THE MYTH OF WILDERNESS IN THE BRAZILIAN RAINFOREST

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INTRODUCTION

The creation of protected areas[1] has been one of the principal elements in strategies for the conservation of nature, in particular in the countries of the Third World. The establishment of these areas increased substantially in the 1970's and 1980's, when around 2,098 federal protected areas were created in the entire world, encompassing more than 3,100,000 km^2. Today, around 5% of the surface of the earth is legally protected, through 20.000 different categories, covering an area the size of Canada, spread throughout 130 countries including not only the federal level but also provincial, state, municipal levels. (World Conservation Centre, 1996).

In 1990 Brazil had about 34 national parks, 23 biological reserves, 21 ecological stations, 38 national forests, 14 environmentally protected areas, and 4 extractive reserves, totalling 31,294,911 ha. or almost 4% of the territory (CIMA, 1991). Around 28,302,572 ha. of this area are located in the Amazon region, with the remaining 1,125,883 ha being from other regions.

A combination of factors could explain this increased interest in creating protected areas in Brazil: the rapid devastation of the Amazonian rainforests and the Mata Atlantica; the loss of biodiversity; the availability of international funding for conservation efforts; the possibility of revenue generation from tourism in parks; and above all the pressure on the World Bank to create new protected areas to counterbalance traditional development projects in fragile areas such as the Amazon.

In this context, the establishment of protected areas also becomes an important political weapon for the dominant elites of many countries of the Third World, who can continue to obtain external financing for large projects, which will have a significant impact on fragile ecosystems.

Brazil currently has about 4% of its territority established as protected natural areas under federal jurisdiction, an area already larger than many European countries. If the proposal of UNEP that approximately 10% of national territory be put under some form of protection is achieved, around 800,000 km^2 of Brazilian territory would be parks and reserves, a surface area equivalent to France and Germany combined. In this context, it is important to note that today about 18% of the Amazonian region is protected (including indigenous reserves).

Apparently, most environmental agencies maintain that the greater the area that is put under some form of protection, the better it is for conservation . The United

[1]In this paper, the term ' protected areas' refers to all categories of areas from which human populations are excluded. In Brazil this includes mainly national and state parks, ecological stations and biological reserves. However, in the text, the terms parks, reserves, protected natural areas, natural reserves, conservation reserves are also used to refer to protected areas as defined above.

Nations Environment Programme (UNEP) proposed that ideally around 10% of the land surface should be turned into conservation areas (UNEP, 1989:91).

This proportion has in fact already been achieved in about 7 countries in Asia, 14 countries in Africa, and 6 countries in Latin America (Ghimire, 1991). It is interesting that the U.S.A., one of the proponents of this idea, has protected some 10.5% of the landscape in all categories of protected areas and less than 2% of their territority as national parks (Parks Guide, 1989:23), and Europe has less than 7%. Apparently the idea of national parks is important for the Third World, but not for the industrialized countries. This, despite the fact that many Third World countries are going through crises of food shortages, resulting in part from a shortage of land for agriculture and from an unequal land distribution. The World Conservation Strategy of the International Union for Conservation of Nature — IUCN (1980) proposed that agricultural land in poor countries should be reserved for agriculture, but with the exception of Indonesia and Ethiopia, none have significantly expanded the programs for resettlement or rural development for their landless farmers .

Also, governments have not correctly valued the environmental and social costs of expanding national parks and other protected areas. In many cases the expulsion of inhabitants from the areas transformed into national parks has resulted in over-use of the protected areas by the former inhabitants, who are often resettled in inadequate conditions in the proximity of these conservation areas. In other cases, such as Vale do Ribeira in São Paulo State, almost the entire area of many municipal districts has been turned into parks and reserves, without consulting the local populations or authorities. These affected people then complained about the lack of possibilities for economic expansion, and obstacles to the creation of new jobs caused by the existence of large protected areas in their regions. This has frequently set the population of these municipal districts against the existence of protected areas, which are considered to be the cause of the economic difficulties faced by the districts.

In Brazil, one of the most crucial issues concerning protected areas relates to the social and ethnic problems caused by the expulsion of traditional populations, whether indigenous or not, from their ancestral territorities and by the constraints posed by imposition of those areas on the livelihood of people living inside and in the buffer zones of national parks. The indigenous populations have been estimated by the United Nations at 300 million, primarily in 70 countries, and throughout various ecosystems, ranging from savannah, forests and polar regions. According to McNeely (1993), the people known as ‘tribals, natives, traditionals or of different cultural minorities’ that live in isolated regions, occupy about 19% of the land surface, living in fragile ecosystems. Currently it is most often these ecosystems that are considered ‘natural’ which are transformed into protected natural areas, involving the expulsion of the residents. With this authoritarian action, for the benefit of urban populations, the state contributes to the loss of a wide range of ethno-knowledge and ethnoscience, of ingenious systems for managing natural resources, and of cultural diversity itself.

The expulsion of inhabitants has contributed to even more degradation of areas of park that, because of a lack of monitoring, are invaded by logging industries and miners who illegally exploit the natural resources. The inhabitants also illegally extract their means of subsistence in these protected areas, considered as ‘lost resources’ by the local community.

Governments almost never assess the impact of the creation of parks on the way of life of local inhabitants, who often have been responsible for the preservation of these natural areas. In many Third World countries, populations have been removed

from areas that became parks, thereby losing their material and cultural basis for subsistence, without the state bothering to resettle them in an appropriate manner. Traditional populations are transferred from the regions where their ancestors lived, to regions that are ecologically and culturally different. For these populations, the establishment of national parks means greater restrictions in the use of the natural resources that enable them to survive. The groups of hunters, fishermen, and resource users that have developed a symbiosis with the forests, rivers and coastal areas, once relocated to other areas, have great difficulty surviving due to the prohibition of their traditional activities that accompany the creation of the parks (Ghimire, 1991).

For these populations, it is incomprehensible that their traditional activities, primarily connected with subsistence agriculture, fishing, and resource extraction, are considered prejudicial to nature when hotels and tourist infrastructure are permitted for the use of people from outside the area. Paradoxically, most budgets of conservation areas are used for monitoring and enforcement (most of the G7 loans for the Amazon are destined for this end) and much less for improving living conditions and maintenance of the traditional population that, if appropriately organized and encouraged, could make a positive contribution to the conservation of protected areas.

One problem is that the authorities responsible for the conservation areas perceive the traditional populations as destroyers of wildlife, which eliminates any real opportunities for their incorporation in the conservation project. In many cases, and especially in the Amazon, the so-called 'participation' of traditional populations in the establishment of parks and reserves does not go beyond well-intentioned words, given in order to respond to international demands, especially from the large international instutions such as the World Bank, the IUCN and the World Wildlife Fund — WWF, that consider the involvement of these populations as a positive factor for the success of the undertaking.

In reality, the populations that are still found in parks or that were resettled in the outskirts of parks have not always been seen by the authorities in a positive light. When these associations become more demanding and more organized, defending their historical rights to continue living in the areas where their ancestors lived, they are accused of being against conservation. In most cases 'traditional populations' are isolated, living in ecosystems considered until now to be marginal (mangroves, salt marshes, tropical forests), are illiterate and lacking in political power, and also do not have legal ownership of the land. These facts, very common in the Third World, make expropriation very easy, without the need for giving real compensation for land that they have been inhabited for generations. The large landowners, who have often obtained their land by usurping the rights of the traditional residents, nevertheless can show legal ownership and are royally compensated for the expropriation, as has occurred in many places with the creation of parks and reserves in the Mata Atlântica (Atlantic Rainforest) in Brazil.

