²⁷ Thus it is not surprising that there is ape hunting going on. The real money comes in though when the meat leaves the country. “3,000-6,000 apes are killed every year for the bushmeat trade.”²⁸ This was the estimate in 1997. Another estimate was 7 percent of chimpanzees and 5 percent of gorillas each year.²⁹ This is a massive amount of meat to take out of the forest each year, and when you consider that more than half of it ends up in other countries, there is a lot of money coming in. It is understandable that some men who need to put food on their tables would do so by hunting. Dependency on bushmeat for survival does not apply to all who consume it. For example for many non-native people like missionaries, foreigners, affluent Africans, eating bushmeat becomes an exotic yet extraneous opportunity. The survival of people in other countries, is not dependent on eating delicacies, be it apes, caviar, sushi and others. The problem is that these types of hunting practices in Africa are being encouraged by logging companies and the governments and supported by foreigners that are not reliant on this source of protein. Eating Apes can be dangerous for humans, apes and other primates.

²⁶ D.S. Wilkie, “Bushmeat Trade in the Congo Basin,” in *Great Apes and Humans: The Ethics of Coexistence*, ed. Benjamin B. Beck, Tara S. Stoinski, Michael Hutchins, Terry L. Maple, Bryan Norton, Andrew rowan, Elizabeth F. Stevens and Arnold Arluke, (Washington: The Smithsonian Institution, 2001), 92.

²⁷ Wilkie and Carpenter, 218.

²⁸ Butynski, 27

²⁹ Butynski, 27

Disease

Human to primate and primate to human disease transfer is one of the most dangerous circumstances facing both populations today. The fact humans are so genetically similar to most primates, and especially apes, allows for many different kinds of disease to be shared between us and our closest relatives. There are several diseases including Polio and Tuberculosis that primate populations have received from their contact with humans, and humans have received many from primate populations as well. These include some of the most threatening viruses of our time: HIV, Ebola, Monkeypox and B-virus. How are these diseases spread and what affect do they have on both primate populations as well as human populations? Is there anyway to stop these transfers? That is what I am going to address next in this paper, in order to shed some light on this problem, and demonstrate how it directly relates to other conservation problems that primates face everyday.

Primates are very closely related to humans, and are known as our closest cousins. The great apes share the most DNA with us, with the chimpanzees differing in as little as 1% from the human genome, and the other 3 species varying in anything from 1-3%. These similarities are the reason that they are able to share so much with humans, including intelligence, tool making and, of greatest concern, disease. It is not only great apes that can share disease with humans though, through zoonosis, many animals do. Zoonosis is defined as “a disease that is transmitted to humans through contact with non-human animals.”³⁰ Thus we have gotten many diseases from non-human animals, such as herpes, which probably came from eating clams, and tuberculoses from pigs. Once

³⁰ Robert Jurmain, Lynn Klgoe, Wenda Trevathan, *Introduction to Physical Anthropology* 10th edition (California: Thomson Wordsworth, 2005) 435.

humans became more agricultural, there was an increase in zoonosis related diseases due to the fact that humans were spending more time around livestock. The difference now is humans and primates are able to share diseases that are genetically identical to one another and, they do not necessarily have to mutate to take hold in the other population. This transfer that I have been talking about is more scientifically known as a vector. Vectors are defined as “agents that serve to transmit disease from one carrier to another.”³¹ The vectors for disease between humans and primates are innumerable, as are the diseases themselves. See graph at end of paper

As can be seen from the graph above human-primate disease vectors go both directions and contain some of the most deadly known viruses to mankind. Not only are some of these extremely dangerous to humans, but most are deadly to primates. The spread of human virus in primate populations can all but annihilate them. Polio and Pneumonia are the two most dangerous human borne pathogens to a chimpanzee as well as to most primates. In the 1970’s Jane Goodall witnessed a plague of Polio that wiped out a significant number of the chimpanzees that she was studying in the Gombe Stream National Park, and permanently maiming many more. This was brought on by a sudden outbreak in Polio in a nearby village, and it somehow traveled and infected the chimpanzee population. In the words of Jane Goodall “the situation for chimpanzees in the wild is quite fragile. Epidemic diseases such as polio and pneumonia can suddenly decimate a community.”³² Not only chimpanzees suffer from Polio epidemics though. Gorillas, orangutans and bonobos do as well.

