

// HUMAN ECOLOGICAL INTERACTIONS
BETWEEN AN INDIGENOUS AND RURAL LATIN COMMUNITY
IN COSTA RICA

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For Serafina and Francisco

Sibü-te-marwé.

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1. INTRODUCTION

Indigenous peoples throughout neo-tropical Latin America are today confronting radical environmental changes. Costa Rica's various ethnic groups are no exception; the loss of both natural and human resources combined with a slow adoption of technology and consumer-based economics has given way to novel resource management systems. Most often an integration of traditional and European exploitation methods, these new systems are arguably sustainable. Nevertheless, the impact on the natural environment is undeniably minimal by comparison. Conducting field research projects documenting the reality of these peoples' lifestyles help us to understand the causes and effects of socioenvironmental changes.

In the fortress like mountains of the Talamanca Range of southern Costa Rica, the Cabécar speaking people continue to combine traditional agriculture with hunting and fishing and the recollection of forest products for subsistence. In recent decades, however, the degradation of their natural environment, a loss of traditional leaders and the influences of "white" culture have caused alterations in the relationship between Cabécar communities and their environment. Marginally located communities experience higher rates of aculturation than those that are geographically isolated due to their increased interaction with Latin communities; such is the case of *Namaldí*.

The small community of *Namaldí* is located on the edge of the Bajo Chirripó Reservation. Today its inhabitants are struggling with the question of how to use their resources, both human and natural, to sustain their families and community. Unfortunately, many of their solutions are short-term and short-sighted thus cultural values are being lost along with valuable natural resources. This study employs an integrated characterization of the natural and social environment of *Namaldí* as a base for understanding the resource management systems. A look at the use of forest products and agriculture as well as the economics that underlie this exploitation is the focus of this study.

Any future development of indigenous communities requires a better understanding of human-ecological relations. It is thus hoped that this study will contribute to the broadening of non-indigenous perceptions of the Cabécar people.

2. METHODOLOGY

During June to December, 1994, I developed and carried out this field research study. I have completed this project as part the graduation requirements for a Bachelor of Arts Degree at Prescott College, Arizona, U.S.A.

The first step taken in the organization of this project was a week spent at CATIE gathering preliminary information in the Orton Memorial Library. By the end of the week, I had oriented myself with the ecology, climate, soils, geography, topography, history and human resources of the region. I also reviewed previous anthropological works related not only to the Cabécares but the Costa Rican indigenous population in general. The next step was to organize in written form a preliminary outline of the project's goals and objectives and the methodology I would employ. This document was revised once after a short visit to the study site.

By the beginning of July I was ready to begin my field work. From July until the end of November I spent the majority of my time in the field making only monthly visits to CATIE to collaborate with Rafael Ocampo S. During these five months, the project's goals and objectives were developed and redefined continually as the vision of what knowledge was attainable and useful became clearer.

Instead of staying permanently in *Namaldí*, within the reservation limits, I chose to live in Corina, a neighboring white community. This facilitated my understanding of the dynamics between *Namaldí* and Corina, and provided me with a home base from which to work.

I collected the majority of my information on the neighboring Latin communities during July and August. This was done through formal and casual interviews. I think that perhaps the most interesting, insightful information was gained simply by eavesdropping around the house, the corner store and the soccer field. Although I began focusing more on the community of *Namaldí* in September, I continued to rely on several people in Corina as helpful informants throughout the study.

Although I visited every household in the *Namaldí* community I focused my research on four households. I chose these four because of their willingness, availability and the type of resource use they were practicing.

During September I was invited by a family of *Namaldí* to stay at their house. Throughout the next three months I made frequent three or four-day visits to this household. Through developing a close relationship with this family, I was easily able to observe and participate in daily life thus employing participant observation research methods. This family also served as a reliable and often enthusiastic group of informants.

The information on the use of forest products comes from a variety of sources. It was gathered through taking walks, making observations in the homes and asking questions. On the other hand, the data on the agricultural systems comes mainly from one family. Together we

spent time in the cultivated areas, taking walks and discussing the information.

This project does not contain exact statistical information. By using simple arithmetic, however, I have attempted to quantify information and demonstrate the economics of certain products.

Four final weeks were spent at CATIE to finish the writing and production of this document.

3. COSTA RICA'S INDIGENOUS POPULATION

3.1 Historical Background

Costa Rica has served as a natural land bridge uniting North and South America for over 200 million years. Countless floral and faunal species have migrated across the Central American isthmus and today Costa Rica is famous for its biodiversity. Humans passing through this region thousands of years ago also recognized the wealth of natural resources. Archaeological remains tell us that there were permanent populations in Costa Rica as far back as 8000 B.C. (Acosta, 1980). These populations moved in slowly from both North and South America bringing with them a diversity of languages, customs and cultures. As centuries passed, new cultures were developed as a result of adapting to new environments and being influenced by neighboring and often conquering peoples.

Artifacts as well as modern-day languages suggest that the majority of the indigenous people in southern Costa Rica are ancestrally related to the Chibcha speaking peoples of South America (Stone, 1964). Their northern neighbors are considered to be more directly related to the Maya. These two groups can also be classified geographically and through characterizing their resources and resource use systems. Three main divisions are recognized:

- 1) The Northwest region of Guanacaste and the Nicoya Peninsula. Similarities to the Maya such as cultivation of maize, architecture and religion.
- 2) Southwestern Region near Panama border, including Osa Peninsula. Cultural and linguistic similarities to Panamanian cultures.
- 3) Atlantic Coast and mountains (Hartshorn, 1983).

The people that inhabited the Atlantic Coast lived for the most part in nomadic hunting groups until around 1000 B.C. (Acosta, 1980). During this time, a turn was taken towards sedentism and agriculture. This trend was perpetuated by the slow, subtle conquest by the Maya, a primarily agriculture-based culture, that was taking place until 1502.

In 1502 a different group of conquerors arrived to the shores of Costa Rica: the Spaniards. Upon their arrival, according to some (debatable) estimates, Costa Rica counted at least 30,000 indigenous peoples (Maroto, 1970) but "...after a few decades there were approximately 7000 Indians. One century later the population was reduced to 2000 and after forty more years, there were only 1000 Indians" (Hartshorn, 1983). Disease, slavery and war were the weapons used against these people. A slow loss of natural resources also took its toll, and in hopes of salvaging their cultures, many "indígenas" fled into the mountains. During this time the Talamanca Mountains were inhabited by the (currently named) Bribri and Cabécar peoples.