From a theoretical point of view, protected natural areas, especially those involving restricted use (parks, ecological stations, etc.) in their conception and implementation and calling for the resettlement of human populations — including populations that have long lived in the areas considered 'natural' and 'wild' — constitute an ideal location to analyse the relations between humans and nature in the modern world. This situation presents the opportunity to analyze how myths appear in modern societies, and their relation to other existing myths and symbols about the natural world.

1. National Parks and North American Conservation: Its Global Expansion

In North America, the notion of 'wilderness' as large uninhabited areas underlies the creation of parks. At the end of the 19th century there were large uninhabited areas, especially after the conquest and widespread massacre of the native peoples and the westward expansion of the frontier. During this period, American capitalism was in the process of consolidation, urbanization was accelerating, and it was proposed to withdraw large areas of nature from human occupation, removing them from expanding agriculture and putting them at the disposal of the urban populations for the purpose of recreation.

The movement for the creation of 'natural areas' in North America was influenced by the ideas of Thoreau and Marsh, which provided a basis for criticizing the management of forests and their rapid destruction for commercial ends (Thoreau,1854, reprinted 1962). The middle of the 19th century saw the advance of human settlements to the west, with large-scale destruction of forests, and natural areas being degraded by the actions of mining and forestry companies. These processes already raised protests from nature-lovers, who were fascinated by the beauty of the Rocky Mountains and their magnificent valleys. In 1864, Marsh published his book *Man and Nature*, which was widely read and discussed in the U.S.A., in which the author demonstrated how the destruction of the natural world threatened the very existence of humans on Earth. Marsh's ideas had a great influence on the establishment of a national commission of forestry experts. Marsh argued that the preservation of virgin areas is justified by economics as much as by poetry and art. It is interesting to note, however, that in the beginning of the 19th century the artist George Catlin, in his travels to the American west, concluded that the Indians as well as the bison were threatened with extinction. He suggested that the native people, the bison and virgin areas could be equally protected if the government established a national park incorporating humans and animals in all their primitive and natural beauty (McCormick, 1992). This idea was not implemented, however, and the notion prevailed of wilderness as virgin areas, defined as having no permanent inhabitants.

It is significant that on March 1st, 1872, when the Congress of the U.S.A. created Yellowstone National Park, it was also decided that the region was to be preserved and could not be colonized, occupied or sold according to the laws of the U.S.A., but was dedicated and separated as a public park or recreation area for the benefit and enjoyment of the people. Any person who settled in or occupied this park or any of its parts would be considered to be breaking the law and thus would be removed .

The model of preservation of wilderness through natural parks, without human inhabitants, was criticized from both inside and outside the U.S.A., and part of this came from American 'pure preservationists'. Rodman (1973) holds that the idea of parks still subscribes to an anthropocentric view, to the extent that it benefits urban populations and values principally the aesthetic, religious and cultural motivations of humans. This demonstrates the fact that wilderness could not be considered of value in itself, and therefore worthy of being protected. The idea that nature has value in itself comes mainly from those **who** advocate rights of the natural world

independently of the utility that it can have for humans (Nash, 1989; Fox, 1990; Serres, 1990)

Yet for Rodman (1973) this mode of preservation based on parks and natural reserves is inadequate and unjustly selective, because it privileges natural areas that appeal to an aesthetic point of view, according to Western values, such as forests, large rivers, and canyons, and discriminates against natural areas that are less noble, such as swamps, bogs and marshes, but which can be essential for the functioning of ecosystems.

In addition, according to Ekersley (1992), to consider conservation areas as 'islands' and to set aside bits of wilderness while ignoring the growing problems of population growth and pollution that will have negative impacts on the remaining natural areas, from the ecological point of view represents a defeatist attitude, and will still result in destructive consequences in these areas.

More recently, Gomez-Pompa and Kaus (1992) also criticized the notion of the 'natural world' that reflects the perceptions of urban populations with respect to nature:

> *The natural environment and the urban world are viewed as a dichotomy and the concern is usually focused on those human actions that negatively affect the quality of life by urban standards. Mountains, deserts, forests and wildlife all make up that which is conceived as 'wilderness', an area enhanced and maintained in the absence of people... These areas are seen as pristine environments similar to those that existed before human interference, delicately balanced ecosystems that need to be preserved for our enjoyment and use and that of future generations. For instance, the concept of wilderness as an area without people has influenced thought and policy throughout the western world. People see in the wilderness a window to the past, to the remote beginnings of humankind long before the comforts of modern life.* (Gomez-Pompa & Kaus, 1992:271-2)

To summarize, the preservationist tendency, which served as the ideology of the American nature protection movement, saw national parks as the only way to preserve those natural areas and features of great beauty from the deleterious effects of urban-industrial development. It was based, no doubt, on the consequences of capitalism on the 'wild west', and on the effects of mining on the American rivers and lakes. From this perspective, any human intervention in nature is intrinsically negative. On the other hand, this ignores the fact that the native Americans were able to live in relative harmonious relationship with nature for thousands of years. This pattern of co-habitation appeared to be no longer possible, according to the ideologues of nature conservation through national parks.

This model of North American conservationism has rapidly spread throughout the world, recreating the dichotomy of 'people' and 'parks'. Because this approach has been adopted rather uncritically by the countries of the Third World, its effects have been devastating for the 'traditional populations' of extractivists, fishermen, and native populations, whose relation with nature is different from that analyzed by Muir and the first 'ideologues' of North American national parks. It is important to emphasize that the 'Yellowstone model' of parks without inhabitants was transposed from industrialized countries with temperate climates to the Third World, whose remaining forests were, and continue to be, largely inhabited by traditional populations. This is not only the basis for insurmountable conflicts, but it is also an inadequate foundation for the establishment of protected areas.

In the judgement of Gomez-Pompa and Kaus,

> *Traditional conservationists... see the aesthetic, biological, and ecological value of the same land but do not necessarily see the people. They often fail to see the effects of past or current human actions, to differentiate among types of human use, or to recognize the economic value of sustainable use.* (Gomez-Poma & Kaus, 1992:273).

More recent critics of the inadequacy of the Yellowstone model for underdeveloped countries that contain great cultural diversity, especially of traditional populations, currently originate from those who adopt a socio-environmental focus, characteristic of social ecology, or of socialist (or neo-marxist) ecology. A new mode of conservation arose out of the relation between social movements, that fight for rights to access to land and natural resources on the part of peasants, fishermen, forest people, and the sectors of Third World environmentalism for which the environmental crisis in these countries is profoundly linked to the crisis of the existing model of development. Examples of social environmentalism in southern countries are the rubber-tappers movement, the people of the Amazon rainforest and the people affected by large dams throughout Brazil, the Chipko Movement and artisanal fishermen in India, and the forest dwellers in Malaysia (Diegues, 1989, 1996; Bandyopadhyay & Shiva, 1988; Wadman, 1992).

The heart of these movements, which some call 'peasant ecology' (Viola & Leis, 1991), is a critique of the environmentalism imported from the industrialized countries that does not take into consideration the existance of traditional communities that depend on forests for their livelihood. According to Redclift (1984), the environmentalism in the northern countries emerged from a rejection of industrialism and of its consumerist values. Very rarely does it include the problems of the poor and urban environmental degradation and, most importantly, the maldistribution of wealth. In this sense, a large part of the environmentalism of the industrialized countries in the 60's and 70's was a product of the opulence of the rich nations. Nevertheless, by the early 1980s it had become more difficult to gain support for environmentalism in the First World, owing to the serious recession that generated high unemployment.

