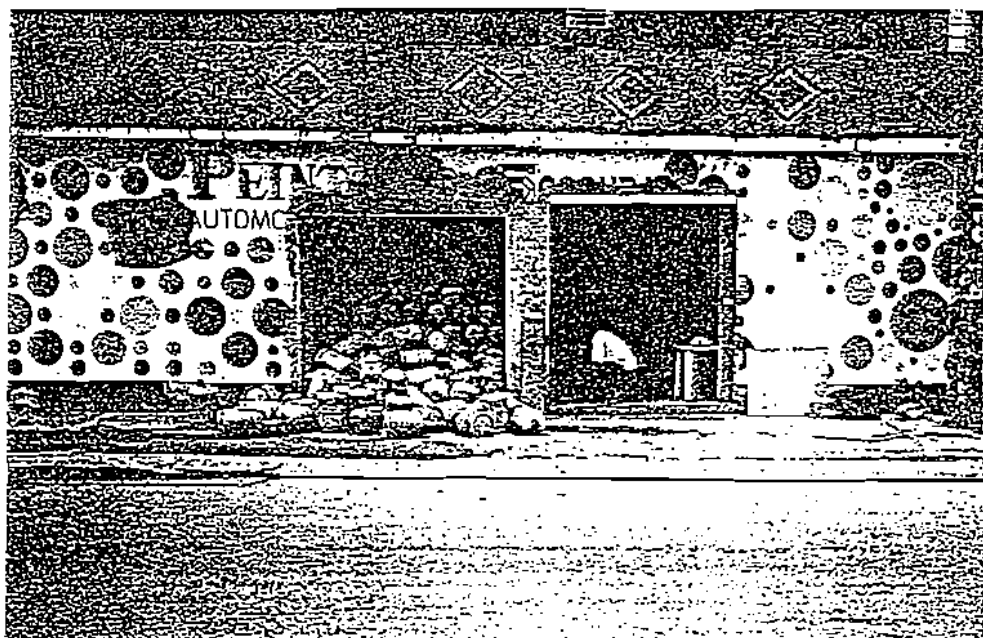


Urban Threats to Biodiversity in the Congo Basin

By Theodore Trefon



Bottled gas is cheaper than fuelwood in Yaounde. Photo: T. Trefon.

Introduction

The future of tropical forest areas in the Congo Basin depends to a large extent on city dwellers. Rapidly growing urban populations tend to use and perceive forest resources in ways which are incompatible with sustainable use. The cumulative effects of land clearing and excessive extraction are converting expanding peri-urban halos into relative biodiversity vacuums. This is directly linked to political handicaps and the negative socio-economic environment which characterise the region.

Urban population growth and biodiversity loss

Commercial logging, land clearing for agriculture and grazing, excessive vegetation extraction, as well as overhunting, are the principal threats to biodiversity most commonly articulated for the earth's remaining albeit rapidly shrinking tropical rainforests (Bryant, *et al.*, 1997). In the Congo Basin, however, another factor, and one which is all too often neglected by conservationists, needs to be considered.

The region's cities are increasingly gnawing away at a forest mosaic comprised of secondary forests, degraded forests, remnants of primary forest and fallow areas. Demography and the urbanisation process can best explain the phenomenon. SubSaharan Africa has the fastest growing population in the world and the six countries of the Congo Basin have seen their numbers expand between 2.3% and 2.9%

per annum over the past thirty years. Urban populations, due to continued outward rural migration and strong natural population growth (which is higher in cities than in rural areas) have multiplied by five in recent times. Likewise, the number of very large cities is growing rapidly: more than 70 SubSaharan cities with one million inhabitants are forecast for 2020 compared with 18 in 1990 (Venard, 1995, p. viii).

These facts translate into Central Africa having urban populations approximately as large as rural ones. The fifty percent threshold has already been passed in the P.R. of Congo and Gabon. The remaining four countries of the region will do so by early next century (see table)

Country	Urban populations as % of national populations		
	Total population	Urban % of total population	Urban % of total population
	1996	1994	2025
Cameroon	13.560	44.0	66.9
Central African Republic	3.344	38.9	58.9
Democratic Republic of Congo	46.812	28.8	49.8
Equatorial Guinea	410	40.9	68.5
Gabon	1.106	49.2	69.6
Republic of Congo	2.668	73.0*	76.6

Sources: Population Information Network (POPIN) Gopher of the United Nations Population Division, 1988.

