Chapter 3

Current Threats to Rama Land

Nicaragua's Advancing Agricultural Frontier

As described in the previous chapter, from the 1950's onward, an increasing number of Mestizo settlers from Pacific Nicaragua migrated eastward toward the nation's Atlantic Coast, clearing tropical rainforests as they advanced. This eastward shift of the nation's agricultural frontier paused temporarily during the 1980's civil war, but began to advance anew in the 1990's. In previous decades the agricultural frontier had been pushed by the conversion of large areas of Pacific and Central Nicaragua to cotton plantations and cattle ranches. In the 1990's, however, the advance of the agricultural frontier was driven primarily by the large-scale social disruption that resulted from the 1980's civil war.

Prior to the war, many of Nicaragua's rural poor had insufficient access to land, and during the war thousands of additional families were displaced. In an effort to promote a peaceful resolution to the war, President Violetta Chamorro offered a reconciliation package that included land grants for soldiers on both the Sandinista and Contra sides. The repatriation effort promised to provide 50 manzanas of land (about 35 hectares or almost 90 acres) per combatant, with the plots centered around new towns or "development poles". While the plan was largely successful in getting fighters to put their weapons down, neither the Chamorro government nor the Aleman government that has followed it have managed to come through on the promises made, which has led to consistent rural unrest. The resettlement plan has been criticized as being poorly planned and overly ambitious:

> "The development poles were planned hastily, with deep pessimism regarding the prospects for Contra-Sandinista reconciliation and little consideration of the nation's geography, population, or recent history. . . The plan also overlooked the physical, ecological, and financial constraints. The promise of 50 manzanas per combatant was simply unrealistic: satisfaction would require finding nearly 900,000 manzanas of land, more than all the land expropriated under the Sandinista agrarian reform between 1981 and 1988. . . Finally, the plan was designed without consultation with the combatants and therefore ignored their desires and inclinations. For these reasons, it appears that the development-poles plan aimed not to rehabilitate the Contras but to buy peace."[30]

A result of the inability of post-war reconciliation efforts to address the needs of displaced campesinos and ex-combatants was a renewal of activity along the agricultural frontier. A wave of spontaneous colonization along the advancing frontier began in the early 1990's and continues to the present. For indigenous peoples of Nicaragua's Atlantic Coast, and for Nicaragua's protected natural areas, this phenomenon is proving to be disastrous. With their own social cohesion compromised by the 1980's war, groups such as the Rama have been unable to confront the appearance of new settlers. After the war, many Ramas that had been displaced by the violence returned to their former homes only to find them occupied by others.

Uncontrolled and unplanned land occupation has also been facilitated by the prevailing lack of law and order on the Atlantic Coast over the last decade. Many long-time residents of the region have been unable to ward of the land invasions by former soldiers, who are often armed,

[30] Abu-Lughod (2000).

numerous, and intimidating. In the remote parts of the Atlantic Coast, there is simply no presence of the law, and the governments in the nearest cities, such as Bluefields or Nueva Guinea, are slow to respond. In many cases this slow response is simply due to a lack of resources. The legitimate lack of funds to employ and equip law enforcement officers is traceable back to larger factors such as the shrinkage of Nicaragua's public sector that has been mandated by international lending organizations. Overall the problem is compounded by a lack of political will to defend forests and indigenous rights at the nation's periphery. For decades the agricultural frontier has served as a "political safety valve" that allows mounting social pressures from unequal development in the western side of the country to be absorbed by the sparsely inhabited Atlantic Coast region.

In some cases the land invasions have truly been spontaneous, with new families arriving by their own will and means, in search of land to cultivate. Yet in other cases, such as the land invasion that has been centered along the Río Punta Gorda and its tributaries, there is evidence that the land settlement is being driven by opportunistic land speculators. The general format by which the speculators operate is that entrepreneurs hire a few men to go into a remote area, cut paths into an area of intact forest, and begin squaring off lots (they "cuadrar" or "carrilar la tierra"). Using a compass and chainsaw or machete, these men chop trails through the forest to form a large grid, with each square in the grid usually measuring 50 manzanas of land. Mestizo families from the west are then recruited to come settle the land. For the settler families, the prospect of productive land, trees that can be sold for timber, forests filled with wild game, and productive soils, can seem quite promising. This is especially the case since much of the land in Boaco and Chontales has been abused by a few decades of unsustainable practices, and is no longer productive. Once settlers are established they often recruit friends and family members to join them.

Unfortunately, given the nature of rainforest soils, after a few initial years of productive harvests, many of the new settlers will likely find themselves on unproductive plots of land, ready to move on again. This situation is compounded by the fact that many of the ex-combatants that are still seeking land were cattle ranchers before the war, and hope to renew their former lifestyle. The climate and soils of Nicaragua's Atlantic Coast are unsuitable for large-scale cattle-ranching, and the resulting ecological destruction may be, for practical purposes, irreversible.