In the 1960's, when most of the 'wilderness' had been tamed and even destroyed in most of the countries of the North, environmental preservationists looking for lost untouched nature turned to the vast rainforests and savannahs in tropical countries, particularly in Africa and South-America. In Brazil, the Amazonian rainforest was the centre of this neo-myth; it was called the 'lungs of the earth' as it was thought to produce most of the oxygen needed by humans. This tropical forest was considered to be an 'empty space', only sparsely inhabited by remaining indian tribes, although it is now recognized that it had been used by several million Indians just before the arrival of the Iberians. Some authors, including Denevan (1976), Meggers (1987) estimated that at the beginning of the 16th century, were living in the region between 5 and 7 million Amerindians. Human occupation is believed to have been largely concentrated in the river floodplains *(várzeas)* in higher density than today. It is also true that this neo-myth became a fallacy and an ideology used by the Brazilian military group in power in the 60's and 70's in order to occupy the region at any cost. This land occupation process led to the rapid transformation of large rainforest areas into big cattle-raising and agricultural farms.

It is not a coincidence that most of the protected areas started also in the period 1960-1980, in order to counterbalance the widespread forest destruction. In the

strategy of the preservationists and of the military, traditional people (Indians, riverine populations) had no importance. Indians were confined in special reserves and the non-Indian local inhabitants were resettled outside the borders of the newly-created national parks and other strictly protected reserves.

2.The Myth of Wilderness

The concept of myth used here is far from the idea of 'fallacy', 'illusion' or mistaken knowledge, and here refers to the symbolic representations of the natural world that are a cultural and historical product of the various forms and moments of the relations between diverse societies and natures. In the modern world basically two forms of representation of nature and particularly of forests and woodlands coexist. On the one hand is the notion of the naturalist myth of untouched nature or wilderness, which refers to a symbolic representation of natural areas as untouched and untouchable by humans, containing components in a 'pure' state, prior to the appearance of humans. This myth presupposes the incompatibility between the actions of any human group and the conservation of nature. Regardless of their culture, humans would be, in this sense, destroyers of the natural world and therefore should be kept separate from those natural areas that require 'total protection'. According to this representation, the forests are viewed as being outside the sphere of culture and therefore are 'natural', 'wild', and 'untouched'.

Another view is the representation of forests as 'natural resources', goods to be valued and traded according to instrumental rationality. This view is based on the idea that nature only has meaning when it is transformed into commodities, and it follows then that the forest should be transformed into objects or goods for human use. According to this view, the ideal would be to transform the tropical forest, with its great variety of tree species, into a homogeneous forest, like those of the temperate climates, which would be more easily managed (cut) and used industrially. The result of this view was the extensive transformation of the rich Atlantic forest of Brazil into plantations of pines and eucalyptus through the fiscal incentives granted by the *Instituto Brasileiro de Desenvolvimento Florestal* (Brazilian Institute of Forestry Development) to the timber companies since the 1960's.

In both of these cases, paradoxically, the forest should be uninhabited, which denies the existence of innumerable cultures and societies that live in the forest, making use of it within a socio-cultural framework very different from urban-industrial societies. As Tsing (1994) argues, according to the previous approach the forests would be a landscape composed of natural resources that are not culturally defined, and are used only as profit-generating goods to be sold on the international market. These these views have the result of disqualifying the culture of peoples that live in the forest, treating them as obstacles either to the conservation of the natural world or to the indiscriminate exploitation of its 'resources'.

In both representations, typical of the European societies that colonized many tropical countries extensive tropical forests would be 'natural spaces' inhabited only by species of wild animals, as contrasted with the view of domesticated nature that local inhabitants have. The forests, in any of their historical manifestations, would be 'nature' — the opposite of culture. The human communities that live in the forests, such as indigenous or native peoples should be, at most, identified also as a 'species of fauna' or 'threatened species', one more component of the natural world. In this sense, along with the forest, the local culture with its myths and variety of relationships with nature is also called 'savage' or 'uncivilized'.

When we speak of a *modern myth*, we refer to a set of representations existing within important sectors of environmental conservationism of our time, which are carriers of a biocentric conception of human-nature relations in which the natural world has rights similar to humans. As a result of this idea, humans would not have the right to dominate nature. This myth has profound roots in the great religions, above all Christianity, and is associated with the idea of paradise lost. It is revealed for instance in the guiding ideas underlying the creation of the first North American 'national parks' in the second half of the 19th century, where portions of territories considered 'untouched' were transformed into protected natural areas which could not have human inhabitants. These wild areas were created for the benefit of urban North Americans who could, by visiting them, appreciate their natural beauty. This representation of the natural world, expressed by so-called 'pure preservationists' such as Muir and Thoreau, constituted a justification for the creation of protected natural areas that should be kept permanently intact. This model of conservation, called 'modern', and its underlying ideology have spread to the rest of the world in cultural contexts distinct from those in which it was created, generating a set of consequences that will be analyzed in the following chapters.

2.1.The Bio-Anthropomorphic Myth

Even in the United States, during the period when the myth of wild nature was being recreated, there also existed other myths that guided the relations between the North American indigenous populations and nature, but that were ignored by pure preservationists from North America and other countries, including those from the Third World. These myths, which Morin (1991) called *bio-anthropomorphic*, interpreted the relation of the indigenous peoples with the natural world. For the indigenous peoples, the world referred to as 'wild' by whites did not exist. It is important to stress that the bio-anthropomorphic myths are not exclusive to the indigenous populations in North America, but exist also in Third World countries, among populations of hunters, extractivists, fishermen, and peasants that still live partially removed from the market economy, inhabiting in tropical forests and other ecosystems far from the urban-industrial world.

In traditional societies, the significance of 'wilderness' and the 'natural world' cannot be completely understood if it doesn't appeal to representations, images and myths.

In many traditional societies, bio-anthropomorphic myths are widespread, and through them humans assume natural features, and plants and animals present humanized characteristics and behaviour. This aspect is fundamental in understanding the representations that so-called primitive, pre-capitalist or pre-industrial societies make of nature and society. The mythological universe, for Morin, appears as a universe where the fundamental features of animate beings are encountered in inanimate things.

In 'primitive' or pre-industrial societies, this unity/duality of humans is reflected also in the two forms of perceiving reality: one empirical, technical and rational, by which one can accumulate a complex baggage of botanical, zoological, ecological, and technological knowledge (today the subject of ethnoscience); the other symbolic, mythological and magical. However, these forms of knowledge of pre-industrial cultures, although quite distinct, do not live in two separate universes; they are practiced in the same (although dual) universe**.** According to Eliade (1991), in this dual universe space and time are the same and at the same time different — the time of myth, the time past is also always present. The original and mythical time returns through the regenerative ceremonies, which Eliade describes as 'the myth of the eternal return'.

This symbolic representation of cycles, from which all of creation is born, dies and is reborn, is strong in primitive societies, but is also present in traditional communities of peasants, fishermen and gatherers that still live according to natural cycles and to a complex agricultural or fishing calendar. There is a time for *coivara* (burning of vegetation that has grown after the first burning), to prepare the land, to sow, to weed and to harvest, and there is also a time to wait for species of migratory fish, such as mullet (*tainha*). Upon completing one cycle, they begin the next cycle. In many of these communities, these activities are ordered by signs, such as the appearance of a particular phase of the moon, of rain, etc. These 'times' are often celebrated by festivities that mark the planting or harvesting of a specific crop.

2.2.The Modern Myth: The Neo-Myth

According to Morin (1991), contemporary history, while dissolving the old mythologies, creates others and regenerates, in a modern form, symbolic/mythological thought. For Morin, mythological thought persists not just in remote and primitve rural regions; there is also a resurgence of myths in the urban world.