For three centuries the mountains served as fortresses that kept conquistadores, missionaries and fortune-hunters at bay. Slowly some of these isolated populations began to regain their numbers, but their cultures were changed and many traditions had been lost. This migration into remote areas continued into the middle of the 20th century. The construction of roads, railroads and ports continually opened up new forested areas for the use of the expanding Costa Rican population. Pressure on the land from banana companies, the coal industry and squatters was increasing. By the 1940's the Costa Rican government acknowledged that legal action would be necessary if it were to preserve Costa Rica's cultural heritage.

3.2 Indigenous Legislation

During the 1940's a political school of thought labeled "integrationalist indigenism" dominated the philosophy behind the legislation created. Laws and decrees were passed that intended to bring the Costa Rican Indian into the national development process. Unfortunately, another goal was to preserve and promote selected traditional customs while eliminating others considered to be "negative" (Guevara, 1989).

In 1945, Decree No. 45 declared and loosely defined territorial reserves for several indigenous tribes (Morales, 1977). During 1956, these territories were further defined and specific reservations were decreed. With the creation of the Instituto de Tierras y Colonización (ITCO) in 1961, all previously named reservations were included in National Reserves and henceforth administered by ITCO. (ITCO has since changed its name to Instituto de Desarrollo Agrario or IDA).

3.2.1 La CONAI

On June 11, 1973, the National Commission on Indigenous Affairs (CONAI) was created by Law No. 5251 (Morales, 1977). The CONAI is an autonomous organization that is comprised of representatives from various government institutions as well as representatives from each of the Community Development Associations of the various indigenous communities.

José Morales (1977) summarizes that "The CONAI is charged with promoting the social, economic and cultural betterment of the indigenous population through working to elevate the living conditions and integrate the aboriginal communities into the (national) development process."

Additional responsibilities are:

- serve as a liaison between the national and/or local legal system and a given indigenous community to help insure the respect of their legal rights;
- work with the local Development Associations to coordinate and carry out preventative or repressive actions considered necessary to safeguard the biodiversity, hydrological systems or archaeological sites (Castro, 1988);

- watch over the exploitation and management of natural resources by indigenous communities. CONAI is in charge of issuing permits for cutting timber, hunting and the use of other natural resources. It can revoke these permits if CONAI feels there is an abuse of a resource.

Several factors impede the CONAI from fully completing its responsibilities. First, there is a lack of funds and an absence of support by the Costa Rican government and society. Next is the lack of collaboration between CONAI and indigenous communities due to poor communication and philosophical disputes concerning the role and rights of the CONAI. Finally, a difference of opinion in terms of how to manage human and natural resources is seen between the communities , CONAI and the national government.

3.2.2The Ley Indígena and Reservations

In 1976 and 1977 Law No. 6172, The Indigenous Law, was developed and passed. Through this law, the rights of Costa Rica's indigenous people were clearly outlined and twenty-one reservations were geographically and legally defined. By creating these reservations, the government hoped to protect ecosystems and lifestyles through the isolation and empowerment of these communities. The various articles of the Indigenous Law are applicable to "persons that constitute ethnic groups descending directly from Precolombian civilizations, that conserve their particular identity, and continue to live within the reservations" (Castro, 1988).

The rights outlined in this document can be summarized as follows:

- "The indigenous reservations are inalienable and intransferable, exclusively for the indigenous communities that inhabit them," (Castro, 1988)
- Only indígenas may cut timber or cultivate products for their profit within the reservations.
- Only indígenas may own land within the reservation.
- CONAI will oversee the rational use of their natural resources.
- CONAI is in charge of the immediate extraction of white settlers (claiming land after 1977).
- The sale of liquor within the reservations is prohibited.

The wealth of natural resources found in the reservations has long attracted white squatters, logging companies, banana companies, the coal industry and hydroelectric projects. With the passing of Law No. 6172, most companies and individuals were expropriated and the pressure on the land decreased. Nevertheless, many whites continue to farm and live within the reservations creating disputes and disrupting the communities' solidarity. In addition, Article 6 is contradictory to the overall philosophy of the Ley Indígena; it provides the General

Legislative Assembly the right to "explore or exploit certain zones (within the reservations) for motives of interest or profit..." (Castro, 1988). The result has been the "lawful" invasion by nationalized coal and electric companies.

Since 1977, there have been several changes, additions and corrections regarding the size, borders and names of the reservations. Today their total area is estimated at 320,000 hectares, or 7% of Costa Rica's surface area (Hartshorn, 1983). The majority are located in the very humid, mountainous south of Costa Rica (see map #1).

The ethnic groups of these reservations are: Bribri, Cabécar, Guaymí, Malekus, Térraba, Boruca, Huetar and Chorotega. Their combined population is around 25,000 people, or less than 1% of the national population of three million.

The cultures of these communities are diverse, but often their problems are not. In many marginal communities the statistics on poverty, poor health standards, illiteracy, alcoholism, drug abuse and violence are discouraging. The loss of human resources such as traditional political and spiritual leaders combined with a deteriorating subsistence base makes upholding traditional customs and values difficult. Less and less value is placed on these traditions and many communities find themselves in transition, without an identity or sufficient resources.

4. THE CABECAR SPEAKING PEOPLE^{1*}

4.1 The Population

The estimated population of 15,000 Cabécares is distributed throughout seven reservations called Tayní, Telire, Ujarrás, Talamanca Cabécar, Nairí-Awari, Chirripó Alto and Chirripó Bajo (see map #1) (CONAI, 1994). The Chirripó Reservation, declared by Decree # 5904-G on March 11, 1976, is divided into two sections: Chirripó Alto and Chirripó Bajo or Upper and Lower Chirripó (Castro, 1988). According to a 1992 census by CONAI, their populations are 8000 and 1100, respectively. The limits of Chirripó Alto enclose 77,973 hectares while Chirripó Bajo counts 18,783 hectares, a total of 95,756 ha (Castro, 1988).

4.2 Chirripó Alto

Chirripó Alto can be considered one of the strongholds of the Cabécar culture. The majority of this community lives within the drainage network of the *Diklá Duchí* or Chirripó River. According to some, it is in this river valley that *Sibü* (God) created these people from kernels of maize; it is their homeland. Traditional medicine and agriculture as well as a

^{1*} These people identify themselves with clans and are unified by a common language: Cabécar; they do not consider themselves to be Cabécares. I will use the term "Cabécar" when referring to Cabécar speaking people.

continued faith in the Cabécar religion have been preserved due to their isolation and strength of numbers.