Nicaragua's remaining indigenous lands, forests, and biodiversity are threatened by a complex of factors, including the poorly-regulated operation of large timber companies. Yet overall the greatest immediate threat is the uncontrolled advance of the agricultural frontier. Among the causalities are Nicaragua's largest protected natural areas. Large-scale deforestation has occurred in the Cerro Silva and Punta Gorda Natural Reserves in Rama Territory, and is threatening the nation's other two large protected natural areas, the BOSAWAS Biosphere Reserve in the north, and the Indio-Maiz Biological Reserve in the southeastern part of the country, which also overlaps significantly with the land being claimed by the Rama. These latter two reserves can be saved only by a large-scale and well-organized effort to halt the expansion of illegal settlement along the frontier.

The Proposed Dry Canal Megaproject

For hundreds of years Nicaragua has been viewed as the potential site of an interoceanic transportation corridor that could provide efficient transport between the Pacific and Atlantic (the Caribbean). The latest version of the old idea is the proposed "Dry Canal" megaproject, which would entail the construction of a high-speed cargo railway that would cross Nicaragua and connect two newly constructed ports. The railway proposal is being promoted as a competitor to the Panama Canal, which is becoming unable to handle the growing volume of international trade. Similar Dry Canal proposals are being promoted elsewhere, from Mexico to Colombia. Yet unlike Nicaragua, Mexico and Panama already have rail lines with ports at either end that would only need to be modernized, a much cheaper and more feasible option than constructing an entirely new system.[31]

There are currently two competing companies that are promoting a Nicaraguan Dry Canal. C.I.N.N. (Consorcio del Canal Interoceanico de Nicaragua) is a consortium led by a New York-based lawyer named Don Bosco, and is reportedly backed by funding from investors from Europe, China, Taiwan, Japan and South Korea. The multibillion dollar C.I.N.N. proposal is for a 377-km railway and construction of new ports at Monkey Point on Nicaragua's Atlantic Coast and a location called Pie de Gigante on the Pacific coast (near San Juan del Sur). The other leading Dry Canal proposal comes from a Nicaraguan company called SIT-Global. This proposal would also include a new port at Monkey Point, but would modernize the existing Pacific port at Corinto.

The proposed Dry Canal has the potential to create enormous changes in Nicaragua, and the C.I.N.N. proposal reportedly has the support of President Aleman and much of Nicaragua's National Assembly. Many people are hoping that the Dry Canal will provide several thousand good jobs and will be the secret to lifting Nicaragua out of poverty. Yet very little information has been provided to the public about what the Dry Canal would truly entail, and its implications for the people and natural environment of Nicaragua.

The proposed Dry Canal might have certain positive impacts in and beyond Rama Territory. Certainly the construction of the project would be a major undertaking and would require a large number of construction workers. This would in turn lead to a multiplier effect, and create the need for more stores, places to eat, hotels, transportation services, etc… The combined effect of this increase in activity might be to generally stimulate the languishing economy of the Bluefields region. Following construction of the Dry Canal, a certain number of employees would be needed to operate and maintain the project, and to work in the *maquiladoras* that would likely appear in the accompanying Free Trade Zone. Access to employment would help improve the living standards of some *Costeños*, and the increasing development in the area might bring better and expanded services (e.g. improved medical, transport, and telephone service). The extent to which these factors would benefit *Costeños* would be dependent on how well they could compete for jobs with the flood of immigrants that would be attracted to the region. It would also depend on whether or not local people were trained to fill the necessary positions, or if outsiders with greater training were brought in to do skilled jobs.

The proposed Dry Canal might also have the positive effect of eventually bringing greater stability, law and order to the southern Atlantic Coast region. A greater presence of authority could help curtail the region's rampant narcotics trafficking. A better infrastructure in the region could also feasibly allow environmental enforcement officers to reach more remote areas that are not currently patrolled. This point might be moot, however, if the forests and aquatic resources that need protection are destroyed in the development process.

[31] For a more extensive review of the Nicaraguan canal proposals see Mueller (2000).

Potential negative impacts of the Dry Canal include the following:

Uncontrolled colonization. If the Dry Canal is approved, the entire human geography of Nicaragua would be transformed. New "development magnets" would appear at each of the two new ports and would attract migrants from all over Nicaragua and elsewhere in Central America. Approval of the Dry Canal project would unleash an uncontrollable flood of people into Nicaragua's Atlantic Coast region looking for jobs. It is unlikely that the new towns that would form or existing towns such as Bluefields could absorb the new migrants in an orderly way. A new wave of migrations such as this would also have impacts on the traditional Costeño culture of the Bluefields area, since the new immigrants would be largely Mestizos from the Pacific coast. The would only intensify the incorporation of the Costeño culture into the dominant Mestizo culture of Nicaragua.