³¹ Jurmain, 436.

³² George K. Russell, “Reaching Across the Species Barrier: Jane Goodall on Chimpanzees,” The EnviroLink Network, arts.enviolink.org/interview_and_conversations/JaneGoodall.html.

Some species though are more susceptible to certain types of diseases than others. For example, gorillas are more affected by Pneumonia than most, due to the fact that they generally live at higher altitudes (especially the mountain gorilla).

Another disease that can affect almost all primates, and is almost always fatal, is tuberculosis. Tuberculosis or TB was introduced to primates from both human pathogens and livestock. Chimps at Gombe were observed to have gotten TB from a human source, while a troop of baboons in Robert Sapolsky's book *A Primates Memoir* was decimated by a strain of bovine TB which they got from eating meat that was thrown out at a hunting lodge in Kenya.³³ Thus they did not have human TB but they were still exposed to it due to humans. These diseases were at one time or another just as fatal to humans as they are to primates today, but due to vaccines, humans may not have the disease itself, but still carry the pathogen to spread it. This does not mean however, that primates cannot spread disease among one another.

Diseases such as Polio, Pneumonia, Ebola, and TB can be spread from primate to primate. Again, this was observed by Jane Goodall in her chimp population at Gombe when the Polio epidemic hit. It is seriously affecting primates today as well, as they spread Ebola from one population to another. Ebola is a serious threat to the already very small population of gorillas that remain in the wild. One third of the populations of gorillas living in National Parks and protected land in central Africa have been killed by this virus in the last 15 years.³⁴ Gorillas are able to spread the virus from one another, and from one population to the next making it one of the biggest threats to their species

³³ Saplosky, 285 and Goodall,

³⁴ ³⁴ Peter Walsh, "Q& A about Ebola Virus and Wild Apes" Max Planck Institute for Evolutionary Anthropology, <http://email.eva.mpg.de/~walsh/qa.html#basic>.

today. Not only can they spread it to each other, but they can spread it to humans as well. There is a direct correlation between the number of human deaths from Ebola and the number of gorilla deaths.³⁵ This is not the only disease that is spread from primates to humans though. Monkeypox, B-virus and HIV are all directly correlated with primate related diseases that have spread to humans.

“Bites from wild primates may also play a role in the transmission of certain pathogens. For example, chimpanzee-to-human transmission of Monkeypox occurred when a wild chimpanzee bit a two year old girl.”³⁶ Primate-human vectors for disease often have something to do with the direct interaction of humans and primates rather than other vectors. A great example of this is the case of SIV that turned into HIV-1 and HIV-2, which would eventually morph into the most dangerous epidemic in the world today: AIDS. “Comparisons of the DNA sequences of HIV-2 and the form of SIV found in one monkey species (the sooty mangabey) revealed that, genetically, these two viruses are almost identical. These findings led to the generally accepted conclusion that HIV-2 evolved from sooty-mangabey SIV. Moreover, sooty mangabeys are hunted for food and also kept as pets in western-central Africa, and the transmission of SIV to humans probably occurred through bites and the butchering of monkey carcasses.”³⁷ The same can be said of HIV-1, which is believed to have come from the butchering of chimpanzee carcasses rather than the butchering of sooty mangabey carcasses. “Hence, HIV/AIDS is a zoonotic disease. The DNA evidence further suggests that there were at least three

³⁵ Walsh, <http://email.eva.mpg.de/~walsh/qa.html#basic>.

³⁶ Nathan D. Wolfe, Ananias A. Escalante, William B. Karesh, Annelisa Kilbourn, Andrew Spielman, and Altaf A. Lal, “Wild Primate Populations In Emerging Infections Disease Research: The Missing Link?” *Emerging Infectious Diseases*: National Center for Infectious Disease, <http://www.cdc.gov/ncidod/eid/vol4no2/wolfe.htm>.

