

Chapter 7

From Amerindian Territorialities to “Indigenous Lands” in the Brazilian Amazon: The Yanomami and Kayapó Cases

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Protected areas, under 19 different statuses, cover almost 41% of the surface area of Brazil's Amazon region. As conservation areas, they are used by the state as a tool of land blocking which is supposed to prevent economic ventures, and therefore subsequent deforestation (Léna 2005)¹. The inhabitants of these protected areas, when their presence is tolerated, are thus ascribed a stereotypical social immutability, as is often the case with so-called traditional societies. Yet, on the contrary, we could regard the capacity of these societies to constantly adjust their relationships to the natural environment and to social others, both locally and in a wider interethnic context, as enabling inhabited protected areas to play a significant role in the conservation of the environment. In this perspective, when the actors of social change manage collectively to control its dynamic, this can become a guarantee of environmental conservation.

To illustrate this point, we present in this chapter a study of two Amerindian groups from the Brazilian Amazon taking as examples the villages of Apiahiki and Moikarakô, respectively situated in the Yanomami and Kayapó indigenous lands. The territories of these two groups, traditionally unbounded, were recently marked out and legalised in the form of specific protected areas known as ‘Indigenous Lands’ (*Terras Indígenas*). On analysing the historical process which led to the official recognition of these areas, we were able to assess some aspects of the impact that such a transformation had on the local indigenous management of space and resources of the tropical forest. Through these examples, we try to highlight the way in which Amerindian societies invent forms of ‘sustainable development’ satisfying at the same time their own values and the exogenous demand for the conservation of their lands as protected areas.

1 The research behind this text was conducted within the framework of the UR 169 IRD-MNHN, of the trans-départemental incentive “Protected Areas” of the IRD and of the UR 169 partnership in Brazil with the Instituto Socioambiental of São Paulo (B. Albert) and the Federal University of Rio de Janeiro-Laget (P. de Robert, A.-E. Laques).

Amerindian Territories and Conservation in the Brazilian Amazon

Protected Areas with a Special Status

The legalised Amerindian territories of Brazil, called 'Indigenous Lands', benefit from a complex status of social, cultural and, indirectly, environmental protection. The legal framework of these protected areas is defined in Articles 20 and 231 of the Brazilian Constitution of 1988, which respectively allocate their ownership to the Federal Union and their exclusive usufruct to the Amerindian populations who occupy them.

The Brazilian Constitution defines 'Indigenous Lands' very broadly, encompassing areas occupied and exploited by Amerindian groups at a given time, as well as all other areas deemed necessary to their future physical and cultural requirements. This extensive definition has resulted in a significant increase in both the number and the surface area of Amerindian territories recognised in the Amazon region. Today, we can estimate their surface area to be 1,084,665 km², i.e. 21.7% of the so-called 'legal Amazon'² (See Figure 7.1).

Although their status does not explicitly relate to nature conservation, Amerindian territories have a fundamental significance in the Brazilian system of protected areas. Indeed, in Brazil the federal and state system of conservation units covers 1,000,020 km² in the Amazon, partially overlapping with several Indigenous Lands or reserved areas incompatible with environmental protection, such as military lands and gold panning reserves. In total, the surface area of these conservation units only represents another 20% of the 'legal Amazon' area, i.e. much less than that of the Indigenous Lands of the region if we consider the overlaps.

Recent quantification of what had already been perceived empirically by local actors has confirmed that the legal framework protecting these territories, and the presence of resident populations mobilised to protect them, act as major factors in the prevention of deforestation and forest fires (Nepstad et al. 2006). Furthermore, the creation of these areas also represents a cheaper prevention measure for the state³. In this light, it appears that the more effectively preserved areas in the Amazon, from the conservation point of view, are the territories occupied by the Amerindian groups and legally recognised as 'Indigenous Lands'. They should be thus considered as a fundamental form of environmental protection. In recent years, this conservation function of Indigenous Lands has certainly been

2 The 'legal Amazon' consists of 6 states of the north region of Brazil (Amapá, Pará, Roraima, Amazonas, Acre and Rondônia) as well as the new state of Tocantins, western Maranhão and northern Mato Grosso. This administrative region extends over around 5 million km² (almost 59% of the country's surface area).

3 Joint study of the American NGO The Nature Conservancy and the Co-ordination of Indigenous Organisations of the Brazilian Amazon (COIAB). See <http://www.coiab.com.br/jornal.php?id=379>.

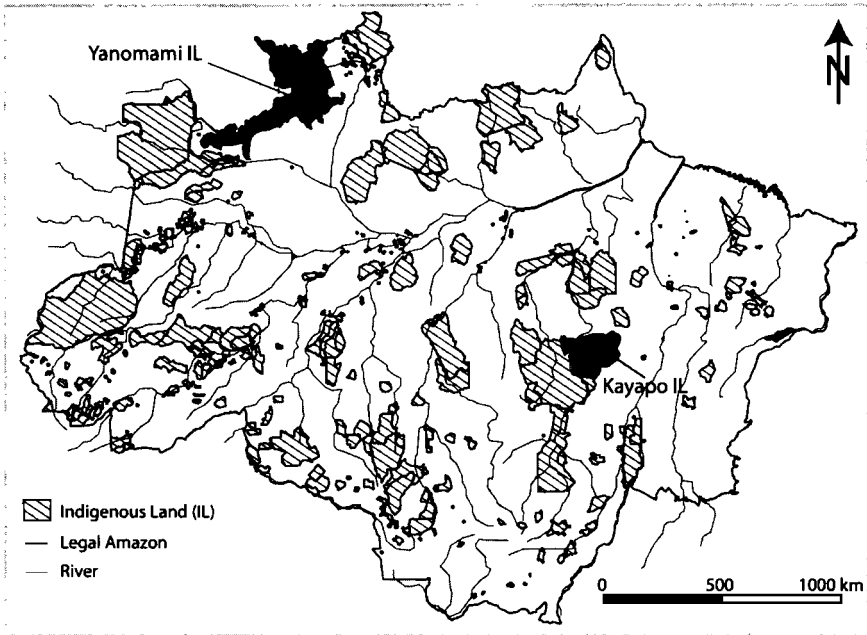


Figure 7.1 Indigenous Lands of the Brazilian Amazon

more valued by the Brazilian Ministry of Environment and the National Indian Foundation (FUNAI), as well as non-governmental actors. It has also been given more attention by Amerindian leaders who have integrated this argument into their demands for a better recognition of their land rights, giving them a broader access to the media and the national political scene (Albert 1993;1997, Turner 1999; Turner and Fajans-Turner 2006).

