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Contested Lands and Incompatible Images: The Political Ecology of Struggles Over Resources in Nicaragua's Indio-Maíz Reserve

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This article analyzes the contested struggles over protection and production in the Nicaraguan biological reserve of Indio-Maíz as a local example of broader conflicts over wilderness preservation and local livelihoods in the developing world. The main focus is on conflicting views of different stakeholders concerning the access to and control over natural resources. Special attention is given to the local inhabitants' struggles for everyday survival and social justice on the fringe of the restricted-use reserve. The study emphasizes that in densely populated rural areas, such as Central America, inclusionary conservation represents the politically most feasible and socially most just form of conservation possible.

Keywords Nicaragua, political ecology, protected areas, resource access, social justice, tropical forests

Influenced by the global concern over tropical deforestation, many developing countries are transforming much of their remaining forests into protected areas. In Central America alone, the number of protected areas increased from 30 in 1970 to 411 in 1997 (Godoy 1997). Recent notions that forest destruction accelerates global processes of climate change and that the tropical forests play an important role as global carbon sinks may even strengthen this tendency (Bates and Rudel 2000, 619). These policies of establishing restricted-use protected areas have many implications for the livelihood opportunities available to local people. About 70% of the protected areas worldwide are inhabited or regularly used by local people; in Latin

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America, the figure is 86% (Ghimire and Pimbert 1997, 7). Not surprisingly, conflicts over access to resources are frequently reported from many of these areas.[1]

Despite the current emphasis on including local people in the processes of protected area management, a conservation model that either relocates local inhabitants or strictly regulates their access to resources still has its supporters. Writing in a prestigious scientific forum, Bruner et al. (2001) argue that in their survey of 93 protected areas in 22 tropical countries, local involvement in protected area management did not correlate with the effectiveness of parks in protecting biodiversity. Instead, park effectiveness was found to correlate significantly with such management activities as enforcement, density of guards, and boundary demarcation. A surprising aspect of their study is that the information is based on a questionnaire completed by park managers, park staff, nongovernmental organizations (NGOs), researchers, and central protected area agencies, while no data were gathered from local inhabitants. The report relies on a view of protected areas as sanctuaries of biodiversity, while little attention is paid to the issue of social sustainability.[2]

Such conceptions of nature conservation are common, especially in regard to tropical rainforests. Rainforests are seen as places from which the human beings have largely been excluded. They are a source of human recreation and a biome of incredible richness. They are the Earth's green belt, the world's largest reservoir of genetic traits and an irreplaceable memory bank that has evolved over billions of years. However, such a conception of nature as untouched wilderness is largely imaginary and can only become reality by displacing thousands of people (Neumann 1997).

Where local people are not dislocated from protected areas, severe punishments may be meted out to those who resist strict resource control. Many instances of increased surveillance and abuses of power, instead of successful integration of local people into protected area management, have been reported from various parts of the world (Ghimire and Pimbert 1997; Hitchcock 1997; Wilshusen et al. 2002). Where national security forces are involved in patrolling the protected areas, the policies may carry with them implications of quasi-military operations (Peluso 1992, 47). However, it is very doubtful if such a hard-line approach to conservation ever achieves its objectives. More probably, coercive policies regulating access to resources within and around protected areas create a hostile attitude among local residents toward nature protection, thus making conservation efforts untenable in the long-term (Colchester 1997).

The aim of this essay is to analyze the struggles over protection and production in the Nicaraguan protected area of Indio-Maíz as an illuminating example of the issues of wilderness preservation and local livelihoods in the developing world. The study focuses on the struggles over resources and environmental images on the forest frontier of Río San Juan, southeastern Nicaragua. The environmental conflicts on the fringe of the Indio-Maíz reserve are examined in close connection to the issues of human rights and social justice by taking into account the different waves of displacement and distress that the people of Río San Juan have suffered, beginning from their traumatic experiences of civil war during the 1980s to the current postwar era, characterized by devastating economic setbacks and sociopolitical insecurity. Since the establishment of Indio-Maíz in 1990, intense struggles have occurred over resource control and authority among conservation managers, development experts, and local residents in the region, with all these actors presenting different, and in themselves contradictory, views of the local landscape and livelihoods.

Theoretical Framework: The Political Ecology of Struggles Over Resources

By analyzing local conflicts over resources, and their links to the larger political–economic processes and environment-development discourses, this study builds upon the insights of political ecology (Blaikie 1995; Bryant 1998; Schmink and Wood 1992). My aim is to show how the control over natural resources is defined and contested within political arenas on various scales. Although local livelihood strategies are given special weight, the struggles over the fate of tropical forests cannot be understood within narrow boundaries. In the current era of globalization, local land use practices and environmental conflicts are increasingly linked to national and global economies and policies.

The study also emphasizes the importance of environmental perceptions for research in political ecology. By drawing on the poststructural emphasis on discourses and meanings, it highlights the role of images and representations in the struggles over natural resources (Peet and Watts 1996; Rocheleau et al. 1995). Through an ethnographic analysis of the multiple meanings assigned by different stakeholders to Río San Juan's forests, the study aims to reveal the plurality of environmental perceptions and how the conceptual differences in perceiving the local landscape contribute to environmental conflicts.