The variety of ecosystems in Chirripó Alto can in part be attributed to the various elevations that average between 1000 and 1800 meters. The climate is wet and tropical. In Moravia of Chirripó, elevation 1199 meters, the average year-round temperature is 20.2° C (Hargreaves, 1975). Rainfall averages between 2000 mm and 3000 mm annually (Mapas de Costa Rica, 1965). A dense broadleaf evergreen forest is the dominant vegetation type. The life zones (as classified by Holdridge, 1967) found here are: Tropical Lower Montane Rainforest, Tropical Premontane Rainforest, Tropical Montane Rainforest, Tropical Premontane Wet Forest and Tropical Wet (Transitional) Forest. Although the soils are fragile, agriculture is practiced extensively. This mountainous region is dissected by two main watersheds: the Chirripó and the Pacuare River. The Chirripó River's watershed covers 820.60 km² (RECOPE, 1994).

5. BAJO CHIRRIPO

5.1 Climate and Life Zones

As in Alto Chirripó the climate here is wet, precipitation averaging between 3000 and 6000 mm annually. The average temperature is somewhat higher; in 1975 Zent, elevation 30 meters, averaged 26.4° C (Hargreaves, 1975). This difference is related to the change in elevation, Bajo Chirripó averages between 100 and 1300 meters. The life zones of Bajo Chirripó are: Tropical Wet Forest, Tropical Wet (Transitional) Forest, Tropical Wet Premontane (Transitional) Forest, Tropical Premontane Wet Forest, Tropical Premontane Rainforest, and Tropical Lower Montane Rainforest.

5.2 The Communities

The six main communities of Bajo Chirripó are dispersed along the watersheds of the Chirripó, Barbilla, Peje and Zent Rivers. They are: *Namaldí*, *Catsá qibí* (Palmera), *Dzey* (yey), *Tcucäläri* (Sirinachi), Sasey and Nimari de Sasey or Peje (CONAI, 1994). The close proximity of several of these communities to non-indigenous population centers has increased the economic dependence and rate of aculturation within them. The relationship between *Namaldí* and Corina of Matina County is exemplary.

5.3 History of Matina County

The role of Matina in Costa Rica's history is substantial. In 1637 the port of Matina was built at the mouth of the river by the same name. For nearly three centuries this port was Costa Rica's main center for import and export.

The main good exported during the 18th and 19th centuries was cacao (*Theobroma*

cacao). It was produced in the same region in quantity and was valued as a form of currency (Maroto, 1970) and for the confection of chocolate. Frequent raids by Mosquito Indians and pirates as well as a hot, wet climate kept real estate sales low and the region remained sparsely populated by a few black slaves that managed the cacao plantations (RECOPE, 1994). By the end of the 1800's cacao had lost its monetary value and its production had nearly died out. Its production being relatively small-scale and primitive, cacao did not have much effect on the land.

In 1870 work began on the railroad that would serve to transport goods between San José and Limón. Jamaican and Chinese immigrant laborers arrived and settled. Towns were built along the railroad and slowly the population began to increase. These people participated in subsistence agriculture cultivating plantains, cacao and tuber crops (RECOPE, 1994). This low-impact agriculture left the landscape essentially unchanged.

Minor Keith and the United Fruit Company would be responsible for transforming the landscape of the Atlantic lowlands. In the early 20th century, this company began the production of bananas in southeastern Costa Rica. The crop did well and its production increased until 1934 when a bad crop, due to the fungal disease Sigatoka, combined with a workers' strike caused an economic depression (RECOPE, 1994). As a result the population turned to the nearby forests to exploit timber. From this date on remarkable changes are noted in the ecology of the area. But banana production picked back up and the next four decades would be marked by a radical increase in the population. Farmers and their families were brought in from Guanacaste and Puntarenas to work on the banana plantations. It was during this period that Corina was founded. To supplement their income, these people practiced subsistence agriculture, exploited timber and eventually cattle raising was introduced.

On June 24, 1964 Matina County was declared by Law # 4344 (see map #2). It is one of the five counties of Limón Province and according to a 1985 census, has 14,751 inhabitants. The county covers 772.74 km² (RECOPE, 1994). The actual town of Matina is noticeably less important than Bataán, five kilometers away. Bataán claims better health services, more commercial activity and the county's only high school. The majority of the population works in the "bananeras", while some participate in business and commerce or industry and construction, and fewer still dedicate themselves to farming.

5.4 The Pueblo of Corina

Several of Matina's pueblos are located at the base of the mountains, thus neighboring the communities of Bajo Chirripó Reservation. Such is the case of *Catsá qibí* (Palmera) and Zent, and *Namaldí* and Corina (see map #2). The indigenous community of Palmera, population 300, has been less affected by Zent; a contrastive study of Palmera and *Namaldí* would prove interesting.

Corina is the last of the towns along the dirt road that reaches *Namaldí*. It counts about 600 inhabitants. Corina was historically populated by Blacks. The majority of the lowlands

were cleared, the timber sold and cacao planted. These people also practiced subsistence agriculture to supplement their income. In the 1960's and 70's the mountains' forests were exploited for timber on a large scale. With the creation of the Reservation in 1977 this exploitation and the disputes between the Indians and timber company came to an end.

Additional pressure on the land has come from the increasing local population, that has migrated in from other parts of Costa Rica, looking for work in the bananeras. These workers are mainly white and today the majority of Corina's population is white with only a few black old timers.

RECOPE's (1994) study gives the following percentages in reference to employment:

- 37% agriculture
- 11% commerce
- 14% construction
- 7% goods and services
- 26% unemployed.

It is my guess that the agricultural sector is really the bananeras. I know of no more than five families that produce enough crops to support themselves. Apparently "54% of the people interviewed participate in subsistence agriculture for their own consumption," (RECOPE, 1994). Presently, only two households raise a substantial number of cattle.

Corina has an elementary school, four churches, four corner stores and a Health Center. The Health Center is attended only on Mondays and Fridays; most people go to Bataán when they need medical attention. The infrastructure of Corina consists in one main dirt road, one telephone and occasionally functioning water pipes. Most houses have electricity. A bus arrives and leaves at 6 am and 1 pm daily.

Although there are only two bars in Corina, alcoholism is rampant. The growth and transport of marihuana in the region attracts less than likely characters and violence is on the rise. There are no permanent police in Corina.

