Every Man for Himself And God Against All:[1] History, Social Science, And the Conservation of Nature

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ABSTRACT
The world is undergoing an unprecedented loss of species and of natural ecosystems. Two major causes are the growth of the world's human population and unrestrained demand for resources in the developed world. In parallel with human population growth has been the development of a strong human-rights agenda. The increasingly powerful influence of the human rights lobby has been accompanied by the development of the incremental concept of "biodiversity" at the expense of quantitative science. The retreat from quantitative biology has permitted social scientists to become the new arbiters of ecological issues. One effect of this changing disciplinary focus has been to rekindle and reinforce the pre-Darwinian idea of the primacy of the human species. In this perspective, not only do human needs pre-empt all other considerations; sociological revisionism increasingly ascribes a role to humans as the keystone in even the most pristine ecological systems. It is my view that biology should be brought back to the center of the debate. The claims of the human-rights lobby and of the social scientists need to be put into perspective: nature has an inherent moral right to exist irrespective of its value to humans. Furthermore, the mechanisms of ecosystem functioning do not generally require human intervention. However, the primary value of nature to local communities is economic and not biological. The emergent significance of "species," "ecosystems," and concepts such as "endemism" occur at the level of the developed world; at the local level little matters beyond the functional significance of the ecosystem. Much of the onus for protection must therefore depend on the developed world and not on the local communities. If conservation goals are delegated to local communities, even if there is a commitment to management, this will inevitably be for economic and not for biological goals.

INTRODUCTION

By any objective measure, the world is undergoing a massive and increasing rate of species loss. Many ecosystems are in rapid decline or are being fragmented and degraded. There are myriad examples: recent data from IUCN indicate that 25% of all mammal species and 11% of bird species are threatened with extinction worldwide (Baillie and Groombridge 1996). Estimates of the endangerment of reptile, amphibian and fish species indicate that 20% of reptiles, 25% of amphibians and 34% of fishes (mostly freshwater) are threatened with extinction (Baillie and Groombridge 1996). In Kenya over a 17 year period ending in 1994, the loss of wildlife inside protected areas was 32% while that outside protected areas was 44% (Pearce 1996). In Britain, the common skylark population has lost about 1.5 million pairs in the last 25 years, and 27 species of UK breeding birds have suffered at least a 50% decline in breeding numbers or range over the same period (RSPB 1996). Every continent, apart from Antarctica, presents similar examples. While the total number of species is in decline, large mammals and birds, such as the American bison, rhinoceros, tiger, bear, elephant, dodo, Californian condor, and Giant panda, are being eliminated from the face of the earth.

[1] From the film by Werner Herzog, also known as the "History of Kaspar Hauser."

[2] The views expressed here are those of the author and not necessarily those of WWF.

This unprecedented loss of species over the last few decades is largely the result of two global phenomena: first, exponential growth in the world's human population (the current total is almost 6 billion); and second, excessive and growing demand for resources in the developed world. The growth in economic strength of Asian markets where there is traditional use of commodities such as ivory, pango scales, rhino horn, tiger bones, bear gall-bladder, shark's fin and timber, is a significant and highly deleterious component of this trend. The human species, *Homo sapiens*, possesses many characteristics of a "weed" species: looked at from the viewpoint of other organisms, humankind resembles an acute epidemic disease whose occasional lapses into less virulent forms of behavior are insufficient to permit a stable, chronic relationship to establish itself (MacNeil 1976). The globalization of the world economy, the widespread acceptance of the profit motive, and the paramount importance of "market forces" have resulted in a rape of the natural resource base which reaches to every corner of the globe, the forests of the Sangha region included.

Claims for land and territory are often vigorously upheld indiscriminately by social anthropologists, the human rights movement and increasingly by the orthodox conservation movement on the dubious grounds (particularly in Africa) of "indigenous rights."

The effects of commercial greed and rapacity on communities that depend (or depended) on these resources have been diverse. On the one hand the result is political sensitization, a re-definition of the concept of "indigenousness" which is then used aggressively to assert or re-assert economic or territorial claims, a process that is rare in Africa. Many of these groups are articulate, politically sophisticated, and live far removed from traditional ways of life. On the other hand, fragile societies fail to compete with the aggressive alien cultures, and succumb to alcohol, drugs and disease, maladies that are common in Africa.