A one-dimensional focus on meanings, however, runs the risk of diverting attention from larger political forces. As warned by Bryant and Bailey (1997, 192) and Edelman (1999, 7–15), reducing environmental conflicts to discourses runs the danger of leaving out people's everyday experiences and the ways in which these are structured through differential access to power. To understand the ways in which claims over resources are made and contested requires analysis both of people's productive practices and knowledge systems, and their relationships over time. This revamped conception of political ecology underscores the need to move beyond rigid "resources as politics" versus "resources as representations" arguments to examine environmental struggles as processes in which the systems of production and systems of signification are intertwined (Batterbury 2001; Nygren 2000; Watts 2000). Such a political ecology is sensitive to the power structures that mediate the social relations of natural resource utilization and the ebb and flow of competing environmental images. At the same time, it emphasizes the importance of studying particular people and particular places to gain fuller insights into the wider issues that link local economies and cultures to global economic and political systems.

The first section of the article explains the data-collection methods utilized in the study. Then, a brief review of the environmental and social landscape of Río San Juan is given. In the third section, the conflicts over protection and production in this protected area buffer zone are analyzed as struggles over resources and meanings. The final section reveals the strategies that the local residents use in the efforts to reinterpret the dominant conservation policies and the generic images presented of tropical settlers.

Data and Data-Collection Methods

This study is based on anthropological field research carried out in Río San Juan, in 1996–1998. The study relies on the conceptual framework of grounded theory, which aims to derive theoretical arguments from an analysis of the patterns, themes and categories discovered in field data (Strauss and Corbin 1990). The study is based on multiple data-collection methods, including participant observation, in-depth

interviews, social network analysis, and content analysis of the available archival material. Participant observation refers to a process of learning through involvement in the daily activities of the people and systematic recording of these observations. It provides access to information that would otherwise be difficult to obtain, such as the social positions people occupy, people's relationships to one another in everyday life, and the discrepancies between what people say they are doing and their actual behavior (Lofland and Lofland 1995, 101–113). As participant observation depends on the researcher as the primary tool of data-collection, critical self-reflection is required to recognize any potential for bias (Johnson 1990, 37–39).

The principal method for collecting data was ethnographic interviews that were carried out with the main stakeholders, such as local residents, conservation managers, development experts, and NGO representatives. Two-thirds (90 hours) of the interviews were tape-recorded. In interview studies, it is not possible to employ random sampling or stratified sampling techniques. As the participants must consent to be interviewed, there is always an element of self-selection in interview studies (Seidman 1998, 43–48). Moreover, because Río San Juan residents were largely undocumented settlers, or so-called "hidden populations" that reside outside of formal institutional settings (Schensul et al. 1999a, 125), there was no universal database from which a systematic random sample could have been drawn. After becoming familiar with the research setting, I developed a matrix of theoretically important criteria in order to identify potential informants. Strategic sampling, designed to gain maximum variation, was augmented by employing a snowball sampling technique. Local informants were selected on the basis of such attributes as age, gender, social position, political and religious affiliation, length of residence, and their experience and knowledge.[3] Semistructured interviews, which focused on basic information of local resource use patterns and livelihood strategies, were conducted with 60 households, including both male and female members of each household. In-depth interviews were conducted with 30 of these households. Eight key informants who had a profound knowledge of the research topic, and who represented different social subgroups, were selected from the pool of nominally representative informants.

In effort to understand the multiple visions concerning the "development" of Río San Juan, interviews were conducted in 45 conservation and/or development institutions with ongoing or recent experiences of environment–development projects in Río San Juan. Seven of them were governmental organizations, 27 were NGOs, while 11 of them consisted of programs implemented by governmental institutions and NGOs together.[4] Whenever possible, the interviews were conducted with project leaders, and these data were then complemented by participant observation and discussions with projects' field personnel. A content analysis of their development reports assisted in exploring the differences between the projects' official agendas and practical outcomes. By network analysis, data were gathered about the positions occupied by different actors, while the existing archival data and historical documents provided general socioeconomic information of the area.

Most methodologists agree that validity is a major strength of ethnographic field research. Ethnographers collect their data through face-to-face contact over a relatively long period of time, getting to know people and enhancing their trust levels (Schensul et al. 1999b, 276–284). To increase the reliability of this study, particular attention was paid to similarities and discrepancies among the different sources of data. Spending much time with the informants also provided possibilities to cross-check the information given by different informants, and by the same informant, in

different contexts. During the later phases of the study, I began to hear the same information repeated, which indicated that a certain saturation of information was reached. The transcription of the interviews and a preliminary analysis of the data between the different fieldwork periods also helped to reveal the issues in which the data should be checked in subsequent interviews. During the data analysis, the information generated by observations, interviews, network analysis, and content analysis were integrated into several databases, according to chronological order, according to informants, and according to different key themes. These data were then coded according to topics, factors, and variables, and pared down to identify explanatory patterns appearing across the data. For data analysis, the QSR N6 qualitative data analysis program was utilized.[5]

The examples presented in the following analysis were chosen from the data based on the criterions that they express the relevant topics that appeared repeatedly in the data: The same information was obtained from several informants and the same phenomenon was observed several times in different settings. The main purpose of these examples is to illustrate that environmental conservation and sustainable development are concepts that have diverse associations among different actors.

