CASE STUDY

# THE BOSAWAS NATURAL RESERVE AND THE MAYANGNA (SUMU) ETHNIC GROUP OF NICARAGUA

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## THE CREATION OF THE BOSAWAS RESERVE

The BOSAWAS Reserve was created by Executive Decree 44-91 in November of 1991 just after the installation of newly-elected President Violeta Chamorro, largely due to the efforts of Dr. Jaime Incer, a prominent Nicaraguan conservationist. Incer, tapped as the new director of IRENA (the Nicaraguan Natural Resources Institute), was concerned about conservation of the natural areas which were left in Nicaragua, especially in the areas where resource exploitation was suspended during the war of he 1980's, allowing the reestablishment of natural floral and faunal populations. BOSAWAS's purpose, as established in the decree, was twofold: (1) to conserve the flora and fauna of the region through the sustainable management of resources; (2) to protect the resources and the cultural heritage of the indigenous groups in the area. The historic residents of BOSAWAS (Mayangna and Miskito indigenous groups) had been forced to leave during the war along with various small and large landholders. In 1991, they had only just begun to reinhabit their former villages.

Politically the creation of BOSAWAS was difficult. In the wake of the Contra War of the 1980s, the nation was faced with

wake of the Contra War of the 1980s, the nation was faced with the land claims of both ex-Contra and ex-Sandinista former combatants. Politicians saw Nicaragua's north-central region as one possible solution to the multiple problems that had arisen when the relocation of families of ex-soldiers was attempted on lands already occupied by groups of armed farmers or on lands which had been claimed by a previous owner. In the view of the politicians who were little interested in the indigenous residents, the north-central rivers and forests were apparently free of settlements and seemed ripe for colonization. Plans were hatched to locate ex-combatants at the borders of the forest in communities called "development poles." There was also strong interest on the part of foreign and national companies in the natural resources in the area, an interest that continues in the present. Nicaragua's primary gold-producing area was on the southern and eastern fringes of BOSAWAS. Private sector exploitation of tropical hardwoods, gold, and other precious metals, and the occupation of large landscapes for cattle ranching, were ideas many people had in the early post-Sandinista months.

Another complication was the fact that half of BOSAWAS lay within the North Atlantic Autonomous Region (RAAN) which is under the jurisdiction of the Miskito-dominated regional government, an arrangement worked out by the Sandinista government to bring an end to the Miskito Contra movement. The federal government's creation of a national reserve which had lands within the RAAN was interpreted by the RAAN as federal aggression.. Currently, the right of national institutions to operate within the RAAN forms a part of the political dialogue concerning autonomy.

Dr. Incer's success in setting aside not only one but three large areas for conservation and sustainable management (BOSAWAS, SI-A-PAZ, Miskito Keys) was considerable in view of the political atmosphere of the day. Unfortunately, in the case of BOSAWAS, the reserve was created with little consultation of local indigenous or non-indigenous people of the area. They were informed after the fact that they now lived within or near a "national" reserve. While the objective of saving BOSAWAS from becoming a colonization project or a timber concession was accomplished over the short term, the "development poles" Ayapal, San Jose, and Waslala have become major sources of agricultural invasion of the reserve and pressure from other private sector economic interests for concessions has been constant. Because of these political

concessions has been constant. Because of these political complications, BOSAWAS is an important part of the national dialogue on the terms of the relationship between community, region, nation and natural resources.

# BIOPHYSICAL ASPECTS OF BOSAWAS

The BOSAWAS reserve is located in the mountainous north-central part of Nicaragua (see Map #1). Approximately half the reserve falls within Jinotega province and the other half within the North Atlantic Autonomous Region (RAAN). Its name is a compound of the names of the BO-cay River in the western region, Mt. SA-slaya in the south, and the WAS-puk River in the east. The northern border is formed by the Coco River (also known as the Segovia River and the Wangki River) which is the border between Honduras and Nicaragua. BOSAWAS is the southernmost portion of a tract of tropical broadleaf forest that terminates on the north coast of Honduras. The tract is the largest extension of tropical forest north of the Amazon and is the subject of a number of conservation efforts besides BOSAWAS, such as the Platano River Biosphere Reserve, the Tawahka Forest Reserve, and the Patuca River National Park, all in Honduras.

Covering an area of approximately 8,000 km2 of highly variable terrain, BOSAWAS is Nicaragua's largest forest reserve and covers almost 7% of the total area of the country. The reserve contains the Cerro Saslaya National Park, created in 1975, which has not been implemented in any way other than to have its boundaries identified. The elevations within the reserve range from 1,200 meters (Mt. Saslaya and Mt. Toro within the National Park) to 50 meters (lower part of the Waspuk River). The annual precipitation has not been measured with precision, but the area around the town of Bonanza in the eastern part of BOSAWAS has an annual precipitation of over 3,000mm, typical of the Mosquitia, while the western sector is more influenced by the climate of the Pacific and probably does not exceed 1500mm of annual precipitation at any elevation. The dry season is marked and the area receives little rain between the months of January and May even though the reserve receives at least some rain every month. Many of the tree species that are evergreen in the higher rainfall regime of northeastern Costa Rica, such as Pentaclethra macroloba (Gavilan), are deciduous in

Pentaclethra macroloba (Gavilan), are deciduous in BOSAWAS.

Geologically, BOSAWAS is formed of rugged cretaceous-era limestone mountains and hills that were part of the southernmost extension of the North American continent before the rise of the Central American land bridge. The fringes of this ancient plate are highly faulted and contain intrusions of mineralogically rich igneous materials.

The biology of BOSAWAS is little studied but it is known that there are populations of animals that are generally threatened in Central America such as Tapirus, Pantera, Felix concolors, Felix pardis, Harpia, Ara macao, Ara ambigua, and various species of monkeys and parrots. However, there are only a few detailed biological inventories of parts of the reserve and the literature that exists is not very well organized.

# CULTURAL HISTORY OF THE RESERVE

Before the Spanish conquest, two relatively distinct indigenous culture areas could be distinguished in Nicaragua. The cultures related to the great traditions of Mesoamerica were found in the western part of Nicaragua. East of Lake Nicaragua and extending to the Caribbean sea, archaeologically-known indigenous cultures shared characteristics that link them with modern peoples of the Macro-Chibchan language family that today occupy lands in Central America extending from the Patuca River in Honduras to South America along the Caribbean coast. In Central America, these cultures include the Kuna, Guaymi, Teribe, Bribri, Maleku, Rama, Miskito, and Mayangna.

At the moment of contact with the Spanish in 1502, the Mayangna ethnolinguistic group was probably the largest Chibchan language group of tropical forest farmers in Nicaragua with lands that extended from Matiguas, just east of Lake Managua, to the Caribbean coastal fringe which was inhabited by the Miskito. The Mayangna populations also extended from the Patuca River area in Honduras to southern Nicaragua where they bordered on their sister cultures, Rama and Maléku. The BOSAWAS area with its immediate northern counterpart in Honduras was the most mountainous section of their core range but in no way defined its entirety.

their core range but in no way defined its entirety. Idiomatically the Mayangna were divided into seven dialects of which only three currently exist. The Miskito dominated a narrow but wealthy strip of marine resources along the Atlantic coast from the Platano River to the Bocas de Toro area in Panama but their occupation of the Coco River, where they are currently found within the BOSAWAS reserve, probably only took place within the last 150 years.

After European contact the Mayangna suffered not only from introduced diseases which destroyed 90% of the population, but also from attacks from the west (Spanish) and from the east (English allied with the Miskitos). Mayangna were captured for slaves by the English/Miskito alliance and some actually were sent to the Bolivian mines In the end, surviving populations found refuge in the most mountainous and remote parts of their land, areas of later interest to conservationists.

In the 19th century, the Mayangna of what is now BOSAWAS had to defend themselves against the demographic pressure of Miskito agricultural settlement. The Miskito penetrated up the Coco River as far as Jinotega province where they encountered Spanish settlements and found further advance impossible. While de facto giving up the main watercourse of the Coco River to the Miskito, the Nicaraguan Mayangna maintained populations on its southern affluents, among them the Waspuk, Umbra, Lakus, and Bocay Rivers, the very heart of BOSAWAS. These rivers also became avenues of timber extraction for the British mahogany trade and Mayangna work crews were common.