*République Gabonaise, 1993. According to the Gabonese authorities, a city is a settlement with more than 3,000 inhabitants. For the UN and most other agencies, a city is a settlement with a population of more than 5,000 inhabitants. Hence the disparity.

Why can the urbanisation process be considered as a threat to biodiversity? Because urban encroachment takes on many forms. Land is cleared for housing, for commercial and subsistence agriculture (peri-urban weekend farming is an increasingly observed phenomenon), to satisfy needs for fuelwood and wood for building and for infrastructure development. Cities which were surrounded by forest throughout the colonial period are now surrounded by expanding halos of seriously degraded forest or savannalike ecosystems. The halo around Kinshasa extends up to 150 kilometres. The Forêt Classée de la Mondah on the outskirts of Libreville (a theoretically "protected area") is seriously degraded (République Gabonaise, 1996).

A number of recent studies show that this classic Malthusian' analysis of "more people means greater pressure on scarce resources" needs to be reconsidered (Ananor, 1994; Lambin, 1994; Binns, 1995; Kandah and Richards, 1996). There is evidence that increasing population pressure may result in greater attention paid to

the environment. Moreover, people tend to adopt locally appropriate solutions to maximise their use of land and resources. These findings nonetheless pertain generally to rural areas where the land carrying capacity is less seriously disrupted. While some examples can be found on the urban landscape (e.g. intensive urban and peri-urban farming, raising of game or use of urban sawmill scraps for producing charcoal) they are too few and too insignificant to be able to contribute to reduction of periurban deforestation or biodiversity loss.

Why city dwellers use forest products

Wood, for cooking or building, and bushmeat are the obvious examples of forest products consumed in towns and are those which most threaten the environmental equilibrium. There are numerous other examples as well, including medicinal plants, insects, leaves, fruits, oil palm derivatives, or mushrooms. These all constantly flow from forest areas into urban marketplaces. Indeed, city dwellers desperately need these products for daily survival.

There are three principal overlapping causes which account for urban consumption of forest products. One is sociopolitical and stems from the weakness of state systems. The failure of the state to provide basic goods and services has forced urban masses to adopt alternative survival strategies which in many cases translates into reliance on forest products. These strategies often conflict with the logic of sustainable development and may be environmentally destructive.

While political scientists and economists are struggling to explain the root causes of the weakness of the African state, the urban poor in Central Africa are struggling to survive. The weaker the state system, the greater the need to rely on forest products. In the current context of low levels of development and economic crisis, African governments are increasingly unable or unwilling to provide, for example, modern sources of energy for cooking, intensive agriculture or animal husbandry, adequate transportation infrastructure or other basic goods and services.

Development can, but does not necessarily, diminish the cultural attachment city dwellers have for forest products which is another principal cause of their consumption. As the vast majority of city dwellers either migrated themselves or trace their "urban arrival" to parents or grandparents, they remain closely attached to their forest origins. The forest space and its products offer intangible benefits such as symbols, ritual substances and artefacts, as well as culturally important areas for sacred ceremonies or healing. Forests permeate "all aspects of culture: language, history, art, religion, medicine and politics" (Falconer, 1990, p. 39) with both positive and negative connotations.

Access to gas or electricity for cooking does not mean that city dwellers no longer enjoy the smoky taste of food grilled over charcoal. Likewise, the availability of meat from raised livestock does not imply that they have less appetite for game. While choices between traditional or forest products compared to more "modern" or "urban" products are often dictated by financial imperatives, the cultural factor can

in some cases overrule financial considerations.