Context: Río San Juan as an Arena of Contention

Conscious of the rapid pace of deforestation, which in Nicaragua reached 117,000 ha per year in 1990–2000 (FAO 2000), the Nicaraguan government has established a variety of protected areas in recent years. About 18% of the country's land area has been set aside as protected areas, including 13% of its rainforests (Bates and Rudel 2000, 621). The biological reserve of Indio-Maíz, located in the eastern part of Río San Juan, is one of the biggest protected areas in Nicaragua, covering 2640 km^2 of lowland forests (IRENA 1992). Situated near Nicaragua's border with Costa Rica, the reserve borders on a series of nature reserves and wildlife refuges in these countries amounting to a total of 12,000 km^2 of transborder protected areas.[6] Together, these areas—consisting of freshwater lakes, rivers, and wetlands, humid tropical forests, and brackish delta wetlands—contain diverse wildlife unparalleled in any other area of comparable size in Latin America (Girot and Nietchmann 1992). Indio-Maíz belongs to the Mesoamerican Biological Corridor, which aims to protect some of the world's most diverse ecosystems. Jaguar, peccary, tapir, howler monkey, and great green macaw are some of the endangered animals that make their home in the reserve. Among the endangered tree species common in the reserve are mahogany (*Swietenia* spp.) and cedar (*Cedrela odorata* L.) (IRENA 1991).

The reserve of Indio-Maíz belongs within the category of strictly protected areas; the only activities permitted inside the reserve are scientific research and wilderness protection. This has many implications for the livelihood opportunities of the surrounding villages. The buffer zone of the reserve covers 1800 km^2 of land and is home to 15,000 inhabitants living in 9 settlements and 34 smaller villages (DANIDA 1998). According to the territorial agreement of 1991, land use practices in the buffer zone are restricted to those that will maintain the biodiversity of the reserve. The promoted production systems include subsistence agriculture, agroforestry, and community forestry, while no extensive cattle raising or commercial timber exploitation from natural forests is permitted. These goals are, however, complicated by the fact that the buffer zone also belongs to one of the most intensive agricultural frontiers in the country, with high rates of immigration.

The area covered by primary forests has been drastically reduced due to high rates of deforestation in the 1990s. According to the farm survey conducted in 1999, about 42% of the farm area in the buffer zone is under forest cover. The agricultural frontier is now reaching the boundaries of the Indio-Maíz reserve (DANIDA 2000).

In biophysical terms, the region is characterized by a moist tropical climate; annual rainfall ranges between 2900 mm and 4000 mm, and mean annual temperature is 26°C. According to the Holdridge Life Zone method, this region is classified as a humid tropical forest. There is a long rainy season of 9 months from May to January and a short "drier" season from February to April. The soils are nutrient-poor and acid ultisols, with poor drainage (Proyecto Trópico Húmedo 1995). According to the estimates by the Ministry of Natural Resources, 75% of the land would be most suited to protection or forestry.[7]

To gain local support for the preservation of Indio-Maíz, a series of rural development projects have been initiated in the buffer zone. The aim in these projects is to coordinate the protection of natural resources with the satisfaction of local development needs. In 1994–1998, 30 projects were underway in Río San Juan with a total budget of $21 million USD. The projects included agricultural diversification, community forestry, environmental education, and women in development, with financing from various international development aid agencies and NGOs. Most of the projects were implemented by Nicaraguan state institutions and/or NGOs (Vegacruz 1995).

Until the 1950s, hamlets of smallholders were scattered throughout Río San Juan's hinterlands. These households cleared patches of forest for crop production, and they also practiced forest extraction. A series of boom-and-bust economies typical of tropical frontiers, such as exploitation of rubber and chicle, fluctuated in the area. Beginning in the 1950s, the authoritarian ruler Somoza and his associates began to appropriate large areas of land in Río San Juan for speculative cattle raising (Rabella 1995, 99–101). During the 1960s and 1970s, a wave of colonists entered the region, principally smallholders from Pacific areas who had lost their lands to cattle estates and cotton plantations. These people began to open up the Río San Juan forests to slash-and-burn agriculture, while various national and international companies were extracting the forests for valuable timber species (Utting 1993, 39, 86).