Eliade reminds us, myths related to nature have a long life and resist the incursions of science, since they survive in the form of a 'pseudo-religion', or that of 'degraded mythologies'. But further, according to this Romanian anthropologist, in modern societies that declare themselves athiest, religion and myths are hidden in the

unconscious, and return to the surface from time to time. And when they disappear, they will be replaced by new mythologies. Thuillier states also that in hundreds of texts inspired by ecological concerns, the old myths reappear in a spontaneous manner, with an almost religious enthusiasm and with an apocalyptic vigour. In most writing under the name of deep ecology and eco-philosophy**,** which has a basis in the American preservationist myth of the 19th century, the protection of nature appears as an absolute necessity for the salvation of humanity itself. According to this philosophy, it is imperative to save what remains of the natural world, which is being continuously and often irreversibly devastated by humans.

The conception of protected natural areas as wilderness appears to be one of these neo-myths. It appears to function as a symbiosis between rational thinking and mythology. This set of representations of the untouched and untouchable natural world contains elements which clearly revolve around empirico-rational thinking, such as the existence of ecological and social functions of wilderness, and the ecological processes of ecosystems. On the other hand, this neo-myth contains clear mythical elements that revolve around the idea of paradise lost, of the primitive beauty of nature prior to human intervention, of the exuberance of the natural world that moves city-dwellers to appreciate the beauty, harmony and inner peace which derives from the admiration of the untouched landscape.

These religious aspects of the conservationist neo-myth are explicit in the notion of wilderness, developed by the pioneers of the American conservation movement, such as Muir, Nash and Thoreau, who writes in *The Maine Woods:*

> *Humboldt has written an interesting chapter on the primitive forest, but no one has yet described for me the difference between that wild forest which once occupied our oldest townships, and the tame one which I find there to-day. It is a difference which would be worth attending to. The civilized man not only clears the land permanently to a great extent, and cultivates open fields, but he tames and cultivates to a certain extent the forest itself. By his mere presence, almost, he changes the nature of the tree as no other creature does... It has lost its wild, damp, and shaggy look...* (Thoreau, 1962:399)

Protected natural areas are represented by symbols that are drawn from the most profound spaces of the human psyche, as a refuge for contemplation, islands where the human mind can protect itself from the devastation of urban-industrial society. These images and symbols are drawn from mythical-symbolic thought:

In the North American nature preservation tradition, the symbolic meaning of wilderness as an uninhabited place, as opposed to culture, is as strong today as it was in the 19th Century. Max Oelschlager, in his remarkable book *The Idea of Wilderness* (1991), has analysed the concept and importance of wilderness to humans from pre-historic times until today. He recognizes that 'harmony with rather than exploitation of the natural world was a guiding principle for the Paleolithic mind and remains a cardinal commitment among modern aborigines'. (p.17)

Oelschlager relates the fall of Eden to the the agricultural revolution and sedentarization of nomadic people in the Neolithic**,** and the rapid transformation of

wilderness. For him, to protect wilderness is to conserve the source of human existence and freedom against the repressive attempts of civilization:

> *I wish to explore what remains for most- and has been for me, — a terra incognita, a forbidden place, a heart of darkness that civilized people have long attempted to repress — that is, the wilderness within the human soul and without, in that living profusion that envelops all creation* (Oelschlager, 1991:1).

3.The Emerging Concern for Traditional Populations Globally and in Brazil

Ideas and practices regarding nature conservation are changing in many countries around the world, including Brazil. Recently the underlying ideas guiding the creation of protected areas have undergone profound rethinking, especially in tropical countries. These changes may be explained by several factors:

a) frequent failures in the implementation of protected areas, due mainly to a lack of support for this type of conservation within Southern countries, and particularly for communities living inside and adjacent to protected areas. There is a growing awareness that the reason for this lack of social support is the unsuitability of this conservation model to local realities rather than, as some preservationists argue, the lack of appreciation for the importance of protected areas;

b) a growing understanding that national parks and other strictly protected areas cannot simply be considered as *'*islands*'* created to conserve biodiversity, as most biological diversity lies beyond parks (Murphree, 1994). Therefore, a new model of conservation has to be devised to conserve biodiversity, especially considering the political difficulties of continued expansion of protected areas;

c) the emergence in southern countries of environmental movements, different from those in northern countries, that are trying to *harmonize* nature conservation with the need to improve the living conditions of inhabitants of national parks and adjacent regions. These new social-environmental movements recognize the importance of the knowledge and management practices of traditional populations to the creation and administration of parks. In many southern countries the decolonization and democratization processes also led to challenges to the imported model of nature conservation;

d) the spontaneous and increasingly organized resistance movements of traditional people living inside protected areas against resettlement outside their territories;

e) the changing perception of key international environmental organizations of the role of protected areas and the importance of traditional populations in biodiversity conservation. Recent international agreements such as the Biodiversity Convention signed at Rio (1992) have stressed the need to involve local residents;

f) growing awareness that nature conservation is so important that it *cannot be the exclusive responsibility of governments and natural scientists,* but rather must be a joint effort of local, regional and national civil societies, that incorporates also the contributions of social scientists and particularly the knowledge of traditional populations;

g) to their credit, *many preservationists now realize* that conservation cannot ignore the needs of human beings, while development that destroys the environment is no longer acceptable.

3.1.Changes of perceptions concerning the role of traditional populations at the Global Level

The expulsion of traditional inhabitants from protected areas began to be challenged in the 1960's and 1970's, partly because large international environmental organizations, such as IUCN (International Union for Conservation of Nature), started changing their policies and perceptions with respect to the contribution of traditional populations to conservation.

At the third World Congress of National Parks, in Bali (1962), the IUCN showed great concern for the lack of societal support for protected areas and recognized the necessity to integrate them with regional development. The Congress also re-affirmed the rights of traditional communities to socio-cultural self-determination and the necessity to integrate them in the establishment of protected areas.

The IUCN conference on *Conservation and Development: Putting into Practice the World Strategy for Conservation*, held in Ottawa (Canada) (IUCN, 1986) set out more clearly the relations between traditional populations and conservation areas. Workshop # 3, which addressed traditional people and sustainable development, decided to recommend that governments, NGOs and other institutions:

a) recognize the particular relationship that these people maintain with nature;

b) ensure traditional (indigenous, tribal and traditional) peoples' participation in the control of use of shared resources;

c) ensure that national governments devote the necessary attention to the needs and aspirations of the traditional people whose territories will be affected by the creation of national parks and reserves;

d) ensure consultation with and agreement of these people in the establishment and maintenance of the parks.

This conference forcefully and specifically recommended that traditional people should not be required to alter their way of life if they decide to remain within the park, and not be resettled outside of it without their consent (IUCN, 1986). This was the first time that the situation of traditional people that live in parks was explicitly addressed.

The *27th Working Session of the Commission on National Parks and Protected Areas of the IUCN*, in Bariloche (IUCN, 1986), emphasized the role of protected areas in sustainable development, but recognized that the preservation of these areas depends on solving the question of human population.

A clear change of course occurred in the *Fourth World Congress on National Parks and Protected Areas* in Caracas in February 1992, which had a very significant title: *People and Parks*. This concern was reinforced by data, published by the IUCN (Amend, 1992), showing that 86% of the parks in South America had permanent inhabitants. This was the central theme of the conference. and the most crowded workshop was the one on *People and Protected Areas*. An interesting phenomenon was that this workshop had representation from more countries, especially of the Third World, than the other workshops, which demonstrated a widespread concern for this theme. This meeting recommended a greater respect for traditional populations, a rejection of the strategy of resettlement to other areas, and always where possible, their continued existence within the park, once it is established.

The World Bank itself has shown signs of changing its policies relating to traditional populations. Thus, a recent World Bank report stated 'The creation of protected areas should not involve the removal and resettlement of forest people, nor should it require severe restrictions on their rights to forest resources' (Bailey et alii, 1992:208).