The two bananeras of the Corina area are located in Baltimore and Bristol (see map # 2). Both cover about 110 hectares, all cultivated with bananas (*Musa* sp.) They each employ 85 workers that earn between 40.00 and 100.00 dollars weekly (Vargas, 1994). These monocropped plantations are dependent on various chemicals to fight fungus, insects and other pests. During July 1994, there were no indigenous people working in either of these bananeras.

5.4.1 RECOPE and ICE in Corina Area

Refinadora Costarricense de Petróleo (RECOPE) and Instituto Costarricense de Electricidad (ICE) have long been causing problems in indigenous communities, and in *Namaldí* history is repeating itself. Both nationalized government institutions, these companies (by

Article 6 of the Ley Indígena) have the right to explore and exploit mineral and hydrological resources within National and Indigenous Reserves. Years are spent conducting preliminary site studies, entry roads are built and local labor is contracted. Once the project is begun, be it a dam or a coal mine, heavy machinery, outside technicians and skilled laborers are brought into the area. The local community is economically excluded except for the bars and corner stores. In their book, *Talamanca en la Encrucijada* (1994), Villalobos and Borge take an excellent look at the socioeconomic, cultural and ecological effects of these projects.

In 1984 RECOPE began investigating the prospects of building a coal mine near Zent, within the Reservation. By 1987 they had discovered that the wealth of coal was located instead on *Namaldí's* side of the river and started building a field camp site in Corina and another in Bristol. A few Cabécares were briefly contracted as guides, nightwatchmen and unskilled laborers. Two roads were built that reach at least five kilometers into the mountains. An area within the Reservation of about two hectares was completely cleared for machinery. After eight years of extraction and continued exploration, RECOPE recently decided to abandon Pilot Project Zent for "political reasons." The only positive remnant will be the Community Building of *Namaldí* built with effort on RECOPE's part.

This July, fifteen men and several vehicles of ICE parked themselves permanently in the community's still-vacant school house without permission from the Development Association. From this base-camp they were easily able to continue the research that ICE has been doing for at least 18 years in the area. This extended site-study is the first step in the planning and construction of a dam on the Chirripó River, within the Reservation. To facilitate this research, a road was constructed along the edge of the river and into the mountains. Perhaps five Cabécares were temporarily employed as guides and laborers.

On September 14, two representatives and a lawyer arrived from the CONAI to deliver a legal statement to ICE, giving them 24 hours to get out. The representatives did their best to explain the ecological and cultural repercussions of a dam, but the issue is foreign and not easily grasped. At this moment ICE is working on obtaining a permit to continue their project and CONAI is fighting them.

Aside from the economic system changes and cultural influences brought by RECOPE and ICE the roads left behind are perhaps the next most damaging consequences. These roads permit whites to easily enter the Reservation to fish and hunt and they facilitate the extraction of timber. Overall, they have increased the interaction between Corina and *Namaldí*.

5.5 Corina and *Namaldí* Neighborly Relations

Namaldí is at least a half an hour's walk from Corina but the interaction between these two pueblos is common. The Indians are often seen in Corina at the pulperías buying goods, watching television or chatting with the owner. They frequently sell their goods through these owners and the economic interactions are often carried out at the pulperías where people gather to chat in the afternoons. The owners of the pulperías are many times excellent sources of

information about the Indians.

The social relationship between the Indians and the Latins is interesting in that while the whites tend to ignore the "Cholos" and the indígenas often remain aloof while in town each community is familiar with all of the members of the other. On several occasions I asked whites about indígenas and was given their family history, marriage relations, children's names and a bit of gossip. The Indians are just as familiar with the whites. Considering that Indians are rarely invited into whites' homes and whites hardly trek into the Reservation (except to hunt or buy wood), I'm not sure how the information is passed on. One of the ways may be the soccer team of *Namaldí*. This group of young men was participating in the Limón soccer league until recently and there were several whites on the team. The other is the "cantina". The Indians are regularly seen in Corina's bars drinking and shooting the breeze with whites.

The strong racism against the indígenas and the tensions concerning land use have kept this social relationship at barely friendly. Many people reacted disgusted when I said I stayed in the Reservation, often for several days. Their misconceptions about the cleanliness and customs of the indígenas has led them to imagine that these people live as savages. The people that interact frequently with the Indians reserve a certain amount of bigotry but are much more understanding of the cultural and economic differences.

6. NAMALDI

6.1 The Settling of *Namaldí*

The following history was told to me by Serafina Salazar.

"I came here when I was 13 years old. There were only two other Indian families living here then, and there were four Blacks living in Corina. They had cacaotales and they planted plantains. That was fifty-one years ago. I'm 64 now. I came here with my husband. We left Chirripó Alto because there was no land. So my husband had a finca here and he brought me here. We planted rice and cacao and had corn and beans too. My sister Donata came during that time too. The other Indians that came here came because they were lazy and didn't want to farm. There used to be lots of animals here so they came just to live from hunting. That's all they did was hunt and cut timber to sell to the whites. That's why you don't see farms here like in Chirripó Alto. They came here 30-40 years ago and what do they have today? Nothing. They have no farms."

There is no written history of *Namaldí* and each family that lives here tells it a bit differently. What I have been able to gather is that *Namaldí* has served, since the 1930's and 1940's as a refuge for people that didn't have land in Chirripó Alto. Slowly the families have migrated out of Chirripó Alto into the lower regions where the land is unoccupied. With the rise in the sale of timber many indígenas began selling wood and farming was given less emphasis.

The majority of *Namaldí's* families lived higher into the mountains before the earthquake of April 22, 1991. After this immense catastrophe the families had lost their farms and were forced to move closer to the white communities. I believe that the economic dependence intensified during this time. Much of the community relocated itself and today is centered around the Salón Comunal and the banks of the Surubre, the stream from which *Namaldí* draws its name.

6.2 *Namaldí* Today

The dirt road leaving Corina heads straight until it hits the first slope. From here, for the next kilometer it winds up into the mountain, crosses one stream and ends at the Salón Comunal. The vegetation grows slowly thicker as one enters the Reservation, a house is seen every 10 minutes and "bananales" are common. Located on hilltops out of a flood's reach, the houses are wooden and perched precariously on stilts. The sun reflects sharply off their zinc metal roofs. The houses of *Namaldí* are located at at least a five minute walk apart from each other. Only those clustered around the Salón Comunal are found together. The rest (see map #3) are found dispersed along various streams, reaching into the mountains. Today the RECOPE and ICE roads make reaching most of these houses relatively easy.

