CONSERVATION MUST PURSUE HUMAN-NATURE BIOSYNERGY IN THE ERA OF SOCIAL CHAOS AND BUSHMEAT COMMERCE.

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This chapter appears in the anthology:

Conservation Implications of Human and Nonhuman Primate Interconnections.
Editors: Agustin Fuentes and Linda D. Wolfe, Cambridge University Press, 2001.

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While social chaos spreads across equatorial Africa, human predation has become the most urgent threat to African primates. The explosion of commercial bushmeat hunting is destroying primate populations faster than their habitat can be cut down. The failure of conservation in great ape range countries is due to primarily to human crises -- poverty, illness, war, commercial greed, political corruption, lawlessness. There is a revolution going on in equatorial Africa, and it is being perpetrated by international exploiters who are radically manipulating the social order and cultural values of the African people so as to serve their personal and corporate pursuit of power and money. Because of this assault on African life ways and values, social change and turmoil are the rule. In this milieu the practice of conservation must become proficient at understanding the context for change and working with its problems, causes, and solutions.

Complex and Harsh Realities Underlie the Destruction of Nature in Africa.

Problems	Causes	Solutions
Over Exploitation	Greed / Corruption	Transparency / Monitoring
Cultural Destruction	Lost Social Control	Community Development
Fatalism/Lawlessness	Poverty & Disease	Health & Welfare Support
Bushmeat Market Growth	Misdirected Finance	Non-game Protein Provision
Rampant Poaching	Inadequate Capacity	Protection & Governance
Great Ape Extinction	Conservator Timidity	Leadership Empowerment
Consumption of Nature	Lost Care/Reverence	Global Wildlife Missions

In this complex harsh context, conservation's first challenge is to help African people to restore and sustain their cultures, their economies, and their reverence for nature as the foundation for ensuring the viability, diversity, and synergy of life in the region, and ultimately across the planet. The leaders of the conservation movement come from fields and disciplines that don't address the causes of Africa's social chaos. Neither are they practiced in the social change applications needed to resolve it. The main focus of this chapter will be to examine the commercial bushmeat crisis that presents conservation's most urgent challenge. Some of the social factors which underpin the crisis will then be presented. Paradoxes in the search for solutions will be discussed. And a call for new approaches to conservation, with new strategies and new players will be made. Throughout we shall examine how the varied and shifting relationships among humans and non-human primates are vital to the survival of apes and monkeys in the wild, and to the future of human society in Africa.

BUSHMEAT CRISIS AND SOCIAL CHAOS DOMINATE AFRICAN PRIMATE CONSERVATION

Hunting and Primates. Across the forest regions of west and central Africa a conflux of factors are making human predation a leading threat to the survival of most primates, including the great apes. Primate hunting is reported in 27 of the 44 primate study and conservation projects described in IUCN's latest status survey on African primates (Oates, 1996b). In 12 of these territories, human predation is said to be a severe threat to species survival. The latest IUCN Red List of Threatened Animals (IUCN, 1996) shows a big rise in threat status for mammal species, with primates being the large order most threatened by extinction. The situation is worse in the areas where most remaining apes and monkeys live, outside parks and reserves. In Africa hundreds of unique and never studied primate populations are being annihilated, and thousands will follow if current trends continue (Oates, 1996a; Rose, 1996f; Ape Alliance, 1998, Ammann et al, 2000).

The risk level for different species and populations varies with their numbers, reproductive vigor, and distributional range. Past declines have correlated most closely with human population growth and the destruction of habitat. Eltringham (1984) wrote that "Gorillas and chimps costing several thousand dollars each are captured for zoos and medical research centers, but the quantity killed for food dwarfs the number taken alive." While capture of live apes for research has mostly stopped, a growing body of evidence now shows that shifts in human social and economic practices in the forests of Africa have greatly increased the killing of primates for meat. Oates (1996a) concludes "… while the total removal of natural habitat is clearly a major threat to the survival of many African forest primates, an analysis of survey data suggests that human predation tends to have a greater negative impact on primate populations than does selective logging or low-intensity bush-fallow agriculture."

Commercial bushmeat trade is not sustainable and will result in rapid local extinction and eventual extirpation of large mammals from the world's rain forests (Robinson & Bennett, 2000). Estimates, now considered by some as conservative, place annual bushmeat out-take at 1 million metric tons in the Congo Basin (Wilkie & Carpenter, 1999). That's more than a billion dollar business. Some researchers hypothesize that traditional hunting with nets, spears, and arrows might have been sustainable in the past. I would argue that the conditions for sustainable hunting via indigenous methods no longer exist in tropical Africa, or perhaps anywhere on earth. Outside influences, no matter what the purpose, provide economic and social pressures that transform the hunt to a modern process that will ultimately destroy wildlife populations. This chapter begins with a review of some of the evidence that supports this argument, to give the reader a feel for the situation in African primate habitat.

Guns and Commerce. Even in areas with no commercial pressure, demand for chimpanzee and gorilla meat can be substantial. Kano and Asato (1994) compared ape density and gun hunting pressure from 29 Aka and Bantu villages along the Motaba River area of northeastern Congo Republic and projected a bleak future for the apes. They found that over 80% of their 173 Aka informants were willing to eat gorilla or chimpanzee meat. Among 120 Bantu informants, 70% were willing to eat gorilla meat and 57% would eat chimpanzee. Because more Aka were involved in ape hunting, 40% reported having eaten gorilla or chimpanzee meat in the previous year, while 27% of Bantu had eaten apes in the same period. Aka informants estimate 34 to 60 successful 'subsistence' hunters slaughtered 49 gorillas and 103 chimpanzees in 1992. Bantu claimed seven to nine hunters took 13 gorillas and 28 chimpanzees that year. Based on population density Kano and Asato assert that the survival of gorillas and chimpanzees is at serious risk in this territory "unless a strong system can be established which combines effective protection with the provision of attractive substitutes for ape meat to the local people."

Although this hunting is carried out to serve the villages and not for commercial export, it is not traditional subsistance hunting - it is modern hunting supported by guns and ammunition imported from urban manufacturers. The finding that village hunting of apes in a large habitat area is unsustainable when guns are used is not surprising. What is disturbing is the lack of any further reports on ape hunting practices in the area. We cannot say whether the illegal and unsustainable hunting has been stopped, or if apes have been wiped out along the Motaba River. We can assert with confidence that if village gun hunting of apes is unsustainable, then surely such illegal activities catalysed by expanding commercial bushmeat trade will demolish ape populations. As the taste for bushmeat continues to spread across equatorial Africa at an accelerated pace and hunting and meat export capacity improves, African primates along with other edible wildlife are being faced with severe threats of local extinction (BSI, 1996; Ape Alliance, 1998; BCTF, 2000).