In early 1980s, violent civil war broke out in Nicaragua. The war divided the population of Río San Juan into deep fissures, as the region became one of the most intensive battle zones. Many males were recruited into the Sandinista army, while others were sent into the Contra camps. Thousands of civilians fled to Costa Rica or were displaced from their homesteads into government-established settlements. The resettlement caused radical changes in production systems, as most of the settlements were organized through cooperatives (Utting 1993, 148–150). Since the peace agreements in 1990, a considerable number of refugees and internally displaced people have returned to their farms. At the same time, the flow of new colonists has dramatically increased.[8] In return for laying down their arms, the government promised large areas of land in Río San Juan to those who had served the Sandinista or Contra army. Many of these demobilized people were given ownership of land already possessed by the smallholders. An expanding number of persons have ownership claims on the same plot of land, and these competing claims continue to promote land conflicts. The most severe conflicts exist in 9 communities where more than 200 demobilized families were resettled, including 3 groups of absentee businesspeople (GME 1994; field data 1996–1998).

About 75% of the current residents are smallholders (*campesinos*) who cultivate basic crops by slash-and-burn agriculture and supplement their living with small-scale cattle husbandry, forest extraction, casual wage-working, and trading. Although the average amount of land these households own is 35 ha, 70% of them are unable to cultivate more than 5 ha of their land, and they are thus obliged to engage in different off-farm and nonfarm activities, including work as seasonal laborers in Costa Rica or in urban settings. Once the standing forest has been cut, and the land cultivated for 2–3 years, crop yields rapidly decline on account of the poor quality of the soil. The average length of the fallow period has declined from 8 years to 3 years within one generation, and much of the degraded land has been converted into pasture of low productivity. Cattle raising is concentrated in the hands of a group of wealthier colonists who expand their holdings by buying degraded pastures from smallholders (Alcaldía del Castillo 1996; field data 1996–1998).

Many of these smallholders encounter a crisis of survival in a situation where the access to free land has ceased, crop productivity is low, and hierarchical forms of commercialization make it difficult for them to compete in markets. Within Nicaragua—as the Western hemisphere's second poorest country after Haiti—Río San Juan represents one of the poorest regions. About 76% of the population under study was living in poverty in 1998–41% in severe poverty (Government of Nicaragua 2001). Most of the frontier communities suffer from a lack of basic infrastructure, potable water, and limited access to health services. Only two of them have electricity.

Besides this socioeconomic precariousness, the region also suffers from postconflict instability. Many ex-soldiers found it difficult to return civilian life, and years of fighting have made violence a common way to resolve conflicts. On account of its remoteness, Río San Juan offers a favorable terrain for clandestine activities, such as illegal traffic of natural resources, arms, and drugs. Violent land invasions flare up in the region now and then, and in recent years they have spread to Indio-Maíz. In a survey completed by the Ministry of Natural Resources in 1998, some 300 families were recorded as squatting inside the reserve. This illegal occupation of reserve lands has close links to land speculation in a situation where a group of cattle raisers, together with some political operators, have encouraged the invasion. In this context, the protection of nature has become a heated issue in Río San Juan. While conservation authorities support the preservation of Indio-Maíz and the restricted use of natural resources in its buffer zone, local residents are afraid of losing access to productive resources. The following analysis first examines the generic image of Río San Juan settlers as "unruly forest ravagers", and then attempts to construct an alternative, more heterogeneous view of their diverse livelihoods and divergent identities.

Generic Conceptualization of the Local: Settlers as "Forest Ravagers"

Different stakeholders are engaged in negotiations regarding control of resources in Río San Juan. These participants have competing ideas regarding the protection of nature and the use of natural resources. However, despite the fact that these diverse conceptions of the relationships between nature and society affect every conservation project, the ways in which differentially empowered actors appropriate and contest local landscapes are just beginning to be explored (Zerner 2000, 16).

The conservation authorities working in Río San Juan appraised Indio-Maíz as one of the few remaining stands of pristine rainforest in Central America, one that

should be preserved free from human interference. Their arguments contained a strong imagery of naturalism: Indio-Maíz was illustrated as one of Nature's last tracts of primeval beauty, a tropical ecosystem dominated by nature, and a threatened home of endangered species. These images were then juxtaposed against a set of portrayals of the surrounding settlements. The buffer zone of the reserve was presented as a jungle of eco-disasters and an anarchic forest frontier in need of control and order. By invoking images of local inhabitants as perpetrators of forest demolition, conservation authorities argued for increasing restrictions on local people's access to forest products and for more severe sanctions on unauthorized forest clearing.

From this point of view, the local settlers were characterized as disruptive forces on the fringe of the protected area. A typical conception was that the local people are involved in the illegal exploitation of forests due to their lack of environmental awareness, with little recognition of the wider social and political factors—such as agrarian policies, land tenure regimes, and market forces—that have reinforced a land use pattern of forest conversion in Río San Juan for decades. In this connection, the conservation advocates emphasized the region's ecological richness and wondered at the local people's inability to rise above the edge of misery despite the favorable tropical conditions. The settlers were argued to be colonists who know how to tame the jungle with the *machete* but who do not know how to conserve tropical biodiversity. They were seen as people with pioneering fervor. "Educating these people for conservation requires much patience because few of them show more than a shallow concern for deforestation. In these forests you're more likely to hear the knocking of an ax than the squawk of a parakeet," one of the conservation experts explained to me.[9] The causes of migration were not sought in the political conditions that have displaced thousands of Nicaraguan smallholders but within the minds of these settlers, who were categorized as "vagabonds roving here and there." Concerning the promotion of ecotourism in Río San Juan, many conservationists lamented that no indigenous people lived in the region any more. According to them, the Indians, as born naturalists, would attract many more tourists than the impoverished settlers, who were alienated from nature and spoiled by modernization.