Destruction of Nicaragua's rainforests and biological diversity. As described in chapter one, southeastern Nicaragua contains one of the last remaining areas of healthy rainforest in all of Central America. This rainforest is home to an enormous variety of species, including many that are becoming endangered or extinct elsewhere in Central America.

The current advance of Nicaragua's agricultural frontier would be dwarfed by the flood of immigrants into the Atlantic Coast region that would result from approval of the Dry Canal proposal. This uncontrolled wave of migration would likely spell the death of the region's forests. Forests would be cleared to make way for the project itself, as well as the resulting factories and urban area that would follow. New colonists would also need wood for house construction and firewood, and would likely clear the remaining forest for agriculture or to sell the wood. In other words, the Dry Canal would likely bring an end to the agricultural frontier – but only because there will be no forest left to clear, no more frontier.

The Dry Canal is also clearly at odds with the Atlantic Biological Corridor project that the World Bank is purportedly promoting in Nicaragua's Atlantic Coast region. A north-south biological corridor and an east-west industrial corridor cannot coexist in the same location. The Nicaraguan government's willingness to accept millions of dollars in funding for a nature conservation project on one hand, while on the other hand it is also promoting a megadevelopment scheme that will destroy the very same forests is contradictory.

Damage to marine resources. The surge of new immigrants to Nicaragua's Atlantic Coast that would accompany the Dry Canal would likely lead to rapid growth of both subsistence and commercial fishing activity. Experience from around the world has shown repeatedly that marine resources such as fish, shrimp, and lobster are limited, and can be exhausted in any given region. The new infrastructure and export facilities provided by construction of the Dry Canal might also speed the decline of the Atlantic Coast's rich fishery.

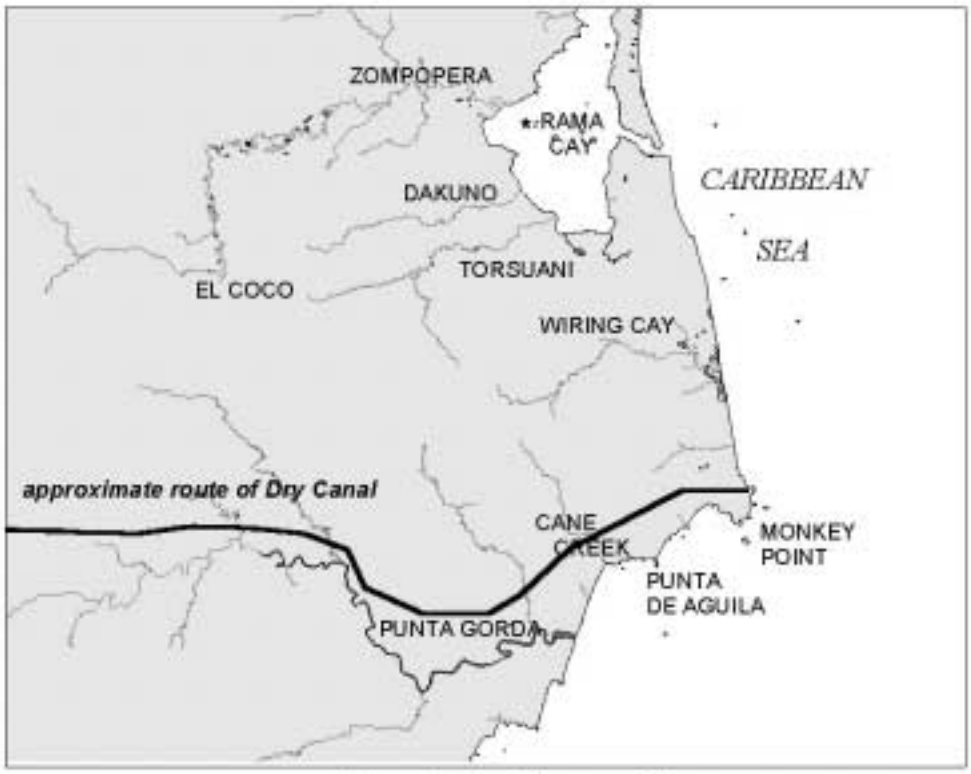
In addition to the impacts of overfishing, the Dry Canal and associated development would lead to pollution of the region's coastal waters. Heavy ship traffic and industrial development at Monkey Point would cause long-term contamination of the Atlantic Coast's marine habitats.

Simultaneous with negotiations for the Dry Canal, negotiations are also underway between the Nicaraguan government and multinational oil companies that would like to begin drilling for oil in Nicaragua's nearshore waters. At least one the members of the board of directors of the Dry Canal consortium C.I.N.N. shares strong ties to the petroleum industry.