Protected Areas in the Face of Social Change

However, despite their considerable potential for nature conservation, many Indigenous Lands are subject to strong economic pressures that could put in jeopardy their integrity in the medium and long term. In these cases, environmental threats are both external and internal.

External threats correspond either to predatory, and mostly illegal, incursions aimed at exploiting the natural resources available in the Amerindian territories (precious wood, gold, diamonds, tin ore, etc.), to the construction of public infrastructure (roads, dams, electricity lines), or to the advance of the agricultural frontier (soya and cattle farming).

Internal threats relate to the consequences of the demographic and socioeconomic changes experienced by Amerindian societies that are increasingly coming into contact with the regional economic frontier. Population growth, habitat regrouping,

increasing settlement and changes in the lifestyles and productive activities of these groups, can thus lead to the impoverishment of their knowledge about the forest, to a less diversified usage of their environment, and to the overexploitation of certain local natural resources. Finally, the risk of collusion between new Amerindian political elites and regional economic actors (such as illegal loggers or gold panners), with a view to opening up access to Indigenous Land resources, could aggravate the impact of external threats on these protected areas.

From this perspective, it is fundamental to discuss the political and socioeconomic conditions under which the Amerindian territories will be able to sustain their role as protected areas in the Brazilian Amazon. Although in other studies, we examined this problem from a regional perspective (Albert 2001; 2004; Le Tourneau 2006), we will here deal with the issue at the local level. As such, we will try to account for the way in which the internationally well-known Yanomami and Kayapó Amerindian societies rearrange their territorial space and the use of its natural resources at village level according to external threats, social changes, and new sustainable development opportunities.

The Yanomami and Kayapó: From Amerindian Territory to 'Indigenous Land'

Yanomami Indigenous Land

The presence of the Yanomami in the Parima Mountains, on the border between Brazil and Venezuela, has been progressively revealed to the Western world by explorers and boundary commissions since the 19th century. However, this region being particularly difficult to access, neither Brazilian nor Venezuelan society had attempted to enter and exploit the area before the 1970s.

In the 1950s, the establishment of Catholic and Protestant missions created the first permanent points of contact between the Yanomami and the Whites, on the outskirts of their territory. However, interactions remained very limited until two major waves of expansion of the Brazilian national and regional economic frontier affected the Yanomami territory and society.

The first chapter of this expansion took place between 1973 and 1976, with the construction of a section of the Perimetral Norte Highway, which was intended to run parallel to the Trans-Amazonian Highway on the left bank of the Amazon River. The construction project was launched with no regard for the Yanomami, and led to the decimation or disappearance of several villages on the eastern outskirts of their territory. It also led to the spreading of epidemics, particularly measles and influenza, on a vast scale, even reaching very remote villages. Owing to a lack of financial resources, the military government of Brazil of the time finally abandoned this highway construction project, averting a massive invasion of the Yanomami territory.

However, this massive invasion did occur 10 years later after it was revealed that the alluvial deposits of the rivers irrigating the Yanomami lands from the Parima Mountains were rich in gold. 40,000 gold panners invaded the centre of the indigenous territory between 1987 and 1990, giving origin to the largest gold rush of the 20th century. Again, the consequences were catastrophic for the Amerindians, with many villages decimated by the spread of malaria imported by the gold panners and disseminated from the numerous placers in the area, accompanied by complete disorganisation of the traditional system of natural resource usage. It was estimated at the time that 15% of the Yanomami population disappeared during those three years.

This tragedy, strongly denounced by national and international NGOs as well as by the press, led to the intervention of the Brazilian Attorney General which, in turn, resulted in the creation of a protected territory for the Yanomami. Thus, in 1992, a vast area of around 96,500 km², called the 'Yanomami Indigenous Land' (See Plate 13), was officially demarcated for the Yanomami and Ye'kuana ethnic groups.

Even if this decision did not solve all the problems, it established a legal framework for state relevant administrations to take action to deal with the low-key but still recurrent invasions of gold panners, and to contain the deadly spread of malaria among the Yanomami. Thus, despite still precarious health assistance, the situation improved for most Yanomami communities. Today, they represent about 250 local groups with a total population of around 17,000 people, which is now clearly expanding.

Beyond their continuous fight against territorial invasions and for the improvement of healthcare, the Yanomami are now increasingly concerned with the management of their territory and its natural resources. In this regard, they recently created (2004) a political association in Brazil to represent their communities, called the Hutukara Yanomami Association. Today this association, in partnership with a São Paulo-based environmental NGO called Instituto Socioambiental (ISA), seeks to define its own sustainable social development orientations, and to implement these thanks to the national and international financing of educational 'projects' (e.g. network of schools teaching in the Yanomami language), social projects (e.g. training of association executives, local radio network and cultural disclosure) and environmental projects (reforestation and economic alternatives).

However, the integrity of the Yanomami territory is still confronted with a number of serious external threats. These are due to the persistent incursions of gold panners around the Parima Mountains, whose camps and placers, among other ills, propagate infectious and parasitic diseases (Albert and Le Tourneau 2005). These health issues regularly endanger entire communities, forcing them to spend relatively long sedentary periods close to health posts, thereby paralysing their productive activities and the cycle of their agricultural work in particular.