South of the Motaba River, Hennessey (1995) studied bushmeat commerce around the Congolese city of Ouesso using survey and undercover methods. He reports that 64% of the bushmeat in Ouesso comes "from an 80 km road traveling southwest to a village called Liouesso." There a hunter who specializes in apes was responsible for most of the 1.6 gorilla carcasses sold each week in the Ouesso marketplace. That is over 80 gorillas per year in one city. Hennessey projects that 50 elephants were killed annually for meat and ivory in this same study, and 19 chimpanzees. Similar Aka-Bantu hunting and long-distance commercial bushmeat trade is described by Wilke et al (1992) in the Sangha region west of Ouesso. There, many hunters preferred trading their meat at Ouesso in order to get a higher price than at logging concessions, confirming the report of Stromayer & Ekobo (1991) that Ouesso and Brazzaville are ultimate sources of demand. Wilke et al (1992) describe monkey meat for sale, but say nothing about apes. They do recommend that wildlife conservation officers and biologists monitor and protect duiker, primates, and elephants to regulate "the harvest of forest protein."

Ammann & Pearce (1995) reported intense hunting of apes for bushmeat in south-eastern Cameroon, across the border west of Wilke's study site. "The hunters in the Kika, Moloundou and Mabale triangle in Cameroon estimate that around 25 guns are active on any given day and that successful gorilla hunts take place on about 10% of outings. This would result in an estimated kill of up to 800 gorillas a year." These same hunters say they bring out chimpanzee too, half as many as gorillas in this location -- up to 400 per year. While some of this ape meat is sold to logging workers in these forests, most is shipped on logging lorries back to Bertoua and all the way to Yaounde and Douala where a better profit can be made. Ammann (1996b) confirmed Hennessey's (1995) findings that a small portion of Cameroon bushmeat crosses the border for sale in Ouesso.

Illegal bushmeat including gorilla, chimpanzee, and bonobo in villages near reserves like Lope, Ndoki, and Dja, and in city markets at Yaounde, Bangui, Kinshasa, Pt. Noire, and Libraville, has been seen and photographed (eg: Ammann, 1996ab, 1997, 1998a; McNeil & Ammann, 1999; McRae & Ammann, 1997). Traders interviewed in those areas affirm that the fresh meat comes from nearby forests, while smoked meat can be transported long distances. It is well known that the million people who inhabit the largely forested territory of Gabon have a strong palate for bushmeat. Steel (1994) found half the meat sold in Gabon city markets is bushmeat: an estimated $50 million unpoliced trade. Twenty percent of the bushmeat is primates. This study reported very few apes observed, likely because ape-meat is not displayed openly in public markets.

The importance of well planned and conducted undercover investigations of illegal bushmeat activities cannot be over emphasized. In the absence of complete and continual monitoring of hunting and bushmeat trade, we can only guess the numbers of primates killed to feed the tens of millions of people living in equatorial Africa. There can be little doubt that many more apes are butchered for meat in the forests every year than live captive in all the world's zoos, laboratories and sanctuaries. Perhaps 5,000 to 10,000 each year, or more.

During extensive discussion with field researchers and conservationists (Rose, 1996b,c,d; Rose & Ammann, 1996), this author found expert consensus predicting that "if the present trend in forest exploitation continues without a radical shift in our approach to conservation, most edible wildlife in the equatorial forests of Africa will be butchered before the viable habitat is torn down" (Rose, 1996f). This conclusion had already been reached by Oates (1996a) and has been confirmed by consensus of the wildlife protection and conservation NGO's participating in the EU Ape Alliance (1998) as well as the more recently formed Bushmeat Crisis Task Force in the USA (BCTF, 2000). To stop this slaughter will require understanding the root causes of the crisis and building capacity to address them both in immediate emergencies and over the very long term.

Logging and Anarchy. Ammann's (1993, 1996c, 1998b, McNeil & Ammann, 1999) wide ranging ten year investigation of hunting pressures in and outside the IUCN (1996) surveyed areas strongly indicates that unprotected and unstudied primates -- especially those within 30 km of the expanding network of logging roads and towns -- are being devastated by a burgeoning commercial bushmeat trade. The catalyst of this devastation is growth of the timber industry (Ammann & Pearce, 1995; Ammann, 1996b; Rose, 1996c, g; Ape Alliance, 1998).

Timber prices and profits are tied to provision of subsidized bushmeat to migrant workers. Every logging town has its modern hunting camp, supplied with European made guns, internationally made ammunition, and men and women who come from distant towns and cities, hoping to make a living in the forests. With indigenous forest dwellers hired as guides and hand servants, immigrant hunters comb the forests, shooting and trapping. Anything edible is fair game in a market that starts with the wood cutters, truck drivers and camp families who scrape together their meager wages for a porcupine stew (Rose, 1998a). From this captive market base the bushmeat trade stretches all the way to fine restaurants and private feasts in national capitals where more rare and expensive fare is available. Little is done to teach or enforce wildlife laws. Prices charged for bushmeat can rise tenfold as it moves from hunting camp to big city market (Auzel & Wilkie, 2000).

Most timber executives admit there is a problem and say they are powerless to stop it (Incha, 1996; Splaney, 1998). In the past, logging managers have been reluctant to let outsiders into their concessions, fearing that problems will be uncovered and business disrupted, with no solutions provided. Recently a few timber companies have opened their concessions to bushmeat researchers and conservationists in response to pressures from outside (eg: Ammann, 1998a; Auzel & Wilkie, 2000; Eves & Ruggiero, 2000). These small interventions are still rare and their impact unproven. It remains true that "… almost all the companies in the forestry sector are 'outside the law'. Despite good legislation, there is no effective overseeing of actual operations" (Horta, 1992). The timber industry's reliance on bushmeat to feed loggers and their inability to educate workers and govern their concessions leads to indiscriminate hunting that not only fosters the breaking of laws, but also the breaking of customs. People

whose colonial and tribal cultures once enforced taboos against eating apes and monkeys are beginning to try it (Ammann, 1998a). Further, the lure of cash attracts some people to hunt animals which they would not eat, and sell the meat to others (Lahm, 1993).

More worrisome is the agreement among primatologists and other diverse observers that destructive outcomes of bushmeat commerce have taken crisis proportions (Rose, 1996c; BCTF, 1999). What makes this a crisis is not only the numbers, but the way they develop. Juste et al. (1995) crystallize the essence of the crisis: "With the advent of modern firearms, and improved communications and transport, subsistence hunting has given way to anarchic exploitation of wildlife to supply the rapidly growing cities with game." The key word here is anarchic. Absent an effective political authority, having no cohesive principle, common standard or purpose, the bushmeat trade has exploded into a rush for personal profit not unlike the gold rush that transformed the western portion of the United States in the nineteenth century.

A respected French timber executive in Cameroon compared bushmeat to “found money” and suggested that poor Africans cannot resist hunting any more than they can leave a hundred franc note lying on the forest floor (Incha, 1996). This view of financial greed as overriding human values for honesty, community, and compassion is a perceptual framework that came to Africa with the people who imported competitive cash economy -- the traders and developers of the middle east and Europe. The fact that this economic value structure has served the outsiders more than the Africans is accepted. The possibility of controlling this destructive penchant for commerce *uber alas* has been largely ignored.