In their attempts to control the anarchic situation of the frontier, the conservation authorities emphasized the strategic programs of territorial stabilization. Many conservationists argued that the demolition of forests by the settlers should be controlled by harsh sanctions. They supported the government's proposal of involving a "green army," composed of Nicaraguan military forces, to patrol Indio-Maíz and to expel the "invaders" squatting inside the reserve. Attempts to remove these squatters by military repression have, however, been unsuccessful. In 1998, the plans for eviction provoked a series of assassinations and arsons in the region, all of which caused the government to reduce the reserve area by excluding the 31,000 ha of land under invasion (*La Gaceta*, Managua, Nicaragua, 06/18/1999). This loophole did not, however, solve the structural problems underlying the invasion, and the conflict remains unresolved.

The fact that many conservationists have been reluctant to face is that the choice among the sustainable land use practices is not simply between pristine wilderness and destructive human use, but between different kinds of uses and different forms of control. Their concept of absolutely preserved reserves ignores the fact that the government openly encouraged the colonization of Río San Juan in earlier decades, seeing it as an outlet for social tensions caused by land-tenure conflicts in the Pacific area (Utting 1993, 84–87). According to the earlier legislation, those who

"improved" the unprivatized land through forest clearing acquired a perpetual right to the area they had cleared. Considering smallholders as the key agents for deforestation diverts attention from the wider socioeconomic forces that promote environmental degradation and unsustainable land use practices in the region, such as illegal logging, extensive cattle raising, and large-scale land speculation. Environmental policies that focus on preventing human occupation in fragile ecosystems can hardly be sustainable if they fail to provide viable alternatives for people depending on these resources.

Of course, it would be unfair to suggest that all conservationists had a monolithic view of protected area management and that all of them had been insensitive to local needs. There was a certain division between those conservationists who argued that nature protection requires a strict separation of people from protected areas and those who believed that if local people received financial gain by using some forest resources in a sustainable way, they would be more motivated to protect nature.[10] The latter view was prevalent among the development agents and NGOs working in Río San Juan. About 80% of them challenged the government's top-down conservation policies by arguing that the management of protected areas should be devolved to more decentralized actors in civil society.

In the eyes of development advocates, local settlers appeared as poor peasants whose ignorance regarding the sustainable use of natural resources justified the development interventions. Many development experts assumed the right to speak on behalf of these illiterate peasants and to ascribe fixed roles to them. In their reports, local residents were often defined by default. They were characterized as people with a lack of connection with nature, lack of knowledge of tropical conditions, and lack of sustainable development. As a consequence, a high priority was given in the projects' agendas to environmental education. In the workshops organized by rural advisers for local people, impressive posters were used to contrast the grace and beauty of a standing rainforest with the desolate appearance of the forest-edge colonies. The calendars of the projects contained such slogans as "A big forest is a temple, there are all the riches of the new generations" and "Whenever a tree is cut down, we should all feel injured."

To promote an agreeable image of the desired transformation, the development projects distributed glossy pictures of smiling women working together with their husbands to protect nature. A little boy planting a mahogany tree was used as a symbol of change from the uncontrolled destruction of forests to the new environmental ethics in which one is mindful of future generations. According to rural advisers, local settlers were imbued with an enormous capacity for conservation, if correctly inspired. In this connection, the ongoing development projects were portrayed as unprecedented opportunities to promote remarkable improvements in local livelihoods and environmental morality. At the same time, little attention was paid to these settlers' vulnerable positions in relation to far-reaching global markets.

Many development advocates also ignored the local communities' internal fragmentation. The rural advisers worked with a group of promoters in different villages, considering these persons as natural leaders to encourage other residents to change their production systems. There was little recognition of the fact that the region's social landscape was composed of multiple actors with diverse backgrounds. The population was politically polarized into Sandinistas and Liberals and religiously into Catholics and Protestants, all of which came out in the struggles over resources. Differences in perspectives also emerged between men and women, between long-term inhabitants and newcomers, and between poor and more

well-to-do settlers. The failure to consider these local hierarchies of age, gender, social and political position, and their links to wider politics contained a risk that the projects reinforced existing power structures. Most of them utilized top-down approaches, and the organizational form of the project, whether it was implemented by a state institution or an NGO, did not make much difference in the outcome.

Alternative Conceptualization: "Settlers as Tamers of the Hostile Jungle"

The people of Río San Juan had a variety of competing conceptions of what it is to be a settler on a frontier and to overcome many hardships. Above all, there was a crossfire of competing visions of the human relationship to nature. The settlers resisted the conservationists' idea of preserving large habitats as areas of wilderness by pointing out that protection of nature has no future if it is separated from the local requirements for livelihood.