Along with the pollution associated with oil extraction in Nicaragua's coastal waters, heavy ship traffic would increase the chance that an oil spill could happen along Nicaragua's coast. The impacts of oil spills on western Caribbean habitats have been demonstrated by repeated spills at Bahia las Minas in Panama. Following the spills, reefs, sea grass beds and mangroves in the vicinity immediately died. Further damage ensued when oil was absorbed into

the soil beneath the mangroves, and was slowly released into surrounding waters for several years. To date, there has been virtually no recovery of corals, sea urchins, or oysters at any of the most affected sites.

Violation of indigenous land rights. The easternmost portion of the proposed Dry Canal would slice right through the heart of the Rama Indians' traditional community lands. Thus the Dry Canal would disrupt Rama subsistence activities of fishing, hunting, and cultivating crops. Despite clauses in Nicaragua's national constitution and the Autonomy Statute that recognize indigenous rights to community lands and resources, until the Rama and the mixed ethnic community at Monkey Point obtain secure legal title to their lands, they will be unable to defend their rights against the Dry Canal. Instead, the land needed for construction of the Dry Canal may be treated as "national land", as is suggested by the Nicaraguan central government's failure to defend indigenous lands from the advancing agricultural frontier.



Rama Indian Communities
and the Proposed Dry Canal

The direct impacts of the Dry Canal would likely not be as large as the indirect impacts. Rather than merely being a proposal to lay railroad tracks and build port facilities, the Dry Canal is being visualized by its proponents as the nucleus of a much larger development scheme (thus the label "megaproject"). The port at Monkey Point would attract settlers and other industries, and would be the core of a Free Trade Zone, in which foreign companies could operate under greatly relaxed tax regulations. As will be discussed in more detail in the following chapter, this Free Trade Zone and accompanying development would displace the mixed Rama-Creole community that lives at Monkey Point. Several other Rama communities would be affected by the construction of a road network that would likely accompany the Dry Canal, including roads

that would connect Bluefields, Monkey Point, and Nueva Guinea. These roads would also attract new settlers, and would increase the region's deforestation and unsustainable land-use practices.

Considered in the broader geographical and economic context, construction of the Dry Canal does not seem feasible. Alternative sites, such as Mexico and Panama, are more logical and practical options. Despite these facts, the mere possibility of the Dry Canal's approval and construction have been leading to land speculation at Monkey Point, and have exacerbated activity along the region's agricultural frontier.

Other potential side effects of the Dry Canal are:

- increased militarization of the region, as foreign investors try to protect their multibillion dollar investment;
- the defeat of Autonomy, both in political terms, as forces from beyond the region would be controlling political and development decisions, and in cultural terms, as the Rama and other ethnic groups of the Atlantic Coast would be quickly outnumbered by Mestizo immigrants from Pacific Nicaragua;
- the defeat of sustainable development options in the region, such as sustainable fishing, sustainable forestry, or ecotourism.

The Rama, as well as the Creole residents of Monkey Point, have been organizing to defend their rights before the proposed Dry Canal and the associated invasion of community lands. A lawsuit has recently been filed on behalf of the Monkey Point community, and a Commission of Support for the Rama and Community at Monkey Point has formed in Bluefields. Since February 2000, members of this commission including Ramas and Creoles from Monkey Point have traveled to Managua on more than one occasion to present their case to the national government. Nicaraguan environmental organizations such as Centro Humboldt have been encouraging dialogue in Nicaragua on the potential impacts of the Dry Canal project. The Dry Canal issue has also been receiving attention from international advocacy organizations such as the U.S.-based Nicaragua Network and ACERCA (Action for Community and Ecology in the Regions of Central America), who have initiated letter-writing campaigns on behalf of the Rama and Monkey Point communities. A video documentary *Our Land, Our Future*, was made on the Dry Canal issue in 2000, by videographers Ed Schehl and Katherine Knight, and produced by the Coalition for Nicaragua, and Earthlinks, Inc., of Santa Cruz, California.

The "Eco-Canal"

In addition to the proposed Dry Canal, a completely different proposal is being promoted for a "wet" canal farther to the south along the Río San Juan. The proposed "Eco-Canal" would convert the Río San Juan to a shallow draft barge canal. The initial aim of the project would be to create a year-round navigable waterway between the city of Granada on Lake Nicaragua and the mouth of the Río San Juan on the Caribbean Coast. In later phases intermodal links (likely via railway or road, but possibly by water) would connect the waterway with Lake Managua and/or the Pacific Ocean, making it a truly interoceanic route. The Eco-Canal project would entail blasting away the rocks in the river's rapids, dredging the river to maintain a 9-foot channel, and installing two locks and seven navigation gates. The navigation gates would be necessary for maintaining water levels in the river and lake following dredging.