But it is not francs and dollars that cut trees or kill gorillas. The rational constructs of supply and demand are not capable of wielding chain saws and firing shotguns. It is people who destroy forests and wildlife. Individual loggers and hunters are manipulated by specific timber managers and bushmeat traders who have in turn been seduced into exploitative enterprise by the exigencies of their personal situations in a region plagued with societal turmoil and rife with anarchic and tribal scrambles for self survival and private profit. It is imperative that international political and financial pressures and incentives be brought to bear on these uncontrolled business activities and the resultant social anarchy. At the same time, work must begin in earnest to expand African people’s values beyond the imported view of wildlife and wilderness as an exploitable natural resource.

War and Chaos. During the mid and late 1990’s a vast threat to non-human primate survival has spread across equatorial Africa. Ethnic, tribal, and international conflict and war have emerged in a maelstrom of economic and social dissolution and sent many millions of people into deep turmoil. Slaughter and displacement of people stimulates the destruction of wildlife. Within national boundaries waring factions take turns acting as in-place political leaders and outcast refugees. On the political level, concern for environmental protection vanishes when one’s own position of power is continually at stake. Homeless refugees, numbering in the tens and hundreds of thousands, buy and barter for any scrap of protein they can get - ape, ant or antelope. Taboos fall away in the face of starvation. Alliances shift, and new social norms are devised to suit each social and environmental situation. Rule of the gun supersedes rule of law - the man with firearms and ammunition calls the shots. This means that armed forces control the people not only by threat of harm but also by incentive - they control the means to hunt bushmeat. Starvation and assassination are in military hands. So are apes and monkeys.

This element of the crisis has delivered a rising tide of human and wildlife emergencies. People and primates once considered safe and stable are now in grave danger. The movement of militias and refugees out of Rwanda, Uganda, and Burundi into the eastern part of DRC has wrecked havoc on local villagers and indigenous peoples. Conservation workers flee, return, and flee again. Eastern lowland gorillas are vanishing fast, the target of armed soldiers and war-ravaged refugees who make camp in the forest. The gorillas in the highlands of Kahuzi-Biega reserve in eastern Congo, once studied and visited by scientists and tourists, have been hunted at such an alarming rate that they have become one of the most endangered groups of apes on the planet — fewer than 100 remain (A. Plumptre, pers. comm., 2000).

Meanwhile on the other side of DRC, an influx of bonobo orphans into Kinshasa attests to the poaching of these most rare of apes in their Congo Basin habitat (C. Andre, pers. comm., 2000). It is now accepted by the conservation community that local and indigenous taboos on bonobo eating have fallen away in the face of streams of invading armies, insurgents, and refugees. Ironically, while stepping up ‘emergency hunting’, war reduces logging and its concomitant bushmeat activities. Timber operations cease and new projects are put off under war conditions. When stability returns, however, extractive economics returns to a milieu where survival mentality has severely suppressed ecological morality. It is imperative to use the hiatus in logging to influence plans and policies of

international exploiters and the financial institutions that support them. The next influx of natural resource exploitation must be morally committed and organizationally competent to promote wildlife conservation in the context of ecological and social stability and sustainability.

Intrusion and Disease. Thus far we have been looking at the explosion of illegal bushmeat commerce as a wildlife crisis which emerges from human greed, conflict, and chaos. For the apes in particular our work on the bushmeat crisis has been manifested as a fight against the extinction of our closest living kin. But that genetic kinship appears to be the source of a crisis that threatens the health of humankind. Medical scientists have uncovered evidence that chimpanzees (*pan troglodytes*) are the original source of the viruses that have propagated AIDS. Bushmeat hunting along each new logging road is likely to bring out more than ape and monkey meat. While cause-effect are now interlaced, I am convinced that the growth of human intrusion into forests for commercial hunting is a root cause of the AIDS epidemic and other threats to human health (Rose et al, 1999).

Virologists have presented their evidence in science journals (Gao et al, 1999) and at major medical conferences (Hahn, 1999a, b). They have told the public two things. First, we must stop the hunting and butchering of wild chimpanzees in order to avoid transmission of new strains of SIV. Second, we must launch a program to study wild apes and hunters *in situ* (Weiss & Wrangham, 1999). Biomedical research and action to influence the etiology and management of these viruses in apes and in bushmeat hunters and traders may expose the keys to preventing spread of HIV and AIDS. These discoveries escalate the bushmeat crisis from a regional social and conservation challenge to a global health issue, and increase the complexity of the problem many times over.

Still, the chimpanzee virus factor has yet to alter conservation priorities. In the years since the relationship of bushmeat and AIDS was publicized, little has been done on the conservation front to leverage control of ape hunting as a preventative of human disease. Virologists seek grants to study the processes of disease transmission from apes and monkeys to hunters and bushmeat consumers (Young, pers com, 2000). Concern that Africans will destroy apes to protect themselves from AIDS have given way to reports that Africans are denying the link, claiming "we have eaten apes for centuries and only got AIDS very recently." Of course the difference between contained exposure to small indigenous pockets of SIV and explosive broadcast exposure to widespread reservoirs renders that argument spurious. But underlying African denial is a dire fatalism that grows from a terrible truth.

Africans face death on a daily basis from epidemic AIDS, malaria, and infectious diseases. Excessive interaction with biodiversity is producing these deadly effects. The Africans who enter rain forests and those expatriates who go with them, whether to protect or exploit biodiversity, are being exposed to severe danger and putting all humanity at risk. Because these threats are invisible makes the situation all the more dire. Loggers, field scientists, tourists and conservationists are all culpable. Similarly, organizations like the United Nations, International Red Cross, and others who support refugee populations in proximity to forests are operating with a blind eye. There is growing evidence that a moratorium should be placed on all non-indigenous human intrusion into biodiverse rain forest habitat for local and global health reasons. But until there is direct evidence of ape hunters having new SIV strains, virologists and conservation biologists will likely avoid the issue as it relates to apes. During the years required to conduct such studies, it will be left to conservation activists to address the global health implications of human consumption of apes and other primates.

Conclusion: Face The Crisis. The impact of bushmeat commerce grows with invasion of the logging industry, the movement of armies and refugees, and the spread of epidemic AIDs and other forest born diseases. These dangerous phenomena are grounded in a chaotic flux of social change in the region which is caused by revolutionary cycles of colonial and global pressures. If current trends continue, the next century will empty the forests of edible animals, fill the human community with waves of new plague, and displace and destroy most of the people and primates in the forests of central Africa. As parks and reserves become the only places left for people to hunt or escape, such sanctuaries will need to be defended by armies, or they will all vanish. But this destruction is not inevitable. We must face the crisis head on, and recognize that it is the excesses of humanity which require management, not the forests and wildlife.

CONSERVATION MOVES FROM SAVING BIODIVERSITY TO PROMOTING BIOSYNERGY.