When the British finally withdrew from the eastern mainland of Nicaragua in the early 20th century, they attempted to strike a bargain with the Spanish so that their indigenous and creole allies on the coast would not suffer reprisals. The resulting Harrison-Altamirano treaty provided for the legalization of private and communal lands within the department of Zelaya upon petition. These "Royal Titles" included a number of modern Miskito communities along the coastal fringe, but only three inland Mayangna communities were titled and these with only small amounts of land.

The most recent chapter in the cultural history of BOSAWAS began with the Sandinista revolution. With its intact forest cover that concealed trails from air surveillance and proximity to the Honduran border, BOSAWAS became a combat zone

to the Honduran border, BOSAWAS became a combat zone between the Sandinista army and the Miskito Contras. The non-combantant indigenous population, both Miskito and Mayangna, was forcibly removed by both sides. The Mayangna of the Bocay River watershed were mostly interned in Nicaragua while the Waspuk River Mayangna, after abuses by both sides of the dispute, were "convinced" by Miskito Contras to take refuge in Honduras in 1982. Many adult Mayangna men were pressed into combat as Contras as a condition of their refuge. In 1984 the Mayangna in Honduras began to return to Nicaragua but between 1985 and 1990 the majority of them continued their lives in refugee camps or in temporary communities in Nicaragua since the war situation in the reserve did not permit them to return to their original communities. Only in 1991 did the majority of them re-enter their territory.

# CURRENT STATUS OF THE MAYANGNA

## Population

Over 30 Mayangna communities currently exist in Nicaragua and Honduras with a total population of approximately 12,000 people. On the Honduran side, 800 people in five communities on the Patuca River speak the Tawahka dialect and do not use the common outsider's term "Sumu" for themselves. Since the Contra War, they have had little direct contact with the Mayangna of Nicaragua.

In Nicaragua, the 11,000 Mayangna are divided between various populations and three dialects (Tawahka, Panamahka, and Ulwa) separated by distances and geographical barriers that makes communication difficult. Each one of these populations has its own history and social/cultural identity and, up to a certain point, biological identity because of the separation of other Mayangna communities. Also, unlike the Miskito, there has been relatively little intermixture with afro-american populations and the group maintains a modal phenotype that is typically American Indian.

## Land Tenure of the Ethnic Group in General

# General

The case study involves a population of 3400 Mayangna in 11 communities on lands within the eastern part of BOSAWAS. This group is the largest concentration of Mayangna in Nicaragua. Before discussing this group of communities, however, the land tenure of the ethnic group in general will be discussed. The Mayangna groups vary greatly in terms of land tenure problems and the threats which they face.

Within Honduras, Tawahka lands (233,000 hectares identified in a map by geographer Peter Herlihy in 1991-92) appeared in national maps produced by the Honduran government in 1993 with the title of "Tawahka Forest Reserve" but the relation of the Tawahka to the still-not-official reserve is ambiguous. Nevertheless, the Tawahka have aspirations of legalizing their own claim to the reserve.

In theory, the Nicaraguan indigenous communities have rights to the lands and to the natural resources in their traditional areas of use. These rights are mentioned in the Constitution of the Republic, the Autonomy law which covers the RAAN and the southern autonomous region (the RAAS), and various international treaties signed by the leaders of the Republic. The reality is something different. There are no rules or regulations in any of the laws which deals specifically with indigenous rights aside from some antiquated laws dating back to 1914-1918 that created "indigenous communities" in the Pacific. These older "indigenous community" laws and treaties have been repeatedly violated by the government itself.

Outside of BOSAWAS in the reserve's buffer zone, the communities in the watershed of the Bambana River have communal titles which were issued during the agrarian reform of the 1980's. With the exception of the Wasakin community (the only community of the Tawahka dialect), all these communities are now claiming that the lands given them were inadequate for their subsistence needs. None of the agrarian reform land titles include subsurface rights and rights to forest resources are compromised by overlapping mining exploitation claims which have priority. In essence, only rights to farm are guaranteed.

Within the Reserve, there are traditional lands of four Mayangna populations: Palomar, Bocay River, Lakus River,

Mayangna populations: Palomar, Bocay River, Lakus River, and the watershed of the Waspuk River. The Palomar community (a population not recently measured but which has fewer than 500 people) has an agrarian reform title issued in the 1980's for approximately 30,000 hectares, of which half are inside the reserve.

The populations of the Bocay River (7 communities and 1500 people) have no formal rights to their lands. Their claim has yet be defined with precision due to the mestizo pressure and the need to negotiate a boundary with mestizo invaders, but it will be within BOSAWAS and within the Jinotega Province, and it will cover approximately 120,000 has. including land along the Bocay River and its affluents.

# Land Tenure of the Case Study Population

The subject of this case study is the Mayangna population of the Waspuk River Watershed, 11 communities in the Waspuk, Pispis, and Kahka Rivers with a total of 3,405 people counted in a July 1994 census. These communities have grouped themselves together as a territorial unit called Mayangna Sauni As [roughly translated as Mayangna Territory #1]. The group of communities has no formal rights to lands or to the resources apart from those granted in theory by an old "Royal Title" for 390 hectares issued to the Musawas community in 1916 under an international treaty (Harrison-Altamirano) between the English and Nicaragua. The Mayangna Sauni As claim covers 1800 km2, 65% of which falls within BOSAWAS. BOSAWAS itself is legally defined as "national land" under the management of the Ministry of Environment and Natural Resources (MARENA).

The remaining 35% falls within national lands administered by the Forest Administration (ADFOREST) through the National Forest Service (SFN). Making a complex jurisdictional issue even more complex is the fact that 9,000 hectares of the claim that lie within Jinotega Province while the rest are within the North Atlantic Autonomous Region (RAAN). As the RAAN government is involved in a jurisdictional dispute with the national government regarding resource tenure and in principle does not recognize the authority of federal agencies, the Mayangna claim is vexed by political posturing.

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## Tenure in Other Natural Resources

With respect to resource tenure, the presidential decree which created BOSAWAS introduced a situation of total ambiguity for the indigenous populations of the Reserve. Taken out by force during the war in the 80's, they had barely begun to establish themselves in the traditional locations when their lands were declared a national reserve. Even though the protection of the indigenous populations was mentioned in the Decree 44-91 which created the reserve, their status was apparently similar to that of the flora and fauna of the reserve, subject to the judgement and the management of the state in a paternalistic relationship.

As mentioned previously, BOSAWAS is under the authority of the Ministry of Environment and Natural Resources (MARENA). Legally, the state is the owner of the lands, forest, rivers and the sub-soil resources. In the case of BOSAWAS, the state prohibited the granting of timber and mining concessions within the reserve. One concept within MARENA is that the reserve ought to be treated like an international biosphere reserve, i.e., BOSAWAS could have various management units including a national park, multiiple use zones, and indigenous lands. This model could incorporate the legalization of indigenous territories within the reserve and MARENA has publicly supported the idea of legalizing the indigenous territories in speeches.

From the perspective of the Mayangna, in order to be the legal owners of their lands they must await an agreement involving the RAAN government, the central government, and the various municipalities involved on both sides of the RAAN boundary. The central government, for its part, must find consensus among several ministries and congress as to the appropriate content and norms for a decree that would legalize indigenous lands. Despite this formidable jurisdictional and legal thicket, MARENA, The Nature Conservancy, and the Mayangna people are carrying out the documentation of indigenous land claims with maps, census data, oral histories, and detailed socioeconomic studies, with the intention of preparing for a legalization of the indigenous territories within BOSAWAS.

BOSAWAS.

# Social and Economic Characteristics of Mayangna Sauni As

Data from the 1994 census and socioeconomic study of the Mayangna Sauni As territory show a young population (60% are under age 15) of 390 families (defined as a marriage bond) in 450 households (defined residentially). Community size ranges from 66 to 1,292 people. Nearly all the families were present before the Contra War.

Educationally, 35% of the men and 23% of the women have reached levels between the 3rd and 5th grades. Nevertheless, illiteracy among adults over 18 is 45%. Only one of the eleven communities in the study group has a school with six grades. At the present 32 students are outside the territory in secondary school and two students are currently enrolled in university courses.

Linguistically, 100% of the population over three years of age speaks Mayangna and 41% also speak Miskito. Spanish is spoken by 40% of the men but only 19% of the women. 25% of the women are monolingual Mayangna speakers.

There are few employment opportunities aside from agriculture; annual income per family is approximately $655. Income per capita is $88/year. An inventory of material goods shows that 35% of the houses have radios, but apart from that, there is hardly any consumption of goods which are not absolute necessities.