Although the proposed Eco-Canal would not take place within the area currently being claimed by the Rama, the secondary effects of the canal's development would certainly ripple out into Rama Territory. Once again, if approved the canal would have potential positive effects such as increasing employment and material living standards for at least some residents of the region. Yet as with the proposed Dry Canal, the Eco-Canal would likely bring a set of negative impacts for the region, such as uncontrolled migration and increased pressure on the region's natural

resources. The Eco-Canal would have additional impacts associated with the dredging of the Río San Juan, and manipulation of its hydrological regime and riparian habitats.

Uncontrolled Use of Natural Resources

In addition to the threats to Rama land posed by the expanding agricultural frontier and canal proposals, a more chronic and widespread threat is that of uncontrolled and unsustainable natural resource use. The main categories of resource use are listed below.

Logging. Unlike the case in a number of northeastern Nicaragua's indigenous communities, in Rama territory there are no logging companies with concessions to log large areas of land. Logging does occur in Rama Territory, but in a more decentralized manner than in the North. In many parts of the Cerro Silva Natural Reserve, the most valuable trees have either been cut or were damaged in Hurricane Joan. Yet good information is simply lacking on the types and volume of timber that remains in the region. The Indio-Maiz Reserve is reported to still contain an undisturbed forest rich in valuable timber species such as mahogany and royal cedar.

A number of Rama have reported that large quantities of timber are being illegally logged and removed from Rama lands and sold in Bluefields. While some of this timber comes from the watersheds of the Kukra and Dakuno Rivers, a greater quantity is reportedly being brought out through the Yolaina area at the southern end of Bluefields Lagoon. Wood is also being harvested from the forests along the Río Maiz, in the heart of the supposedly inviolable Indio-Maiz Reserve. At least some of this wood is being taken out by sea, although no estimates are available on the quantity of wood that is being "poached".

Charcoal gathering. Especially in the Kukra, Dakuno, and Torsuani regions a number of people make their living by producing charcoal and selling it in Bluefields. Charcoal is made by cutting and slowly burning the almendro or *ibo* tree (*Dipteryx panamensis*). Almendro is a canopy emergent tree, and provides vital nesting habitat for the green macaw, an endangered bird in Central America. Continued unregulated charcoal production will lead to the loss of both large almendro trees and the green macaw in the region.

Commercial hunting. Unregulated commercial hunting is a threat to wildlife throughout much of Rama Territory, including parts of the Indio-Maiz Biological Reserve. Most of this hunting appears to be targeted at *wari* (white-lipped peccary), which is commonly sold by street vendors in Bluefields, although deer, iguana, and other game species are taken as well. The region's skin trade has greatly decreased compared to previous decades, but the sale of wildcat skins continues. (In early 2000, a Rama hunter who brought a large jaguar skin to Bluefields could only gain about three dollars for his product.) Crocodile and caiman hunting still takes place, and skins are purchased by a distributor in Bluefields. The extent of hunting for the pet and zoo trade is unknown, but reportedly active, especially in southern part of the zone in the Indio-Maiz region. Unregulated subsistence hunting must also be placing a heavy toll on the region's wildlife, due to the rising human population.

Commercial fishing. Locals report that the large commercial fishing operations based at El Bluff, across the lagoon from Bluefields, are taking a toll on the region's fisheries. Local artisanal fishermen complain that the large boats fish too close to coast, and indiscriminately harvest fish and other marine creatures of all sizes and varieties. Large shark-fishing operations are also conducted in

offshore waters by fishermen from beyond the region, with unknown impacts. As there is little regulation or monitoring conducted, it is difficult to assess the extent of these problems.

Shellfishing. According to the Rama , the oyster beds that have historically provided an important part of their sustenance in Bluefields Lagoon are being overexploited, and the harvesting practices of inexperienced gatherers are damaging the oyster beds. Similar complaints are made regarding the overexploitation and decline of the lagoon's shrimp resource. The region's lobster fishery is also under great pressure from operations based in El Bluff, Corn Island, and San Juan del Norte. Given the lack of economic opportunity on the Atlantic Coast and Nicaragua in general, the region's marine resources are a classic case of an overexploited commons.

Gathering rocks from shorelines. Another practice that may be detrimental to the aquatic environment of Bluefields Lagoon is the practice of gathering rocks from the shoreline of the lagoon and cays. Boats and barges typically set out from Bluefields, and are anchored near the shore, while a crew of two or three men toss rocks aboard. These rocks are used for construction projects in Bluefields. Due to the impact of this practice in many places the banks of the cays and lagoon have become destabilized and exposed to erosion. It is unknown to what extent the extra sedimentation caused by shoreline erosion may be damaging the aquatic environment in the lagoon.