It is important that the concept of "indigenous peoples" is refined scientifically. Recent research (Richards 1993) indicates that in the complex mix of old and new migrant populations that characterizes the forest margins throughout west Africa, narrow definitions of the category "indigenous peoples" should be avoided. Emphasis on "ethnicity" and "nativeness" is not only misplaced, but potentially divisive and likely to create inter-ethnic conflict. Claims for land and territory are often vigorously upheld indiscriminately by social anthropologists, the human rights movement and increasingly by the orthodox conservation movement on the dubious grounds (particularly in Africa) of "indigenous rights."

GROWTH OF THE HUMAN RIGHTS CONSTITUENCY AND DECLINE IN THE RIGHTS OF NATURE

The growth in human population, a major cause of environmental degradation, has paradoxically been accompanied by increasingly

strident demands originating in the developed countries for respect for human rights. The developed world increasingly promotes the demand for human rights and for democracy despite their historically recent origins in a specific religious-juridical context, and in the face of strong resistance from some countries that do not share the same Judeo-Christian heritage. The idea that humankind, or to be more accurate, mankind, is apart from nature seems to be one that is deeply rooted in western civilization (Colchester 1997) but not in other cultures. There is also increasing evidence that the imposition of inappropriate models of governance, the inflexible and inappropriate imposition of western political paradigms in inappropriate social contexts — such as the promotion of gender rights — can lead to the destruction of the indigenous social fabric as surely as did the wars of colonial possession.

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The growth and consolidation of the human rights movement has been accompanied by a marginalization of biological science, to a large extent the result of the hegemony of market forces. During the lifetime of Darwin, and for some decades after, the impulse for scientific exploration of the world (particularly the tropics) was strong and the collection and identification of species was at the forefront of science. The painstaking task of describing and naming the multitude of species discovered was carried out by an army of taxonomists. But taxonomy smacks too much of "pure" science for pragmatic, market-driven economies, and today taxonomists themselves are an endangered species. The data which today form the basis of our maps of biodiversity and eco-regions are the result of decades of work by taxonomists, most of whom are now dead or retired. The scale of current taxonomic work worldwide is minimal. Taxonomists provided data which was capable of providing quantitative and objective information on ecological changes, such as the number of species and the significance of these changes. Now such quantitative data is replaced by the qualitative concept of biodiversity.

Some of the consequences of the rise of biodiversity as a concept have been ably discussed by Collar (1996):

> . . . [the] enduring attraction (of biodiversity) lies in its user-friendly plasticity of interpretation (all things to all men) and in the solid neutrality of its constituency (all things alive). It includes threatened species; but also conveniently subsumes them.

As a concept, biodiversity has enormous political attraction: it is not quantitative; instead of death, we talk about loss; it is incremental, fuzzy, imprecise and untechnical. Its use has removed nature

from the purview of the biologist and permits the social scientists to become biological.

CONSERVATION FOR HUMAN BENEFIT

The orthodox conservation movement is increasingly dominated by social scientists and increasingly concerned with conservation "for human welfare." The expropriation of the conservation agenda by social scientists is not limited to NGOs; in Britain, the DFD's (formerly ODA) Joint Funding Scheme (JFS), which has environmental conservation as one of its policy goals, is completely under the control of fundamentalist social scientists–conservation proposals which fail to address gender issues (whether relevant or not) are immediately excluded from consideration for financing. It is right and proper, of course, that the needs and aspirations of local communities be taken into account in conservation planning, but it is also right and proper that the views of biologists also be taken into account and that, in all the fanfare and trumpeting of human rights, nature's rights to exist are not trampled underfoot. The virulence of the anti-bioogy lobby is strong: "The authoritarian biologist and the arrogance of anti-humanism" (Guha 1997) is the title of a recent paper which makes the unsurprising observation that:

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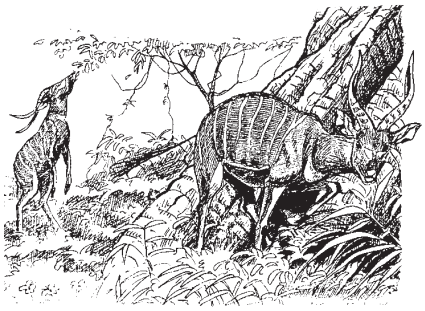
> biologists have a direct interest in species other than humans; as ornithologists, botanists and zoologists, they are alert to the interests of bird, plant or animal life. This interest in other species, however, sometimes blinds them to the legitimate interests of the less fortunate members of their own.