³⁷ Jurmain, 439.

separate human exposures to chimpanzee SIV, and at some point the virus was altered to the form that we call HIV.”³⁸ There is a common thread here; close human contact with primates has indeed led to the increase of disease vector pathogens resulting in deadly diseases being shared between the two. (See appendix 1)

The fact that humans are coming into contact with primates in the wild more now than ever explains in part is why there has been an increase in the spread of disease between the two. Human encroachment on habitat, hunting, poaching, and capture of primates has led to such diseases as HIV/AIDS, Ebola and Monkeypox being released into the human population, whereas if humans had never hunted them, there may not have been the development of such dangerous diseases. If humans had not encroached on the habitat of the animals then they probably would not have gotten these diseases either. I believe that for these two reasons alone, conservation on the most drastic scale must be done. Without such efforts, and the increase in globalization that the world is experiencing now, these diseases will become more and more dangerous to both human and primates around the world, and may result in the complete extinction of many if not all primate species.

Endangered Species

All apes are endangered, which means that no matter if it is open hunting season or not, it is illegal to kill them. Unfortunately though, this is something that is often overlooked, due to the fact that there is very little government backing of these laws. There are several different international laws put out by the UN, CITES and other organizations that strictly prohibit the hunting of endangered animals, especially those close to

³⁸ Jurmain, 439.

extinction. Without the government infrastructure to back these up, it's nearly impossible to regulate.

There are several national parks, reserves and other nationally and internationally protected areas where apes live, and in theory, they should be protected there.

Unfortunately sometimes, it really just gives poachers and hunters a better idea of where to look for these animals. Many rangers are known for poaching the animals that they are suppose to be protecting, especially when they are not being paid.³⁹This is a social and economic problem that is directly affecting these animals. The CITES Convention discussed the problems that are going on with the international trade of endangered species and makes this conclusion, "Through the Convention on International trade, we have identified those species that are particularly threatened or endangered as a result of international trade, which include species like gorillas, elephants, and some crocodile species. There is a complete commercial ban on the trade in their meat for any reason. And the US Fish and Wildlife Service aggressively enforces those kinds off imports into the United States."⁴⁰

Clearly other action must be taken due to the fact that there is so little regulation of bushmeat, in effect to try to regulate the importation of meat into the given country. The United States is one such place as seen in the above quote. It has very strict policies about what can and cannot be brought into the country. Consequently there is a much smaller market for the bushmeat in the US, unlike many places in Europe.

There is documentation of gorilla meat being served in high end restaurants in both Paris and London. The French are some of the highest importers of ape meat, but

³⁹ Saplosky, 30

⁴⁰ *Congressional Record*, 171st Congs., 2nd sess., 2002, 24, p.t. Y 4.R 31/3:107-137

this is something that is not surprising. Many of the countries in the Congo Basin were once French colonies. The fact remains, these animals are endangered, and it is illegal to kill and or to eat them.

Conclusions

Great Apes of Africa's Congo basin are our closest living relatives and they are on the brink of extinction. The loss of biodiversity, exploitation of the forests that they live in, and hunting them for meat are all contributing to this threat. It is however, deforestation that is the ultimate cause to this threat. Deforestation in the Congo Basin is unsustainable in its own right, but the hunting that the logging companies are facilitating is making the threat to the great apes even worse. Their habitat is being destroyed and they are being hunted much more than they were before. These two things are in turn affecting the biodiversity of these forests.