Conservation in the 21st century will succeed only if it becomes the domain of experts in social change, economic development, and human spiritual transformation. The balance of this treatise will examine factors that can engender that success. To arrest the growing multi-billion dollar annual trade in bushmeat and its consequent social, ecological, and economic collapse across west and central Africa requires big changes in the practice of conservation. More of the same will not work. Conservation strategy has been dichotomized in recent decades. Some attempt to protect biodiversity from people. Others try to help the people use biodiversity sustainably. Both these strategies are unidirectional in their methods and objectives. I have called for a paradigm shift which affirms the overriding importance of interchange among key elements of humanity and nature (Rose, 1998b). We need to focus our science, our strategic planning, and our innovative interventions and developments on the relationships among human and non-human factors. The aim is to understand and to influence biosynergy -- the collaborative and mutually beneficial interaction of all living elements within regional ecosystems which leads to individual, social, and ecological stability, longevity, and enrichment. With commitment to mutual benefit for all stakeholders, human and non-human, we stand on the highest ground of global ethics and ideal.

Will we achieve this ideal for all interactive elements? Perhaps not -- but we must strive for it, expose failures and attempt to correct them, identify successes and try to replicate them. We must begin to look for synergistic relationships as the main datum, with polarized outcomes being secondary foci. Such a paradigm shift will be difficult, requiring new methods, measures, and modes of operation. The construction of a biosynergy focused science will replace dichotomies with interactives. This is a task for the future -- beyond the scope of this chapter. What we can explore here is theory and construct that enlighten the human dimensions of conservation. As a modest beginning, I have created a schema differentiating the operational driving forces for certain key social factors in wilderness, rural, and urban populations in African bushmeat territories (Rose, 2000a). There are 10 continua in this schema. The five marked with **bold** print are critical action-research areas for the restoration of biosynergy among people and wildlife in equatorial Africa.

Driving Forces and Key Social Factors in African Bushmeat Territories.

Location:	**Wilderness** ----------	**Rural** ----------	**Urban**
Social Group:	Family ----------	Community ----------	Organization
Constitution:	**Myth ----------**	**Precept ----------**	**Law**
Legislation:	Ritual ----------	Custom ----------	Regulation
Management:	**Kinship ----------**	**Consensus ----------**	**Contract**
Adjudication:	Elders ----------	Leaders ----------	Enforcers
Identification:	**Nature ----------**	**Society ----------**	**Individual**
Theistic Power:	Intrinsic Deities ----------	Spirit Presence ----------	Distant God
Commerce:	**Hunt ----------**	**Trade ----------**	**Market**
Situation:	Environment ----------	Association ----------	Workplace
Wildlife Values:	**Theistic ----------**	**Conflicted ----------**	**Utilitarian**

(These concepts were created with support from Conservation International's Center for Applied Biodiversity Science, as part of their Bushmeat Initiative for West Africa, 1999-2000.)

Common differentiation between wilderness, rural, and urban locations are made according to relative densities of humans and their developments, on the one hand, and nature on the other. For this treatise I will try to define these terms in accord with social and biosynergistic factors.

Wilderness environments are those where non-human communities and ecosystems govern most ongoing life processes with human-nature interaction being predominantly synergistic or nature dominant. Rural environments are co-governed by humans and nature, with varied ratios of biosynergy, nature dominance, and human dominance prevailing. Urban environments are those constructed and governed by human communities where human dominance over non-human nature prevails. The buffers between these environments -- mixed environments and transit corridors -- are often the most critical territories for social control.

The terms in the left column label the 10 continua. The next three columns identify concepts which seem to describe the human social characteristics of wilderness, rural, and urban environments on each of the continua. Those continua which are in bold print are the ones I will discuss briefly below.

The Wildlife Values Continuum: Theistic -- Conflicted -- Utilitarian

Studies of the ways humans value wildlife by Kellert (1996) have set a standard for social science modeling. Unfortunately this tome of work is focused on northerners in industrial society. Application of Kellert's rigorous attitude scales in African settings requires adaptation. Nonetheless, work by Mordi (1991) has provided attitude survey data on wildlife values in Botswana which Kellert uses to expand his theory to non industrial societies and to hunter-gatherer society. In much of central Africa "a general pattern of apathy, fatalism, and materialism towards nature and wildlife" prevails (Kellert, 1996). Most contemporary Africans have lost their traditional "theistic" reverence for wildlife and many have taken on a more harsh utilitarian view (Mordi, 1991). With the advent and spread of cash economy, colonial religion, and urbanized central government, "tribal values of conserving and protecting nonhuman life are rendered spiritually inoperable, while new ecological and ethical foundations for sustaining nature have not emerged" (Kellert, 1996). Bushmeat commerce is the latest manifestation of the economic and moral values of international resourcism. People in Africa are being manipulated by the architects of global consumerism into giving up their cultural values and treating wildlife as a material resource.

Wildlife values still reflect somewhat the traditional –vs- colonial dichotomy for humans living in wilderness (theistic) and urban (utilitarian) environments. It appears that the prevailing wildlife value-sets in many rural milieus are a conflicted mix of traditional and modern. While indifference towards wild animals might be expected among urban dwellers who do not interact with them, rural people who are affected by crop raiding animals and are educated to stay out of dangerous nearby forests may be expected to report anti-wildlife values. This will be especially true where imported religious training has stripped the theistic value from wild animals, leaving them to be viewed as little more than pests, thieves, and thugs (Lawrence, 1993). On the other hand, reliance on bushmeat for protein in many rural African settings strengthens the utilitarian value of wildlife. Thus rural hunters and hunting subcultures can perceive wild animals positively - as useful resources, not spiritual gifts.

The practical question "which values can best be developed in rural and urban populations so as to reduce demand for bushmeat" will require specific study of the diverse and changing human subgroups. Short term manipulation of values through passive economic incentives to not hunt, active incentives to protect wildlife, and social/legal disincentives such as fines and incarceration are typically proposed as face valid interventions.

While these approaches can work, the fact that such tactics rely on external material values renders them risky, especially if linked to cash economy. To simply reinforce the pursuit of money can backfire whenever the money source vanishes, or when economic need or desire rises. Without other influential values at play, a purely utilitarian wildlife protector, for example, can be bought off by a patron offering more money to hunt for bushmeat. This is why the social values held by candidates for jobs as field assistants and tourist guides become crucial to the hiring decisions of scientists and conservationists (eg: Fossey, 1983; Owens & Owens, 1992). Expert assessment of theistic, kinship, and other non-utilitarian social values by applied social scientists will optimize selection and motivation of staff hired for bushmeat control programs.

In the long term, however, public efforts in wildlife values education will turn the tide. This will be accomplished, ironically, in the missions and schools that promoted western materialism, and on the commercial media. Programs to engender empathy for apes and other wildlife as part of the creation, and thus as spiritual and evolutionary kin are now being developed in central Africa (Rose, Bowman, and Patterson, 2001). These innovations are essential to counter the continuing promotion of material utilitarian values by international exploiters.