6.2.1 Population Census

With the help of an informant I casually censused the community's 30-some households obtaining the following results: 69 adults and 86 children, or 155 residents. Some households were not personally censused and my guess is that the population is closer to 175. Each household contains an average of four or five children and their parents. There are very few residents over the age of 65.

6.2.2 Clans

The Cabécar speaking people are linguistically united clans. Each clan has its own history. Clans are considered to be families. Therefore, someone may be a blood relative but of a different clan and is not considered family. Historically each clan inhabited its own river valley and here they passed down land. Marriages were the agent that interchanged people from clan to clan. The society is matrilineal, that is to say that the clan of a person is inherited through their mother's side. Traditional marriages are consummated between "cousins", the son of an *uncle* is from a different clan and thus an eligible bachelor for a young woman.

In *Namaldí* there are currently five clans represented: Cabegua, Fulábulák, Sulispa, Surúruák and Tchirú. Traditional marriages between "cousins" exist but are not common. Unlike in the past, clans do not inhabit their own river valleys because the populations are no longer as dispersed nor the land ample enough. Land is no longer inherited except when someone dies. Today land is sold between family members and the men are in charge of the

selling. This loss of traditional land tenancy and marriage customs is in part due to the lack of sufficient land, the division of families (many have left their families in Chirripó Alto) and the few representatives of each clan. The cultural marginality seen in *Namaldí* is in many ways due to the geographical marginality.

6.2.3 Daily Life

A typical day in *Namaldí* begins at 5 am. A breakfast of rice and beans and a large glass of coffee can be found in any household at around 5:30. By 6 am people have begun to work, either in their fincas or outside of the Reservation. The rain rarely deters the Indians from working, walking or doing what needs to be done. In the fields the work is usually done at a casual pace, and if two or three people are working together they spend a large part of the time talking and laughing. This laughter seems to follow one wherever she goes in the Reservation. The relaxed pace and the constant joking take a while to get used to for someone coming from a high-tech, fast-paced world. The mornings pass easily, somehow the work gets completed and by 11 am people head home, ready for lunch. A lunch of rice, beans, a boiled banana and a large glass of coffee is served by the señora of the household. Afternoons are rarely spent working unless the indígena works outside of the Reservation. An after lunch nap is followed by a visit to the neighbor, a walk to the bananal to cut a bunch of bananas, or a few hours of reading or chatting. I often took advantage of the afternoons to walk through the fincas or review information with my informants. The day closes with a dinner similar to lunch and conversation. By 8 pm the kerosene "candelas" have been put out.

Out of the ordinary days include parties (usually given for birthdays or other special events) or chichas. These celebrations include music blasting out of a cassette-radio, chicha, a fermented pejibaye (*Bactris gasipaes*) drink, and dancing. The parties are the only occasions outside of community reunions where the entire community gathers.

6.2.4 Political Structure

The traditional political structure of the Cabécares was lost this century along with their community leaders (see Villalobos, 1994). Today, in *Namaldí*, as in most indigenous communities, the politics are centered around the Junta de Desarrollo Integral (Integrated Development Association). This Junta is responsible, along with CONAI, for the well-being of the pueblo and land. It consists of various posts: president, vice president, secretary, treasurer, fiscal and three advisors. These Juntas are the same as any other Junta of a rural community. Their actions are overseen by Dirección Nacional de Desarrollo de la Comunidad (DINADECO). In *Namaldí* there is also a Health and Education Committee. Monthly reunions are called by the Association of *Namaldí* to discuss upcoming events and problems such as timber exploitation and white squatters and hunters. The issues are discussed by men and women and the meetings are led by the president.

6.2.5 Religious Aspects

Historically the Cabécares maintained a complex web of myths and stories that explained their origin, natural surroundings, and other phenomena. Since the time of the Spanish conquest *Sibū*, or God, as well as other figures in this mythology have been adapted to Christianity. Carlos Aguilar (1986) remarks,

"When the indigenous peoples have tried to explain to me the origin of *Sibū*, I have the impression that they have been influenced by Christian religious concepts. They have applied these to the indigenous mentality. This is seen, for example, when referring to the birth of *Sibū*, conceived by a woman in the absence of a man, and later killed by his healer brothers."

Within *Namaldí* there are several Evangelical and Catholic followers. Although it appears that the traditional mythology has been lost, I believe there is instead a mixture of Christian and Cabécar beliefs. On occasion people, including children, mentioned spirits to me while discussing hunting or when we were simply walking through the forest. When directly asked, the subject of religion was usually avoided and the existence of a traditional religion flatly denied. The lack of religious leaders in the area and the pressure from outside to conform, to lose their pagan beliefs, makes upholding traditional religious beliefs difficult for this community.

6.2.6 Health Services

Most Cabécar communities are graced by the knowledge and skills of an *awapa* or traditional healer. Unfortunately, four years ago, the *jawá* of *Namaldí* passed away. No one chose to study this profession and the result of this absence has been a heavier dependence on white medicine. Slowly the people are losing their knowledge of medicinal plants. A faith in the power of the *awapa* persists and many will tell you that, "White doctors just pass out pills but an *awapa* heals you. They can heal anyone, cure anything." This faith occasionally carries a member of *Namaldí* to Talamanca where the majority of the *jawá* reside. By chance I met a visiting healer in *Namaldí* in November. He came from Talamanca and was charging five dollars for consultations and remedies.

Once a month the Community Building becomes a Health Center. A doctor from the Costa Rican Social Security System comes to take temperatures, pass out pills and deal with minor illnesses. According to Dr. Rodríguez (1994) this service began in January of 1994. The most frequent problems are: respiratory diseases, lung infections, intestinal parasites and the common cold. It is notable that he has not recorded a single case of malaria. Also non-existent are high cholesterol, ulcers and high blood pressure. For serious injuries or illnesses, people go to Bataán or Limón. Immunizations were carried out this October by the Ministry of Health.

6.2.7 Education

Next door to the Community Building is the school house. It was built last year and still remains empty. Although there are at least 50 eligible school-age children, there is no teacher. CONAI is insisting in finding a bilingual teacher, someone more sensitive to the cultural differences but as of yet, has been unsuccessful. Some of the children that live closer to Corina go to school there. Right now there are seven enrolled. Of the 15 young adults that went to school only one of them finished sixth grade. It is my experience that most of *Namaldi's* residents have somehow acquired at least rudimentary reading and writing skills. These skills enable the community of *Namaldi* to better interact with the Latin society.