More than any other groups of animals, great apes can tell us much about ourselves, perhaps even what it means to be human. Without great apes our world would be even less diverse and we would be losing the one group of hominidae that can tell us the most about ourselves. They share so much genetic material with humans, especially chimpanzees and bonobos who share more than 98% of our genetic makeup. We can learn so much about ourselves by studying them and their behavior. Great apes are also valuable in their own right, they are part of their environments, and thus needed in these forests to fulfill a specific niche. They are part of the biodiversity of this planet and should be valued for that as well. The hunting of great apes at its current rate is unsustainable, and will be in the current world market and African markets are demanding them as food. Can this entire problem be linked to greed then? No one really

needs to be eating great apes. Yes, there are native societies in Africa that have been hunting them for generations, but it was not until colonialism and a global economy that these apes truly began to be threatened by the outside world. There was no reason for the native groups to take more than a few of these animals a year, and since the human to ape ratio was more equal, it really didn't cause any problems. Now with the mass forest downing by European logging, and the new camps that their employees set up, it seems as though these apes have no hope of survival. The very fact that these logging companies are supplying their people with large game rifles and large game ammunition is unnerving. All of the big game animals in the Congo basin are protected by law, whether it be a duiker, gorilla, chimpanzee or elephant, it is illegal to kill them. These logging practices are giving access to hunters that were previously too deep in the forest, or these areas were previously protected.

What is our responsibility as citizens of a global economy? What would we give up if it meant saving a species? Things like coffee, cocoa, palm oil, and exotic hard woods all come from rainforests, many of which are being downed in order to grow or harvest these items that we see in our daily lives. Could America give up coffee? Chocolate? I understand that these types of items are being grown in places other than recently cleared rainforest, but it is the principle of the idea. To change the course of extinction, would it be as simple as being a responsible consumer and buying food locally?

This paper is trying to show both sides of the issue, the human issues along with the conservation issues. As a friend of mine once said, "You may have to help the people in order to help the animals." The people that hunt the apes are employed by the logging

companies, and the logging companies are serving the consumers of Europe and the United States. A significant portion, more than half, of the population of the countries that are part of the Congo Basin, live under the poverty line and are faced with the constant threat of war, genocide, economic fluctuation, and natural and or manmade disaster. Their governments are unstable and in turn so are their lives. In the end though, bushmeat trade is a multifaceted problem that had led towards an unsustainable environment for great apes within the Congo Basin. I don't have the answers on how to fix this problem, but I hope that by opening up the conversation to a greater audience will allow for a greater understanding of this situation and hopefully bring about some sense of change and hope for these animals as well as the people who live with, and eat great apes.

Appendix 1

Table. Routes of pathogen exchange between human and nonhuman primates

Route of exchange	Pathogen	Direction of exchange	Evidence ^a	Reference
Animal bite	Herpes B	Nonhuman primate to human	E	6 ^b
	Monkeypox	Nonhuman primate to human	E	7
Fecal-oral	Poliovirus	Human to nonhuman primate	L	2 ^b
	Poliovirus	Chimpanzee to chimpanzee	E	8
Hunting, food prep & eating	Ebola	Nonhuman primate to human	E	9
Nasal secretions	<i>Mycobacterium leprae</i>	Among primates	P, L	10 ^b
Respiratory droplet	Tuberculosis	Human to nonhuman primate	L	11 ^b
Vector-borne	Malaria	Both directions	L,E	12 ^b
	Filaria	Both directions	L,E	8 ^b
Water-mediated	Dracunculiasis	Human to nonhuman primate	L	13
	Schistosomiasis	Nonhuman primate to human	E	14
Xenotransplantation	SV40	Nonhuman primate to human	E ^c	15 ^b

^aL = laboratory; E = epidemiologic ; P = evidence that parasites live naturally in multiple primate hosts.

^bEvidence reviewed.

^cThe only current evidence for xenotransplantation includes SV40 spread through vaccine production.

41

⁴¹ Wolfe, <http://www.cdc.gov/ncidod/eid/vol4no2/wolfe.htm>.