Recently, many Third World countries have started to change their policies concerning the participation of traditional populations in the management of protected areas. One example is CAMPFIRE (Communal Areas Management Programme for Indigenous Resources**),** established in the 1980's in Zimbabwe**,** which enables rural communities to manage and benefit from wildlife and other natural resources in communal areas. CAMPFIRE, led by a coalition of non-governmental organizations — the Zimbabwe Trust, the University of Harare Centre for Applied Social Sciences (CASS), World Wildlife Fund for Nature (WWF), sensitive to local initiatives, provides carefully orchestrated support that emphasizes local management's abilities rather than donor aid (Adams & McShane, 1992). As Murphree, the Director of CASS points out, CAMPFIRE was able to integrate the different interests of local communities, government and NGOs at the local level (1994).

The success but also the difficulties faced by CAMPFIRE illustrate how difficult it is to break the old model of conservation and, according to Murphree, successsful wildlife conservation ultimately depends on political changes that truly empower local people (Adams & McShane, 1992).

3.2.Changes in the perception of role of traditional populations in Brazil

The first inspiration for the creation of national parks came from the abolitionist André Rebouças, in 1876, and was based on the model of North American parks (Pádua and Filho, 1979). In defending the creation of the National Park of Itatiaia, as early as 1911, Hubmayer stated in *Sociedade Brasileira de Geografia*, in Rio de Janeiro, that this national park was

> *...without equal in the world, it will be at the doorstep of our beautiful Capital (at that time Rio de Janeiro) offering scientists and researchers immeasurable potential for the most diverse research, as well as offering the ideal retreat for physical and psychological renewal after the exhausting work in the cities. Also, it will provide a source of satisfaction for travellers and visitors interested in the attractions of nature in the area* (cited in Pádua and Filho, 1979:122).

The first national park was created in Itatiaia, in 1937, upon an initital proposal by the botanist Alfredo Loftgren, in 1913**,** with the objective of encouraging scientific research and offering leisure to urban populations. The park was established by Article 9 of the Forest Code, approved in 1934, which defined national parks as natural public monuments that perpetuate the primitive forest composition of those areas of the country which, because of their unique and outstanding value, were worthy (Quintão, 1983).

In Brazil, national parks**,** and areas with similar protection**,** are large and defined geographic areas endowed with exceptional natural attributes, which also need to possess significant attractions for the public and provide opportunities for recreation and environmental education. The people attracted to the park were always expected to be from outside the forest area, and little thought was given to indigenous populations, fishermen, riverine populations and gatherers that were already there. Both in the U.S.A and in Brazil, the objective was to conserve a natural area against the advances of urban-industrial society, without attention given to the fact that, here, most of these 'natural areas' were inhabited by traditional populations.

The concern for 'traditional populations' who live in conservation areas is relatively recent in Brazil, and until a short time ago (and still today for classical preservationists) this was considered 'a police matter', since they were to be expelled from their traditional lands to make way for the creation of parks and reserves.

This 'pure' preservationist view, as opposed to the view of conservation areas integrated with society, reflects the constitution and history of Brazilian conservationism, whose ideas were dominant in private nature conservation institutions such as the *Sociedade dos Amigos das Árvores* (Society of the Friends of the Trees), created in 1931, and the *Sociedade para a Defesa da Flora e Fauna* ('Society for the Defense of Flora and Fauna') of the State of São Paulo, created in 1927.

Three kinds of environmental movements in Brazil have different positions in regards to the presence of traditional communities in conservation areas: the preservationism,the combative enviromentalism and the ecologism of social movements

The Preservationists

The preservationists dominate the older and classical conservation groups such as the *FBCN* (Brazilian Foundation for the Conservation of Nature), created in 1958, and many other more recent ones, such as the *Fundação Biodiversitas, Funatura*, *Pronatura*, etc.; with the latter two more linked to international preservation organizations. They still have a dominant influence in many institutions that traditionally have been responsible for creation and administration of parks, such as IBAMA and the Forest Institute of São Paulo. These groups are generally formed by professionals from the areas of natural science**,** for whom any human interference in nature is, in general, negative. Ideologically they were and are influenced by the American preservationist view, as was described in Chapter 1. Therefore they consider that wild nature is untouched and untouchable**,** and it is unthinkable that a conservation area (national park or ecological reserve) could protect cultural diversity along with biological diversity.

These old and new preservationists very often have dedicated their lives to protecting endangered flora and fauna, working in difficult circumstances, and probably without their devotion many unique habitats and species would have disappeared. Protected areas that they assisted in creating have also had some positive effects on traditional populations — in those situations where the populations were not resettled elsewhere, the establishment of the protected area prevented their expulsion by outside logging and tourist industries. However, despite these accomplisments and goodwill, their approach to conservation has led to conflicts with local populations, and their contribution has become less and less relevant to the real solution of existing problems. In Brazil, however, many of these preservationists are still very influential in government conservation institutions, and they resist any attempt to change their imported model of protected areas. Very often, the reasons they give for the lack of substantial results in the implementation of this model relate to the lack of appropriate funding and enforcement of legislation, rather than to the inadequacy of the nature of protected areas themselves.

The Combative Environmentalism

Beginning in the 1970's, an ecologism of denunciation emerged in Brazil, represented by *AGAPAN* (*Gaúcha* Association for the Protection of the Natural Environment), Ecological Resistance, Catarinian Association for the Preservation of Nature, and *APPN* (São Paulo Association for the Protection of Nature).

The military regime at that time, which repressed social protest movements, was more tolerant of non-leftist movements, such as environmental NGOs.

The 70's was a time of rapid growth of the Brazilian economy, particularly through mega-projects that resulted in serious impacts on nature. Most of these, such as chemical and petrochemical plants, were established or expanded in coastal zones, the most populous areas of the country, such as in Cubatão, Rio de Janeiro and Aratu (BA), and brought levels of degradation never before seen in Brazil. At the same time, there was a considerable advance of agricultural industries, which meant a spectacular increase in biocides and insecticides, as well as a gigantic land concentration and

income in rural areas, with the expulsion of millions of rural workers to the cities, which led to the growth of *favelas* and of misery, creating unbearable living conditions (Ximenes Galvão, 1983).

This extensive environmental degradation and social pauperization were, however, masked by the ideology of the so-called 'economic miracle', an expression included in the Stockholm Conference in 1972, where the objective of the Brazilian government was to attract industries of the industrialized countries, even at the cost of environmental degradation.

In this context emerged the *Brazilian Ecological Manifesto: The End of the Future* (1976), headed by ecologist José Lutzemberg, and representing ten ecological organizations, some of which were previously cited. Written at the height of the repressive military regime the document was, without doubt, courageous.

The model for human-nature relations provided in the *Manifesto* is that of traditional societies — the indigenous people and small-scale subsistence farmers — who provide an alternative to the model of predatory use of natural resources.

The environmentalism of the Ecological Manifesto played an important role in the ecological struggles of the 70's and 80's, denouncing environmental degradation, construction of nuclear power plants, and militarism.

The Ecologism of Social Movements

In the mid-80's another type of environmentalism, more linked to social questions, began to emerge. This new movement emerged along with the beginnings of redemocratization, after decades of military dictatorship, and constitutes a critique of the model of economic development characterized by the high concentration of wealth and the destruction of nature that had its apogee during that period.

The widespread destruction of the Amazon and Atlantic forests led to the beginning of what was previously termed 'social ecologism' (peasant environmentalism, according to Viola, 1991), which struggles to maintain access to territories with natural resources, and placed a high value on extractivism and systems of production based on traditional technologies. This social ecologism is represented by groups such as the National Council of Rubber-tappers, the Movement of People Affected by Dams, the Movement of Artisanal Fishermen, and the Indigenous Movement. A high point of this new movement was the first 'Meeting of the Indigenous People of Xingu', in Altamira, February, 1989 (Waldman, 1992).