All this required a deeper understanding of the symbolic meanings of forest and nature in the settlers' environmental perceptions and livelihood strategies. Central to the self-image of local residents was their involvement in taming the jungle through hard work and commitment to development. Many settlers identified themselves as frontier–breakers, who were gaining mastery over nature by making the forest yield. The uninhabited forest was called *la montaña*, which carried connotations of hardship and loneliness. For these settlers, a dense forest was a gloomy and mysterious realm. It was the heart of darkness, implying both geographical isolation and quintessential solitude. The forest caused rains, storms, and other natural hazards, and it was the abode of malevolent supernatural beings.

The standing forest was also an idle land and an impediment to profit for these settlers. A common denominator for land tenure on this frontier had for decades been the indication that the owner had "improved" the holding by clearing the forest and "making the land produce." The timber from the felled forest was often burned because of the difficulties in transporting the logs for sale. Of the plants gathered from the forest, medicinal herbs were the most important. As far as fruit and other edible plants were concerned, people preferred to cultivate them in their home gardens rather than to gather them in the forest.

The settlements made in the forest were, in contrast, seen as bright and full of life. On the cleared land, homes would be raised and the threatening atmosphere of wildness would be banished by signs of inhabitability. People often told of a time not far back when "the dwellings here were just some wretched shacks; but thanks to God, now we have real houses and settlements." Work for these colonists meant essentially clearing the forests and tending the fields. Skilful loggers were highly appreciated, and a man's worth was often measured by the amount of time it took him to clear one *manzana* of land. In the local narratives of history, considerable emphasis was placed on the creation of settlements; the names of many villages—such as *Las Maravillas* (The Marvels), *Buena Vista* (Fine View), and *Nueva Samaria* (New Samaria)—reflected these expectations.

At the same time, people criticized the conservationists' tendencies to create an image of a typical settler and thus direct attention away from the existing heterogeneity. The local residents resisted being characterized as slash-and-burn agriculturists in a situation where 80% of the households interviewed were unable to survive without temporarily seeking off-farm or nonfarm employment. The local livelihood strategies formed an economic mosaic where people moved between spheres where different economic opportunities seemed available. Conservationists'

arguments that a forest has more value than farming did not convince these settlers, who felt that the farming and cattle raising provide higher incomes. Most of them did not share the environmental organizations' antilogging attitude either. In a situation where few employment opportunities existed in the region, local residents were unwilling to restrict logging, which offered much-needed seasonal income.

These factors motivated the settlers to challenge the programs that aimed at the preservation of Indio-Maíz, while paying little attention to issues of social justice. What these settlers were trying to indicate through their struggles was not that their own production strategies, based on cutting down the forest for extensive agriculture, were ecologically sustainable. It was more that in the context of unequal control over resources, absence of credits for smallholders, and insecurity of resource tenure, cutting down of forest for basic cropping was often the only option available for them. In a situation where several timber companies practiced illegal logging in the region, local residents also wondered if the environmental regulations were not the same for everybody. Thus the issue in this context was not that the deforestation and soil degradation were not a problem in the region. It was more that the larger agrarian policies, institutional arrangements, and commercialization networks hardly supported the development of sustainable livelihood strategies among these smallholders. Many of them felt that the environmental policies were favoring the rights of flora and fauna at the expense of human rights, and they wondered why the conservation regulations were not made more responsive to social exigencies.

The environmentalism of these resource-poor peasants focused on the social asymmetries in the control of natural resources in a situation where people felt that they were being denied opportunities to earn a livelihood. When asking about their living conditions in the reserve's buffer zone, people often commented: "I don't know what the buffer zone means but I imagine it is a territory where you can just survive, nothing more." In their experiences, there were few solid fortunes on the frontier; more commonly, "You suffer more than the earth gives you." Despite this insecurity, many people kept on trying. They accepted the toils of their lives because they believed that a jungle offered a challenge: a future of much effort and struggle, but also a possibility for planting today and harvesting tomorrow.

Of course, there were also those people who had been lured into the frontier by the search for a quick reward from making improvements on the land and then moving on. Some of them had a real migratory trajectory." "It's no good here, I'll go to seek my fortune elsewhere" was a recurring refrain. Repeated moves and rumors of property for sale provided fertile soil for gossip that was rapidly disseminated throughout the colonies in a situation where mobility predominated over settling down. Indicative of the transience of these settlers is the fact that five of the households interviewed moved to another hamlet during my fieldwork, one of my key informants moved to another region, and another was assassinated.

Concerning this, it is important to note that most of these people had been displaced several times during their life.[11] Many of them had endured shattering experiences of disillusionment and prejudice, all of which made them feel dispossessed. Above all, these people were searching for a "nook of peace" from all the cruelty and devastation they had endured, with upsetting experiences of war and dislocation. They had seen many lives threatened and witnessed many instances of revenge. The desire for tranquility among local residents was almost palpable in a situation where people were exhausted by persistent worries of physical and emotional survival.