There are two government nurses in the territory but they work almost without equipment or medicine. Health problems are frequent, especially bronchial and intestinal problems. While there is a "Medical Doctors of the World" (Medicins du Monde) project with trained nurses and an ambulance in the municipal capital, Bonanza, minor illnesses can be fatal because of transportation problems. The only means of access to the territory is by trail or by canoe. The medical project is scheduled to terminate in December 1994, effectively leaving the territory without any services beyond the minimum offered by the state.

# Political Organization

Historically, within the arena of domestic and village life, the Mayangna seem similar to many other neotropical indigenous village-based farming groups; political institutions were egalitarian with leadership a function of "natural" abilities. The "politics" of the group were embedded in the institutions of kinship with substantial power left in the hands of elder heads of families. The major leaders of the last century were men who combined aspects of shamanism with political leadership and warrior prowess. With the advent of Moravian missionaries in the 1920s, Mayangna communities changed their political system. The "sukia" (shaman) as a leader was replaced by the Moravian pastor and the heart of village political life revolved around the church. Since the Contra War, the influence of the church has waned somewhat and younger secular leaders who were involved in the war have come forward to claim village leadership. These claims are sometimes contested by the church leaders and are sometimes in conflict with the prerogatives of older community members who think of themselves as "elders." Nevertheless, most decisions still take place at the family level and there are relatively few restrictions on individuals with regard to resource management. As each individual may benefit from the exploitation of common resources while distributing the environmental costs of such exploitation over the larger community, there is no mechanism to prevent a Hardinesque "tragedy of the commons" other than the norms of an egalitarian and face-to-face society that tend to discourage individual accumulation when there is a large social cost.

Today other political insitututions are evolving in response to the perceived threat to Mayangna lands. The eleven communities of Mayangna Sauni As , through their own internal arrangments, are formally governed by a group of community leaders led by a person called the territorial Síndico. The institution of a territorial Síndico is unique in the Mayangna world as Síndicos are usually associated with single communities. In the case of the territory, however, the individual community Síndicos have voluntarily become Auxiliary Síndicos who form a kind of council to the territorial Síndico. The "naming" of local leaders takes place by consensus at local community meetings without explicit rules for quorums or majorities. The Síndico of Musawas has conventionally been named as the territorial leader, again

conventionally been named as the territorial leader, again through a consensus process without explicit guidelines.

Traditionally the state is represented in communities of the Mosquitia by formally designated but unpaid "judges," community members who are requested by the municipal judge to be his/her representatives. Several of the villages in Mayangna Sauni As have such positions, but the institution has undergone a similar centralization to that of the Síndico institution. The "main" judge is in Musawas, although the centralization of this position is not formally recognized by the state.

A Mayangna ethnic organization also exists. SUKAWALA was founded before the Sandinista revolution and has had a long history of interaction with the communities. As with many organizations of this type, the success of SUKAWALA has been mixed and the organization has been beset by charges of administrative malfeasance and abandonment of office by leaders. At present, SUKAWALA has little financial support and is under internal pressure to restructure. Although begun as an organization to represent all Nicaraguan Mayangna, SUKAWALA has mainly been de facto an organization of the Mayangna in the municipalities of Rosita and Bonanza due to the difficulties in linking all Mayangna communities. The Mayangna of the Bocay River, facing strong pressures from the advancing agricultural frontier with little direct support from SUKAWLALA, have recently created a new organization (Asla Kalahna) which has made overtures to the Miskito of the upper Coco River to form a common indigenous organization to defend lands in the western part of BOSAWAS. Additionally there are at least three Mayangna organizations in the RAAN that have assumed functions once claimed by SUKAWALA.

# USE OF RESOURCES AND THE CONSERVATION OF BIODIVERSITY

## General Patterns of Subsistence

The Mayangna are tropical slash-and-burn farmers, sharing a subsistence technique typical of many indigenous populations in tropical forests in not only Central America but South

in tropical forests in not only Central America but South America as well. They fulfill their protein needs mostly through the consumption of fish and the hunting of small animals, especially those animals which threaten the crops and which live close to areas of agriculture. In terms of livestock, chicken and pigs are often raised although one can find other domestic animals in smaller quantities. In the years following the second world war, the Mayangna learned to raise cattle. The cattle system is discussed below in more detail.

According to their oral history, their preferred pattern of settlement appears to have been in small communities spread out along the major rivers of the region. The communities moved periodically, probably in response to local game depletion. The agriculture was normally undertaken close to rivers in at least three different ecological zones, annually flooded lands with a high concentration of sand, lands of the primary riverine terrace with a high percentage of clay but with alluvial replacement on perhaps a ten-year basis, and in hilly lands with moderate slopes and good drainage which adjoin the floodplain. In steeper terrain, and/or lands farther from the river, the Mayangna hunted and collected a large variety of plants for uses which varied between construction, food and medicinal purposes. This pattern in large measure describes today's subsistence patterns as well, with some modifications due to a much closer relationship with markets than in the past. The Mayangna settlement pattern is now sedentary and centralized around one large village with a Moravian church (Musawas) and a number of smaller satellite communities within a two hour walk.

# Agriculture

Within Mayangna Sauni As there are currently 9,055 hectares affected by agricultural production, or 2.66 hectares per person (population=3,405). This total is 5% of the total territory claimed by the Mayangna of the Waspuk River watershed and 17% of the lands identified by them as appropriate agricultural lands. One must remember that this sum includes fallow lands (71%) as well as lands in current production (29%). Because of the fallow plots, the landscape of the agricultural zones is a mosaic of forest succession types that supports a diverse avian and mammalian fauna. There is no conversion of existing forests to pastures, a notable distinction from the landscapes in areas of mestizo farming outside the territory.

areas of mestizo farming outside the territory.

Despite the quantity of fallow lands available (many have not been sown since the evacuation of the Mayangna in 1982), the Mayangna still prefer to cut primary forest in their agricultural zones. A study of the 1994 activities of 46 families after the major field preparation months indicates that each family cut an average of 1.35 hectares of primary forest, 1.00 hectares of fallows <5 years old, and .93 hectares of fallows >5 years of age. Cutting in the primary forest accounts for 41% of the total annual cutting. Most of the annual crops planted on plots in primary forest were upland rice, a crop that requires less soil fertility than corn or beans and is the most frequently marketed grain crop.

The main staple annual crops of the Mayangna are corn, rice and beans. Manioc (cassava) as an annual crop has less importance in the diet within the Mayangna context than in many other tropical agricultural groups. Surpluses of basic grains are sold in the municipal capital of Bonanza, but these sales amount to a small percentage of the annual crop. Of the first planting in 1994, about 8 tons of corn, 7.5 tons of beans, and 9 tons of rice were carried out to market, largely on peoples' backs in grueling six hour walks.

Permanent crops play an important role in the life of the Mayangna, especially coconuts, bananas and plantains. The war unfortunately destroyed nearly all the permanent crops. Neither the the Sandinista soldiers or the Contras wanted to leave food for the enemy so there was much intentional destruction of coconut, plantain, and banana plantations.. The Mayangna are currently trying to recuperate the production of permanent crops. While there are enough bananas and plantains for subsistence, the production for sale amounted to only around 80 tons in the first half of 1994, a sharp contrast with prewar times when the mining company in Bonanza used to send a large truck each week to the roadhead to receive the Mayangna market production in bananas and plantains. Recovery of coconut production will take much longer than the recovery of bananas and plantains.

In conclusion, Mayangna agriculture in the area of the study occupies less than 5% of the territory and is practiced on the floodplain of the major rivers. Of the lands which the Mayangna in the territory consider useful for agriculture (approximately 53,500 hectares), the lands currently in use for

(approximately 53,500 hectares), the lands currently in use for this end total 17%. Carbohydrates in the human diet are supplied mainly by the bananas and plantains, but corn, beans, and rice are also consumed. There is a potential problem in loss of primary forests in areas outside the floodplain, especially for the commercialization of rice. A dependence on corn and manioc for feeding animals for sale may pose a similar threat in the future as the markets expand.. For the time being the conversion of primary forests to agricultural uses has not threatened lands outside of the zone considered useful for agriculture.