For these movements, which have both social and environmentalist connotations, there is a necessity to rethink the role of national parks and reserves, including that of their traditional inhabitants. The final declaration of this Altamira meeting counselled: 'Do not destroy the forests, the rivers, that are our brothers, since these territories are sacred sites of our people, Home of the Creator, that cannot be violated' (from Waldman, 1992:90).

4. Types of Traditional Peoples' Movements in Protected Areas

A significant number of traditional communities, with distinctive ways of life, with their corresponding systems of communal appropriation of resources, were irreversibly disrupted both by invasions of real estate speculators and by expulsion of community members from protected natural areas. However, more recently, especially after the return to democracy in 1984, local populations have opposed expulsion from their ancestral territorities. This opposition derives from the reorganization of Brazilian civil society. This process of reorganization involves the emergence of a large number of social movements and the resurgence of active rural unions, as well as the emergence of non-governmental organizations and a set of alliances that include parts of the national and international environmental movement.

Social resistance to the expropriation of territories of communal use is manifested in a wide range of forms, as described below.

4.1 Autonomous Local Movements Not Linked to Larger Social Movements

Brazil has two types of social movement of traditional communities living in protected areas. In the *first category* there are local movements without a direct link to broad national movements. They can be considered as local reactions, of local people, against the administration of conservation areas that curtails the traditional activities of forest harvesting, hunting and agricultural practices. These movements may also include the local spontaneous reaction of people against invasion of their territory by outsiders — a process that may result in the unofficial declaration of an 'exclusive resource use unit' by the environmental authorities. Another type of local movement is the result of the creation of local institutions that oppose state administraton of protected areas. These local institutions or organizations have succeeded in pressuring park administrations into the opening of negotiating channels concerned with the alternative use of natural resources. These local institutions, however, are incipient and weak and are still subordinate to state administration (local movements under state control). In this first category we may also include local movements that have the institutional support of NGOs .

The second category includes movements that have succeeded in building up a solid organization at local, regional and national level, with the support of NGOs, research institutions and progressive political parties (eg. National Council of Rubber-Tappers and their extractive reserves)

a) Spontaneous Local Movements

Spontaneous local movements are local instances of resistance and organization of small-scale local extractivist producers, in defense of their traditional territory. They are frequently local movements whose objective is to achieve control over access to natural resources, and which in some instances later came to be recognized by IBAMA as legitimate (or tolerable) forms of action.

One example of these autonomous movements is that of 'closing of the lakes' in the Amazon region, with the establishment of lake reserves by local Amazonian communities, who themselves have assumed control of the territorities that they have traditionally occupied but which now were threatened by commercial fishers coming from the cities. For example many *vargeiros* and riverine communities of Amazonia have had access to their local fishing sites reduced by the fences of large landowners.

Along with this, they have begun to suffer from the impact of overfishing by commercial fishermen from the cities, who use predatory fishing equipment. The *vargeiros* from many rivers of Amazonia spontaneously closed lakes for the sake of their survival and to protect the natural resources.

b) Local Movements under State Control

Some local movements in protected areas are not totally autonomous but are under control of park administrations.

One example of this type of social movement of traditional populations in protected natural areas, occurs in the state of São Paulo. In this State, about 37.5% of the existing parks are occupied by traditional and non-traditional inhabitants. These populations are heterogeneous in regards to their geographic origin, historical ties to the region, nature or existence of land ownership, and use of natural resources. Some who moved into the park at or after the time of its creation, do not have the traditional knowledge and management systems of the local communities *(Caiçaras)*. And there are traditional populations that have lived for many generations in the area which became a park, and who maintain important historical links with the land, depending for their survival on the use of renewable natural resources, about which they have a vast knowledge (Vianna et alii, 1990).

The traditional populations that live in parks were ignored by the state authorities for decades. This was the case in the State Park of Ilha do Cardoso, on the south coast of São Paulo, created in 1962, where hundreds of families lived, many of which left their birthplace because of persecution by the park wardens. After the creation of the park when hundreds of families were still in the area, a sophisticated and detailed management plan was developed for the flora and fauna and support structures for tourism and research. This plan, developed by the Forest Institute with the assistance of two 'specialists' from the Food and Agriculture Organization (FAO), did not even mention the existence of the inhabitants, one of the key elements of any management plan (Negreiros et alii, 1974). This plan, an example of top-down planning without participation of the inhabitants, was fortunately shelved.

c) Local Movements with Incipient Alliances with NGOs

Some local movements in isolated regions such as Amazonia, are supported by NGOs and research institutes, although they are not linked to any major social movement at the national level. Some examples of these are presented below.

— Movement of the Riverine Population (*Vargeiros)* of Mamirauá, Amazonas:

One example of recent incorporation of traditional populations in restrictive conservation areas is the project of the Mamirauá Ecological Station, in the State of Amazonas, administered by the Mamirauá Civil Society and supported by several international environmental non-governmental organizations, among them the World Wildlife Fund (WWF).

The EEM (Mamirauá Ecological Station) covers 1,124,000 ha, having been created to protect a large part of the floodplain between the Japurá and Solimões

rivers. In this huge area live 4,500 *vargeiros,* spread over 50 small communities, with an average of 14 households in each. These communities live from fishing, hunting and gathering forest products. Along with these traditional activities, however, there is logging for sale to the sawmills in the cities.

Contrary to what is required by legislation (expulsion of the population of the area), the project administrators decided to allow the *vargeiros* to remain in this territority where they have always lived. During the floods, water covers millions of hectares, making law enforcement, carried out exclusively by government officials**,** an impossible task.

The management team**,** belonging to a local non-governmental organization**,** believed that only with community participation could the biodiversity and culture of the region be protected. This type of management, however, is different from the establishment and imposition of 'management plans' by scientists and bureaucrats. It requires a longer time for development, since it depends on continuous consultation and a constant dialogue with local populations, inclusion of social scientists in research teams, and more flexibility in planning. It places more value on the process of decision-making than on the establishment of rigid conservation objectives. The experience of this project has demonstrated, however, that once a decision is taken by the local population, it has a much greater chance of being followed. This is demonstrated, for example, in the consensus that was reached by the local population in regards to the conservation and sustainable use of lakes, which had extreme biological and socio-economic importance.

In these discussions, the communities decided to define six categories of lakes, including totally preserved areas, such as lakes for reproduction of fish (untouchable, with the shoreline included in the area of total preservation); 'subsistence lakes' (for exclusive use of the community for subsistence fishing); 'market-oriented lakes' (for exclusive use of the community, with the fish to be sold); and 'lakes for use of the nearby urban centres' (where fishing is permitted to satisify the needs of municipalities).

The communities, in an assembly, also decided on the types of sanctions to be applied to those community members who disobeyed the decisions.

The administrators of EEM concluded:

> *The consensus reached means that there is a good chance that the decisions taken will be carried out, thereby reducing the requirement for additional effort in implementing these decisions, and was judged by the Mamirauá Project Team as being very satisfactory from the biological, geographic and conservationist point of view* (Ayres, 1993:10).

4.2. Local Movements with Connections to Larger Social Movements: the Extractive Reserves

The rubber-tappers extractive reserves are the most nationally and internationally known movements or local institutions of this category. They are one of the outcome of the rubber-tappers movement, which was created in the 1970's, during the height of conflict over land in Acre. This movement organized the first blockade *(empate)* in which the organized rubber-tappers confronted the machines that were cutting down the forest and threatening their way of life. In 1975, when the first

rural union was created in Basiléia in Acre, in one of the centres of high density of rubber trees, the reaction of the land owners was violent, and in many cases the houses of the rubber-tappers were burned and the leaders assassinated. The National Council of Rubber-tappers, established in 1985, had a strategy of pursuing the creation of 'extractive reserves'.