The Constitution Continuum: Myth -- Precept -- Law

In places where spiritual myth and ritual still influence community attitudes and behaviors, the establishment of pervasive conservation values could be quick and long-lasting. Vabi and Allo (1998) detail the workings of community myth and ritual practices in relation to commercial bushmeat hunting in eastern Cameroon. In brief, they describe the replacement of effective internalized myth-based social controls with ineffective external law-based administrative mechanisms. Individuals whose community and clan share common belief in the intrinsic theistic value and power of wildlife and wilderness can be expected to relate in predictable, synergistic ways to the ecosystems in which they live. Transgressions are punished and proprieties are rewarded by personal self assess-

ment and public comment, automatically and reliably. Daily and continual reinforcement of the myth/belief system carries through in ritual practice, and helps to maintain the community institutional framework uncontested through succeeding generations. Where certain animals are totems, their habitat is protected and their hunting strictly controlled and typically performed in sustainable traditional ways. Taboo wildlife and ecosystems are avoided because strong personal and communal sanctions insist on it. On the face of it, this kind of system in isolation seems perfect for maintaining human-nature biosynergy.

But as outside factors impinge, myth-based community conservation practices unravel and collapse along with other social systems and controls. Introduction of foreign technology, economics, affiliation, and religion undercut and transform indigenous society. The proliferation of guns into rural societies destroys the power balance between hunter and prey, and can be expected to erode traditional myth and its ritual controls on hunting society. To study gun hunters as if they are traditional people (eg: Alvard, 1993) is absurd. More ubiquitous and important -- any bushmeat trader, marketer, or consumer using government issued money to sell and buy bushmeat transported on foreign built trucks and roads is also basically modern. The assertion of traditional social control on commercial bushmeat traders will be psychosocially ineffectual. This will be especially true in urban centers, where the overarching social and religious influence is modern, individualistic, external, and legalistic.

In rural areas the mix of community precept and central law can be responsive to normative influence. Villages and small towns are enclaves of traditional community and clan practice. Village chiefs may serve as mediators between the legalists and the theists, between law and myth. To the extent that local people accept the chief as empowered by their deities and ancestors and working within their community myth/ritual system, his precepts may be honored and community conservation may emerge on strong lasting traditional footing.

Intrusion by foreign exploiters and conservationists can undercut the mediating power of village and community or clan leaders. Whether it is the logger paying a chief for the right to cut trees or a scientist paying him for the right to study apes, both are substituting money incentive for the traditional theistic and community empowerment. More subtle and important, a community leader's affiliation with foreign emissaries of any kind alters status structures in the community and risks offending mythic tradition. Of critical concern is the transfer of northern individualistic norms onto leaders, so that social affiliation isolates the chief and clan leader making them individual operatives -- no longer an arm of gods, ancestors, and the community.

The most explicit destruction of community conservation myth has come from foreign religion. Key to this adverse effect is the externalization of deities, which strips wildlife of theistic power and renders once sacred ground empty of spirit and open for total material conquest. Ironically, a movement is afoot in North American religious institutions advocating ecological justice through "care for the creation." This could become a huge source of funding and energy needed to make conservation work in the bushmeat arena. But just as scientific reductionism can defeat African community conservation by denying the existence of god-spirit in forest and wildlife, so can religious externalization of deities reduce the effectiveness of this positive movement in Africa.

Solutions are available. There are many examples of foreign religious missionaries enabling the coexistence of local and global religious myth. A very open minded, innovative approach to the support of local myth in the context of modern religious and spiritual concern for the living creation seems to me to be the most promising untried area for research and development. Without the capacity or will to create a fully endowed and socially supported enforcement/judicial system spreading from cities to rural and wilderness areas, social control of unsustainable bushmeat commerce will require the reconstruction and institution of spiritual myth that supports the synergistic interchange of human community and biodiversity.

The Identification Continuum: Nature -- Society -- Individual

The development of psychological identity, or ego, is diverse as the cultures in which people grow and live. Modern power societies encourage a kind of egocentric identity which allows social institutions (schools, businesses, governments) to manipulate and manage individuals for their corporate benefit through person-focused incentive systems. This kind of individualistic identity pattern appears to prevail among the affluent and educated residents of African cities, as it does in Europe and North America. Urbanites tend to see wildlife as a resource for their individual use as private means to facilitate pursuit of personal goals.

In contrast to urban selfishness, traditional people who live in wilderness areas view themselves as elements of nature, asserting eco-centric identity. As part of nature, one identifies ecological health and stability with ones' own well-being. The human-wildlife totem relationship deepens nature-connected identity. A forest dwelling per-

son who uses the term "I" may be referring to a panoply of interlaced human and non-human identities, and "we" may indicate any or all flora and fauna who co-inhabit the natural world, not merely human family or community.

Again in a pivotal position, rural villagers identify themselves anthropocentrically as members of human society with proscribed social responsibility and privilege relative to the natural environment. The shift from identification with nature to identification with human society marks the loss of ecological sensitivities. Living and working in human constructed habitat on human social tasks erodes the sense of self as animal in nature. Although rural people are in closer contact with the wild than urban dwellers, their identity may be shaped by a "man against nature" frontier ethos (Cartmill, 1993). Paradoxically, on the psychosocial level, the ego which is identified totally with humanity may be less able to evoke concern for non-humans than the individually focused.

This suggests that education about and empathy for endangered animals will develop differently in urban and rural settings. Urban individualists may respond to personal instruction and one-to-one bonding with apes and other wildlife in sanctuary settings, for example. Rural socialists might be better convinced to protect wildlife through interventions that link nature to the satisfaction of community needs which are central to the person's communal identity. In attempting to establish a gorilla research and tourism project in bushmeat territory, for example, it appears that we must establish the community identity of "gorilla protection society" in the common mind (Rose, 2000d). So long as individuals -- chiefs, conservation workers, and select villagers -- are identified as mainstays of the project, it will not succeed.

The Management Continuum: Kinship -- Consensus -- Contract

Authority and power to manage social behavior is vested more in relationships than in individuals. Elders need youth, leaders need followers, employers need workers. But these social compounds vary from location to location. Social management in wilderness dwellers is empowered by family elders. Rural villagers often invest management responsibility in community level consensus systems. Urban societies have a preponderance of non historic and temporary relationships to manage; they do so by individualized contract.

Urbanites transplanted into rural and wilderness settings attempt to install the management processes they know best. The difficulty obtaining contract compliance with people adapted to management through rural-consensus and wilderness-kinship systems has led to the proliferation of urban-migrant contract workers in rural and wilderness development projects. Typically conservation projects are also run by outside contractual managers. To the extent that villagers are obligated to follow community consensus, contractual agreements with them will be countermanded. Similarly the elders' pronouncements can override agreements forest dwellers may make with outsiders. Rural men and immigrant-urban hunters have attempted to secure authority positions in wilderness cultures by marrying forest dwellers, with mixed success depending on ability at cross cultural management.

Community development projects, whether extractive or conservative, are increasingly built on consensual management models imported from Euro-America. Participatory rural development tries to capitalize on the rural consensus capacity in building agreement. Problems of population size, inter community conflict, and stakeholder non-participation make these efforts difficult to manage. Wilderness dwelling people are generally unskilled in urban-style consensus building, so they avoid conflict resolution processes. Thus the human stakeholders with the most to lose often have no voice in decision-making. The absence or dysfunction of a crucial stakeholder group renders participatory consensus invalid. This must be remedied. Not only is it unethical to leave out the human forest dwellers, it is ineffectual and dooms projects to failure.