In a number of the above cases the overexploitation of natural resources is closely related to expansion of agricultural frontier. Other cases are simply a matter of the overexploitation of unregulated common resources, the "tragedy of the commons". An increasing number of studies have shown that it is possible to regulate the use of common property resources if certain factors are met, such as limiting resource access to a defined set of users, and establishing a set of sustainable use rules among the users. This is an enormous challenge in southeastern Nicaragua, given the lack of regulatory presence by the central or regional government, the lack of social cohesion among the region's different ethnic groups and between long-time inhabitants and new arrivals, aggravated by the presence of large export-oriented business interests.

Chapter 4

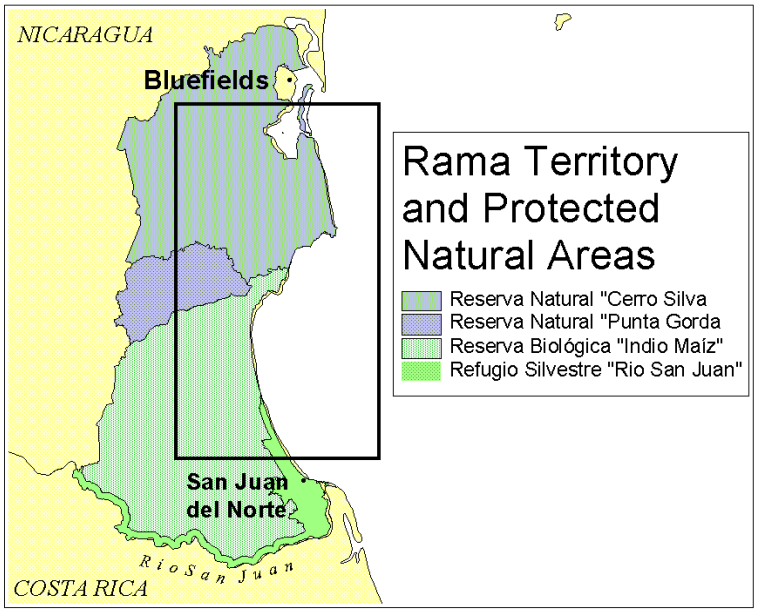
Rama Territory and Protected Natural Areas

In 1960, up to 60% of Central America still remained forested. Yet in a matter of decades, an enormous amount of Central America's forests were converted to cattle pasture, and by the early 1990s just one-third of the original forest cover remained. It was in this context that the forests of Nicaragua's Atlantic Coast were identified as among the last possible opportunities to conserve Central America's rich biological diversity. Under a variety of pieces of legislation that were passed during the 1990s, virtually the entire land area of southeastern Nicaragua was placed into some type of protected area. The territory being claimed by the Rama Indians falls within four different protected natural areas:

- The Cerro Silva Natural Reserve (Reserva Natural "Cerro Silva");
- The Indio Maiz Biological Reserve (Reserva Biológica "Indio Maiz");
- The Punta Gorda Natural Reserve (Reserva Natural "Punta Gorda");
- The Río San Juan Wildlife Refuge (Refugio de Vida Silvestre "Río San Juan").

Each type of protected natural area has distinctive regulations regarding the goals of the protected area, and what types of human activities are permitted. In 1994, the entire area of southeastern Nicaragua was declared a "Sustainable Development Region" by the Nicaraguan government, and in 1999 the entire system of protected areas in the region was given the additional title of "The Southeastern Nicaragua Biosphere Reserve".

With respect to indigenous land rights and protected natural areas in Nicaragua, a general point that needs attention is the somewhat contradictory relationship between the Atlantic Coast Autonomy Statute, the Nicaraguan Constitution, and the nation's protected areas legislation. The Nicaraguan Constitution, for example, recognizes the rights of Atlantic Coast indigenous groups such as the Rama to maintain their communal forms of land tenure, and to benefit from the use of these lands. The creation of protected areas in indigenous lands would also appear to violate Article 36 of the Autonomy Statute, which states that indigenous lands cannot be taken and the traditional use of these lands cannot be restricted by law. The legislation defining protected areas in southeastern Nicaragua sets limits on what types of activities may be conducted within the protected areas. This is apparently not a



big issue in reserves such as the Cerro Silva Natural Reserve, since the 1992 decree that created Forest Reserves in Nicaragua did state in very general terms that indigenous communities could continue to practice their traditional activities in the Reserve.[32] The potential contradictions between indigenous rights and protected areas are more acute in the protected areas that set the strictest restrictions on human use, such as the Indio Maiz Reserve.[33]

The Cerro Silva Reserve

The greater part of Rama Territory overlaps with the 3394-km² Cerro Silva Natural Reserve. Included in the reserve are the Rama settlements of the Kukra, Torsuani, Dakuno and Wiring Cay Rivers, as well as Monkey Point, Cane Creek, and Rama Cay. The reserve also contains a number of Mestizo settlements, especially in its western part. This protected area was created as the Cerro Silva Forest Reserve in 1991, in the wake of the widespread damage created in the area by Hurricane Joan in 1988. Part of the justification for designating the reserve was to maintain forest cover in the watersheds of the region's rivers and streams, to prevent flooding, soil erosion, and sedimentation that could damage the coastal area's rich fishery.