The extractive reserves are administered communally. Although not allocated in individual lots, families have the right to exploit the resources along their traditional extractivist tapping routes (the *colocações*) within the reserves. The land cannot be sold or transformed into non-forest uses, except for small areas that are allowed to be cleared for subsistence agriculture (not more than 5 ha per family, or approximately 1% to 2% of the area of the reserve).

The creation of these reserves is also based on the local organization of rubber-tappers and on programmes of education, health, cooperativism, marketing, and research into alternative systems of forest management.

The community members of extractivist reserves are aware, through their representative organizations, that a legal guarantee against aggression by large economic interests is not enough. It is fundamental that their extractivist production has economic viability, since they currently depend primarily on only a few products, such as rubber, nuts or babassu palm-trees**.** Rubber production is precarious because of the high cost of production and an external market unfavourable to primary products, and also because of the lower price of latex produced by monoculture plantations in the south of the country. The rubber-tappers solicit government subsidies to maintain prices for rubber on the internal market, while they look for alternative markets for products of Amazonia on the international market. To this end, a few cooperatives are organized to eliminate the middle men (Schwartzman, 1988) and facilitate marketing.

Along with this, the National Council of Rubber-tappers created a *Centre of Training and Research* that, together with Brazilian universities, looked for ways of diversifying production, principally through research and the establishment of systems of management of natural forests, agroforestry, neo-extractivism and genetic conservation (Viana & Kageyama, in Diegues, 1992).

The extractive reserves gained international notoriety after the assassination of the rubber-tappers leader, Chico Mendes, in 1988. The first extractive reserve was officially created in 1988, and was called the Project of Extractivist Settlement, being part of the National Plan for Agrarian Reform of INCRA (order # 627/INCRA). In 1990, the extractive reserves became part of the protected areas system under the authority of IBAMA (Government Decree # 98897).

The rubber-tappers movement, despite the organized reaction of large landowners through UDR (Democratic Rural Union), expanded not only into Acre, where already by 1980 around 60% of the municipalities had rubber-tapper organizations, but also into other states such as Amapá, Rondônia, and Amazonas, including 10 extractivist settlements and 4 extractivist reserves covering 3,052,527 ha, and benefiting around 9,000 families (CIMA, 1991).

In 1992, IBAMA created CNPT (National Council of Traditional Populations), for the purpose of technical support for the reserves in Amazonia and expanding the idea to other regions of the country. Currently there are other extractivist reserves outside of this region, based on extractivism of *babassu*, a natural resource of the *cerrado* (savannah vegetation in semi-arid areas), and on fishing resources in Santa Catarina State.

The movement to establish extractivist reserves is an example of defending, reinforcing and recreating threatened ways of life. Furthermore, in Amazonia it is an alternative that can enable the sustainable use of natural resources, which respects both biological diversity and the traditional way of life of populations. As Silberling stated (1992), official and public recognition of these reserves was only made possible by the strong social movement that worked together with the National Council of Rubber-tappers, looking for national as well as international legitimacy, especially in their struggle against other forms of ownership, in particular the large land holdings. They managed, through social mobilization, to raise the levels of consciousness and education of their members, creating and recreating values of group solidarity fundamental to the continuity of the creative process. The frequent meetings of the leaders of the National Council with the rubber-tappers in many regions of Amazonia helped them to organize associations that will propose new reserves. Their ideological and symbolic role has been based on the creation of solidarities involving the support of other groups, social forces and policies within and outside the country, and on obtaining financial and technical resources, along with contributing decisively to the growth of the power of local associations of rubber-tappers, who feel linked to a larger movement that transcends Amazonia.

3.Traditional Populations, Protected Areas and Biodiversity

One of the arguments of preservationists against the existence of traditional populations in 'restrictive' protected natural areas is the assumed incompatibility between the presence of these populations and the protection of biodiversity.

The establishment of protected areas for the protection of biodiversity is, however, a relatively recent objective because, as has already been seen, the earlier parks were created primarily for environmental education, research, and the recreation and enchantment of urbanites. The conservation of biodiversity, through protected areas, was promoted by international environmental organizations as a necessary response to the disappearance of species and ecosystems.

Recent studies (Balée, 1988, 1992a; Gomez-Pompa, 1971, 1972; and others) state that the maintenance, and even the enhancement of biological diversity in tropical forests, is intimately related to the practice of shifting agriculture by traditional communities. The regenerative system of rainforests appears to be very well adapted to the activities of pre-industrial communities. The effect of the use of small areas of land for agriculture and their abandonment after the decline of agricultural production (shifting agriculture) is similar to that produced by the occasional destruction of the forests by natural causes. This type of activity can be seen in many tropical areas, where a mosaic pattern can be found, with a mixture of large areas of original rainforest and areas disturbed at different times.

Many studies of this pattern of succession already exist, and most agree that shifting agriculture has been a natural means of using the regenerative properties of the rainforest for the benefit of humans (Gomez-Pompa, 1972). The author goes further:

> *it has been recognized by tropical ecologists that a large part of the primary vegetation of many zones, seen as virgin, actually contain vestiges of human disturbances, and there is more and more difficulty in finding zones that are totally virgin* (1972:15).

Gomez-Pompa also states that many authors have discovered that many dominant species of the primary forests of Mexico and Central America are actually useful species that were protected by humans in the past, and whose current abundance is related to this fact. He also presents the hypothesis that the variability induced by humans in the tropical environment is a factor that has favoured the variability of species and probably the process of speciation (1971).

If these hypotheses are confirmed, and many recent studies have pointed in this direction (Oliveira, 1992), it will be necessary to rethink the concept of natural forests and the strategy of conservation through the conservation areas which prohibit the practice of itinerant agriculture, such as is still practiced today by indigenous and other traditional populations: rubber-tappers, *ribeirinhos*, *Caiçaras*, etc. Along with this, it has become necessary to rescue the traditional management systems still practiced today by these people, since these techniques have contributed significantly to the maintenance of biological diversity. In this regard, Posey (1987) reports that the Kayapós transplant many species from primary forest to areas that have been traditionally cultivated, and to areas along trails and close to indigenous settlements, thus forming the so-called 'forested areas'. These managed niches were called 'natural islands of resources' by Posey**,** and are used extensively in day-to-day indigenous life, as well as during long hunting expeditions that last for many months (Posey, 1987). Balée (1992a; 1992b) showed that secondary forest usually achieves the diversity of primary forest over time, and that this can occur in less than 80 years. The diversity in number of tree species between the two forests is similar: 360 in secondary and 341 in primary forests.

The work cited above attests to the large stock of knowledge possessed by indigenous and traditional peoples in regards to the behaviour of tropical forest. It also points to the need to incorporate these populations in the management of these areas. Gomez-Pompa and Kaus (1992) go so far as to state,

> *to protect the species, the slash-and-burn techniques of this form of traditional agriculture have to be continued to provide the habitat it requires. Without all the human cultural practices that go with the habitat, the species will be lost forever. Yet, this dimension of conservation has been neglected in our own tradition of natural-resource management* (Gomez-Pompa & Kaus, 1992: 274).

Brown and Brown (1992) also relate the important role of traditional communities in the conservation of the biodiversity of Brazilian tropical forests to the general destruction of the forests**,** brought about by the actions of large ranchers. For them the actions of these large groups result in a maximum of genetic erosion, especially when they are accompanied by 'conservationist measures'.

The authors also state that the model of low intensity use of natural resources by extractivist and indigenous populations frequently results in a minimum of genetic erosion and a maximum of conservation. Even though the population density is usually less than 1 inhabitant per km^2, 10 times that density can be achieved with careful planning, following the methods of small-scale shifting agriculture. Furthermore, according to Brown and Brown, this so-called 'under developed' use of land and its resources, generally described as 'primitive', uneconomic and predatory

by official agencies of 'development', has been shown to be the most profitable use of the forest in the short and medium term. Even if it does not serve the (often short-sighted) interests of the more dense and powerful urban populations, it effectively maintains biodiversity and natural processes.