- Ammann, Karl. "Bushmeat Hunting and the Great Apes." In *Great Apes and Humans: The Ethics of Coexistence*, edited by Benjamin B. Beck, Tara S. Stoinski, Michael Hutchins, Terry L. Maple, Bryan Norton, Andrew rowan, Elizabeth F. Stevens and Arnold Arluke. Washington: The Smithsonian Institution, 2001.
- Butynski, Thomas M. "Africa's Great Apes." In *Great Apes and Humans: The Ethics of Coexistence*, edited by Benjamin B. Beck, Tara S. Stoinski, Michael Hutchins, Terry L. Maple, Bryan Norton, Andrew rowan, Elizabeth F. Stevens and Arnold Arluke. Washington: The Smithsonian Institution, 2001.
- Carpenter, Julia and Davis S. Wilkie. "Bushmeat Hunting in the Congo Basin: An Assessment of Impacts and Options for Mitigation." In *The Apes: Challenges for the 21st Century, Conference Proceedings*. Brookfield: Chicago Zoological Society, 2001.
- Davies, Glyn, David Brown. Eds. *Bushmeat and livelihoods: Wildlife Management and Poverty Reduction*. Oxford: Blackwell, 2007.
- Fossey, Diane. *Gorillas in the Mist*. Boston: Mariner Books, 2000.
- Goodall, Jane. *Through a Window: My Thirty Years with the Chimpanzees of Gombe*. New York: Mariner Books, 2000.
- Jurmain, Robert, Lynn Klgoe, Wenda Trevathan. *Introduction to Physical Anthropology* 10th edition. (California: Thomson Wordsworth, 2005.
- Kalter, S.S. "Infectious diseases of the great apes of Africa." In *The Great Apes of Africa*, edited by R.V. Short and Barbara J. Weir. Cambridge: The Journals of Reproduction and Fertility Ltd., 1980.
- Leach, Edmund. "Anthropological Aspects of Language, Animal Categories and Verbal Abuse." In *New Direction on the Study of Language*. Edited by Eric Lenneberg. Boston, MIT Press, 1964.
- Napier, J.R & P.H. *The Natural History of the Primates*. Cambridge: MIT Press, 1985.
- Peterson, Dale. *Eating Apes*. Berkeley: University of California Press, 2003.
- Russell, George K. "Reaching Across the Species Barrier: Jane Goodall on Chimpanzees." The EnviroLink Network.
http://arts.envirolink.org/interviews_and_conversations?JaneGoodall.html
 (accessed November 13,2007)

Sapolsky, Robert M. *A Primates Memoir: A Neuroscientist's Unconventional Life Among the Baboons*. New York: Simon & Schuster, 2001.

Stanford, Craig. *Significant Others: The Ape-Human Continuum and the Quest for Human Nature*. New York: Basic Books, 2001.

Street, Shelly A. "Identifying Areas Prone to Illegal Bushmeat Hunting, Tanzania." M.A. diss., Colorado State University, 2008.

The developing crisis facing wildlife species due to bushmeat consumption [microform] : oversight hearing before the Subcommittee on Fisheries Conservation, Wildlife, and Oceans of the Committee on Resources, U.S. House of Representatives, One Hundred Seventh Congress, second session, July 11, 2002.

Walsh, Peter. "Q&A about Ebola Virus and Wild Apes." Max Planck Institute for Evolutionary Anthropology. <http://email.eva.mpg.de/~walsh/qa.html#basic>. (accessed November 13, 2007).

Wilkie, David S. "Bushmeat Trade in the Congo Basin." In *Great Apes and Humans: The Ethics of Coexistence*, edited by Benjamin B. Beck, Tara S. Stoinski, Michael Hutchins, Terry L. Maple, Bryan Norton, Andrew rowan, Elizabeth F. Stevens and Arnold Arluke. Washington: The Smithsonian Institution, 2001.

Wolfe, Nathan D., Ananias A. Escalante, William B. Karesh, Annelisa Kilbourn, Andrew Spielman, and Altaf A. Lal. "Wild Primate Populations In Emerging Infections Disease Research: The Missing Lin?" *Emerging Infectious Disease* National Center for Infectious Disease. <http://www.cdc.gov/ncidod/eid/vol4no2/wolfe.htm>. (accessed November 12, 2007)