# Domestic Animals

In terms of economic importance, the raising and sale of pigs and chickens is the major agricultural activity of the Mayangna. In the area of the study, the sale of these animals to external markets makes up 56% of the family income of U.S. $655/year while the sale of crops amounts to only 15% of the annual income. In one year, the territory with its population of 3405 people sells up to 10,000 chickens and 3,000 pigs. Each family (n=450 families) is, on average, raising 6 pigs and 15 chickens beyond juvenile stages for sale. The pressure on agricultural production is considerable and a good percentage of corn and manioc production goes to feed domestic animals. Although part of the diet for the pigs and chickens comes from the household waste, the two species need subsidies from the farm.

Before the Contra war of the 1980s, the Mayangna of the Waspuk River watershed had at least 500 head of cattle distributed among the communities, about 250 of them in Musawas. In Mayangna philosophy cattle should be raised in close proximity with humans for better care. Consequently pastures are on the river terraces within, or close to, communities. All pasture is communally maintained even though the animals may have individual owners. Cattle are a source of milk for the Mayangna, although there is little consumption of of beef, as cattle are also a store of wealth and a place to invest labor. The stored wealth is valuable for emergencies such as sicknesses when cash needs are urgent. The Mayangna are very explicit in their philosophy about the place for cattle in their sense of agricultural ecology; pastures should not be established in forest areas outside of the community. This philosophy is maintained on four grounds: (1)

community. This philosophy is maintained on four grounds: (1) animal health and safety (2) need for milk (3) reluctance to increase the distance walked to harvest forest products, and (4) lack of need to claim land by creating pastures (the most common reason for pastures among mestizo populations). Additionally, the expansion of cattle production as a means of creating individual wealth for social mobility has little support in communities with egalitarian norms.

A sharply contrasting view is found among mestizo farmers of the agricultural frontier outside the territory where the philosophy is extremely individualistic and accumulative. Cattle production has three basic, but closely related, purposes. As rights to land are insecure, one creates pastures in order to claim land, often for speculative purposes. Second, cattle production is visualized as a means to accumulate capital with relatively less labor investment than farming as long as land is cheap and available; third, the accumulation of capital is the path towards upward social mobility. Therefore, the landscape of the mestizos tends to be a deforested landscape with numerous malnourished and sickly cattle scattered in all types of terrains and slopes.

# Fishing and Hunting

As was mentioned earlier, Mayangna protein needs are largely satisfied by fishing and hunting. The dietary contribution provided by domestic animals is not great, as they are mainlyt raised for sale. Most daily subsistence fishing is carried out by women who use hooks and lines to fish from canoes in the river near the communities. The production of fish for subsistence appears to be very low, although the data are poor. The study of 46 families indicates that each household (n=390) consumes 36.8 kg of fish per year, a sum which implies a total production of 14.4 tons of fish/year in the inhabited zone of the territory (perhaps 70 linear km of river with an average width of 20 m or 140 km2 of surface). As the potential productivity of the Waspuk, Kahka, Pispis and Kwahbul Rivers has never been measured, it is difficult to estimate the impact of this level of production. According to verbal reports, fishing is much more productive in the areas outside of the area of community concentration. It is quite possible that the population concentration, even in a mere three year period has had a depressive effect on fish populations. It is reported that until 1994 the use of hand grenades for fishing was common among

1994 the use of hand grenades for fishing was common among returning veterans.

In hunting, the most intensive pressure is directed towards the paca, agouti, and armadillo populations. These mammals are abundant in the area of the fallows, threaten the crops, and can be killed with dogs instead of arms, which are very scarce. If the facts compiled from 46 houses close to Musawas over two months in the rainy season are projected over time then, each house consumes 42 pacas, 55 agoutis, and 33 armadillos a year. This total implies that every three days there is fresh game on the table. This pressure is probably less in the Pispis and Kwahbul River communities but in any case a considerable pressure on these mammalian species is implied. However, the pressure is very localized and 90% of the hunting takes place within two to three hours from the home. Since the population of the territory is concentrated in a relatively restricted area, 60% of the territory rarely sees a hunter. Under the Mayangna land use categories, 42% of Mayangna Sauni As is classified as "infrequently used" or "areas of animal and plant reproduction" (See map 2). It is possible that the communities may still be harvesting animal population peaks accumulated during the Contra war when the territory was not hunted.

Despite the importance of wild game for subsistence, the Mayangna sell very little to outside markets and there is minimal sale of live wild animals. The economic study indicates that only 2.3% of income in the territory comes from such sources. There is, however, no explicit Mayangna policy that prohibits or discourages such sales.

# Other Natural Resources

The Mayangna use the leaf of the suita palm (Asterogyne martrana) for roof thatching in all types of structures. While the use of zinc roofing is spreading, 68% of the houses use suita. According to verbal information from Oxfam UK, when zinc was offered after the Contra war in connection with refugee aid, most Mayangna sold the zinc for cash, saying that living under a zinc roof was too hot. Whether that same result would obtain in more favorable economic circumstances is questionable. Bamboo is used for 52% of the walls in houses, but only 11% of the floors. The Mayangna very much prefer floors of sawn boards and have become dependent on chainsaws to provide them. Both bamboo and suita appear to

chainsaws to provide them. Both bamboo and suita appear to be abundant in the area of greatest settlement and the Mayangna do not detect a scarcity of these materials. The bamboo abounds at the edges of the major rivers and in some of the interior parts of the forest where it has a tendency to dominate in areas of secondary growth.

In the past there was a great deal of exploitation of the latex tree tunu (Castilloa tunu, a close relative of the caucho tree of the Amazon basin) with external markets for the rubber and internal use of the bark from which is produced a cloth by soaking and beating. Production of tunu dropped to zero in the 1980s. Under good management, rubber tapping did not inevitably kill the tree, but management was haphazard. The use of the tree for bark cloth is invariably fatal. The population of tunu is recovering from overharvesting earlier in the century and there has been at least one North American company that recently expressed interest in this resource. Under relatively high wage demands of potential laborers in the inflationary economy of eastern Nicaragua, however, it may not be economical to produce tunu rubber.

As for mineral resources, 24.4% of the income in Mayangna Sauni As presently comes from panning gold (guiriseria) from various streams in the territory. The gold is a current source of conflict between the Mayangna and the state as the state has granted mining exploration rights to North American companies within the territory. As mentioned earlier the concessions could threaten the conservation of the BOSAWAS reserve.

In conclusion, the Mayangna of the case study derive most of their subsistence through farming, but supply their protein needs through the direct exploitation of fish and game resources. The impact to the environment is felt mostly at the local level and not in the territory in general. The major impact from farming is due to the conversion of primary forests to agricultural use (approx. 526 hectares/year). However, deforestation has been limited to areas that have been classified by the Mayangna for agricultural use and the area of current production is only 17% of the agricultural area. Hunting is practiced relatively close to the farms and concentrates on animals that are perceived as threats to the crops. The cash economy rests mostly in the sale of domestic animals and gold panning, and not in the exploitation of wild resources at present. However, while the sale of agricultural products makes

present. However, while the sale of agricultural products makes up 15% of the economy, this sector will grow rapidly, especially with the recuperation of permanent tree crop plantations. Forests are potentially threatened by increases in the sale of domestic animals and the direct sales of grains such as rice.

# CULTURAL CHANGE AND CONSERVATION

## Underlying Causes of Change

The Mayangna culture has undergone profound changes in this century. Changes earlier in the century relate to the acceptance of Moravian missionariesis in Mayangna communities. The Moravians established a mission in Musawas in 1922. The Mayangna population concentrated around the mission and many aspects of the older culture underwent profound transformation, including relations with outside markets, the political economy, family and village social life, and Mayangna philosophical concepts. These changes are so far-reaching and of such time depth that they are beyond the scope of this study to describe. For all practical purposes, one may begin with a "traditional" Mayangna cultural baseline in the 1970s that presents them as a variety of indigenous peasantry providing nearly all of their own subsistence, having strong links with markets and outsiders, but with relatively few options for wage labor. Most men worked at tapping the tunu trees for cash on a piecework basis rather than working in the gold mines at Bonanza and Rosita. The Mayangna in this "traditional" description had a considerable substratum of indigenous cultural content, especially in the division of labor by age and sex, the important role of older people in domestic and community life, knowledge about the forest, and folklore. At the same time, they had developed evangelical Christian traditions, and a public social life that revolved around the Moravian church and public schools. Most Mayangna in the 1970s were geographically remote from the full advance of the modern agricultural frontier, but were beginning to organize into an ethnic federation to press for essential human rights and were beginning to feel the land pressure from non-indigenous outsiders.