Furthermore, since 1978, projects for agricultural colonisation and cattle ranching implemented in the western part of the state of Roraima by federal and, thereafter, regional land institutes, opened up an encroaching frontier on

the eastern border of the Yanomami territory (enlarged by an accompanying movement of illegal land occupation). Although this frontier is yet not particularly dynamic, it has reached the border of the Indigenous Land (Le Tourneau 2003; Albert and Le Tourneau 2004) and, in some cases, settlers and farmers have begun to cross it (e.g. in the south-eastern region of the Ajarani River). In addition to their predatory use of resources belonging to the Yanomami (hunting, fishing and logging), these settlers and farmers systematically practice an extensive slash-and-burn agriculture. In doing so, dry seasons have been getting more intense in this region each year, causing giant forest fires – as was the case in 1998, 2003 and 2007 – thereby affecting directly, and irreversibly, the biodiversity of this area (Barbosa 2003).

Finally, 54% of the surface area of the Yanomami Indigenous Land is the subject of 640 applications for industrial prospecting or exploitation permits, submitted to the Brazilian National Department of Mineral Production by various public, private, national and multinational companies (Ricardo and Rolla 2005). These applications and recently proposed bills aimed at legalising regulated mining activities in Amerindian territories in Brazil constitute, in the medium and long term, a considerable challenge for the protection of the natural environment of the Yanomami territory.

Kayapó Indigenous Land

The first information about the Kayapó, who call themselves *Mebêngôkre*, dates from the 19th century. At that time they formed three major groups hostile to one another, living in a region where the plateau savannas meet the forests of the plains between the Araguaia, Tocantins and Xingú Rivers, south of their current location. After enduring conflicts, first with slave traffickers and later with rubber tappers and Brazil nut gatherers, the Kayapó refused any peaceful contact, even with the other ethnic groups of the region, and progressively migrated towards less accessible forested areas to the north and the west.

The first Kayapó who decided to engage in less conflictual relationships with the Whites were rapidly decimated by epidemics. Most of today's Kayapó are the descendants of groups who only accepted peaceful contact with the other populations of the region during the 1950s, after a long period of resistance. These first interactions, accepted and experienced differently by each village, were in most cases promoted by the regional authorities, to satisfy the repeated demands from local colonists eager to exploit, unhindered, the lands and resources of the region (e.g. feline skins, Brazil nuts and gold). Generally, the dynamics of internal conflicts, scissions, migration movements and wars (exacerbated by the recent acquisition of firearms) were particularly intense for all the Kayapó during the first half of the 20th century (Turner 1998).

During the 1960s the pacification of internal relations, progressive access to medical care and the beginning of a population recovery, did not lessen the threat of the advance of local populations towards Kayapó lands. The opening of

the Brasília-Belém Highway in the 1970s and the Xingua-São Felix do Xingú Highway in the 1980s, located respectively on the eastern and northern margins of Kayapó territory, brutally intensified contact with the regional economic frontier, leading to the fragmentation of traditional territory and, in some regions, facilitating the mass invasion of illegal gold prospectors.

During the 1980s and 1990s the Kayapó fought to protect their lands mainly by expelling these gold diggers and mobilising against dam projects on the Xingú River. These battles were led by notorious Kayapó leaders and were supported by many environmental and indigenous NGOs, as well as some show business personalities. These actions caught the attention of the national and international media, and accelerated the legal recognition of the different Kayapó territories in the form of 'Indigenous Lands' (Turner 1999). This is also the period during which certain Kayapó villages embarked on partnerships for socio-environmental projects supported by NGOs or private companies. The current Kayapó population is estimated at 7,400 individuals occupying around 20 villages with relative political autonomy, and spread across seven Indigenous Lands, each with different ecological characteristics. At the time, most of these Indigenous Lands had already been officialised⁴. The Kayapó territory, situated on the two banks of the Xingú River, a southern tributary of the Amazon River, represents 130,000 km² in total (See Plate 14). Nevertheless the legal recognition of the Kayapó's territorial rights did not stop the threats to their lands.

During the 1990s the participation of the Kayapó in the illegal exploitation of mahogany wood (*Swietenia macrophylla*) raised many controversies among the sympathisers and defenders of Amerindian and Amazonian causes – people who had always recognised the 'ecologist' reputation of this ethnic group – and among *Mebêngôkre* society. Indeed, internally, which types of relationships to adopt with the Whites were never unanimously agreed upon, provoking various revolts by the 'common people' opposed to the initiatives of certain leaders dealing with illegal loggers (Fisher 2000), and provoking scissions or manoeuvres to marginalise villages overly involved in timber trade. The proceeds from the sale of mahogany wood were sometimes used to finance Indigenous Land monitoring operations, as well as for initiatives of political communication with the outside, whilst unsold wood was simply stolen by the loggers. At the time, to engage in a campaign alongside ecologists while also negotiating timber deals was not necessarily perceived as contradictory. All transactions with the illegal loggers have been stopped for several years now, due as much to new alliances uniting the majority of Kayapó villages with two major NGOs (Instituto Raoni and Conservation International) (Schwartzman and Zimmerman 2005), as to the fact that mahogany resources have been progressively depleted.

The first decade of the new millennium has been characterised by an abandonment of all links with the predatory activities of loggers and gold diggers, and by a

4 The "Ratification" (*homologação*) is the last stage of the process for the legal recognition of an Amerindian territory in Brazil.

multiplication of Amerindian associations, founded in almost every village, with the purpose of obtaining public and private funds for the implementation of economic, social and cultural projects. Today these sustainable development projects play a central role in the internal politics of the *Mebêngôkre* and, complemented by the income generated from a few old age pensions⁵ and salaries (of teachers, nurses and FUNAI employees), enable the Kayapó, like the Yanomami, to buy basic consumer goods, although on a much larger scale. These projects reinforce relationships between ethnic groups and the regional NGOs which have been promoting dialogue between villages, within a framework of common initiatives (Zimmerman et al. 2006). They are elaborated around three themes: health and education, sustainable economic alternatives and territorial monitoring.