There are other stakeholders, however, with more to lose and less voice in development planning -- the fauna and flora. Since these stakeholders cannot function at the planning table, humans try to talk for them. Unfortunately the range of surrogate voices is very narrow. Conservation scientists present their findings and mitigations and wildlife biologists and foresters argue for statistical sustainability of animals and trees in rural appraisals and other participatory programs. These outsiders rarely speak in ways that reflect the interactive vitality of human societies and natural ecosystems. To wilderness dwelling people, the natural world is to be lived in reverentially, not managed contractually. Urbanites, whether scientists or loggers, rarely allow village consensus to overrule their corporate or professional pursuits and proclamations. The management continuum is a crucial dimension in the reduction of bushmeat commerce. If management processes are not synergistic for all stakeholders, biosynergy cannot be pursued.

The Commerce Continuum: Hunt -- Trade -- Market

Human commerce hinges on human need. At the bottom of the hierarchy of human needs is survival, and we usually associate food needs at that level (Maslow, 1993). One must have a fairly full stomach, and food for the next meal, in order to be influenced by higher order needs for security, status, identity, and actualization.

Food preferences, however, are only partly related to hunger and nourishment. Whether in rain forest or metropolis, the foods we gather, trade, sell and buy are determined by myriad social factors. Wilderness dwellers prefer smoked porcupine to fresh chicken because it lasts longer, and better satisfies food security needs. Young men in rural villages agree to take a gun and hunt larger game to satisfy identity needs in a shifting cultural milieu. Village chiefs and Provincial governors enhance their status serving ceremonial meals with expensive wild game meat. Affluent urban citizens may actualize their personal sense of power and potential with traditional foods and medicines imported from the rain forest.

All these underlying needs drive behavior, which becomes habit. At that stage, consumers typically report that they buy bushmeat because it tastes better than chicken or beef. It seems frivolous to eat endangered gorillas and protected elephants for the taste sensation. But taste familiarity itself provides a sense of personal and social security which is profound in all cultures. And like the holiday turkey that serves as an icon for "the good life" in North America, special bushmeat on the platter in many African homes signals the celebration of community. Our nervous systems are hardwired to accept familiar flavors and aromas which prove safe, and to reject unusual tastes. Ritual feasts rely on visual and culinary consistency. Perceptual adaptation levels develop rather quickly, and are slow to change. Thus once communities and families begin to include newly available game meats in their diets and ceremonies, it will be difficult to reduce the demand.

This is why we must be especially concerned about the spread of bushmeat supply from wilderness and rural areas to the cities. Reducing "the taste for game meat" in smaller rural populations is a formidable challenge. Reversing bushmeat demand in the high density urban markets will become even more difficult, due to the individualistic and multicultural complexity of social factors and human needs. Already in some quarters of major west and central African cities, bushmeat has become a habitual and expected part of the diet. This demand will give incentive for opening new sources and routes of supply, and supply will expand demand.

Urban demand and rural supply are interactive. Social factors mediate the two-way relationship between supply and demand. Bushmeat hunted in wilderness, traded in rural areas, and marketed in cities will satisfy human social needs, support new consummatory habits, and stimulate an accelerating demand for bushmeat products. To reverse these trends ad hoc will be more difficult than to prevent them. But prevention and correction are both multi-locus and multi-factorial propositions. Our colleagues who study economic variables have advanced the understanding of the interactive effects of price, household income, availability of bushmeat and substitutes, and market trends (Wilkie & Carpenter, 1999). While there are relatively stable theoretical models for these interactions, they will not help us to predict and control bushmeat supply and demand in real-life settings without integrated treatment of social variables. Values, constitution, identification, and management are four social dimensions that are crucial to the pursuit of biosynergistic conservation.

RECOMMENDATIONS FOR RESEARCH AND INTERVENTION

Programs must be designed to deal with urgent, fundamental, and sustaining solutions to major social problems that underlie the bushmeat crisis (Rose, 1998c). Fundamental to the effectiveness of all interventions will be the establishment of a worldwide alliance to stimulate and maintain public and political concern for the wildlife crisis. Most urgent is the need for multidisciplinary crisis intervention projects to stop endangered wildlife slaughter in locations where militias, refugees, and exploiters are invading critical habitat. To sustain the reduction of bushmeat commerce over the long-term, methods must be developed to restore reverence and a sense of kinship with endangered wildlife across equatorial Africa.

No matter what the solution, it must be developed in the context of long-term action research programs (LTAR) that will optimize interventions cumulatively. The LTAR model is most effective in the ongoing improvement of social change and management programs in large and complex commercial service systems (Stebbins et al, 1982). A fundamental difference between the LTAR model and traditional basic science is the explicit and continual pursuit of social problems and solutions. Success in LTAR is defined as 1) uncovering mistakes and making cor-

rections and 2) identifying achievements and sustaining them. Finding out why and how things happen is subordinated to making things happen. The implementers of LTAR programs must be multidisciplinary teams of professionals with process and content expertise in the social system being treated. Members of the social system are partnered with outsiders to develop the strategic intervention targets and design and implement social change projects. The best LTAR builds capacity within the social system for self improvement, so that over a period of years the action research programs and processes are internalized.

The social systems connected with bushmeat commerce stretch from African forests and savannas to corporate boardrooms in Europe, Asia, and North America. This far-flung 'informal organization' requires far-flung formally organized processes to effect the changes that will keep it from destroying the remaining natural and cultural heritage of equatorial Africa. There are three strategic targets that seem ripe for intervention. They fit into generic categories which are interactive, but distinguishable - supply control, demand reduction, and alternative development. Each has complexity and paradox which require rigorous action-research efforts.

Bushmeat Supply Control. Many European and North American wildlife advocates and their public supporters argue that we must start with bushmeat control for endangered species. The direct approach from the urban armchair says interdict, arrest, fine, and jail poachers, traders, and marketers of endangered bushmeat. Conservation biologists often argue further that this should be limited to parks and reserves. A social science perspective that accounts for driving forces and key social factors shows why these prescriptions backfire and how they might be improved.

The law enforcement approach adds yet another urban social dynamic to the conflicted rural community. It signals that conservationists and central governments, along with their international supporters, do not respect the commons nor the community ethos. This approach typically ignores rural precepts and subordinates local leaders, undermines the consensus power of the village, displaces customary social control systems, asserts individual identity over society, resorts to distant gods and their emissaries, elevates the importance of utilitarian wildlife values, and reinforces the preeminence of the market over trading systems.