Given the cultural base described in the previous paragraph, more recent and wrenching changes in Mayangna society are due to two principal factors: (1) The war which forced the relocation of the Mayangna from their traditional lands to refugee camps; (2) the rapid advance of the agricultural frontier, caused by the poorly planned colonization of thousands of ex-soldiers after the war.

## The Refugee Camps

During the time of relocation to camps in Honduras and later in Nicaragua, an entire generation of Mayangna was raised with highly secularized influences and values foreign to their traditional culture. They were exposed to a full-scale cash and consumption economy with entirely new styles of consumption, new patterns of social behavior, new modes of dressing, different philosophical and religious values, i.e., a series of cultural influences which had their origins far from the remote village life to which the Mayangna were accustomed.

At the same time, the demands of the war and of life in the camps took their toll and many died, especially the very old and the very young. The Mayangna lost much of their cultural and historical memory with the loss of older people. Today 64% of the population is under 15 years old. The Mayangna are stuggling to reconstruct their older cultural traditions and reinstall older values (which include many values about the management of natural resources) but a great deal of knowledge is still in danger of being lost.

Another effect of the camps was an increased orientation toward consumption of industrial goods due to the increased perceived necessities of younger Mayangna. Consumption desires are somewhat frustrated at present due to the lack of jobs in the Nicaraguan economy and the lack of road access into the territory, but the pressure exists and will eventually have an effect on the exploitation of natural resources as the 1994 socioeconomic study makes clear. Access roads into the territory (at present nonexistent) and better transportation were identified by 96% of the families in the study as a major problem.

The demographic change in the population has had other effects. Traditionally Mayangna political life emphasized the

effects. Traditionally Mayangna political life emphasized the influence of elder heads of families in each community. Even with the erosions of authority under missionary influence, this remained true. Informally referred to as a "council of elders [consejo de ancianos]," this institution has become severely attenuated. In its place, public leadership has passed to younger men, ex-combantants the majority of whom are under 35 years of age.

Increased exposure to markets with their accompanying new patterns of consumption and new secular patterns, has caused visible changes in the expectations of the women, and, as a result, changes in relationships between women and men. Even though women are not highly visible in public meetings, there are now tendencies to form organizations of women or craft projects by women to increase family income. These projects have caused some frictions within families and, in one case, men tried to put a stop to a women's artisanry project that they felt took women out of the home and disparaged "traditional" women's roles. Projects or NGOs sensitive to gender issues tend to encourage such tendencies in the culture. On the Bocay River, one group of women demanded and gained access to the annual congress in 1993 as an interest group. For all of these incipient influences, however, Mayangna women are more "traditional" than the men in many ways: linguistically, in their knowledge of medicine, and in their domestic roles. Women continue to provide critical subsistence tasks in fishing and farming, but as cash needs have risen, women's work in raising domestic animals has become critical to the family cash strategy. It may be expected that their key role in the cash economy will be extended into increased participation in public policy in the future.

# The Advance of the Agricultural Colonization Frontier

Thirty years ago, the Mayangna on the Bocay River occupied a site now known as San Jose de Bocay. Today the first Mayangna family can be found perhaps 50 km downriver at Tunawalan. The community known as Palomar was completely isolated 30 years ago. Now there are 15 families invading its territories moving northward from the mining town of Siuna. The postwar "development poles" of Ayapal, Waslala, and San José (near Siuna) where thousands of ex-Contras were settled have become foci of invasions into the southern parts of

have become foci of invasions into the southern parts of BOSAWAS and a social base for continuing armed "re-Contra" activities. The communities of the Bambana River, once a solid bloc of Mayangna, now exist only as small islands of legalized communal lands amidst a sea of mestizo and Miskito individual farm plots. In Mayangna Sauni As , the agricultural frontier is advancing northward from Bonanza following the course of the Pispis River.

The cultural impact of the agricultural frontier on the Mayangna is profound. Besides the invasions of indigenous lands the mere presence of Spanish people serves as an unplanned lesson in the modern virtues of private property and accumulation, the individual farm with individual rights over the natural resources, the buying and selling of parcels. Colonization causes an increase in commerce and demand for natural resources, especially timber. Development also opens new demands for access roads by sectors of the population that command more political attention than the Mayangna. If the process follows the patterns common in other areas of the agricultural frontier, opening roads will be followed by loggers and other merchants who seek to benefit from "mining" natural resources.

What the final effect will be on Mayangna society is unknown. With institutions that have been weakened by the war, and a young population lacking the guidance of a traditional governing system, the effect on Mayangna society could be the same as that which has taken place in other indigenous contexts in tropical forests; the community institutions suffer, especially the community's control over the use of common resources while individualism and selfish exploitation of resources increase.

Considering all the changes in the culture due to a rapid and forced acculturation that amounts to ethnocide, it is surprising to detect strong conservative cultural currents within Mayangna communities. Nevertheless, they exist and, to some extent, characterize the community. The Mayangna are in an active phase of cultural reconstruction. Interest in their own history is strong. 100% of the Mayangna over age three speak the language and, despite the years of refuge, 5% of the men and 23% of the women over age 20 speak only their own language. The traditional system of reciprocity between individuals and families known by the name "biribiri" is practiced by 89% of the families in the area of the case study. One salutory effect of

the families in the area of the case study. One salutory effect of the existing pressure on Mayangna lands has been a tendency to cohere politically around "territorial" claims that involve several communities. This tendency, as noted above, is visible in both the Miskito and Mayangna communities in the BOSAWAS area.

In summary, recent cultural changes have been forced, brusque, and painful for the Mayangna. but they have called forth some distinctly conservative cultural trends in cultural reconstruction as well as a tendency to cohere politically around the defense of land bases. Whether the new political institutions can resist the pressures to "mine" natural resources within Mayangna Sauni As as consumption pressures rise and commerical opportunities present themselves is an open question, but there is definitely a cultural base from which sustainable management of resources is possible.

# SOCIOPOLITICAL INSTITUTIONS AND CONSERVATION

## Institutional Decision-Making Levels

The key institutions in the interaction between the Mayangna and the BOSAWAS Reserve in the area of the case study in hierarchical order are: the family, the community, the territory, the ethnic organization, the municipality, the autonomous region, the various national ministries, and the global structures of economic policies. Decisions at any level can affect the state of the natural resources in BOSAWAS.

In theory, decisions about the management of resources at the lowest level are limited by decisions or actions at the highest levels of the hierarchy. In reality, due to a lack of policy and presence by the national government, itself beset by demands from the international system, the critical interactions often bypass levels in the hierarchy. For example, the Mayangna in the area of study feel threatened by the presence of a North American company, Nycon Resources, in the lands which they consider to be part of their territory. The mining exploration which Nycon Resources is currently undertaking is sponsored by the Ministry of Economy and Development (MEDE) and the concession process took place without consulting the Ministry of the Environment and Natural Resources

Ministry of the Environment and Natural Resources (MARENA), the autonomous region, the municipality of Bonanza, or the Mayangna community. While the concession itself is a product of corrupt relations between a national institution and an international company, the only significant protest has been from MARENA and the Mayangna. The Mayangna communities seek support from intermediate levels in the institutional hierarchy. The local and regional institutions that should be defending the property rights of both peasant smallholders and indigenous communal holdings are either absent or co-opted. The national government has a huge policy vacuum where indigenous rights are concerned and, in any case, has no ability to protect property rights even for already legalized properties of either indigenous peoples or peasant smallholders. The situation is reminiscent of the American frontier. Meanwhile, the RAAN government is engaged in a political battle with the central government that has little to do with the needs of local communities while the municipal levels are subject to strong local commercial pressure.