The melding of Cabécar and Latin cultural values in *Namaldi* is a result of the absence of leaders, the small population and the trend to exploit the natural environment irresponsibly. The younger generation dedicates itself to learning Spanish, listening to Reggae and Salsa music and buying Latin clothes. Many distinct cultural features such as house construction and traditional ceremonial events have been traded for zinc roofs and birthday parties. The relationship between *Namaldi* and its natural environment is exemplary of the change in cultural values. The misuse of these resources is impoverishing the community culturally and will eventually leave the residents dependent on the dominant society for their income. The following sections analyze this relationship and discuss the economics that are involved.

6.3 The Natural Environment

6.3.1 Soils and Water Resources

The mountains that backdrop *Namaldi* are rugged and the terrain is very steep. At lower elevations the soils are mainly hydromorphic, alluvial deposits. Moving into the mountains they are for the most part lithosoles with a sandstone base. The first level (1.0 meters) of the topsoil is usually silty and claylike.

The agricultural potential of the soils in the Reservation is low. RECOPE writes,

"The soils of this area present remarkable limitations in regards to agriculture in intensive production. The low level of organic material present in the topsoils, the high acidity, the high level of iron and aluminum make agricultural production difficult."

In addition, due to the steeply inclined topography, erosion is constant. The indígenas recognize the poorness of the soils and combine the rotation of crops and slash and burn techniques to maintain suitable soils. One of the women that migrated from Chirripó Alto frequently complains about the pale color of the soil and its weakness in comparison to the soils of her birthplace. The changes in soil have altered the agricultural systems employed here.

The main water sources of *Namaldí* are the Quebrada Surubre and Quebrada Veinticinco whose watershed encompasses 24,397.5 m² (RECOPE, 1994). Both of these as well as the many other smaller streams eventually flow into the Chirripó River. All of the houses are located along these streams and the water is used for cleaning, bathing and drinking. The houses downstream usually receive somewhat contaminated water.

6.3.2 Climate

The Atlantic Coastal Region does not exhibit a definite dry season. During March-April and September-October, there is a considerable decrease in the precipitation levels. Climatic information for *Namaldí* does not exist, therefore, I will give the following data from Bristol, located five kilometers away. It should be noted that *Namaldí* and the mountains to the south receive more precipitation and have lower temperatures than given here.

Chart 1. Climate for Bristol, Matina County^{2*}

	<u>Months</u>					
	<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>Jun.</u>
Temperature	25.9	26.5	27.6	28.2	27.6	26.5
Rel. Humidity	83%	83%	82%	82%	84%	84%
Mean Precip.	266mm	210mm	157mm	222mm	291mm	279mm
	<u>Jul.</u>	<u>Aug.</u>	<u>Sep.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
Temperature	27.1	26.5	25.9	25.9	25.4	25.4
Rel. Humidity	84%	86%	83%	84%	85%	85%
Mean Precip.	330mm	272mm	116mm	223mm	350mm	398mm
	<u>Annual</u>					
Temperature	26.5					
Rel. Humidity	84%					
Mean Precip.	3114mm					

6.3.3 Vegetation

As we have seen, aside from timber extraction this land was historically used for the growth of cacao and bananas. Until the middle of this century a banana company maintained

* Adopted from Hargreaves, 1975

plots along the rivers' banks within today's Reservation. These areas, previous pasture lands and abandoned cacao groves, are presently being transformed into forest.

Due to this forest succession process, much of the vegetation within the vicinity of *Namaldí* is "Charral" and "Tacotal". This thick understory foliage is typically comprised of "Caña Brava" (*Gynerium sagittatum*), "Yute" (*Musa textilis*), "Platanillo" (*Heliconia latispatha*) and other small trees and herbs.

The majority of the vegetation is considered secondary forest. Primary forest is still found on steep slopes, currently unexploited areas and further into the mountains.

A certain amount of land is currently dedicated to the cultivation of bananas and other crops.

6.3.4 Life Zones

Namaldí is located in the Life Zone Tropical Wet Forest. To the south, in the mountains, there are a variety of Life Zones, Tropical Wet (Transitional) Forest and Tropical Premontane Rainforest being predominant.

As described by Janzen (1983), a Tropical Wet Forest is a "tall, multistratal, evergreen forest. A few canopy trees are briefly deciduous, but this does not change the overall green aspect of the forest." Canopy trees average between 40-55 meters in height and have rounded or umbrella shaped crowns. They are often supported by buttresses and have lightly colored bark. Below them, in the sub-canopy are found trees 30-40 meters tall that do not have buttresses and are instead slender with round crowns. The understory averages 10-25 meters. These trees typically have conical crowns and dark, smooth bark. Stilt rooted palms are abundant. The shrub layer of giant broad leafed plants and dwarf palms reaches 1.5-2.5 meters in height. Woody lianas, epiphytic shrubs and strangling trees are not commonly seen. Tropical Wet Forest is considered the most species abundant Life Zone in Costa Rica (See Species³ List in Annex).

Nevertheless, the heavy impact of human activity such as timber exploitation and the cultivation of cacao, bananas and jute in the area has greatly reduced this diversity. Today the landscape has a broken appearance instead of the classic thick green canopy of a tropical wet forest.

³ It should be noted that none of these species I mention in the text were taxonomically identified in a laboratory.

6.4 Changing Trends in Resource Use

6.4.1 Historical Perspectives

Historically the fundamental needs of the Cabécares were met through the recollection of forest species, hunting and fishing, and agriculture. The economy remained a system of recollection and production that served only to meet their basic needs. The flow chart (in annex) demonstrates the capital, or original resources needed to collect natural resources. With sufficient time, knowledge, energy and the appropriate tools the Indian was able to collect, hunt, fish or cultivate the resources necessary to feed, clothe and shelter his/her family. Additional time, knowledge, energy and tools were necessary to refine the resources with the result of food, housing, clothes, tools, medicines and ceremonial objects. Resulting from the consumption of these refined products was knowledge, energy and more tools. The variable that was not necessarily returned was time. Effective time management was the key to this economic system.