Today, Kayapó lands are under pressure from the agricultural frontier, with annual fires threatening their eastern and northern borders, and with the establishment of illegal pastures in the forest. There is thus a risk that these threats will compromise living sites, disrupting the traditional utilisation of the environment, and that they will be intensified by the advance of the regional economic frontier with the opening or rehabilitation of main highways such as the BR163⁶.

The Forest Space in Apiahiki (Yanomami) and Moikarakô (Kayapó)

After presenting the creation process of the Yanomami and Kayapó Indigenous Lands, we will outline, in this section, the pattern of natural resources in two villages of these 'inhabited protected areas'. As a matter of fact, whether in the medium or the long term, the protection of the natural environment of Indigenous Lands will depend on these local models and their capacity to adapt to new situations.

For over 50 years, in order to keep an acceptable distance from the regional economic frontier, the Yanomami and Kayapó villagers have developed complex migration dynamics which represents one of the keys to their adaptation to historical changes. In this light, we can consider that the internal reorganisation of their models of space utilisation, after the recent official recognition of their lands as protected areas, plays the same role as far as adapting to new environmental issues is concerned.

5 Amerindians, like other members of the Brazilian rural population, have access to a 'rural retirement pension' called *aposentadoria rural*.

6 The inhabitants of the Indigenous Land of Bau, a Kayapó territory situated more to the west, already had to suffer the consequences of this intensifying territorial pressure when, in 2003, after 10 years of conflicts with illegal loggers, gold panners, cattle ranchers and politicians from the region, and after a long court case, their territory was reduced by the Brazilian government by nearly 300,000 ha (Inglez de Souza 2006).

Routes, Places and Resources: Traditional Use of the Forest Space

The configurations we studied in the villages of Apiahiki and Moikarakô, which result from the adaptation of traditional systems to present circumstances, are very similar in many instances. While in this section we describe some of their characteristics, we will examine the extent to which space and mobility can constitute fundamental variables for the sustainability of these Amerindian natural resource exploitation systems.

The forest and gardens provide both villages with their basic requirements. Food resources (through gathering, fishing and hunting), materials for the construction of houses and the manufacture of various implements (e.g. bows, baskets, tools and canoes), ritual objects (e.g. ornaments and clubs) as well as certain medicinal and other plants with active substances (psychotropics, stimulants and fishing poisons), all come from the forest. Food plants (manioc, banana, sweet potato, yam, sugar cane, corn and pawpaw, among others), tobacco, blowpipes, cotton (for hammock and ornaments in Apiahiki) and fibres (for rope making), as well as plants used as remedies or for propitiatory purposes or for witchcraft⁷, are all extracted from gardens. The forest and gardens thus constitute the hub of the economic and social life of each village.

The gardens are usually located close to the village, although the availability of good soils can sometimes encourage villagers to cultivate much farther afield (as much as two km in the case of Moikarakô). A network of paths links all the gardens to the village. This network often crosses former agricultural sites left fallow but still used to collect remaining productive plants for subsequent transplantation. It also runs through the forest to specific sites containing high densities of fruit trees, or to areas for hunting large game, catching small animals and fishing with piscicidal plants (See Plate 15).

In the case of the Yanomami villages, such as Apiahiki, this network of forest paths exits the village, crosses the gardens and connects a complex set of hunting, fishing and collecting sites. In its maximal extension this web of trails ends at various camp sites where long-term collective hunting and gathering expeditions are organised (Albert and Le Tourneau 2007). In the case of Moikarakô, the current network of paths used regularly by the younger, more sedentary generations is less extensive than that of the Yanomami. However, the sites occupied by the current villagers, and the paths used by them during the last decades, have been extended widely within the Kayapó Indigenous Land. In time, many old paths are likely to be reactivated by the Kayapó, as has happened already within the framework of a border monitoring and Brazil nut marketing project.

The two villages make use of their rivers differently. Today, the Kayapó of Moikarakô make intensive use of the river alongside the village, fishing upstream as well as downstream over six km or so with their traditional canoes, and farther

7 Concerning the use of plant resources among the Yanomami and the Kayapó, see Albert and Milliken (2009) and Posey (2002) respectively.

afield when fuel is available for their aluminium motorboats. This was not the case for their first village, situated near a minor river where women and children were more diligent in fishing, and men went hunting more often. Moreover, the river constitutes an important means of communication with other villages situated several days upstream or downstream. The land paths are rarely used to visit other distant communities, as the villagers prefer to go there by plane or boat.

In Apiahiki, the presence of a larger stream has not profoundly changed the attitude of the Yanomami towards the river. Indeed, the Yanomami population come from the highlands of the Orinoco-Amazon interfluvium and are not traditionally familiar with navigation techniques. Although line fishing, which the Yanomami perceive as a masculine activity, contributes significantly to the food input of the village, it is not considered as prestigious as hunting, and travelling on the river (with dug-out canoes or aluminium boats belonging to the health services) remains a limited activity. As a result, the inter-village visits and the bulk of the economic activities are carried out via the complex network of paths criss-crossing the region.

In Moikarakô as well as in Apiahiki, the extensive networks of forest paths and rivers enable the villagers to easily access the resources they need to survive, maintaining a low pressure on the available natural resources, and protecting the ecological dynamics of exploited areas. These networks exclude vast areas from the reach of humans, which can then serve, for example, as reproduction and refuge areas for game. Furthermore, the two communities do not make intensive use of the forest space; neither seeks to identify and exploit the available resources exhaustively, nor to mark out their territory and systematically appropriate it. The Kayapó and the Yanomami only take what they need from the forest at specific times, and do not seek to generate surpluses for storing or marketing purposes.

It is crucial to understand that in the Kayapó or Yanomami systems, the forest is not seen as a separate entity in drastic opposition to the village or garden. On the contrary, all three spaces make up a whole into which the way of life of humans (and non-humans alike) is smoothly integrated. By not recognising wild and domestic or nature and culture as separate realities, the Kayapó and the Yanomami leave no room for a narrative focused on nature protection: the forest is experienced as a component of a global cosmology and a primary condition of human existence. The destruction of the environment is simply unthinkable, except in the context of a cosmological disruption and the disappearance of humankind. Of course, the absence of ontological distinction between nature and society among the Kayapó and the Yanomami does not prevent them from making political compromises with the ecological conceptions of their non-indigenous allies proposing sustainable development projects, even when such conceptions are culturally incompatible with their own⁸.