The affront of outside enforcement and judgment to wilderness dwellers can be more potent than that to rural communities. Direct legalistic intervention to interdict forest dwellers who support commercial bushmeat hunters can devastate whole families and clans. Indirect effects can be similarly destructive to social cohesion, as urban-style intervention interferes with kinship relationships between wilderness dwellers and rural peoples. Common understanding of this extreme adversity explains why outside enforcers rarely attempt to arrest wilderness dwellers. Vabi and Allo (1998) suggest that control measures must "emerge from careful location-specific and culture specific analysis. … greater emphasis should be placed on an understanding of the normative and social practices at the grassroots level of society." This good advice is easier said than done.

Control interventions must rebuild the power of the rural community to construct contemporary customs and precepts through societal consensus based on amalgamated myths and rituals which will re-instill theistic values for nature and its conservation. This kind of effort will require a cadre of social change agents trained to work behind the scenes facilitating societal, economic, and spiritual redevelopment. First choice locations for pilot projects would be those where commercial bushmeat hunting is about to encroach, and rural communities are still relatively intact. Each village and clan would develop its own community control mechanisms to prevent influx of hunters and market traders and thus protect local wildlife and their own societies and people.

In addition there is need for effective management systems in the immigrant populations that enter rural and wilderness areas for temporary and longer term exploitation and development. Evidence is clear that major interlopers such as loggers and miners do not have the capacity to manage and control the urban workers and families they hire and attract to live and work in their concessions. Programs must be designed, funded, implemented, and monitored to develop the organizations, managers, supervisors, and performance systems that will control and replace bushmeat commerce in all settings where urban societies have been transplanted into rural and wilderness environments. As mentioned above, these would be LTAR programs co-developed by outside professionals and inside managers, staff and other interlopers.

The interface between imported bushmeat control for urban interlopers and rural society redevelopment for forest dwellers and forest edge villagers is critical. Ultimately the rural and wilderness social control systems need to be protected and strengthened so they can maintain their own self management and keep their hunting community-focused and noncommercial. A key is to keep rural and wilderness men and women from being enticed into the cash-economy of urban exploiters. This requires presence of intermediaries with allegiance to proc-

ess, not subculture. The parallel links between the three cohabiting societies are vital, and must be facilitated by full-time independent outsiders skilled in inter-group cross cultural relations and social systems monitoring and maintenance. This imperative will be resisted by both individualistic urban and kinship-based wilderness factions. Rural communities are more likely to recognize the value of outside consensus managers. Practitioners of community based conservation projects have reported time and again how well running efforts unravel into inter-group disputes and ultimate failure when outside conservationists leave the scene. The answer is, don't leave without leaving behind a replacement who can facilitate the community relations management function.

Here we see the irony. We cannot tell the local people or the interlopers what to do from our urban armchairs. But at the same time we must find outsiders (or streams of them) willing to leave their armchairs and live as neutral facilitators in situations where "what to do" is complex and often unknown. To control bushmeat supply will be an innovator's challenge.

Bushmeat Demand Reduction. To reduce bushmeat demand appears to be a marketer's nightmare. On the one hand we may need to re-ignite theistic reverence for wildlife and draw on indigenous totem beliefs to foster human-animal kinship which precludes secular consumption of endangered species. On the other hand we may choose to evoke negativistic avoidance of wildlife and draw on individual fears to foster human-animal repulsion, also to stop consumption of endangered species.

Let's consider the high profile issue of great ape bushmeat. We may find ourselves encouraging wilderness dwellers and interlopers to respect apes because they are kin, and to avoid them because they carry dangerous diseases. And in the cities, we may build empathy for our ape cousins by exposing urbanites to their human like qualities in hands-on educational settings, while insisting that wild apes must be shielded from human contact in order to survive. The messages will be mixed; as mixed as the cultural overlays and interactions of Africa which cover the widest range of any in the world. I suspect this mixing will make sense to most of the people most of the time, so long as we outsiders live by the same codes and values as we ask of Africans.

The modes of influence for reducing bushmeat demand are many. Perhaps the most far reaching media is radio. Popular formats such as docudramas and talk shows can provide entertaining opportunities for many publics to explore issues of health, human welfare, cultural change, environmental safety, and nature conservation. To stimulate discussion and thought is crucial, and radio allows many voices to be heard at once, across all societies from urban to wilderness. I have sat in forest hunting camps and heard the battery operated radio blast music and news through the air at the end of the day. Everyone listened. Because everyone listens, it is critical in such programming to assure that an ethos of tolerance for different cultural norms is ever-present. Listeners must be exposed to entertainment and advertising that reflect their own beliefs, yet put them in larger and fuller context.

Although radio messages can create a climate for change, physical interventions at key nodes of the bushmeat commerce will be needed to modify behavior. Three critical spots come to mind -- the market, the restaurant, and the home kitchen. To convince restaurateurs to forego the attraction and profit gleaned from bushmeat based specialties will be difficult and very important. So long as the urban gentry continues to celebrate in public with game meat, the aspiring classes and generations will be enticed to follow suit whenever they can afford it. Furthermore, the implication is that the rich celebrate in private by consuming endangered species. Whether this is true or not, the perception that elite eat illegal meat undercuts arguments against the illegal trade. Perhaps proactive public campaigns in which restaurants and respected leaders declare "we serve grasscutters, not gorillas" would be one way to make a difference.

To address this issue marketing and advertising experts should be brought to the table with applied social scientists and representatives from African urban, rural, and wilderness societies. With the necessary data about individual and community preferences, taboos, and aspirations, a keen market professional can figure out how to turn people away from one product (bushmeat) and towards another. Negative advertising risks audience backlash but can turn focus towards positive alternatives. Many people concerned about the bushmeat crisis assume that chicken and pork preparations, along with game ranch/farm products would be a way to reduce bushmeat demand. Market promotions of domestic meat that include recipes and on the spot samples can shift housekeeper choices in urban supermarkets. Similar but idiosyncratic culture-specific programs may work in rural areas.

Bushmeat Alternative Development. Alternative meat and vegetable protein products which look and taste like bushmeat seem to be a promising way to reduce bushmeat market share. With sufficient financial and developmental support, domesticated game products could be subsidized and promoted as mid and low priced African food-lines across the continent. Nearly every treatise on bushmeat commerce points to alternative protein

development as a solution (Rose, 1999a; Wilkie & Carpenter, 1999). Producers of domesticated game animals claim success in limited experiments (eg: Jori et al 1995). Why then don't we see major players in global food markets being solicited to underwrite and organize such ventures? In part it may be that traditional conservation and wildlife professionals aren't interested in going into the game ranch business. It's not their 'calling'. It could also be that conservationists are afraid of the "upside risk" inherent in this kind of venture. Rightly so.

If profitability becomes the driving force in game ranching, rather than capture of market share from bushmeat, the success of such ventures could whet public appetite for "the real thing" and stimulate corporate food marketers to enter the bushmeat business. It is clear that commercial 'harvesting' of wildlife devastates species and ecosystems, provides 'boom and bust' profiteering, and is ultimately not sustainable. What we don't need is more organized and efficient bushmeat commerce in Africa. The growing market in wildlife products for meat, fur, and medicine in Asia is already so well organized that many conservationists believe there is no hope for preferred food species there (A. Eudey, pers. comm.). The urban market logic which holds that wildlife species can be conserved best when they are given value in the food marketplace appears to be dead wrong. Promoting markets for ranched bush pigs and grasscutters might add customers for wild game to the consumer force.