Despite the Cerro Silva Reserve's creation a decade ago, in the intervening years no regulations or management plan have been created, and it remains a classic "paper reserve". That is, the reserve was created by decree, but in reality has not functioned as a reserve. The types of human uses allowed in the reserve, and the means for implementing management of the reserve have never been clearly specified.

The 1992 decree that created the Cerro Silva Reserve, for example, states that within the reserve "no type of settlement or colonization is permitted within Forest Reserves unless required for the recuperative management of the forest."[34] This simply bears no relation to the reality of the Cerro Silva Reserve, however, as it is inhabited by thousands of Rama, Creole, and Mestizo people who conduct their everyday livelihood activities there (such as agriculture, hunting, fishing, and cutting trees). Furthermore, the Reserve has experienced a strong invasion by settlers along the agricultural frontier in the past five years, and especially in the western part has experienced extensive deforestation and forest fragmentation.

Which entity or entities have responsibility for promoting the goals of the Reserve has not been entirely clear. While the 1996 General Law on the Environment and Natural Resources states that Nicaragua's environmental ministry (MARENA) is responsible for overseeing the nation's protected areas, Nicaragua's 1997 Law of Municipalities states that it is the responsibility of each municipality to produce a territorial land-use plan. Yet neither entity has the resources to devote to creating a management plan.

The 1999 decree that set forth regulations for Nicaragua's protected areas changed the designation of Nicaragua's Forest Reserves to "Natural Reserves". Among the goals set forth for this new class of reserves was the conservation and restoration of natural ecosystems and wildlife habitats, and the production of goods and services in a sustainable manner. The legislation stated that MARENA is responsible for managing the reserve, but that the task can be shared with universities and non-governmental organizations. The actual management practices and types of human uses to be permitted in the reserves remained quite vague, however, with the legislation stating only that these matters would be resolved after appropriate studies have been conducted.

Over the past few years the bilateral Dutch-Nicaraguan project PROCODEFOR has taken the initial steps toward creating a management plan for the reserve. This task is quite challenging, however, given the size of the reserve and the extent of deforestation and settlement that is taking place. The goals of the Cerro Silva Reserve need to be reconsidered in light of the wave of colonization that has penetrated the reserve. A realistic approach to management of the reserve

[32] Decreto de Creacion de Reservas Forestales, Decree 38-92, June 26, 1992; Art. 6.
[33] Much of the information for this chapter is based on Acosta (1999).
[34] Decreto de Creacion de Reservas Forestales, Decree 38-92, June 26, 1992; Art. 4.

needs to be based in accurate and up-to-date information on which parts of the reserve remain forested, zonification and demarcation of reserve boundaries, and an on the ground presence of a team of trained and equipped forest guards.

The Indio Maiz Biological Reserve

The Indio Maiz Biological Reserve was created in 1990 as part of the SI-A-PAZ system of protected natural areas along the Nicaragua-Costa Rica border. Following boundary revisions in 1994 and 1999, the reserve covers an area of 2639 km² of lowland tropical rainforest. The Reserve extends from the Río Punta Gorda in the north nearly to the Río San Juan in the south, and includes some of the most intact rainforest in Central America.

In terms of the types of human activities allowed in nature reserves, the Biological Reserve category is the strictest of all such categories in Nicaragua, permitting only scientific research and environmental education activities. Yet maintaining this type of reserve in Nicaragua is not proving to be easy or simple. The issues of settlement and natural resource use have yet to be resolved in the reserve, and for that reason its future remains uncertain. Historically humans have inhabited the area that is presently the Indio Maiz Reserve, although population levels were never likely very high (possibly due to the region's extremely high annual rainfall, up to 6,000mm/year). When the reserve was created in 1990, population levels were likely at an artificially low level, due to abandonment of the area during the 1980's civil war.

Today, despite the restrictions stating otherwise, there remain in the heart of the Reserve small Rama and Mestizo settlements along the Río Indio, as well as Creole, Mestizo, and Rama settlements along the Río Maiz. These settlements have been the source of conflict along the Río Indio, as government authorities have repeatedly resorted to evicting reserve residents by force, and have stopped the Rama from carrying out traditional subsistence activities. The current situation along the Río Indio and Río Maiz will be discussed in greater detail in the next chapter.