These experiences of war and violence also affected the people's conceptions of forests. During the civil war, the forest became the fearsome site of terror, which the enemy used for refuge, supply routes, and ambush tactics. When people had to go into the forest, they marched quickly along the trails, listening for any change in the rhythm of birdcalls that might signal an ambush. Hunting was minimal because wandering in the forest was risky. With the passage of time, people's feelings toward the forest, which had traditionally been seen as a source of danger from natural forces, expanded into a view of the forest as a terrain of social violence, a perception that is still being reproduced in Río San Juan (Nygren 2003). This example reveals that when people talk about forest conflicts or environmental struggles, they may also refer to other kinds of issues, such as violations of human rights or experiences of social deprivation.

When asked about their dreams for the future, most people expressed their hope that economic improvement would somehow reach their destitute corner in the jungle. By improvement, they meant the possibility to have a farm, some fields under cultivation and some pastureland. Above all, they stressed the importance of having a secure livelihood: to "be one's own boss", and not to rove about in search of a job. At the same time, they hoped for more understanding from outsiders, so that they would not be always accused of ignorance and environmental destruction. Most of these people were well aware that the changes in the control of local resources require negotiations at different levels, from local to global.

Resisting the Meanings and Reformulating the Strategies

In recent years, environmental struggles have been intensifying in magnitude and complexity. Local communities are trying to transform global environmental movements into local opportunities, while transnational organizations are strategically deploying representations of local struggles on international political stages (Zerner 2000, 12). There is a growing literature dealing with the attempts of indigenous peoples to reconstruct the spaces created by global discourses of tropical conservation, while studies of these efforts in relation to nonindigenous settlers are relatively scarce.[12]

When examining such struggles in the context of Río San Juan, it soon became apparent that these settlers were not simply victims of outsiders' representations. Many of them were appropriating the current discourses of sustainability and sound resource use for their own interests. One of my key informants proudly told me about the native multipurpose plant species, and provided the details necessary to satisfy an anthropologist interested in ethnoecology.[13] He showed me the tree called *hombre grande* as an indispensable remedy against malaria, and the vine called *uña de gato* as the most promising cure against cancer, AIDS, and other "modern" illnesses. When he himself felt any symptoms of malaria, he, however, went to the nearest health post to ask for malaria pills.

People also challenged the terms of their participation in the development networks. When the conservationists considered local settlers as being unaware of the natural richness of their territory and ignorant of how to conserve it, the settlers themselves asked whom all this conservation benefited. Many long-term residents made critical comments on the ever-changing discourses of appropriate land use. They remembered that when they had come to the region some 30 years ago, cutting down the forest was not an issue worth debating. There was little regret for

the destruction of jungles in a situation where the government granted forestry concessions to timber companies in the heart of the current reserve.

Many of these settlers also refused to admit doing things they assumed advocates of conservation and development would disagree with, selectively presenting images to please outsiders. Some of them were involved in questionable commercial ventures while projecting themselves as humble farmers. "It's very bad to burn the land, I never burn my land, but my neighbors—you can never imagine what destruction they are wreaking" was a typical comment to explain the environmental degradation in the region. Many settlers assured me that their whole farm is "still covered by a dense forest, just a little piece of it is cleared," even if I could easily recognize the contradiction when visiting their fields. People used the discourses of green production and wise resource use when appealing to environmentalists, while the image of the "poor *campesinos*, with no resources" was strategically deployed when dealing with development experts.

These examples demonstrate how the local settlers reinterpreted their identities and livelihood struggles in order to cope with the wider policies and discourses. Many of these people deployed discourses from various sources elaborating them with their own calculated interpretations. They spoke of the necessity to share the hazards with each other in the community, while at the same time emphasizing that one should not confide in anyone, even in one's nearest neighbor. "I don't know people here, as I never leave. I leave the house only to do the laundry or to go to the church," many women claimed in the same breath as they stressed the significance of solidarity and community-based development.

Of course, the capacities of these people to cope with their lot varied considerably. Some of them felt that they had little control of the forces affecting their destiny, while others exaggerated the drudgery of their struggles, expecting that outsiders should resolve every problem in their lives. At the same time, there were many people who showed an astonishing ability to improvise when confronted with difficult situations, and who had a great propensity to incorporate their own life stories into larger struggles for environmental equity.

The complex interplay between local processes and international rural empowerment agendas had encouraged people to reflect their role in the broader society, and many previously invisible sectors had found a space in which to organize and to be politically represented. Different kinds of social movements, such as women's associations, peasant movements, indigenous organizations, religious movements, and squatter initiatives, have emerged throughout Nicaragua in recent decades (Babb 2001). These informal spheres of influence are vital channels for those who are struggling to meet their basic needs in a situation where the government shows little concern for the marginal sectors. In Río San Juan, these movements are not very strong yet, but they are beginning to gain more influence. Most of these initiatives do not resist the projects of conservation and development as such, but they question the unequal distribution of their benefits and the authoritative forms of their management.