Social scientists are becoming increasingly bold: claims are being made that most ecosystems require human inputs to maintain biodiversity and that nothing is essentially pristine (Ghimire and Pimbert 1997), that the term "wild" is misleading because it implies the absence of human influence and management (*ibid.*), that the biodiversity may be "improved" *(ibid.*). The kindest statement one can make about such claims is that they are biologically illiterate. Social scientists, on the anti-biological offensive, are even attempting to revise history, claiming that far from causing deforestation, human beings had indulged in "anthropogenically-induced regeneration and landscape enrichment" and that forests are largely the result of human activities (Fairhead and Leach 1995).

Such claims are possible only because of a basic ignorance about the ecology and dynamics of tropical forest ecosystems. In West and Central Africa, coastal areas of species-rich dense-humid rainforest intergrade with wooded savannas which are far less species-rich and far less complex as ecosystems. Botanically, however, the two biomes

often are closely related. Historical changes in land-use have meant that sometimes areas of true rainforest have been cut, completely eliminated, and transformed into farmland. If subsequently abandoned, and if population pressures and climatic conditions permitted, there may then have followed a process of ecological succession from grass savanna through wooded savanna (which may take tens of years) and ultimately to true rainforest, a process that takes hundreds of years. Even though closely related biologically, the wooded savanna and the rainforest are entirely different ecosystems in terms of complexity. These essential differences are lost if one merely classifies the whole biome as biodiversity and assumes that all vegetation, including wooded savanna, is forest.

One of the results of the re-orientation of conservation away from ecosystem protection to community participation and the development of Integrated Conservation and Development Projects (ICDPs), in which the links between conservation and development are often tenuous, is the marginalization of the goal of ecosystem protection. The current trend is strongly against protection (of which the orthodox view is that it has failed) and tends to realign responsibility for protected area management onto local communities who often have neither the technical resources nor the basic commitment to sustainable management.



Tragelaphus euryceros
(Illustration: Bernardin Nabana)

It is clear that community-based management of natural resources can have a role in biodiversity conservation, although this may be far more limited than is commonly thought by agencies such as WWF, IUCN and the World Bank. It may have a role where communities are strong and intact, where immigration (or emigration) is controlled and where there are resources of economic value to the outside world that can be exploited sustainably. It is equally clear that traditional protection of protected areas through strong legislation and effective enforcement has not so much failed as not been adequately tried. The institutional systems were put in place but the resources necessary for its implementation were never allocated. The failure is of implementation and not of system design.

Where political will and commitment have made adequate resources available to such systems (as in southern Africa), they have been effective. Populations of white rhinos and elephants have expanded in these areas. The southern African national parks now, however, face the enormous challenge of changes away from the traditional system to community involvement. These changes come from a position of economic and ecological strength, however. The outlook for them is correspondingly brighter than for those countries where protected areas have become degraded and are now being handed over to unprepared and uncommitted local communities.

UNDERSTANDING OF ECOSYSTEM FUNCTIONING

The equation of vegetation with forest is indicative of a lack of biological understanding. It is ironic that this trend has been permitted by the development of the concept of "biodiversity." If one talks of extinction of a species, this is clear and quantitative. Loss of biodiversity means an incremental reduction from an imprecise total. Such imprecision also permits the social scientists to assert that human influence can increase biodiversity, although this can be true in a narrow and ominous sense. For example, the number of bird species in Yaounde, Cameroon has increased over the past few years (Fotso, personal communication), but this increase is due to the fact that arid-land species are now entering the forest zone because of desertification. Take a pristine forest with x species of birds in it and clear an area at the edge. The number of original species will remain constant (at least in the short term), but new species, forest edge invaders, weed species, will come and the total number of species will increase. The increase in biodiversity is in this case a symptom of ecosystem decay. Total numbers are not important; it is the biological significance of these numbers that counts.

A floristically complete forest which has lost its seed dispersers (mammalian or avian), such as many in coastal west Africa, is a doomed forest that will inevitably be replaced by a less complex ecosystem.

There is a large body of literature on the effects of human interference on tropical forest ecosystems, and in particular, the effects of fragmentation and elimination of seed dispersers. One major effect is that large bodied, long-lived, intelligent species with a long gestation period and a lengthy period of care of the young, such as elephant and gorilla, are swiftly eliminated by forest fragmentation, and the small-bodied, rapidly-reproducing species with precocious young and short life spans (e.g. rats, mice, squirrels) will be selected. A floristically complete forest which has lost its seed dispersers (mammalian or avian), such as many in coastal west Africa, is a doomed forest that will inevitably be replaced by a less complex ecosystem.