As with the Cerro Silva Reserve, the relationship is unclear between the various policies of the Nicaraguan government related to indigenous rights and protected natural areas. While the Constitution and Autonomy Statute articulate the rights of indigenous peoples, the legal mandate describing the Indio Maiz Reserve sets clear limits on the ways which the reserve may be used. The relationship is confused further by an article of the 1999 protected areas regulations which states that although occupants living in protected natural areas can be evicted, indigenous peoples are an exception to this rule. Instead, the regulation states that indigenous peoples should be involved in the activities of planning and managing natural areas where they reside.[35] In the interest of resolving conflict and garnering support for the region's protected areas, this latter approach may be more effective than one of forced relocation.

The Punta Gorda Natural Reserve

The 549-km² Punta Gorda Natural Reserve was created in 1999 by the removal and redesignation of the northwestern section of the Indio Maiz Biological Reserve. The "Natural Reserve" designation allows for a more intensive human use of the area, and the 1999 revision was presumably made due to the increasing colonization and deforestation of the area that made it inconsistent with the criteria for a Biological Reserve. The portion of the Punta Gorda Reserve that overlaps with the land being claimed by the Rama includes lands along the Río Punta Gorda at Pijibaye and Pataste. Also included in this area are lands that have been occupied for many years by certain Mestizo families that are experiencing the same problems with land invasions from new settlers as are the Rama. The Rama and long-time Mestizo residents are working together as allies in the struggle to hold onto their lands.

The Punta Gorda Reserve shares the same legal basis as the Cerro Silva Reserve, the same problems with uncontrolled settlement and deforestation, and the same ambiguities

[35] Decree 14-99, Reglamento de Areas Protegidas de Nicaragua; Articulo 58.

regarding human use and management of the reserve. It remains to be seen whether or not the Punta Gorda Reserve will rise above the status of "paper reserve".

The Río San Juan Wildlife Refuge

Like the Punta Gorda Natural Reserve, the Río San Juan Wildlife Refuge was created in 1999 by removing and redesignating a portion of the Indio-Maiz Biological Reserve. The 430-km² refuge consists mainly of a wetland complex near the mouth of the Río San Juan, a strip of land along the north side of the river that extends about 110 km upstream, and a strip of land that extends about 30 km up the coast. The refuge contains a diversity of coastal, riparian and wetland ecosystems, and important habitat for West Indian manatees, wading birds, and mammals such as jaguar and monkeys.

The Río San Juan Refuge includes the town of San Juan del Norte (Greytown), as well as the land along the northern bank of the Río San Juan that would be greatly affected by the proposed Eco-Canal. The area has also been targeted for tourist development, and recent newspaper accounts indicate that President Alemán has been buying up large quantities of land along the river. For the past few years an exclusive "flotel" (floating hotel) has operated in the region. The flotel is operated by a Costa Rican medical doctor, who takes tourists on sport fishing and sightseeing rides up the Río Indio into the Indio Maiz Reserve, and through the marshy channels in the vicinity of San Juan del Norte. The San Juan Refuge also includes a strip of land between the Río Indio and the coast that has been the site of a large coconut plantation for several decades.

Only a small portion of the land being claimed by the Rama overlaps with the San Juan Refuge. A number of Rama families live in San Juan del Norte, and travel through the San Juan Refuge on their way to settlements farther up the Río Indio. According to Rama living up the Río Indio, government officials have mentioned the possibility of relocating their families to land on the San Juanillo, a stream that lies inland to the west of San Juan del Norte. The Rama claim that the land along the San Juanillo is swampy and subject to flooding, however, as compared with the more desirable land up the Río Indio.

Protected natural areas for whom?

Overall the challenges to defending southeastern Nicaragua's protected natural areas are great, and the future for these areas remains uncertain. Given these challenges, protected area advocates may fare better by involving and seeking the support of the region's resident peoples as much as possible. In the absence of this type of involvement, local people are apt to feel threatened by the protected areas, seeing them as just another strategy for outsiders to profit from the Atlantic Coast's natural resources, while local people are excluded from sharing in the benefits. Similarly, some local people view the very strategy of protected natural areas as counterproductive and hypocritical. From this perspective the government restricts or removes the people from the land who have lived there for countless generations, while instead the land is invaded by outsiders who only destroy the forest, or ecotourist entrepreneurs that get wealthy from the "pristine nature".

Much of the effort that has gone into protecting southeastern Nicaragua's protected natural areas has been focused to the west of the Indio-Maiz Biological Reserve, in the buffer zone, as well as in the Mestizo communities of the Cerro Silva Reserve, along the Río Punta Gorda and Kukra River. This is reflective of an ethnic and cultural bias among government agencies and NGOs that work in cooperation with the nation's Managua-based central government, a bias toward working with the nation's Mestizo majority. By not working harder to involve the actual residents of the protected areas along the Atlantic Coast, a great opportunity is being missed, and local support for protected natural areas is diminishing.