

Bush-Meat Trade and Wild Life Depletion

Dr. RADHARAMANAN PILLAI

Commercial hunting is decimating wildlife populations across the tropics and may be one of the gravest threats presently facing rainforests. Studies reveal that large-scale loss of wildlife is already affecting forest health and regeneration. The rough estimates show that millions of animals are killed each year in Africa, Asia, and the Amazon for subsistence hunting and the bush-meat trade. The numbers include mammals, birds, and reptiles. The present chapter discusses the dimension of bush-meat trade and the consequent wild life depletion.

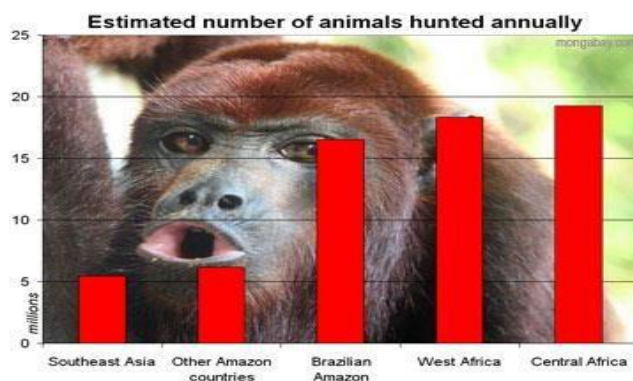
Keywords: Technology, Forests, Hunting, Situation and Markets.

Historical Context

Humans have long hunted wild animals from forests, but over the past 50 years commercialization of killing has triggered a rapid increase in wildlife depletion. Many studies found that mass extinction of large animals is a real threat in the forest wilderness and biodiversity (Peres and Palacios. 2007). While man has hunted wildlife in Asian forests for at least 40,000 years, to date there has been only a single confirmed global extinction—the giant pangolin, a scaly ant-eating beast that once roamed the jungles of Southeast Asia (Corlett 2007). However, this may not be the case for long in Africa. There is no strong evidence for unsustainable hunting pressure until the last 2,000-3,000 years, when elephants, rhinoceroses, and several other species were progressively eliminated from large parts of their ranges in Africa. Over the last 50 years, the importance of hunting for subsistence has been increasingly outweighed by hunting for the market.

The hunted biomass is dominated by the same species as before, sold mostly for local consumption, but numerous additional species are targeted for the colossal regional trade in wild animals and their parts for food, medicines, raw materials, and pets. Historically, the situation is not better in Africa, even though, about three-fifths of large mammals are being harvested in the Congo. Basin at rates that threaten their existence. By comparison, the situation in the Amazon is better than in both Asia and Africa, studies indicate that hunting pressure in the Amazon is often underestimated and wildlife density is fast-thinning, even in remote and protected areas (Dirzo. et. al 2007). Large species are the first to go. This is the most robust, comprehensive, large-scale meta-analysis on the effects of subsistence hunting on game vertebrate populations ever conducted for a large tropical forest region. Hunting-mediated population declines in harvest-sensitive vertebrate species are far worse than expected.

The total extent of partially defaunated, but otherwise 'pristine' tropical forests, is often severely underestimated. For example, subsistence hunters have access to most areas of lowland Amazonia, affecting even the core of many relatively remote nature and indigenous reserves. "Only 1.6 percent of Brazilian Amazonia is both strictly protected on paper and inaccessible to game hunters.... Most large game birds and mammals have been severely reduced to a small fraction of their original population densities, often just 1 to 5 percent of the densities of the same species in similar protected forests (Peres and Palacios. 2007).



Factors Amplifying Wildlife Depletion

Several factors contribute to the overexploitation of forest game, including economics, improved infrastructure, the emergence of regional and international markets, and new technology. The weak economies of many tropical countries fail to provide sufficient jobs for their growing populations, while land-use change, improved infrastructure, and new technology facilitate commercial hunting (Wang, et.al. 2007). Land-use change brings hunters and their markets closer to previously remote forests. Improved infrastructure provides access to forest interiors over roads opened for timber and mineral extraction as well as access to distant urban markets.

The new technologies include guns, wire snares, battery-powered lights, and motorized transport and have largely replaced traditional hunting technologies even among indigenous peoples (Muller-Landau. 2007). Collectively, land-use change, improved infrastructure, and new technologies increase the return for time spent hunting and make it possible for hunters to deplete their prey to lower levels. These factors combine to create the pantropical 'wild meat' or 'bush-meat' crisis¹.

The other major driver of increasing hunting pressure has been the development of markets and associated trade routes for almost any mammal that can be captured. The range of species involved seems to be a unique feature of Asian wildlife markets, and the trade has strong cultural underpinnings on both the supply and demand sides. The demand for luxury food and nonfood animal products comes largely from an increasingly wealthy urban market, able to pay high prices and willing to accept substitutes when a previously preferred species is extinct (Nunez-Iturri and Howe. 2007). This sort of pressure has the potential to strip forests of almost

all mammal species. Forest fragmentation has made it easier to exploit game while population growth has driven demand.