8 See Albert (1993) for an ecological translation of Yanomami shamanic conceptions on the devastation of the forest by the gold panners at the end of the 1980s, and Albert (1997: 193–198) on Kayapó ritual eco-ethnicity.

Indigenous Lands and Restructuring of Traditional Spatial Systems

The intensification of the economic contacts with the Whites and the official delimitation of the ethnic territories have put new pressures on the traditional model of land use in *Apiahiki* and *Moikarakô*, thereby challenging the capacity of that model to adapt to a new historical context. However, the reticular and sporadic exploitation of the forest resources by these communities has proved to be particularly flexible insofar as, keeping unused spaces in reserve, it can always offer alternative strategies of use and therefore fit the ecological, social and political contexts as needed. The redeployment of the path networks in these available spaces is thus adjusted depending on the need and according to a varying combination of settlement and mobility at any time.

In the case of *Apiahiki*, the possible movements of the community are limited by two kinds of restrictions, external and internal. They are first limited in the south by the presence of a health post of the National Health Foundation (FUNASA), on which their members depend for healthcare and access to certain essential goods (such as metal tools, cooking pots, clothing, salt, etc.). They are also restricted on different sides by the path networks and hunting camps of several neighbouring communities. In this context, being confronted with the increased scarcity of their resources, the villagers of *Apiahiki* decided first to redeploy their path networks in a long northern 'corridor' (thereby reusing a former migration route), and second to establish a temporary collective house (*Sinatha 2*) at the end of this corridor. This new round-house, surrounded by gardens and inhabited during several months of the year, constitutes a 'second home' also used as a base for collective hunting and gathering expeditions, in an area rich in game and fruit trees. This 'bi-cephalous' two-house residential set up constitutes in fact a reduplication of the basic traditional residential Yanomami layout (which consists of one collective habitation and one or several satellite forest camps). This dual variant enables the villagers to optimise the sustainable use of the available resources in a delineated area, by playing on the spatiality and temporality of productive activities. As such, the flexibility of the Yanomami model of land use leads to the skilled and sustainable management of the region's forests, without having to resort to the conceptual and institutional framework of our conservation units that are culturally exogenous and socially constraining (See Plate 16).

The village of *Moikarakô* has only been established on its current site for the past five years. Its territory is situated in the centre of the Indigenous Land, far from the borders of the protected area and, as such, is little exposed to external pressures. The villagers still don't feel the impact of their sedentary lifestyle on the availability of resources around the village. Moreover, the recent opening of new gardens on the opposite bank, and the ritual collective hunting sessions in the territory of the neighbouring village, show that the boundaries separating the territories of these communities remain flexible and negotiable inside the Indigenous Land, which was not always the case in the 1990s during the episode of illegal mahogany exploitation. Finally, the original site of *Moikarakô* is still

used as a second village. This new configuration of land use constitutes also a kind of transposition of the traditional Kayapó model of circulation between the main village and several smaller satellite villages and forest camps (Verswijver 1992): a model which today has become obsolete. In the same light, we must also take into consideration the 'hosting facilities' (e.g. associations, missions, hospital, etc.) where people of Moikarakô temporarily stay in neighbouring urban centres which, like the forest, have become a source of supply. Thanks to all these changes, the Kayapó are able to overcome the limitations imposed by the creation of the protected area and keep the extensive territoriality valued by their way of life (de Robert 2004).

Indigenous Lands and Development Actors

Besides the Amerindians, a number of actors exercise a certain influence on the sustainable management of the natural environment of the Indigenous Lands, and on the conservation of their resources. These actors, whose interventions (or projects) are linked to the economy of the local communities, are of three types: government administrations, national or foreign NGOs and indigenous associations. They can intervene in these protected areas collaboratively, independently or competitively. The relative weight of each actor tends to fluctuate according to the times. Nonetheless, we find a marked tendency towards the expansion of the NGO sector, and a certain withdrawal from the (direct) action of the public sector. Moreover, Amerindian associations, which have been multiplying since the 1990s, have seen their influence among NGOs grow constantly (Albert 2001).

Governmental Organisations

Guaranteeing the integrity of Indigenous Lands depends upon the National Indian Foundation (FUNAI), the Brazilian indigenous administration which in turn depends on the Department of Justice⁹. The territorial control exercised by FUNAI via its network of 'indigenous posts' remains fairly theoretical, simply because it does not have the budget to implement an effective monitoring system likely to secure the borders of the country's 672 Indigenous Lands (1,115,236 km²).

Despite its obvious institutional limitations FUNAI often remains an important actor locally, and is sometimes the only state referent when faced with private regional economic interests (which it has the greatest difficulties to control when it is not their accomplice), with missionary abuses and with the initiatives of NGOs sometimes more inspired by corporatism than a concern for Amerindian interests.

9 Since the "Indian Status" of 1973 the Amerindians in Brazil, considered as minor, are under the guardianship of FUNAI. This FUNAI anachronistic attribution should be revoked when a new piece of legislation, currently discussed by the Brazilian Congress (the "Status of Indigenous Societies"), will be adopted.

Moreover, since the 1970s it is often on the basis of the first territorial surveys of the FUNAI, whether or not these are disputed and/or endorsed by Amerindian political mobilisations and indigenous NGOs, that the legalisation of many Indigenous Lands has been implemented. Finally, many Amerindian groups – like the Kayapó and, to a lesser extent, the Yanomami – have succeeded in appointing some of their own people as heads of FUNAI posts, thereby appropriating a function emanating from the state administrative structure to increase their own autonomy, as well as using it as a platform for their political agenda.