Although loss of forest is widely perceived as the major threat, through clear-felling and the transformation of a forest ecosystem into range land for example, far more widespread and far more insidious is the threat of forest degradation and fragmentation. There is abundant evidence that many tropical rainforests contain high percentages of animal-dispersed species. In West African forests for example, this may be as high as 30% (Whitney *et al.* 1995). The dispersers are animals such as elephants, duikers, and large, frugivorous hornbills. Two hornbill species alone appear to be the principal seed dispersers for over 20% of 260 tree species in Cameroon (Whitney *et al.* 1995). Elephants are already extinct in most west African forests, duikers are the main staple of the burgeoning bushmeat trade and the largest of them, the yellow-backed, *Cephalophus silvicultor,* has changed from a common animal to a

rare one within two decades in Cameroon; the large hornbills, Black-casqued *Ceratogymna atrata* and White-thighed *Ceratogymna cylindricus albotibialis*, are sensitive to habitat fragmentation and disappear from disturbed forest (Whitney *et al.* 1995). Thus, forests which appear pristine can be effectively dead if the fauna on which they depend for seed dispersal are not present. Such forests are bound to undergo a process of ecological degradation into a simpler, less diverse ecosystem. Many forest species require areas of intact natural forest in thousands, if not tens of thousands, of square kilometers in size in order to survive. Apart from large mammals of the tropical forest, this also applies to harpy eagles and to grizzly bears and wolves in temperate regions (Bryant *et al.* 1997). Furthermore, forest fragmentation also leads to ecological changes because of increasing competition from aggressive forest-edge species.

ENVIRONMENTAL PERCEPTIONS IN THE DEVELOPED AND DEVELOPING WORLDS

Most of the developed world has already experienced massive ecological degradation. Britain and Holland, for example, are totally-utilized landscapes. The transformation of the American prairies into the bread basket of the world, with the concomitant extinction of many of its life forms, is well known. Today, the frontier is the developing world, and in particular, the forests which are being destroyed. All forests are at risk, but the tropical forests are particularly so. The principal cause of this destruction is the globalization of the world economy and the proliferation of the human race, with the resulting demand for resources, land, fuel, building materials, profits, etc.

There is wide agreement in the developed world that nature should be protected. This is often not the result of logical or scientific thought but more the result of feelings and emotions. The main "use" of nature is seen as recreational. Such impulses are particularly strong in areas such as Holland, where nature can scarcely be said to exist anymore. These feelings are not widely shared in the developing world where the forested environment is usually seen as a barrier to development, something which must be cut down or burned in order to provide land for farms in order to grow food.

In neither the developed nor the developing world are the scientific and biological values of the environment widely appreciated by the public. In Europe or the U.S., bird-watchers will flock to tick off another rare migrant species on their life list, but this is more of a pastime than a scientific interest. In the developing world, there is virtually no scientific knowledge about the forest. A biologist will know that a particular species of primate represents an important

link between two families, that it has interesting arboreal and social adaptations, and that it has an extremely restricted range in a particular type of forest. The indigenous person will know where the animal is found, how it lives, what it eats, but nothing of the wider, scientific context. Today, virtually all of the present-day occupants of the western Meso-American pastures, fields and degraded forests are deaf, blind, and mute to the fragments of the rich biological and cultural heritage that still occupy the shelves of the unused and unappreciated library in which they reside (Janzen 1986).

It seems unlikely that the requisite levels of scientific information can be imparted to local populations in the short to medium term. Nor is there any guarantee that if they were, that much notice would be taken of it. Nor is it by any means sure that scientific information will be more powerful than greed. However, in the absence of widespread acceptance and understanding of the scientific basis of ecosystem structure and function, it is likely that the resource base will continue to be degraded, and the only option open is to ensure that at least biologically important core areas are protected against such degradation. It is unrealistic and irresponsible to hand over the duty for protection of these unique ecosystems to the local communities who have neither the resources nor the biological education necessary to manage them. If developed world science has identified these areas as important, it is clear that developed world resources will have to be made available to preserve them. We have a duty both as humans and as scientists to assist in the identification and protection of non-human nature and not to connive in its destruction.