Within this context of malfunctioning national, regional, and municipal institutions, corruption, and frank regional support for extremely unsustainable resource use by international companies, it may be understandable that the Mayangna tend to see BOSAWAS as a challenge to their own rights to the land. It has not helped that the policies of BOSAWAS have changed frequently, are ill-defined, and poorly communicated. The initial messages from the BOSAWAS project were restrictive, couched in a vocabulary and ecological ideology relevant perhaps only to ecologists or conservationists. Also, as spokespeople for the Mayangna have often pointed out, the underlying message was insulting. Mayangna feel that they have defended the forest and the other natural resources for centuries. It does not sit well to be lectured by people who demonstrably have not managed anything sustainably except the destruction of their own

Some have alleged that the problems occasioned by national control over Atlantic coast resources will be eliminated when autonomy for the Atlantic coast is a reality in practice as well as in theory. Many well-meaning people view the autonomy movement as an experiment in indigenous self-rule. This view is mistaken. There is little evidence that the regional government, even if it were victorious in its struggle for effective autonomy, would guarantee the rights of the indigenous communities against the national and international

indigenous communities against the national and international pressures. On the contrary, the regional government until now has been characterized by factionalism and is beset by accusations of venality. Perhaps more importantly over the long run, demographically the RAAN is currently more than 50% "Spanish." While the growth of the Mayangna and Miskito population is limited by reproductive biology, the growth of the Spanish population reflects immigration patterns, natural biological growth, and cultural recruitment through acculturation. Many people have migrated to the RAAN because of land availability and many have frankly exploitative commercial interests, including some current RAAN leaders. Consequently, to the degree that the RAAN government in the future represents the wishes of the majority of the population, the rights of indigenous communities to control resource use, will be increasingly challenged.

## The Potential for Sustainable Management

In the minds of most Mayangna people, the protection of biodiversity is identified closely with their own rights to the land and to other natural resources. Indeed, the very survival of the Mayangna culture depends on the establishment of such rights. In the end, it is the local Mayangna institutions that must guard natural resources in order to insure their own cultural survival and to maintain control over the rhythm of development and the accompanying cultural changes. The indigenous right to land with control over its natural resources and the indigenous institutional capacity for sustainable management of resources are key points in the management of BOSAWAS.

Aside from the family, the key institution which has responsibilities for the local management of natural resources within Mayangna Sauni As is the territorial Síndico in Musawas and his coucil, the auxiliary Síndicos in the small communities that were discussed in an earlier section of this study. These voluntary positions represent communal policies (or in this case, the multi-communal policies). Their authority is underlined by the weekly meetings of local leaders in Musawas. Group decisions in these meetings should be backed up by the district police and the local "judges." Also important in the local context is the Moravian church which has parishioners in each community and which has a great deal of

parishioners in each community and which has a great deal of influence on public opinion. And finally, the ethnic organization, SUKAWALA, can be critical in helping to form opinion and in communicating within the larger ethnic group and between the ethnic group and other polities.

The territorial Síndico, his auxiliaries, the Moravian church, and SUKAWALA, represent moral authority rather than real power, but in the context of the ethnic community with dominion over the land, face-to-face social relations with frequent public meetings, supported by a common religion, the authority is considerable. Decisions about the use of land and the norms of exploitation of other natural resources fall naturally within the arena of decisions by the Síndico and his auxiliaries, while the church and the ethnic organization can assist in deliberations, provide a moral framework for decisions, and help to disseminate local decisions.

The Síndico institution is weak in many respects. There is little tradition for public planning for the management of resources. There is no tradition of financial administration or of adequate record-keeping, and the territory completely lacks the infrastructure for such functions. Also, the traditions and social mechanisms for social control in an egalitarian community do not place emphasis on the office of the Síndico in a hierarchichal sense. The authority of the Síndico is limited in its reach. The major social control mechanisms are still jealousy, gossip, humor and witchcraft accusation, and the Síndico must seek political consensus in order to manage natural resources. However, the sustainable management of lands within the BOSAWAS reserve depends on the administrative capacity and the regulations of the syndicate institution supported by some type of council, either from the auxiliary Síndicos, elder family leaders or combinations of the two. Any attempt at conservation of biodiversity at the local level that has a chance at resisting market and consumption demands and avoiding a "tragedy of the commons" must begin with the development of such territorial governing mechanisms and they should include as broad a group as possible.

At the other extreme, at the international level there is a recent emphasis on the part of developed nations to convert Nicaragua from a socialist system to an economy governed by neo-liberal economic policies that place emphasis on the untrammeled operation of the "free market." Such changes have resulted in a sharp reduction of government personnel, most recently within

sharp reduction of government personnel, most recently within MARENA, and an increase in the exploitation of natural resources, changes that profoundly affect the protection of biodiversity. The BOSAWAS project lacks economic and political commitment from the State. Internally, MARENA is very divided among the forces which endorse the private and massive exploitation of the natural resources, especially the forests, and the forces of conservation and sustainable use. In budgetary terms, the system of protected areas is losing this fight. The case of BOSAWAS is even worse because BOSAWAS as a project is administratively directly dependent on the office of the Minister of MARENA, and not on the protected areas system which has had some time to develop norms and traditions. As a consequence, BOSAWAS is still missing the protection offered by the conservation interests within MARENA.

In conclusion, the key institutions in the management of the resources of BOSAWAS are local institutions, especially the local government of Mayangna Sauni As and its supporting institutions of the church and the ethnic organization. However, these institutions must operate within the restrictions and impositions of national institutions that are influenced by the thrust of the international political economy toward "free market" solutions for everything. The confusion and the contradictions in the policies at the national and international level emphasize the necessity of a conservation strategy which gives power to the local institutions.

# CONSERVATION NGOs AND THE MAYANGNA

## The Overlap of Interests

At first glance, conservation organizations and indigenous people in "green" areas have a great deal in common. The areas of Central America and South America where large extensions of natural landscapes remain more or less intact, with few exceptions, are areas inhabited by indigenous groups and other residents who have lived there enough time to be considered "traditional groups." Traditional groups may have an extractive economy but, at least in theory, they have learned to live without destroying the resources on which their lives depend. In general, the same forces which threaten the natural

In general, the same forces which threaten the natural ecosystems also threaten the indigenous and traditional groups. A relationship could be based on mutual interest in the preservation of biodiversity and it could be a relationship among equals, the NGOs supplying technical assistance and financial support to the indigenous organizations and the indigenous organizations providing the motivation that only legal "owners" can have, on-site personnel, vigilance, and administration.

The overlap of mutual interests has not escaped the notice of conservation NGOs. Beginning in the 80's in the upper Amazon region and following in the 90's in Central America, the exploration of the possibility of an alliance between indigenous/traditional groups and the conservation organizations has been the objective of various international meetings and much organizational angst. However, the relationship has not functioned very well at the regional and local level. The conservation NGOs have not been very attentive to the needs and limitations of the indigenous groups and the indigenous groups have not understood the financial and political context within which the NGOs operate. Many times they have misunderstood the messages and actions of the conservationists. It does not help that few, if any, indigenous languages have terms that are equivalent to the abstract terms "nature," "biodiversity," and "ecosystem," all key terms to conservationists. The Mayangna, for example, see nature not as an objectified "thing," but rather as a context for their lives; their closest equivalent is a phrase translated as "the green forest."

But apart from linguistic failures, at the heart of the flawed relationship between the two different types of organizations could be a series of mutual misapprehensions about the nature and possibilities of the counterpart organization.. While not an exhaustive list, the following are six common errors, three from the perspective of the conservation community and three from the indigenous perspective. The Mayangna are witnesses to all of these errors over time with one or another organization. For its part, the BOSAWAS project of The Nature Conservancy was designed with many of these misunderstandings in mind.

## Three Typical NGO Errors About Indigenous Organizations

# Indigenous Organizations

Error #1: That the objective and principal priority of the indigenous organizations is the conservation of biodiversity in some abstract sense.

Indigenous ethnic organizations such as SUKAWALA exist to defend the rights of the ethnolinguistic group. Typically, the priorities in the indigenous struggle are the following:

1. Legalized rights to the land and all natural resources within its boundaries

2. Political and cultural autonomy (self-determination)

3. Health services

4. Access to the bilingual education at the elementary school level and access to superior levels of education for more advanced students.

5. Autonomously controlled economic development that minimizes damage to traditional values and natural resources, and that maximizes income and opportunities for the training and education of group members.

The notion that conservation is an indigenous priority somehow separate from other aspects of indigenous life comes from a misinterpretation of the historical discourse on indigenous rights. In this dialogue between indigenous nations and the nation-states in which they find themselves, the image of conservative values toward the environment is often used as a modern-sounding argument in the indigenous demand for legalization of the land. In the argument of the Mayangna one hears something like the following: "Others are destroying the natural resources which we have protected. Give us the land and we will protect it." with the implication that legalization of communal lands or indigenous territories is equivalent to

communal lands or indigenous territories is equivalent to biodiversity conservation.