"The traditional (Costa Rican) Indian dealt with the jungle by conceiving it as a neighboring human society, with as much right to exist as their own society; the forest is for them a place where there are relatives and friends." (Bozzoli, 1986). This quote clearly exemplifies the respect that the traditional Indian reserved for his or her environment. Resource management involved a complex system of ceremony, ritual and recollection based on a spiritual and intellectual understanding of their impact on the environment. A balanced system of reciprocity monitored the consumption of resources. *Awapas* and hunters recognized the value of forest resources through ceremonies and by giving offerings (Bozzoli, 1986). Within their mythology lessons were given about those who wasted resources and the evils that befell them. This intricate management philosophy allowed these cultures to prosper in a delicate environment during millennia, without significantly altering their subsistence base.

6.4.2 The Transition to Consumer-Based Economics

In *Namaldí* the cultural tradition of balanced reciprocity has diminished in respect to the environment. This is due to the transition from a subsistence to a consumer based economic system. As the families have moved into wage earning occupations they have come to perceive their environment as a set of goods, each one with a cash worth. Once involved in this system they neglect their crops and the annuals aren't planted. Thus, the sale of forest products or work as a laborer is necessary to earn cash to buy food. This self-perpetuating cycle has kept them continually dependent on outside sources for their income.

The abandonment of agriculture as a subsistence base is more noticeable in the households closest to Corina. The cluster of houses near the "Salon Comunal" and along the Chirripó's banks interact frequently with the white economy. They work as laborers, selling forest products, and occasionally corn or cacao. Their farms consist of bananas, corn and a few other species but are not extensive or diverse.

In contrast, the families of *Namaldí* living further into the mountains continue to rely on

agriculture as a subsistence base for the following reasons:

- they live too far to frequently interact with the white community/economy;
- they remain relatively isolated culturally and still value agriculture as a tradition.

These few families rely mostly on the sale of certain forest products such as timber or bejuco for the cash they need to buy clothing, tools and a few foodstuffs. The inconsistency of their cash incomes makes estimations of monthly or annual spendings difficult. The following list gives the reader an idea of the goods commonly purchased and the economic interaction within a week's time in one of Corina's pulperías.

LIST OF ITEMS MOST COMMONLY BOUGHT

<u>Food</u>	<u>Others</u>	<u>Medicines</u>	<u>Clothes</u>	<u>Occasional</u>
Coffee	hairbrushes	aspirin	boots	radio
Sugar	soap	Ben-gay	t-shirts	television
Beans	bullets		long pants	flashlight
Rice	machetes		dresses	rifle
Onions	batteries		good shoes	
Lard	bus ticket			
Salt				

COMMERCIAL INTERACTION: PULPERIA EVARISTO

<u>Date</u>	<u>Amount spent</u>	<u>Goods</u>	<u>Amount</u>
August 26	\$11.92	sugar	8 kilos
		rice	7 kilos
		salt	3 kilos
		lard	2 kilos
		coffee	1 kilo
		soap	2 bars
	\$14.53	rice	8 kilos
		sugar	6 kilos
		salt	3 kilos
		coffee	2 kilos
		beans	2 kilos
		soap	2 bars
	\$4.68	sugar	2 kilos
		beans	1 kilo
		chicken	1 kilo
		salt	.5 kilo
		coffee	.5 kilo
August 27	\$4.06	sugar	2 kilos
		beans	1 kilo
		bread	2 loaves
		achiote	2
		koolaid	2 packets
		cookies	2 packets
August 30	\$5.86	beans	3 kilos
		sugar	2 kilos
		lard	2 kilos
		salt	1 kilo

August 31	\$9.10	coffee	.5 kilo
		soap	2 bars
		rice	8 kilos
		sugar	3 kilos
		beans	2 kilos
		salt	2 kilos
		coffee	.5 kilo
September 1	\$14.78	rice	9 kilos
		beans	6 kilos
		sugar	6 kilos
		onions	1 kilo
		coffee	.5 kilo
		salt	.5 kilo
September 2	\$17.21	rice	9 kilos
		beans	6 kilos
		sugar	6 kilos
		coffee	1 kilo
		onion	1 kilo
		salt	.5 kilo
September 3	\$6.22	sugar	2 kilos
		lard	1 kilo
		coffee	1 kilo
		salt	1 kilo
		onion	1 kilo
		soap	1 bar

The natural resources of *Namaldí* are the basis of their economy and differences of opinion in terms of how to make a living from these resources is currently causing dissention within the community. Some families maintain that agriculture and the minimal recollection of forest products is more sustainable while others are concerned about improving their lifestyles.

Through examining the costs and results of various income sources, we will better be able to determine in what ways these people could improve their lifestyle, maintain their culture and use their resources in a sustainable manner. To do this I will provide information concerning the various income sources in *Namaldí* and the production and economic results of various species. I will include the time, knowledge, physical energy and tools used to complete the production.

Before discussing cash amounts it is important to clarify that an average hourly salary in rural Costa Rica is about \$1.75 - \$3.00. An average rural family of 6 may spend between

\$60.00 - \$80.00 a week.

7. CASH INCOME SOURCES

7.1 Working for Wages

The most common job held by indígenas outside of the Reservation is that of "peón", or laborer. These jobs are given on a day to day basis. The work is usually maintenance on a "finca" (farm), in other words, hauling trees, cutting overgrowth or building fences. The work day starts at around 6:00 am and ends at 11:00 am. For these five hours of work the peón earns \$6.07⁴ or \$1.21 an hour.

Currently there are two young men from Namaldí that are working in the bananeras near Zent. They leave home at 4:30 am daily to make the bike ride to the plantation by 6 am. The day usually ends around 1 or 2 pm. Wages vary depending on the amount of bananas cut, boxed, stickered etc. The average income of \$60.00 a week is a considerable amount of money. The time invested is 10 hours daily, including transportation time. For 10 hours of work they are earning \$11.25, or \$1.13 an hour.

RECOPE and ICE in the area have thus far only provided very temporary work. For a 10-hour day the indígenas earn \$12.14 or \$1.21 an hour.

The cultural "costs" of working for a salary outside (or within) the Reservation are not easily measured. The strongest impact may be the loss of self-direction. While working on your own farm and for yourself means taking initiative and being creative, taking risks and learning to trust your capabilities, working for others involves simply following orders. The loss of traditional knowledge goes hand in hand with this. In addition, a person that works outside of the Reservation (or for wages) has less free time to spend with their family and friends. This free time is a valuable in the life of the indígena, these treasured moments are spent creatively and pensively, gossiping and telling stories. It is the variable that allows for the passing on of traditional knowledge, customs and values.