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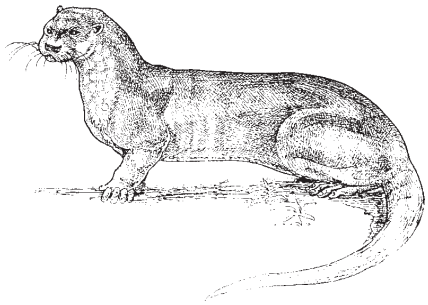
THE LEGAL AND HISTORICAL CONTEXT

The dissociation of men and nature in western civilization has permitted nature to be viewed as "wild, irrational and female" (Colchester 1997) which it was the duty of western civilization to tame. Dissenters from this view were the romantics who, perversely, saw in nature a healing force. This romantic view was certainly functional in energizing the national park movement through such figures as John Muir. Even though this romantic view of wilderness was challenged at a very early date, some writers maintain that the romantic goal of "wilderness" remains today at the heart of protected area creation (Colchester 1997). National parks are dismissed as romantic creations on the apparent grounds that they are emotional reactions to the crassness of mankind's need to tame the wild forest, which is, in the end, not really wild, but which often has been created or maintained by indigenous peoples. The cultural bias of this analysis and the total absence of biological values are demonstrated in what is proposed, apparently in all seriousness, as a solu-

tion to conservation. This is the British model of landscape conservation rather than wilderness preservation. We are told that:

> . . . national parks in Britain thus not only fully recognize existing rights but also seek to maintain the established farming system. Moreover, they formally involve in their management local government bodies, and special mechanisms ensure that local residents have a direct influence in decision making. (Colchester 1997).

It seems perhaps insensitive to point out that a world full of national parks on the British model would be a world virtually devoid of biodiversity. Conversely, if one wanted to establish a wilderness national park in Britain, it would not be possible because wilderness does not exist there. The British model may be appropriate in non-pristine and utilized landscapes where the goal is the preservation of landscapes (an aesthetic and scenic goal), but it is inappropriate in complicated, pristine ecosystems where the goal of the preservation is not aesthetic but biological.



Lutra maculicollis (Illustration: Bernardin Nabana)

Colchester (1997) is right in his claim that western civilization sees itself as apart from Nature; this is not true of many non Judeo-Christian and animist civilizations. The intellectual death-blow to this position was dealt by Darwin in the last decades of the last century. The undeniable and basic fact that man is part of nature is nevertheless denied by perhaps the majority in the western world, who continue to believe that the world was created by God and who therefore reject the basic idea of evolution. The difference may be encapsulated thusly: Confucius said, "Remember, you are a child of the universe, no less than the trees and the rocks." Whereas Yahweh says, "I have made you in my image, I give you dominion over the earth." Here lies a fundamental difference in viewpoint with dramatically different consequences for the environment. The Christian viewpoint is made explicitly and specifically clear in a letter from the Bishop of Yagoua (personal communication 12 June 1997) concerning elephants in his diocese of northern Cameroon:

> We do not see the importance of the elephant and above all the laws which protect it above the interests of MAN, a creature made in the image of God and master of all beings including animals.

Science has described the process of the origin of the universe and of life, and we are increasingly coming to understand the process. The salt taste of our blood tells us that we share close and intimate links with other more primitive life-forms of the ocean.

Evolution is another way of stating that organisms change in response to changes in the environment. It has no end and no goal; it is a process. The adaptations of an arboreal monkey to its treetop environment, those of a blind mole-rat to its subterranean existence, and the development of the opposable thumb and speech in humans are all responses to specific environmental conditions. All have the same value, which is existential and not emergent. The human species has the same biological significance as the lowland gorilla species, or the black rhinoceros species. In terms of biological significance, an individual human (1: 6,000,000,000) will therefore have less biological significance than a gorilla (1: 500,000) or a black rhinoceros (1: 2,750). This leaves us with moral values. This is the most difficult (yet in many ways the most simple) question: Does the numerically dominant human species have the moral right to eclipse and destroy non-human nature?

Biologically and ecologically, the concepts of human rights and of democracy are what economists call perverse incentives as far as the survival of nature is concerned. The unthinking pursuit of human happiness and the primacy of human concerns are spelling disaster for the remaining pristine ecosystems of the world. The fundamental question is the right of non-human nature to survive.

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In my view, nature has a right to its existence. The clarion calls for human rights should be drowned by even louder and more urgent calls for nature's rights. Everywhere, nature is being threatened by human greed and human growth. Large forest ecosystems have evolved largely independent of mankind (who appeared very recently on the geological scale) but have accommodated to mankind until the last century or so. The ideas behind biology, ecology, evolution are largely western. The forests possess scientific and ecological value only to us; to the local communities they possess only cultural and economic significance. To turn over these ecosystems to the responsibility of such local communities to manage would be to effectively sign the death warrant of these forests scientifically. They must survive, not for romantic reasons, but because they are an important part of the world's nature. We must accept our responsibility for the practice of the necessary science and the allocation of necessary resources. By judicious, urgent action, we may save these ecosystems and permit the fragile communities to survive. If we hand it over to the fragile communities, both the forest and the communities will surely die.

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