This is not to sentimentalize the culture of poverty. In much of the literature that posits local environmental struggles as alternatives, there is an uncritical celebration of the efficacy of all action from below (Watts 2000). Marginality is constructed as progressive subaltern resistance, while the informal sector is seen as an exotic network of coping strategies. Simultaneously, little attention is paid to the wider political and economic conditions in which these coping mechanisms unfold, and to the fact that the possibilities of marginal people to contest the wider structures of

power are often limited (Nugent 1999). Such conceptions also forget that most of the grass-roots struggles are not entirely local initiatives but movements that receive strategic imagery, advice, and political support from national and global alliances. Only by connecting the settlers' everyday experiences of marginality and acts of resistance within the larger processes of history and political economy can we better understand the multifaceted struggles over resources and representations on tropical forest frontiers.

Conclusion

In this examination of the struggles over resource protection versus resource use in the Nicaraguan protected area of Indio-Maíz, the main focus has been on the conflicting views of different actors concerning the access to and control over natural resources. As such, this case study has dealt with many large-scale issues, such as shifting conceptions of forest and nature, the complexity of resource use politics on tropical forest frontiers, and the struggles for social justice by people living on the fringes of restricted-use reserves, defined as hotspots of global biodiversity.

The case of Río San Juan demonstrates that the struggles over tropical forests are not only about possession of land but also about the management of images. In the multifaceted conflicts over resources and representations, a rainforest may stand for many things: It may be a treasure of the world's precious biodiversity, a resource of tropical timber for exportation, an impediment to agriculture, or a place of fear and violence. These multiple meanings, given through specific material and discursive practices, and changing over time and among different stakeholders (Sioh 1998, 45), make environmental politics on tropical frontiers an arena of social tensions and political controversies.

The manner in which local processes and global forces converge around questions of nature protection and resource access in tropical environments provokes challenges both for social theory and public policy (Watts 2000). Above all, there is a need to reformulate the relations between conservation authorities and settler communities surrounding protected areas. Tropical settlers are situated at the crossroads of divergent experiences, all of which implies that to understand how their environmental perceptions and livelihood strategies are formulated, we need an analysis of the interplay of conflicting processes and competing visions. In an era of increasing connections among global policies, national governments, and local communities, it is difficult to define what "local" means in strict spatial or cultural terms. Communities are differentiated in complex ways and they consist of heterogeneous actors, with asymmetrical relations of power. This panoply of changing social and environmental landscapes urges us to create more pluralist approaches to human interactions with nature, and with each other—approaches in which mobility, heterogeneity, and transience are better recognized (Zerner 2000).

Despite the current emphasis of local participation, many conservation programs continue to marginalize the people they proposed to integrate as key actors in protected area management (Young 1999). The case of Río San Juan demonstrates that nature protection in developing countries requires careful consideration of interrelated environmental and social concerns. It is clear that current land use practices by settlers in many protected area buffer zones are not sustainable and will lead to severe environmental degradation in near future.

At the same time, strategies of restricted-use protected areas often deny valuable resources to people who live near them and thus raise serious questions of control and authority, such as who should be involved in protected area policy-making and implementation. As noted by Bates and Rudel (2000, 630–631), in densely populated rural areas, such as Central America, inclusionary conservation represents the politically most feasible and socially most just form of conservation possible.

Notes

1. For conflicts over access to natural resources in protected areas, see Brechin et al. (2002), Colchester (1997), Fairhead and Leach (1995), Ghimire (1994), Neumann (1997), Novellino (2003), and Young (1999).
2. The only question related to local support in the questionnaire is: ''How is the P.A. [protected area] viewed by local communities?'' The results concerning the significance of local involvement in park management are based on a single question: ''How actively involved are local communities in the management of the P.A?'' (original questionnaire data received from Dr. Bruner on 19 April 2001). Surprisingly, the report does not make any reference to numerous studies documenting the serious social consequences caused by biodiversity protection policies that are indifferent to local involvement in conservation endeavors (see, e.g., note 1). For an excellent effort to reconcile local needs with protected area management, see Hobbs (1996).
3. For more information of the strategic selection of qualitatively representative ethnographic informants, see Johnson (1990).
4. To avoid doing any harm to these organizations, I am unable to give more exact information about them in this connection.
5. Non-Numerical Unstructured Data Indexing Searching & Theorizing Qualitative Data Analysis Program; version 6.0, 2002. QSR International Pty Ltd, Australia.
6. Originally, Indio-Maíz was established as a part of the Peace through Parks program (*Sí-A-Paz*), which joined various protected areas between Nicaragua and Costa Rica into an Integrated System of Protected Areas for Peace (IRENA 1992).
7. Author's interview, Ministry of Natural Resources, San Carlos, 7 April 1997.
8. According to regional planning officials, some 150–200 new families enter the region per year.
9. Author's interview, 4 March 1998.
10. Of those conservation experts interviewed, about 70% supported strict nature protection, while 30% saw the conservation issues from a more integrated perspective, supporting local involvement in protected area management.
11. Officially, 37% of the population has been classified as former refugees, demobilized people, or internally displaced people (Alcaldía del Castillo 1996).
12. For these struggles in the case of indigenous people, see Conklin and Graham (1995), Fisher (1994), Jackson (1995), and Li (2000).
13. Author's interview, 19 November 1996; field data 1996–1998.

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