Given existing poverty levels throughout Central African urban areas, socio-economic explanations do nonetheless prevail. The urban poor, and poor urban "entrepreneurs", turn to the forest for the wide array of products mentioned above. The long chain of exchange from "producer", processor/transformer, transporter, wholesaler, retailer and end user is a major provider of jobs. Indeed, "professionals" are now responsible for much of the commercial traffic of goods between forest and city. Much needed products thus find their ways onto urban markets. In some cases, relatively modern instruments such as firearms or chain saws are used to satisfy ancient needs: such ostensibly (seemingly true, but maybe not so, eds.) simple examples may have a devastating effect on the environment. Deepening economic crisis, moreover, upsets supply and demand ratios again to the detriment of the environment. Civil servants whose already meagre salaries are paid months late, or former students who can't find jobs in the formal employment sectors are becoming increasingly active in the commercialisation of game which is a relatively lucrative business and which necessitates little investment.

It is in this context that the forest has been described as "a profane inanimate entity, to be plundered so as to satisfy gross economic demands" (de Garine et al., 1993, p. 530). The forest has also been referred to as an "economic buffer" (Falconer, 1990, p. 20) providing subsistence and cashearning products. These descriptions have rather equivalent meanings for both urban dwellers and their forest-based counterparts alike.

The socio-cultural and socio-economic cost of peri-urban degradation

As human activity relating to urban expansion upsets the delicate balance between populations and ecosystems, many elements of Central Africa's rich biodiversity find themselves under threat. The relationship between environmental degradation and urban poverty is a dialectical one because while poverty is a cause of degradation, degradation impoverishes.

Game

Once at the centre of complex ritual and symbolic relations between hunter and wild animal, bushmeat is being consumed more and more widely in cities. A traditional foodstuff, game is the principal source of animal protein in the region, playing a key dietary role (Chardonnet, 1995, notably pp. 2949). Except in cases where specific family or ethnic taboos apply, practically all forms of wildlife from the largest mammals to the smallest invertebrates are eaten. Antelopes, rodents and primates are particularly sought after. Wildlife is commonly and collectively referred to as "la viande". In other words, it is perceived largely as being just meat.

While urban consumption patterns of game are complex and vary considerably from one city to another, it is possible to identify some general trends within the regional context of soaring consumption. Prior to the economic crisis of the late 1980s and early 1990s, ruralurban migration brought bushmeat eaters from forest

areas into cities. Simultaneously, improved infrastructure and transportation possibilities facilitated the supply of game to neourbanites who traditionally consumed game in limited quantities and on special occasions. Gradually, increased purchasing power enabled new city dwellers to consume game more frequently.

Urban consumption did not constitute a major threat to wildlife survival up to this point. Yet, subsequent to the economic crisis, which clearly influences what is eaten in Central Africa and how it is eaten, the bushmeat trade became highly professionalised. For the urban unemployed, commercial hunting is a big cash earner with little investment required. Networks are developed between hunters, traders, transporters, market women and consumers.

A notable change in eating habits due to the economic crisis is the breakdown of traditional sharing practices. The hospitality which a villager could formerly enjoy at the home of another covillager settled in town is markedly on the decline as new forms of community support networks or associations develop on professional or problem-oriented lines, in contrast to those which existed previously based on ethnic or family ties. The piece of game which is generally found in the bag of someone going from village to town is thus no longer the object of sharing as it once was. Families share less at home and people often snack in small informal restaurants where a small quantity of meat may be consumed with a large quantity of starch for a reasonable price. These restaurants are referred to as "maquis", which means underground or clandestine.

In 1984, it was reported that game was "rare" in Yaoundé (Franceville, 1984, p. 111). In contrast, a recent study of game consumption in the same city reveals that it is relatively abundant and consumed frequently by both the urban working class and by the more wellto do (Bahuchet and IovevaBaillon, forthcoming).

The cultural and symbolic attachment which city dwellers have for game is another explanation for its consumption. Game is associated with the village environment as well as with ritual and festive occasions. The desire to partake of game despite its cost, the dubious sanitation conditions where it is sold (off the ground or street), the use of hazardous chemical preservatives such as formaldehyde which is injected into the meat can be accounted for by taste, diet, curiosity, conviviality, tradition, status, ritual and nostalgia. It transcends social levels and ethnic origins.