At the level of resource management, the historical initiatives of FUNAI often turned out to be disastrous, whether these were based on the establishment of agricultural colonies (focused on the ‘indigenous post’ institution) completely unsuitable for the Amerindian communities (e.g. the cultivation of rice and black beans and cattle farming), or on forest product extraction projects based on the traditional Amazonian model of paternalistic exploitation. A few remnants of these initiatives are still found in certain regions of the Yanomami territory (agriculture and cattle breeding on the lower portion of the Mucajaí River, and harvesting of *Leopoldina piassaba* palm fibre in the Rio Negro region). However, since the 1980s the network of ‘indigenous posts’ of FUNAI in the Yanomami Indigenous Land has decreased to such a point that today its impact there is very limited.

The Kayapó, on the other hand, found themselves involved in many ‘community development projects’ organised by the local administration of FUNAI established in the nearby small town of Redenção, which for a long time was the sole interlocutor in the context of Kayapó outside relations (Inglez de Souza 2006). For the main part, these projects supported collective expeditions to gather Brazil nuts which were then marketed regionally, with FUNAI covering, for example, the fuel costs for the transport of the nuts by boat. The projects also led to the opening of ‘community gardens’ intended for subsistence farming, with FUNAI supplying seeds (rice and beans) and tools. Somehow, this last initiative has had a long-lasting impact on Kayapó agriculture. Indeed, rice has today its own place in the organisation of cultivated spaces and in the Kayapó botanical nomenclature, and has become a high valued food (which is why it is often bought in town). However, in Moikarakô rice does not replace local crops in any way, and has not given rise to any ambition to intensive farming or marketing. Its cultivation remains confined to the framework and periodicity of ‘rice projects’ financed by FUNAI, at least when they are carried out. On the other hand, machetes and wheelbarrows obtained through the project find other uses, to cultivate sweet potatoes and transport stones for the traditional ovens, for example. As such, the ‘community development projects’ of FUNAI are generally twisted by traditional strategies aimed at acquiring industrial goods and taken over by the logic of local politics. Nevertheless their impact is weakening, insofar as the means of indigenous administration are themselves decreasing.

NGOs and Indigenous Associations

NGOs involved directly in the two Amerindian territories can be distinguished according to two categories: national and international. The Pro-Yanomami Commission (CCPY) is an example of a national structure although its environmental intervention is still modest, working in the Yanomami Indigenous Land. Founded in 1978, this Brazilian NGO has a strong historical legitimacy through its involvement in the fight for the legalisation of the Yanomami Indigenous Land, its support for the political organisation of the Yanomami and the establishment of many field projects over the past three decades, particularly concerning education and health. At the environmental level, the initiatives of CCPY are more recent (1990s) and intentionally kept in a low-key mode.

The strategy of this NGO was to restrict its interventions to a few regions of the Yanomami territory that were likely to undergo environmental degradation in accordance with the increasingly sedentary lifestyle and the demographic expansion of certain communities, or to regions already degraded by external interventions. In this context, the Apiahiki community is involved in a fruit tree planting project (local and imported trees) and an apiculture project, both aimed at reinforcing the availability of food resources to the community around its main collective house. These small projects are conceived more in a spirit of complementarity between this principal habitation and its satellite (Sinatha 2) than as an intervention aimed at steering the local economy as regards sustainable development. They are financed mainly through funds from the Brazilian Department of Environmental Affairs through its programme of environmental demonstration projects (PDA)¹⁰ and, from 2000, through its sub-programme of indigenous demonstration projects (PDI).

In the Kayapó Indigenous Land the international NGO Conservation International (CI) has been present since 1992, where it initially financed a research project called the Pinkaiti Project which only concerned the village of A'Ukre (Schwartzman and Zimmerman 2005). The objective was to create a kind of sanctuary within the Indigenous Land, i.e. an area of 80,000 ha situated about 15 km from the Kayapó village, and, in exchange for taxes and salaries paid to the Indians, reserved exclusively for conservation and biological research.

The stated or even sole objective of CI remains the protection of the environment. However, in its interventions with the Kayapó this organisation seems to be moving towards a more long-term investment in favour of sustainable development, taking into account the priorities imposed by *Mebêngôkre* society. At the end of long negotiations and an expansion of its themes and places of intervention since 2000, CI today finances the projects of the two most important Kayapó associations: the Associação Floresta Protegida, which was created with the support of CI and to date includes most of the villages of the Kayapó

10 This programme was created in 1995 with the financial support of the international co-operation of the PPG7 countries (Pilot programme for the protection of tropical forests) and the German international co-operation in particular.

Indigenous Land; and the Instituto Raoni which looks after the interests of the Kayapó villages of Mato Grosso.

These two associations have recently begun work on a common project called the 'Kayapó Project'. The main objectives of this project are to monitor the territory of the Indigenous Land (in collaboration with FUNAI), implement alternative economic projects and, in the long term, promote education and health. Paradoxically it seems that these initiatives are likely to be beneficial from the conservation point of view primarily because they are already appropriated by the Kayapó, whose motivations are far from 'saving the environment'. Indeed, the meetings with all the *Mebêngôkre* leaders intended to support their action within the project, the collective training sessions and the resumption of traditional long-distance expeditions for territorial monitoring or to seek economic alternatives, seem to favour a movement of political revitalisation and land re-appropriation. In fact, a major success of the Kayapó Project would be to skilfully serve the internal politics of the Kayapó so as to federate around a single objective the representatives of all the Kayapó communities scattered throughout various Indigenous Lands.

The Kayapó villages are used to enjoying extensive political autonomy and have for some years been involved in creating many associations with often competing interests. Most of these associations were founded from 2000 onwards, within the context of the decentralisation of health services for Amerindians promulgated by the Brazilian government National Health Foundation (FUNASA) in 1999. They don't develop projects directly linked to the protection of the environment and their health initiatives (e.g. construction of health posts, wells and water adduction systems, and pest control operations) seem to result in a more sedentary lifestyle in the Kayapó Indigenous Land. However, for the Kayapó themselves these initiatives constitute a vehicle for the expansion of their social space towards urban centres, and a means to solve internal conflicts. The political disagreements between communities, and even within villages, generally give rise to the creation of new associations in a process that somehow supplants the scissions and migrations of the past (de Robert 2010). This dynamic opens new social spaces outside the Kayapó Indigenous Land: whereas in 1998 there was only one association in Redenção, today there are a dozen, with their head offices situated in the small regional towns of Redenção, Ourilandia, Tucumã, Colider, Marabá and São Felix do Xingú (Inglez de Souza 2006).