But while biodiversity may be maintained and even enhanced in long-settled and adapted traditional indigenous subsistence economies with low population densities and little participation in the cash economy, few indigenous groups would wish to halt their own internal development trajectory to simply maintain present levels of subsistence, cash incomes, and access to services. They are embedded in an international economy, have increasing cash needs and high rates of population growth, all of which dictate a changing adaptive system and changing relationships with the ecosystems they inhabit. Therefore, apart from the historical rhetoric, the absolute protection of biodiversity is not an indigenous objective easily separated from the context of their exploitation of natural resources.

At the same time, the case for considering indigenous people merely as Homo economicus - malleable flesh in the procrustean bed of world markets, ready to sell everything to the nearest bidder - mistakes the nature of culture. Culture is cumulative and people live with history as well as in it. In 1994, the Mayangna start with a very different cultural/historical base than others with with whom they are in contact. Within the Mayangna cultural context there are conservative trends and an ideology emphasizing a respect for "nature" that can form the philosophical foundation for resource management in a modern context including management for conservation if such trends are nurtured and supported. That success is not guaranteed is obvious, but examine the options. A conversation in a Mayangna community about the value of habitat protection will be understood by most people. A similar conversation in a Spanish community will produce blank stares, while the same conversation in a government office will elicit sympathy among a few relatively powerless functionaries who are at odds with the dominant trends in their own bureaucracies and, in any case, will soon be gone.

The protection of biodiversity in Mayangna Sauni As is a function of finding sources of alternative incomes and encouraging the development of institutional mechanisms for resource management. The lands of this claim are sufficiently extensive to include what amount to conservation areas within the territory and Mayangna leaders have already created a draft map of the territory with their own land-use categories that

map of the territory with their own land-use categories that show these areas. While the uses identified do not represent norms or rules, the classifications say something about Mayangna thought as well as ecological realities and may eventually be the basis for norms and rules. (see Map #2).

Error # 2: That indigenous organizations are similar to conservation organizations in their structure and function.

Indigenous ethnic organizations were created to present the priority problems of land, autonomy, health, education, and development to the highest political levels. Their basic function is to represent the demands of their fellow community members whom they see as their social foundations (often called "the bases"). Many times, leaders who are out of touch with their "bases" are, under their understanding of their function, adequately carrying out the job of representation, as the essential problems and priorities do not change much over time.

Then there is the problem of delegation. The term "leader" does not call forth the reciprocal term "follower" in many indigenous contexts. As the job of the leader is essentially representative, information flow is pretty much bottom up and good leaders spend a fair amount of time in community meetings and in meeting home delegations. It is tempting to compare the job of an indigenous leader with, say, the job of a congressperson in the United States. This would be a mistake. It is important to note that the "social bases" do not delegate decision-making that affects land or life to the leaders. Decisions of this type require consultation and a process of political consensus. The process can be costly in time and money. Many indigenous organizations with offices outside the location of their ethnic group operate with such limited budgets that the wider process of consulting is almost impossible without specific financial support, usually obtained from outside sources, a practice that carries considerable risk of co-optation and eventual conflicts of interest.

A third difference lies in administrative capability. Ethnic organizations among tropical forest peoples are little removed from their "bases" culturally. The societies are based on kinship and reciprocity, demanded as a social and economic condition for existence. This constellation of cultural elements does not "fit" well with the demand that money be managed as a sacred public trust. The claims of kinship and sometimes

a sacred public trust. The claims of kinship and sometimes sheer need tend to outweigh the abstract claim of the "public good." Most leaders know that they could be out of office tomorrow in the constantly shifting, often family-based, factional disputes.

For these reasons, organizations at the ethnic level have not functioned very well as project implementors. Also, although these organizations are apparently bureaucracies - normally the indigenous organizations have various areas of responsibility for the elected leaders - they are missing many of the characteristics of bureaucracies of the type found in conservation NGOs. The NGO's bureaucracy functions metaphorically like a body, the mind making decisions and communicating these to lower functional levels to carry out actions. The flow of information goes from the top down; flows of information in the other direction are mainly for monitoring purposes and not for the purpose of representation. Ethnic organizations are more like political action committees, with the provisos that the range of action of leaders is strictly limited by the egalitarian nature of the internal political process and administrative mechanisms are weak.

The previous paragraph does not mean that indigenous organizations cannot carry out projects, delegate decisions to the "head", or pass orders from the top down. Some do. But the mechanisms have to be developed and the process always does some violence to the democratic principles that are fundamental to many indigenous groups. Indigenous project implementors run the risk of being rejected by large sectors of the population who do not understand the program or the project because none of the decisions originated with them. From this aspect, the indigenous organizations, when they change their modus operandi can have problems very like the conservation (or development) organizations, with the difference that the indigenous organizations have experience with participatory and democratic processes and tend to understand when things go sour. On the other hand, the conservation organizations have a tendency to confuse elections with democracy, and few conservation NGO representatives exist who understand democratic processes and egalitarian socio-political and economic systems.

Error #3: That the typical relationship between conservation organizations and the state should not be suspicious to indigenous organizations

indigenous organizations

The U.S. conservation groups tend to have an close relationship with their own government in terms of financing of international programs. With international bilateral or multilateral funding this relationship tends to bring them into a natural relationship with host country governments. The conservation groups generally recognize the management authority of host country governments over "national lands." Often they work directly with the state agencies responsible for the management of parks, reserves, and other protected areas. And, as we will see below, the conservation NGO's tend to exhibit a certain naivete both with respect to the meaning of the state to indigenous people and to the sociology of science.

Fundamental to the perspective of the conservation NGO's are two political myths that are common to the conservation culture in the U.S. and which form part of the context of international biodiversity conservation efforts:

- That the state is, or should be, a more or less neutral arbiter between economic competitors in society.
- That science is relatively value-free and not directly linked to the political economy.

While these folk beliefs are guaranteed not to make waves for the economic and scientific leadership of the modern world-system, there is no reason why indigenous people like the Mayangna should hold to the same beliefs. Their experience tells them that the natural resources in their land have a high value and that their government is susceptible to the pressures of large companies, large landholders, and other powerful political economic interests. While the conservation groups tend to view state "corruption" as anomalous, indigenous people have come to expect it. They have been involved in 500 years of defending themselves against government or government-sanctioned predation. In the indigenous struggle, the State is seen as just another competitor for land rights or as a threat in its role as an arbiter of natural resources. Even when the State gives land to indigenous groups, as is the case in Costa Rica, tenure in other natural resources is rarely given. Collaboration in the conservation of "protected areas" as envisioned by many NGO's allied with host governments simply means the handing over of rights that indigenous people have claimed for centuries. And the appearance of biological scientists in their midst with mandates from remote centers of

scientists in their midst with mandates from remote centers of power to "do science" in their territories may easily be seen as an act of aggression.

## Three Typical Indigenous Errors About Conservation Organizations

Error #1: That they are familiar from the past

The conservation NGO with its focus on biodiversity preservation is something new to indigenous groups. Their contacts in the past have been with six types of organizations: (1) commercial interests that exploit natural resources but offer work and patron/client relations; (2) national and international health or education officials who give out services or materials as part of assistance in a catastrophe or emergency; (3) private organizations providing social assistance or executing economic development projects that work mostly with their own personnel, but sometimes employ local "extensionists;" (4) anthropologists who have a general interest in the society, but not particularly in its economic development, and who are rarely there over the long term; (5) missionaries who often dedicate their lives to the indigenous communities and take a direct interest in community problems, but often at the cost of the loss of many aspects of the traditional culture; (6) (very rare) donor organizations with development projects or institutional strengthening projects which are directly designed, planned, and carried out by the indigenous organizations.

Conservation NGOs are anomalous in this constellation. They do not have an economic stake in the exploitation of resources, do not provide a service, do not view economic or social development as a priority, do not want to study the language or learn much about the culture, and do not seem very interested in the people themselves. Moreover, they do not offer the protections that the traditional patron/client relation offers. The NGO specializing in the protection of biodiversity normally has an interest in only one aspect of the indigenous society, its relationship with "nature,." a word that does not translate well. If other aspects become important, they become so through that murky relationship.