While some consumers prefer to purchase freshly killed game because they intend to stew it according to a particular recipe or because they feel they can control more carefully the quality of the meat, others have a clear preference for the cured taste. Various techniques are used to cure meat: smoking in specially designed huts with dried wood, sundrying, grilling with dry wood or charcoal, roasting over an open fire, etc. Game can be preserved with or without fur. In some cases, fur is seared before being preserved; in others, such as the smoked monkey available in Kinshasa, the animal is smoked fur and all, a method which permeates the meat with a very pronounced taste. The effect produced through these techniques is interesting

because it raises questions about the desire to eat bush meat per se or the desire for the smoked taste on the palate. The question should be addressed because if desire for the latter is more significant, then it may be possible to raise and process livestock for smoking: a step which could relieve the existing pressure on Central Africa's wildlife.

In addition to providing food, wild animals are also crucial in structuring ecological communities by means of, for example, grain dispersal and nutrient cycling (Redford, et al., 1995).

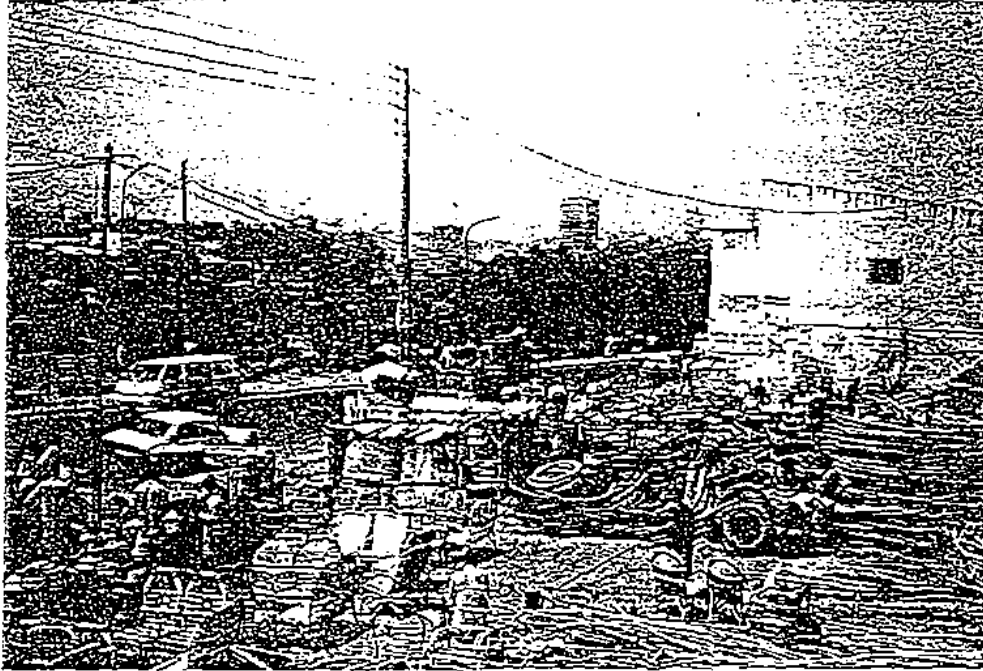
Symbolic and ritual aspects of game consumption should also be mentioned: the animal kingdom is heavily attributed with symbolism. Thus, eating monkey may be perceived as making one clever and agile, while eating gorilla is associated with virility.

There is a direct influence on hunting intensity from the logging sector. Loggers open up primary forest areas previously difficult to penetrate, which enables hunters to exploit rich game reserves. Moreover, the loggers themselves are major consumers of game. They also play an important role in the transport of game into towns. Logging and probably even "sustainable" logging - thus constitutes a double threat: on the one hand it is a major factor contributing to deforestation, on the other it exacerbates hunting pressure.

State systems are not providing alternative sources of animal protein for urban diets. In many areas of Central Africa, however, animal husbandry is not a tradition and problems like trypanosomiasis (sleeping sickness, eds.) make it difficult. Also, as we can observe in Amazonia, cattle breeding in itself is a major source of deforestation. Authorities have not made much progress in curtailing the commercialisation of game. One reason for this may be the very different worldview which Africans and Westerners have on wildlife. Paradoxically, when efforts are made, they sometimes backfire as was the case with the Cameroonian hunting license.