Unlike the Kayapó, the Yanomami have deliberately chosen to establish a single political association, Hutukara, which represents all the regions of the Yanomami Indigenous Land (November 2004). Its head office is situated in Boa Vista, the capital of the state of Roraima. Choosing such a structure (i.e. one association with 27 regional delegates) is very much the result of a long struggle, from 1977 to 1992, against the fragmentation of the territory, at first by CCPY and since the 1980s by the Yanomami themselves. Since its foundation, Hutukara has been focusing on its institutional and political consolidation (establishment of head office, establishment of radio network in the regions, administrative and legal training of managerial staff, operations of disclosure and political intervention). Although it does not

currently have any direct environmental management activity in the Yanomami Indigenous Land, its objective is to take over CCPY projects in the medium term. However, the bulk of its activities on the ground concerns territorial surveillance, its staff constantly checking, by radio, for invasions and environmental degradation in the 27 regions of the Yanomami Indigenous Land. Therefore, as in the case of the Kayapó, the fact that the Yanomami adopted an association shows their will to protect their territory and conserve their tropical forest environment threatened by the regional economic frontier. It also shows their determination to arm themselves politically to support this land struggle by expanding their traditional social and political space towards neighbouring urban centres.

Conclusion

The Indigenous Lands of the Brazilian Amazon were not initially created to protect the environment of the region but to guarantee Amerindians their historical rights over protected areas in which they could maintain their social structures and control potential changes (Brazilian Constitution of 1988). But, despite the lack of environmental concern of these constitutional provisions, the fact remains that due to the low population density of Amerindian groups and the low impact of their productive systems, the Indigenous Lands of the Amazon today function like protection islands in the face of the economic frontier encroaching on the region. On the other hand, it is obvious that the sustainability of this function of conservation can only be guaranteed if the model of Amerindian use of natural resource is not subject to radical transformations, to the point that their characteristically low ecological impact is called into question.

In this context, we can wonder about the ecologically perverse effects of some ongoing social changes in Amerindian territories, such as the population nucleation and the settlement of villages, or the increasing economic contacts of some of their inhabitants with the regional frontier. We know also that these changes could be reinforced by the official recognition of these areas as Indigenous Lands and the exogenous policies and interventions associated to this process. On the other hand, we observed that the Amerindian communities we studied, for whom the forest environment constitutes a vital element, are involved in a constant process of readjusting their models of land use so as to counterbalance the pernicious effects of endogenous social changes and externally induced pressures. We have mentioned the diversity and complexity of these adjustments in Apiahiki and Moikarakô, where several strategies have been developed for that purpose, such as the redeployment of forest path networks, the establishment of systems of double residence, the cultural twisting of governmental and non-governmental development projects, the expansion of association networks and the appropriation of new inter-ethnic social spaces.

These adjustments testify to the remarkable adaptability and creativity of the social and economic Amerindian systems. They also testify to the strength and

continuity of the fundamental parameters of space and time underpinning the organisation and reproduction of the ‘sustainability’ of these societies. In this light, dispersion and mobility appear as the crucial constants of a variable geometry guaranteeing their sustained use of the tropical forest space and its resources. Considering the geographic and ecological importance of Indigenous Lands in the environmental protection system of the Brazilian Amazon, it is crucial that the sustainable development policies designed for the region fully understand and take into account these multiple dimensions of Amerindian territoriality.

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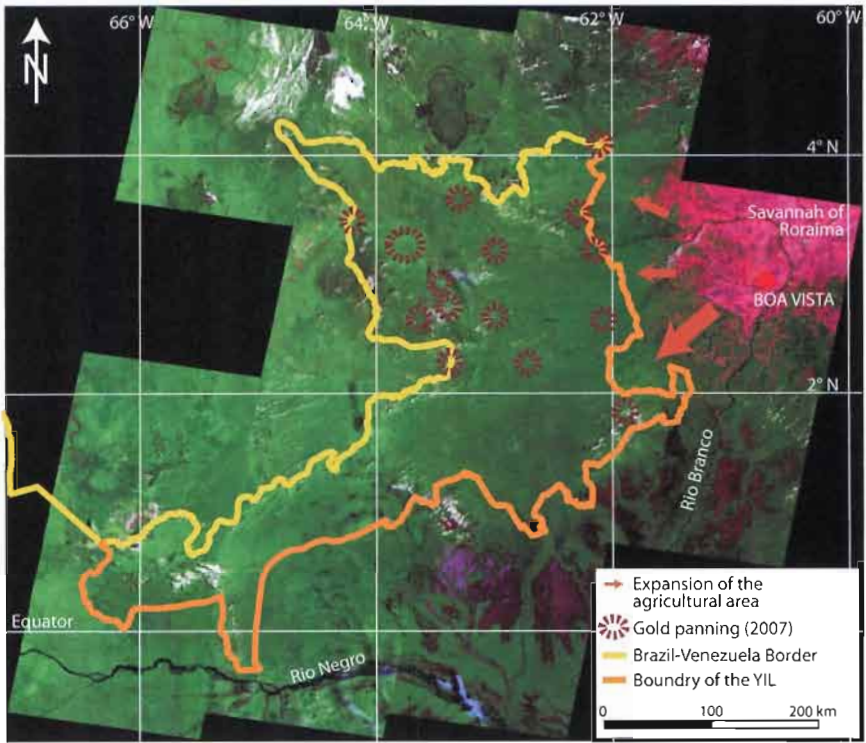