The major over this period has been the increased accessibility of the remaining forests to hunters and their markets, as a result of forest fragmentation, population growth, and improved infrastructure. By the 1990s, less "frontier forest"—large, more or less intact, natural forest ecosystems—survived in tropical Asia than elsewhere in the tropics, and many countries in the region² had already lost 98-100 percent. Indonesia, the country that has the largest remaining area of frontier forest, has suffered massive deforestation in the past decade and that much of the forest that has not been cleared has been logged, resulting in both a temporary increase in hunting pressure to provide meat logging camps and a permanent increase in accessibility (Wright, et.al. 2007). The trends for wildlife are not favorable. The major change over this period has been the increased accessibility of the remaining

Ecological Implications

The impact of "defaunation" on tropical forest ecology is significant, affecting seed dispersal and predation, which, in turn, alter the species balance and dynamics of the forest. All the major dispersal agents of large fruits in the Oriental region—large birds, primates, large fruit bats, civets, and terrestrial herbivores—are hunted, and many species have now been eliminated from most of their natural ranges. The only mammalian frugivorous that thrive in human-dominated landscapes are some small fruit bats. Birds cannot compensate for the loss of mammals in such landscapes, even for fruit species consumed by both groups, because only small-gaped bird species survive (Stoner, et.al. 2007). Similarly, widespread hunting of frugivorous in Amazonian forests will produce a collapse of seed-dispersal services for dependent plant species in some areas, altering plant community composition.

Hunting has pervasive effects on tropical forest plant communities altering levels of pre-dispersal seed predation, primary and secondary seed dispersal, and post-dispersal seed predation, which, in turn, alter seedling and sapling species composition. A discouraging possibility is that plant species composition might shift to a new steady state with crucial plant species absent or at such low numbers that animals fail to recover.

Global conversation implications

Researches show that smaller corporations based in developing nations are sometimes less interested and often less capable of financially investing in environmental protection. This observation leads the researchers to ask, "As conservationists, do we pressure large, multinational corporations based in industrial nations to forgo major projects in developing countries in an effort to limit environmental degradation, or do we favor such firms over smaller, national companies in the hope that they will be more sensitive to international pressures?" (Muller-Landau. 2007). While their question is especially pertinent to Central Africa, it really applies to conservation on a worldwide scale. Multinational corporations can be particularly sensitive to criticism on their environmental policy and, as a result, can actually serve as competent stewards of the environment in some cases. Thus, pressure exerted by green groups on large corporations may be an effective means for achieving conservation goals.

Nowhere is this more evident than sub-Saharan Africa where government conservation initiatives have often failed to protect land or wildlife. Despite decades of efforts to establish protected areas in some countries, Africa lost the highest percentage of rainforests during the 1980s, 1990s, and early 2000s of any regions on Earth, according to the United Nations (Beckman, et al. 2007). Poverty, civil strife, and commercial exploitation continue to inflict a heavy toll on Africa's wildlife populations and rich ecosystems

Solving the Bush-meat Crisis

It is now widely recognized that the sustainable harvest of wildlife is incompatible with the persistence of large-bodied, slow-reproducing forest vertebrates. While there may be short-term gains for hunters in over-harvesting wildlife, these gains are not enough to permanently lift them out of poverty (Peres and Palacios. 2007). A range of actions has been suggested to reduce the impact of hunting on tropical forest vertebrate communities, but only enforcement has the potential to act fast enough to prevent the regional, and in some cases global, extinction of the most vulnerable species.

The top priority should be controlling the trade of wildlife products on the local, regional, and global scale. The launch of the ASEAN (Association of Southeast Asian Nations) Wildlife Law Enforcement Network is a step in the right direction. Operating on the premise that controlling hunting will be easier if demand is reduced, the education and awareness campaigns can help cut demand for wildlife products. The zoos should be enlisted in the effort, though the greatest gains will come from involving local people in conservation by hiring former hunters as rangers, guides, and research assistants. This will help local people see forest wildlife as a recurring source of income far more than just a meal and help build support for conservation initiatives that protect wildlife and ecosystems.

Conclusion

Even as the bush-meat crisis mounts, the researchers are hopeful. Researchers believe that one of the keys to addressing unsustainable hunting is to first acknowledge that it is a threat. The main message is that conservationists in Africa have not given sufficient attention to hunting. The focus has been first on the admittedly horrendous rate of forest loss and secondly on logging. However, much of the remaining forest, protected or not and logged or not, has lost most or all of its large mammals. We need to solve the hunting problem in existing protected areas, rather than adding more "paper parks." This is going to require action at both ends—enforcement in the forest and control of the local and regional trade in wild animals and their parts that fuel it.