Authorities, under pressure from expatriate World Bank "experts", thought that forcing hunters to purchase a license would be a disincentive. On the contrary, in order to meet the 100,000 CFA franc cost and make the license profitable, many occasional hunters grouped together to buy one license. They thus became professional and increased their take, resulting in greater species depletion (K. Ioveva-Bailon, personal communication).

The international donor community is spending millions of dollars on forest conservation and wildlife protection. It is only recently that we have learned that much more emphasis should be placed on reducing commercial hunting as well. Unfortunately, due to the factors described above, it seems unlikely that the present trend will be reversed. Increased development levels, awareness actions, institutional support may but will not necessarily relieve the pressure. Wildlife will likely continue to disappear if urban problems and values persist.



Cane provides cash and jobs for gatherers, artisans and transporters. Photo: L.Dejo.

Fuelwood

Like game, fuelwood use can also be viewed as a social issue in addition to being an environmental problem. While woody biomass resource availability is not a concern on the regional level, there are pinpointed crisis areas in and around some of the major cities Kinshasa most notably with its 5 million inhabitants.

Fuelwood use and procurement has repercussions on gender issues, land tenure and land use practices, eating habits as well as on how household time is spent and how household allowances are allocated. Scarcity and expense, due to periurban deforestation, are forcing city dwellers to modify attitudes and behaviours. Paradoxically, the use of fuelwood or charcoal which can be purchased in small quantities, costs more in the mid and longterm than more modern sources of energy. Nonetheless, many families do not have the wherewithal to invest in the even relatively simple material needed to cook with electricity or bottled gas.

However, the use of fuelwood cannot only be analysed in economic terms. Certain foods require the type of heat that only wood or charcoal produces. Moreover, the "hearth" is valued for its heat on cold nights and as a place of sociability. The social and environmental downside of fuelwood use is partially counterbalanced by its positive job creating capacity.

Non Timber Forest Products

Non timber forest products (NTFPs) first sparked the interest of conservationists and developers because of their economic value: they provide cash to gatherers.

constitute alternatives to poaching and may in some cases be harvested sustainably. Their role, however, extends far beyond their suppleyside economic utility. The cultural factor is also capital, essentially in rural areas but in urban areas as well. Numerous NTFP are edible and serve as condiments or in making sauces. Leaves are also eaten, used in cooking or as wrappers. Oil, wine and alcohol are palm derivatives. Cane and rattan furniture is increasingly visible in urban areas. Traditional healing depends on forest products both animal and vegetal (leaves, roots, bark, etc.). Materials for craft items and household utensils also come from the forest. Without intending to be exhaustive, this short inventory is put forward to show that as the periurban halo swells, the standard of living of the urban poor is undermined: substances used daily are becoming increasingly rare and expensive.

Future scenarios: challenges and responsibilities

The relative symbiosis which traditionally characterised relations between people and nature in the forest environment is considerably different in urban areas where the relationship between population density and resource availability is under far greater pressure even though we now know that social systems adapt increasingly well to environmental stress. Much of the problem stems from the fact that for city dwellers in general, life in the city is characterised by a transition from the subsistence activities of hunting, gathering, slash and burn agriculture and fishing to a formal or informal service of market activities.

In the post-Rio scramble, numerous NGOs as well as international and bilateral aid agencies have embraced the challenge of attaining environmentally sustainable development in association with conservation. This challenge, however, must be considered in the much broader context of development in other sectors, such as family planning, public health, education, and secure access to land and infrastructure. Pressure on the city is unlikely to let up until such problems are addressed in rural areas.

The ultimate responsibility lies with stakeholders (the rural and urban poor) and decision-makers within Central Africa. Indeed, even though the Central African city is at the interface between what remains of remote forest biotopes and global political, economic and cultural fora, locally appropriate solutions have to be found on the local level. Understanding attitudes and influencing behaviours from the socio-economic and socio-cultural perspectives is a first step (Byers, 1996). African decisionmakers however, who are themselves urban-based, do not always consider conservation issues in the way Westerners do. Their real or perceived short-term political and economic imperatives are incompatible with forest conservation which is a longterm enterprise. Due to the fragile nature of African political systems, they have opted for quick-fix alternatives which are often adopted to the detriment of the environment. Excessive timber exploitation is the most vivid example hereof.