And what is the perception of this relationship? Sadly, it is often based on a romantically inspired version of a nature without humans in which humans alter that which is "natural."

without humans in which humans alter that which is "natural," and in which nature, therefore, cannot exist in an "intact" state with humans present. This vision is at odds with both historical realities and indigenous perceptions. Indigenous life consists of an intimate relationship between natural resources and production activities and, outside of the extreme polar areas, there is no extensive area on earth that has not had a human population more or less constantly for the past 15,000 years. The effects of human interaction with biological inventories and ecosystems of the world is only now beginning to be systematically studied. But the international conservation movement has moved beyond science in this regard and many biological scientists are uncomfortable with having people in "their" forests. But a strategy of conservation that erects fences, employs parkguards, and prohibits human exploitation is alien to indigenous perception.

Conservation NGOs will have the easiest time of it if they behave as a category #6 organization, a donor organization that involves indigenous people in design, planning, and execution of projects related to the maintenance of habitats and if they work through native categories of land use. Many, however, do not see themselves as donors; even if they do, they may underestimate the organizational and administrative difficulties to be encountered. They also may encounter another misperception, discussed below.

Error #2: That Conservation NGOs are donor organizations for a wide variety of community needs.

Even if the indigenous group begins to understand the limitations of the perspective of a conservation NGO, there is always a tendency to think of them as a source of funds for general community development. From the Mayangna perspective, NGO's seem to have many resources, motors, boats, vehicles, personnel, etc. According to Mayangna norms, they should support community actions simply because they have resources and a social relationship exists, even though they have stated that their interest is only in the protection of biodiversity. In an egalitarian domestic economy based largely on reciprocity, the refusal of an NGO to fulfill this type of request leaves an impression of selfishness, a failure in the reciprocal relationship.

Error #3: That the NGO exploits indigenous people and uses financial resources that could have been given directly to the

financial resources that could have been given directly to the indigenous community by the ultimate donors.

The concept of a non-profit institution, while not alien to indigenous groups, at least requires further explanation. Even more perplexing is the source of funding for NGO salaries and operations. The methods of financing conservation through various types and levels of donors and the paths of access to donors are not understood by the indigenous groups. Indigenous people must understand that there are relatively few donor organizations which have the desire or the experience to work directly with indigenous organizations in an effective manner. The donor organization's rules for management of funds and the technical levels which they require in personnel eliminate many indigenous organizations from consideration for direct funding. Also, since indigenous organizations commonly do not have a way of supporting themselves from their own "social bases," they offer little chance for a long-term projects or programs without frequent infusions of money. All in all, however, a little frankness goes a long way against accusations of exploitation and it must be made clear why the NGO does not need to make a living from the exploitation of the natural resources, especially when the focus of the group seems to be the natural resourcs.

Other accusations of exploitation are frequent with respect to biological investigations in indigenous areas, especially investigations of medicinal plants. Indigenous organizations are aware that there is interest on the part of pharmaceutical companies for the development of new products. Even in the case of a strictly "scientific" investigation, without any obvious exploitative economic aspect, indigenous people know that somebody is paying the bills, that the information was not gathered on their agenda, that information leaves and rarely returns (or if it does it is not in a form or a context for actions useful to them). It is not clear at all to indigenous organizations that, from the perspective of the biological sciences, there is rarely a direct economic interest involved in "basic" science.

# Room for Improvement

In conclusion, there is room for improvement in the history of relationships between indigenous organizations and conservation NGO's . The relationship fails when the NGOs do not understand indigenous priorities, the dynamics of

not understand indigenous priorities, the dynamics of egalitarian political systems, the structure and function of indigenous organizations, when they maintain a social vision so narrow that it fragments or reduces indigenous life, when they maintain a romantic vision of nature, and when they cannot see indigenous groups as landownders and protagonists with visions, plans, and talents.

The relationship also fails when indigenous groups do not understand the relatively narrow range of interest of the NGOs, their organizational limitations, their lack of involvement with direct economic interests in terms of the resources, the realities of the methods of financing conservation, and the relative innocence of biologists.

No recipe exists for success in this relationship but it must be based on respect, mutual understanding, and the recognition on the part of conservation NGOs that the indigenous people have, or should have, the same rights over the land that any owner would have. The indigenous organizations must also understand the limitations of the NGOs, the type of technical assistance and training which they can provide, and the political and financial context in which they operate. In the end, the NGOs have a lot to offer in terms of support for indigenous aspirations and for technical assistance in the management of resources in their own territories. If all goes well we will all benefit.

# COMMON GROUND: TNC AND THE INDIGENOUS NATIONS

## The Global Vision of the Nature Conservancy

The mission of The Nature Conservancy is the preservation of flora, fauna and the natural communities which represent the diversity of life on earth through the protection of the land and water which they require for their survival.

According to TNC's interpretation, the strategy for achieving the mission involves partner organizations within each country, attention to the human necessities in areas of interest to conservation, and the use of experience acquired in the field to learn and extend conservation techniques. The use of its

learn and extend conservation techniques. The use of its experience and presence to influence decisions that are favorable to conservation is an important role.

In the end, TNC seeks a system of conservation that protects the critical ecosystems, supported by the local communities, and backed by a system of public and private national institutions which have financing over the long term and which benefit from scientific information.

# The Global Vision of the Mayangna

In the end, the Mayangna of Mayangna Sauni As want to be recognized as the legal owners of the territory which they claim. They want recognition as an ethnic group with its own norms and practices, and respect for their institutions and organizations. They wish to exercise their rights over the natural resources within their territory, just as any property owner in the United States would be able to do. They want access to health services and education at all levels. And, they want to improve their economic standing.

They also want to protect and preserve the natural heritage in which they live and in which they carry out their production activities. They want to protect their water, their forest with all its flora and fauna, their soil, their air and their sacred and historical sites from the destruction that accompanies the advancing agricultural frontier. All their experience and traditional beliefs tell them that a person without a green forest home is nothing.

# The Realization of Common Interests

Obviously the Mayangna and TNC have an overlapping interest in their mutual objective to preserve habitat, even though their understanding of the place of humans in nature may vary. But a further adjustment is needed in the vision of the two sides. The mission of TNC can only be carried out if the priorities and categories of Mayangna reality are understood and intimately integrated in the BOSAWAS conservation strategy. The Mayangna priorities can only be carried out if they recognize that organizations of possible support such as TNC (and the management personnel of BOSAWAS) are going to focus on conservation actions and related activities. While the Mayangna see land legalization as

related activities. While the Mayangna see land legalization as an end in itself, conservation NGOs such as TNC see it as a means to a conservation end. And for a longer term relationship, if the Mayangna are not ready to enter into planning for the conservation of their territory within the context of the modern economy using the categories that originate from their own examination of their current land-uses, then the relationship will deteriorate.

TNC is not unique among conservation organizations in its tendency toward ideological mystification of the political economy within which conservation takes place. However in order to do effective conservation in the indigenous context, a more realistic understanding must ensue. This understanding must encompass the nature and role of the State, the relationship between the expansion of the global economy and the philosophies and activities of conservation, and the reasons for an indigenous struggle in a post-colonial world. At the same time, much more information is needed about the cultural adaptations of indigenous people to their habitats, their cognitive understandings and norms for resource management, and their institutional and administrative capabilities. The land rights of indigenous peoples must be supported frankly and openly and conservation organizations must respect indigenous peoples' rights as communal property owners in the same way that private property rights in the United States are respected.

Conservation NGOs will be able to achieve biodiversity conservation objectives in indigenous areas only if they work through indigenous institutions and categories of reality once land and resource tenure are assured or are well on their way to being resolved. Research activities must have their roots in indigenous agendas and must produce concrete and visible benefits at the local level. Especially important is the development of sources of income which provide alternatives to the present and future temptations to sell off natural resources in unsustainable ways. In the case of BOSAWAS, emphasis must be placed on the development of local institutions for the management of land including conservation. A great deal of administrative training and scholastic support may be required over the long run besides the technical training usually associated with such efforts. Forging conservation links at the grassroots level will be a very different enterprise than supporting large national conservation NGOs.

Perhaps a lot is expected of the conservation organizations. There are, after all, other types of organizations in the indigenous world who want to support "green" development, develop leaders and institutions, and work in a parallel manner to conservation organizations. The conservationists must not forget their roots and reason for being. The international conservation community has something special to offer in its emphasis on habitat protection, its science-based approach to resource management, its financial base, and its international political connections. For both conservation organizations and indigenous organizations, respect and mutual understanding for each other's priorities and agendas, shared or not, will be necessary to achieve the parts of their objectives which they have in common. And each must trust the other enough to let go of a little control so that each may achieve its highest objectives through the instrument of the other.