The control of hunting and trade in wildlife should be the first priority for governments, NGOs, and individual conservationists in tropics and subtropics. Reductions in deforestation and logging, and the establishment of new protected areas, are all urgently needed, but without a drastic reduction in hunting pressure, they will not be enough to save the region's large mammal fauna from extinction. Unless immediate action is taken, the megafaunal extinctions that have eliminated half the world's mammalian genera—45 kilograms over the last 50,000 years—will

have been merely postponed.

Notes

In Asia market pressure on wildlife is particularly intense. China, India, Laos, Vietnam, and the Philippines. WWF's 'Heart of Borneo' project is a good example of a plan that does not seem to give adequate attention to hunting. If Malaysia cannot protect the fauna of the most botanically diverse forest in the world at Lambir, what hope is there for the interior of Borneo? While noting that most hunting in Southeast Asia is illegal but that law enforcement is currently weak; hunting impacts can be greatly reduced where there is sufficient political will.

A new study published in the *Conservation Biology*, found that roads and associated hunting pressure reduced the abundance of a number of mammal species including duikers, forest elephants, buffalo, red river hogs, lowland gorillas, and carnivores. The research suggests that even moderate hunting pressure can significantly affect the structure of mammal communities in central Africa.

The *Conservation Biology* study examined a 400-square-mile area of tropical rainforest in southwestern Gabon, of which 130 square kilometers was the Rabi oil concession operated by the Shell-Gabon Corporation since 1985. The area served as a good study site because Shell's closely guarded and carefully regulated concession effectively protects the forest from hunters and incursion by outsiders. Such is not the case in the unprotected areas outside the concession, where road density is higher and hunting and development pressures are greater. By comparing mammal abundance and behavior between the two areas, the researchers found that roads had the greatest impact on large and small ungulates, causing important changes in mammal community structure. Further, say the researchers, hunting and roads may also alter the behavior of many species, with wildlife outside the concession area possibly showing a higher propensity to flee when confronted by humans.

The findings are significant because unlike previous studies in the region, which generally focused on only a single species, the researchers were able to "quantitatively assess the relative effects of roads and hunting (and their interaction) on different species and guilds of mammals." More broadly, the scientists say that their work has "both general and key local relevance, because the study area is a potentially critical corridor between two recently designated national parks in Gabon, and its future is far from secure." The scientists explain that because oil production in the Rabi concessions has dropped by nearly 80 percent since 1997, it is expected that Shell Oil will eventually abandon its concession which could result in "a dramatic increase in hunting, logging, and slash-and-burn farming, as well as continued oil production by smaller companies" less attuned to environmental concerns than the multinational giant. Since the Shell concession has essentially served as a wildlife refuge, its abandonment could have significant consequences for resident animal populations in this exceptionally biodiverse region.

"Although the Rabi concession is being intensively managed for oil production, the prohibitions on hunting and nighttime driving, restricted access for non-employees, and guidelines designed to minimize deforestation inside the oil concession are clearly having important benefits for wildlife," write the researchers. "Among all of our study sites outside the concession, the one nearest the concession...had the highest mammal abundances, suggesting

that the Rabi concession might be acting as a population source and outside areas as a population sink for wildlife... Hence, the Rabi oil concession is probably better protected from poaching and illegal encroachment than are most national parks in Gabon."

Reference

- Beckman, N., and H. C. Muller-landau. 2007. *Differential effects of hunting on pre-dispersal seed predation and primary and secondary seed removal of two Neotropical tree species*. *Biotropica* 39: 328-339.
- Orlett, R. T. 2007. *The impact of hunting on the mammalian fauna of tropical Asian forests*. *Biotropica* 39: 292-303.
- Dirzo, R., E. Mendoza, and P. Ortiz. 2007. *Size-related differential seed predation in a heavily defaunated Neotropical tropical rain forest*. *Biotropica* 39: 355-362.
- Muller-Landau, H. C. 2007. *Predicting the long-term effects of hunting on plant species composition and diversity in tropical forests*. *Biotropica* 39: 372-384.
- Nunez-Iturri, G., and H. F. Howe. 2007. *Bush meat and the fate of trees with seeds dispersed by large primates in a lowland rainforest in western Amazonia*. *Biotropica* 39: 348-354.
- Peres, C. A., and E. Palacios. 2007. *Basin-wide effects of game harvest on vertebrate population densities in Amazonian forests: Implications for animal-mediated seed dispersal*. *Biotropica* 39: 304-315.
- Stoner, K. E., P. Riba-Hern and Ez, K. Vulinec, and J. E. Lambert. 2007. *The role of mammals in tropical forest regeneration and some possible consequences of their elimination: An overview*. *Biotropica* 39: 316-327.
- Wang, B. C., M. T. Leong, T. B. Smith, and V. L. Sork. 2007. *Hunting of mammals reduces seed removal and dispersal from the Afrotropical tree, *Antrocaryon klaineianum* (Anacardiaceae)*. *Biotropica* 39: 340-347.