Brown and Brown (1992) conclude by stating that urban populations have much to learn from traditional people who live in greater harmony with nature.

> *The populations of urban areas need to develop new knowledge based on these (traditional) sources, which respect the diversity of nature* (1992:10).

Many works of ethnobiology have also pointed to the existence of many traditional management systems in places other than the tropical forests. Diegues (1983, 1988, 1992d) observed many traditional forms of management of estuarine and coastal waters by artisanal fishermen, among them the *caiçara*, the *viveiro*, and the *cerco*. The *caiçara* is a kind of trap made of branches, arranged in a certain way on the bottom of estuaries and lagoons, such as Mundaú and Manguaba. It is similar to the *brush park* described by Bourgoignie (1972) in West Africa, where it is called *akadjá*. Many species of fish gather around these branches in many stages of their reproductive life and are captured by fishermen, who keep those which have reached the adult stage. The *caiçara* is a type of *artificial reef* today known globally as a modern technique and spread widely by the FAO. As Marques (1991) also notes, the caiçaras are resource areas artificially created and manipulated by artisanal fishermen. There are several models, depending on the distance from the shore. He further notes the fact that the round *caiçaras* or *camarinha* contain complex communities and multi-species stocks. Furthermore, the author recognizes the extensive empirical knowledge that the fishermen have of the species that live in *caiçara* — their life cycles, their eating habits, and the different phases of colonization of the branches of the *caiçara* by various species.

The *viveiro* is also a technique of coastal management, employed mainly in the Northeast. This technique involves the enclosure of the deepest part of an estuary, letting fish pass only at high tide, and retaining them for growing, using only the nutrients of the water itself (Diegues, 1992d).

Other management techniques are also mentioned by Cordell (1982) who strongly supports the need for integration of the traditional management practices in modern fishing administration.

These diverse management practices described in 'virgin' forests**,** as well as in coastal environments, have contributed and continue to contribute to the maintenance of biological diversity — of species as well as ecosystems. These are extremely important cultural practices that reveal a great deal of knowledge and '*savoir-faire'* of the traditional populations and that have to be considered in the process of establishing conservation areas in tropical forests and coastal environments.

In the case of tropical forests, as we have seen previously, it is very difficult today to distinguish 'virgin' forests from 'altered' forest, especially in areas involving itinerant agriculture. In this regard, the notion of 'wilderness' in tropical countries is probably different from that described by the first American environmentalists. The establishment of protected natural areas that respect these traditional practices can contribute to socio-cultural diversity, as well as to conservation of the natural world, whether it be 'virgin' or already altered by traditional populations.

Conclusions

Protected areas, especially those involving very restricted use, are more than a government strategy of conservation — they reflect an emblematic form of the relation of humans to nature. The expansion of the idea of uninhabited national parks from the U.S.A in the middle of the last century is based**,** first**,** on the myth of an untouched natural paradise, an image of Eden from which Adam and Eve were expelled, and, second**,** on 'reactive conservationism' as defined by Moscovici. This reactive conservationism of the 19th century, in which the natural world is attributed all the virtues and society all the vices, was a reaction to 'culturalism', that sees in nature the infirmity of man, a threat of return to savagery to which culture must be opposed.

This theme also relates to the debate over the importance of myths and symbols in modern society. Even when urban-industrial society and the advance of science has desacralized the world and weakened the power of myths, the image of national parks and other protected areas as a paradise in which 'virgin nature' is expressed in all its beauty, transformed into an object of reverence by urban humanity, confirms the idea that mythologies have a long life and can be reborn under the shadow of rationality. This myth of untouched and untouchable nature reshapes not only old creeds, but also incorporates elements of modern science, such as the notion of biodiversity and ecosystem function, in a symbiosis expressed by the alliance between particular currents of natural science and preservationist ecology. The persistence of the idea of a wild and untouched natural world has considerable force, especially with urban and industrial populations that have largely lost the daily contact with the rural environment. This occurs despite growing scientific evidence that for thousands of years of existence, humans have, in one way or another, interfered with many terrestrial ecosystems, to a greater or lesser extent, so that today very little untouched virgin nature remains.

It is important to emphasize that the historical realization of this myth of untouched nature, through the creation of national parks and reserves, has happened, and is still happening**,** in tropical countries, in areas frequently inhabited by traditional populations who are bearers of many myths and symbols related to nature. The conflict between the views of what are called the 'traditional populations' on the one hand, and preservationist and state conservationist institutions on the other, cannot be analyzed, simply in terms of the oppositions between different mythologies and symbolisms. The conflict also revolves around political ecology, to the extent that the State imposes new spaces that are 'modern and public' upon territories where traditional populations live: the parks and reserves where, by law, inhabitants need to be expelled. In the first place, these social actors are invisible, and the so-called 'park management plans' often do not even mention their existence. The recognition of their existence and of their importance to conservation and maintenance of biological diversity is a recent phenomenon, caused by the appearance in Third World countries of an ecologism different to that of industrialized countries. This new ecologism, that has absorbed principles of the 'new naturalism' of Moscovici**,** is translated into social movements that propose a new alliance between humans and nature, the need for democratic participation in nature conservation**,** and a respect for cultural diversity as the basis for the maintenance of biological diversity**.** The greater visibility of park inhabitants was brought about by conflicts generated by the occupation, by landless

populations, of areas of parks already created, but often not effectively administered by the government. Traditional populations and newcomers have begun to organize themselves recently against enforcement actions of the State that**,** in most cases, impede the social and cultural reproduction of these human communities. These conflicts have begun to assume a national dimension with the increasing scale of confrontations between inhabitants and park administrations.

In Brazil, at the federal level and in some non-governmental organizations, the question of the presence of traditional inhabitants in national parks and other similar conservation areas**,** has been dealt with from a conservative point of view, still influenced by urban perceptions of the meaning of the natural world and wilderness. From this conservative perspective, its proponents talk about negative human interference in natural protected areas, without making a distinction between the external economic interests that operate in these areas and the activities of traditional populations that are in large part responsible for the maintenance of the existing biological diversity. As has been shown above, many of the preservationist ideas about the natural world are based on conceptions of an untouched and undomesticated nature, and on the notion of inherent equilibrium of natural ecosystems, which in reality, is difficult to find in tropical forests. We need to reject both the utilitarian view of conservation, by which any impact of human activities can be reversed by modern technology, and the vision of strict preservation based on the presupposition that putting aside natural areas for conservation will automatically guarantee biological integrity. In underdeveloped countries, conservation could be better achieved through the real integration and participation of traditional populations which, as previously observed, have been in large part responsible for the biological diversity that today we intend to rescue.

However, there is also a need to guard against a simplistic view of the 'ecologically noble savage' (Redford, 1990). Not all inhabitants are 'born conservationists', but among them there exist traditional populations with a vast store of empirical knowledge of the workings of the natural world in which they live.

There is a great need to better understand the relations between the maintenance of biological diversity and the conservation of cultural diversity. There has been almost no systematic research addressing this question. Until today in Brazil the assessment of an area to be declared a conservation area has been the sole responsibility of natural scientists. An interdisciplinary view is urgently required, whereby biologists, forestry engineers, sociologists, anthropologists and political scientists, among others, work in an integrated way in cooperation with traditional populations. As Gomez-Pompa and Kaus (1992) state, we are discussing and establishing policies on a subject that we know little about, and traditional populations, who know their environment better than us, rarely participate in debates and decisions about conservation management.

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