Plate 13 The Yanomami Indigenous Land

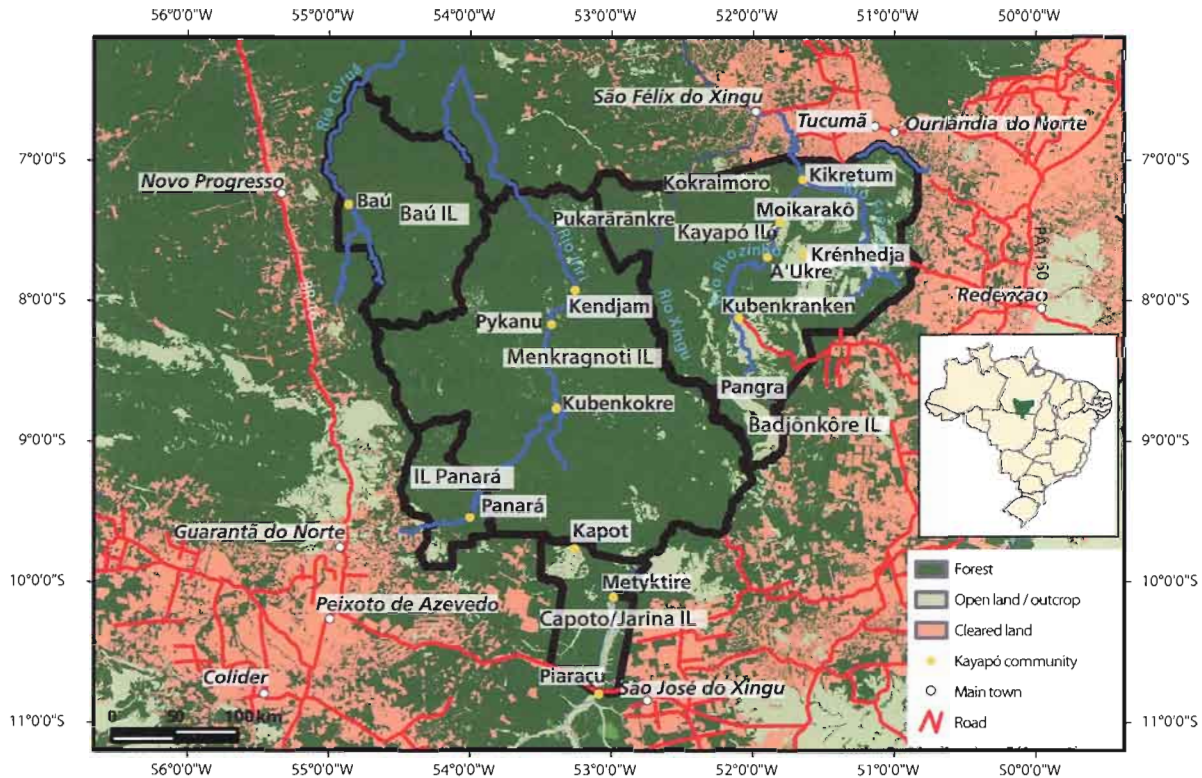


Plate 14 The Kayapó Indigenous Land in its regional context

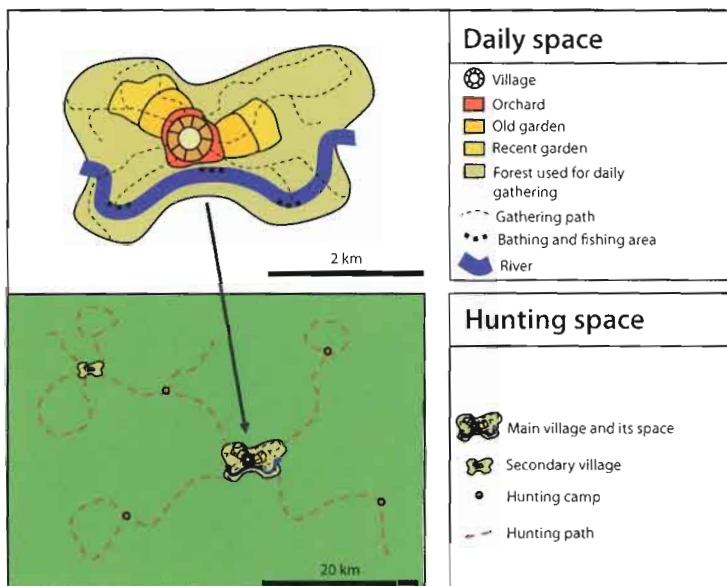


Plate 15 Schematic presentation of the daily and occasional usage of the forest space

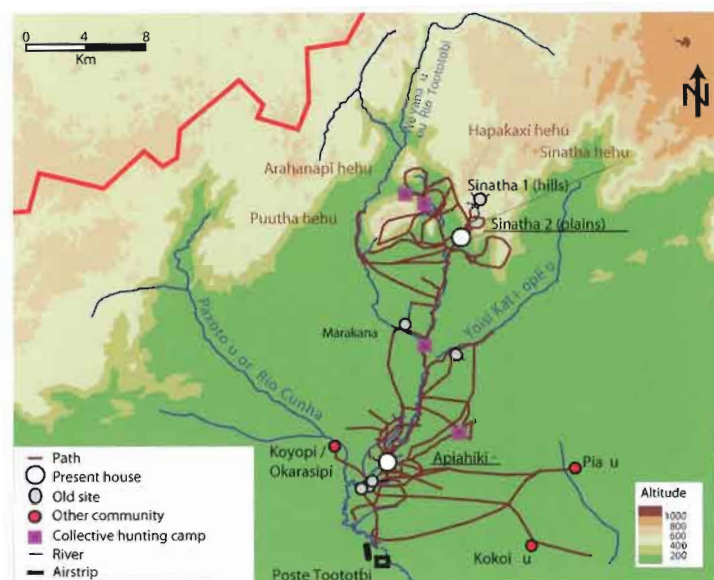


Plate 16 Apiahiki and its network of forest paths

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