The provision of subsidized domestic protein -- vegetable products, chicken, goat, pork , beef -- seems a safer approach. Such a development may not increase taste for bushmeat. But in many rural societies in central Africa, farm animals are seen as economic security. Live chickens may be held for barter or given as gifts, eaten only when the bushmeat supply is gone. A solution might be to breed, butcher, and sell chicken meat in the same channels as bushmeat, at lower prices and prepared to taste like wild game. This would likely supplant bushmeat in the lower sector of the market. An attempt to test this hypothesis is beginning in a logging concession in eastern Cameroon where chicken farming is being set up and subsidized (Auzel, pers. comm., 2000). A concern remains -- will the chicken farmers use the cash they earn to buy more expensive bushmeat for their own table? As discussed earlier, the importation of new business into forest economies has complex implications.

If putting real cash into rural and wilderness economies disrupts these societies, how will they manage to maintain conservation programs? How can new converts to cash economy avoid being bought off by the highest bidder? Some would declare that Africans to survive must enter the modern legalistic individualistic market-driven utilitarian world. At best, they argue, small islands of native peoples and parks can remain as reminders of what once was. Others suggest that without strengthening the rich human social and cultural heritage of Africa, African people and African wildlife will vanish together. This author holds the latter view, and believes we must set our sights high and strive to preserve as much of the social and natural landscape of Africa as we can (Rose, 2000c). The question to answer now is -- what must we do to succeed in this biosynergy focused conservation movement?

CONCLUSION: THE CONSERVATION MOVEMENT MUST EXPAND TO SUCCEED

Renewal Is Needed. The conservation movement needs a vast renewal -- new premises and players, new organizing principles, new strategies and tactics, new values and disciplines, new goals and objectives, new levels of effectiveness (Rose, 1999a). The new conservation movement's mission will be the promotion of biosynergy -- the harmony of humanity and nature. To pursue that mission, methods for achieving synergy among diverse conservation biologists, social change professionals, and countless other experts and stakeholders must be invented and installed. The barriers and prejudices that keep us apart and in conflict must be overcome first. Interdisciplinary battles must be stopped. Common language and ground must be created. Conservation organizations, small and large must stop competing and join forces (Rose, 1996a).

We have no choice. Basic science approaches wont work in conservation, and most stakeholders and donors know it. Long term action-research is needed. The free enterprise model with conservation and animal welfare NGOs competing for limited market share has failed. Coalitions are needed. Conservationists need the courage, will, and ability to collaborate with strange bedfellows in corporate headquarters and in field locations where exploitation, migration, and conflagration are destroying people, wildlife and environment. Facilitation is needed. The first step is to accept that conservation cannot succeed without undergoing a profound renewal.

Strategies Must Escalate. To succeed in the face of an exploitation revolution that is causing rampant resource consumption, regional conflagration and local anarchy, the conservation movement must escalate it's strategic imperatives (Rose, 1998c). There are five strategic goals to be attained: 1) social and moral leaders must

promote humanity's profound obligation to conserve wildlife and wilderness and to restore nature; 2) political and economic authority must place conservation on par with human rights and welfare; 3) conservationists must go beyond protecting biodiversity to assuring the biosynergy of human social systems and natural ecology; 4) public demand for intrinsic and spiritual values of nature must supersede utilitarian exploitation and underwrite massive long-term programs in conservation development; 5) all wildlife habitats must be considered sacrosanct, and human intrusion must be managed in a moral, businesslike, and competent way for the global good. We must affirm and pursue these goals at all levels of the conservation movement, from boardroom to bush.

Capacity Must Expand. Professional, public, and corporate involvement must be expanded for conservation at any level to succeed (Rose, 2000b). We must identify enterprises, disciplines, and public stakeholders that are missing from the conservation movement. Gaps in competence and understanding must be filled by recruiting the best and brightest talent in a score of new domains to work for this cause. These new conservationists must be organized and molded into collaborative interdependent teams. The list of professional types to be added to this effort is enormous. African specialists and international counterparts will require careful selection from fields such as community development, cross-cultural relations, ethics and applied theology, entrepreneurial agribusiness, small business finance, food marketing, environmental conflict management, peacemaking, law enforcement, environmental justice systems, rural and urban ecology, media advertising, organization development, applied social psychology and social anthropology. Only by this vast expansion of capacity can we expect to create conservation programs which will be grounded in enough domains to be effective in countering the revolutionary exploitative activities that are altering the social, cultural, and ecological terrain of central Africa.

Teamwork Must Prevail. Fast and lasting success will come to innovative conservationists who work directly with the people involved in wildlife commerce -- poachers and traders, suppliers and producers, exploiters and consumers, leaders and rulers. These proactive partnerships will invent socially and ecologically synergistic programs to satisfy the human needs that now drive the commercial extraction and consumption of fauna and flora in Africa. Cadres of devoted ecological and social change practitioners, personally inspired and financially endowed, will join center stage with the lone field biologists and anthropologists who have served as long suffering crusaders for wildlife. Media will look beyond romantic images of scientists rescuing threatened animals and will celebrate the entrepreneurs, educators, and innovators who help people from forest encampments to corporate boardrooms to improve their quality of life by returning to a reverential and synergistic relationship with the African environment.

The task of living in wild places to track apes and monkeys will take on huge added responsibility as synergistic conservation proliferates. Teams of professionals and community leaders will collaborate to convert poachers to protectors, monitor forest product and service sustainability, and implement eco-social improvement projects. The study of non-human biology and behavior will be one of many forest services, sustained in the long term by practical interventions to transform human morality and effect biosynergy. Some lost idols and abandoned adventures will be mourned. But as time passes the sense of loss will be supplanted by satisfaction that will come from saving and enriching the lives of more African people and primates than we can ever know.

Success Must Be Global. This success will be maintained by a general public in Africa and around the world that has claimed its kinship with non-human primates through personal interaction and empathetic understanding (Rose, 1994a, 1995, 1996e), and supports the social movement to save wildlife and nature as our moral obligation and spiritual need (Rose, 1994b). It will be known by all that a perpetually rich and thriving African rain forest with its apes and other ancestors alive and well is worth far more now and in the future than bundles of wood and bushmeat. Beyond the oxygen and medicine that the forests produce, and the lush beauty and mystery they provide, they give us profound insight into our identity. It is, after all, out of Africa that we hominids came. It is in Africa that we discover who we are and thus face our potential for being more than selfish humans ruling and consuming a vanishing natural world.

The success of this great new conservation movement will do more than save wildlife and wilderness. It will safeguard the world ecology, restore biosynergy, and re-inspire the natural spirit of humanity itself. As founders of the movement we must work together with a wealth of colleagues and fellow travelers, always in reverence, to celebrate the fulfillment of our natural origins and human destiny in the vast and wonderful creation that unfolds and evolves on this remarkable planet.

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