Even if some harmonisation may be attained in addressing these combinations of factors, it will be a major challenge to slow down or reverse the process of urban pressure on the environment.

Résumé

L'avenir de la forêt se joue largement en ville. Les citoyens ont un besoin vital de la forêt mais emploient ses ressources d'une manière peu compatible avec un développement durable. Leur impact est visible car ils procèdent au déboisement pour construire les habitations, exploiter les champs, et pour satisfaire les besoins en bois de chauffe et en bois d'œuvre. Le bois, le gibier et toute une pléthore de produits forestiers non ligneux (PFNL) sont utilisés quotidiennement. Ainsi, les villes de la région sont en train d'empiéter sur la mosaïque forestière périurbaine. La démographie et le processus de l'urbanisation peuvent essentiellement expliquer ce phénomène.

La consommation urbaine de ces produits peut s'expliquer par trois raisons principales qui se chevauchent. L'explication dominante, étant donné la pauvreté généralisée, est d'ordre socioéconomique. D'une part, il y a la demande de la part des masses urbaines pauvres qui n'ont pas d'autres possibilités pour subvenir à leurs besoins les plus raisonnables, d'ordre sociopolitique est la faiblesse des systèmes étatiques. L'incapacité des États à fournir les biens et les services de base a poussé les populations urbaines à adopter des stratégies de survie alternatives. Dans le contexte sociopolitique actuel, l'État n'est pas à même de s'investir dans la modernisation du secteur énergétique, l'agriculture intensive ou l'élevage, l'amélioration des réseaux routiers, etc.

Une dernière explication est qu'un meilleur niveau de développement peut entraîner, mais n'implique pas nécessairement, une diminution de l'attachement culturel des citoyens à la forêt. En effet, la forêt est omniprésente dans la culture de l'Afrique centrale et se manifeste d'une manière linguistique, historique, artistique, religieuse, médicale et politique. D'un point de vue spatial, la forêt est le lieu où le visible et l'invisible sont en harmonie, où les êtres vivants, les ancêtres et les esprits communiquent entre eux. Les citoyens continuent à y retourner pour les cérémonies sacrées, l'initiation, le mariage ou les rencontres avec les guérisseurs. D'un point de vue matériel on s'y procure des substances rituelles et religieuses, une vaste pharmacopée, des mets traditionnels et les symboles d'un statut social.

Après la Conférence de Rio, de nombreuses ONG et agences internationales et bilatérales d'aide ont accepté le défi d'atteindre le développement durable avec la conservation des écosystèmes. La responsabilité finale de ce défi, cependant, se trouve au niveau des "stakeholders", c'est à dire les pauvres ruraux et urbains mais aussi des décideurs qui sont directement concernés par ces problèmes. Comprendre les attitudes afin d'influencer les comportements d'un point de vue socioéconomique et socioculturel est une première étape. Sensibiliser les décideurs au fait que les impératifs politiques et économiques à court terme ne sont pas nécessairement incompatibles avec une gestion rationnelle des forêts en est une autre.

Summary

Problems of biodiversity loss in the Congo Basin from an urban standpoint are addressed in this paper. It examines urban use of forest products, urban demo-

graphic pressure and socio-cultural as well as socio-economic factors. It argues that city dwellers exploit their forest hinterlands out of economic determinism, because state systems do not provide satisfactory alternatives and for deep rooted cultural reasons. As the periurban halo expands, city dwellers are confronted by resource rarity and increased costs. Their already precarious standards of living are consequently threatened. It is also suggested that while the international community has a responsibility towards efforts to attain environmentally sustainable development, the ultimate responsibility lies with local stakeholders and decision makers who perceive conservation issues much differently than Westerners.

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¹ Thomas Malthus (1776-1834) said that if not controlled, either by diseases and wars or by planning, the population of the world would grow faster than its food supply (eds.).

The Congo Basin

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