7.2 Earning Cash within *Namaldí*

Within Namaldí there are three main avenues of cash interchange: work as a peón, and the buying and selling of timber and corn. A peón earns between \$6.07 and \$9.10 for a five-hour day depending on the work. Usually it includes clearing land, planting or maintaining a crop, harvesting, construction or hauling a good such as bamboo.

⁴ All cash amounts have been translated to dollars from the Costa Rican monetary unit of colones. On Dec. 15, 1994 1\$=c164.81.

Traditionally this labor was lent between family members and paid the same afternoon in the form of a free lunch and chicha. In *Namaldí* this tradition has been lost to some degree. I was fortunate enough to witness one such event and thoroughly enjoyed the hours of socializing and story-telling.

Timber cutting, due to its illegality, is a clandestine activity and I have no statistics on either how much time or how much wood is produced for what amount of money. The wood is used by the same community (*Namaldí*) to build houses and it is relatively little what is extracted for the community's own use.

Corn is bought by those who don't cultivate it. It is used as chicken feed and sometimes ground into meal (by machine). One "saco" holds around 40 kilograms and costs around \$20.00.

7.3 Sale of Forest Products

The sale of certain forest products to the dominant white society has a long history but until recently indígenas were not living primarily from this income. This dramatic change in their management of resources is due in part to a loss of the traditional perception of their natural environment as a neighboring society. It is also related to the relative ease of selling a product that requires little effort but generates a fair amount of cash income. Slowly these two factors have pushed the indígena towards the overuse and mismanagement of their forest resources. The downward spiral encompasses the loss of cultural knowledge and natural resources and the result is an all around impoverished community.

One of the attractive features of the sale of a forest product for the indigenous person is that through spending little time and energy they can sell a product and obtain the cash they need for the immediate future. Normally an Indian prefers to spend a few hours completing only the necessary tasks and spend the afternoon relaxing. In the case of Palmito (Heart of Palm) with perhaps two hours of work, an indígena can earn up to \$10.00, or \$20.00 an hour. The work is often agreeable, doesn't include taking orders and is in a familiar setting. In some cases it involves cultural knowledge in terms of where to find a resource and how to prepare it, but often the goal of selling it obscures the traditions behind its recollection.

The problems set in as the economics change towards consumerism and the indígena needs more money. The resources begin to experience pressure and yet the market price remains the same. Most of these markets involve intermediaries that buy the product from the Indian, resell it at a higher price to a buyer in a city that in turn produces the final product and sells it at still a higher price. Obviously, cutting out the intermediary and, if possible, directly producing the item would mean generating more cash income for the indígena while using less resources.

7.3.1 Timber

The indigenous Reservas of the Atlantic Slope protect much of Costa Rica's remaining primary forests. Their expanses of timber are illegally exploited by both whites and indígenas alike. The actual extraction is a clandestine activity, often carried out at nighttime. The amount of deforestation is incalculable because of this. It also makes regulation and the enforcement of laws difficult.

The timber cutting system differs between whites and Indians. While whites simply clear-cut a given area taking only the valuable wood and throwing away the rest, the indigenous "lumberjack" systematically chooses certain tree species and selectively cuts only these. Little wood is left to rot. The result is less species loss and therefore impact on the forest. The three species most commonly extracted are "Manu" (*Minquartia sp.*), "Laurel" (*Cordia alliodora*) and "Cedro Macho" (*Carapa guianensis*). The Manú is appreciated for its hard wood and is used locally in the construction of greenhouses. The wood of Laurel and Cedar is considered quality and used in the construction of furniture and houses.

In *Namaldí* the wood is cut far into the mountains by chainsaw. It is then hauled by horse down the paths and out to the roads. Trucks arrive to the Salón Comunal (during the night) on a specified day and the wood is then purchased from the indígena. I have no estimates but was told as much as \$500.00 is paid for a large truck-load of good wood. From there it is sold at least once again until finally it arrives to a city. Occasionally local whites contract a certain amount of wood. This too involves an intermediary, usually a Latinized indígena familiar with the *Namaldí* community and the whites.

On September 14th of this year the CONAI revoked all permits to extract timber except for that used within the community of *Namaldí*. Several families will be left without their main source of cash income or the benefit of having planted sufficient crops. This action was taken due to the severity of deforestation in the area. The dependence on wood as an income had begun to destroy the forest. CONAI hopes that through eliminating this easy income source these individuals will return to agriculture to meet their needs.

Aside from the loss of biodiversity and traditional customs, the reliance on timber sales contributes to alcoholism. The indígena is not accustomed to having so much money in hand and it is often spent on liquor and gadgets. In general, the abuse of timber as a cash income resource destroys the natural environment of the indígena, weakens his culture and is slowly altering the core of his value system.

7.3.2 Bejuco

In Costa Rica the sale of baskets and furniture made from bejucos (vines), that is, wicker items, is common. The extraction of this primary resource often involves an indigenous person. Found in primary and secondary forests, where they depend on various tree species for supports (Ocampo, 1994), these epiphytes are usually located far from white civilization; they are often

plentiful in the Reservations.

In Limón Province the sale of bejuco from the Indian to the white involves intermediaries. Often a white, familiar with an indigenous community, will contract a certain amount of bejuco from the indígena and sell it in turn to a buyer from San José. In past years this transaction was also carried out through the Agricultural Fair (every Saturday) in Limón Port. In recent years, however, the scarcity of the resource has made going directly to the area more economically sensible. Presently there is only one man that regularly buys bejuco and sells manufactured products at the Limón Feria. The Ministry of Agriculture and Livestock (MAG) in Limón informed me that there are currently four people that have permits to sell bejuco at the Feria, but during my five or six visits, I only saw this one gentleman. No one was able to specify from where the bejuco was being extracted.

This October I met Jorge Alvarez, a man that comes from San José to Corina to buy bejuco from the Indians. He himself produces baskets and then sells them to large stores wholesale.

Interestingly enough, Mr. Alvarez was very interested in the responsible exploitation of this resource and suggested organizing a study that would benefit the indigenous people involved in the sale of bejuco. He would like to set up workshops in which the indígena learns to produce various artistic items aside from the traditional Cabécar baskets. This would improve their income through cutting out the middle-man, generate income as a result of a creative activity and lessen the amount of bejuco needed to generate the same amount of income. Mr. Alvarez believes that selling "authentic indigenous crafts" would be lucrative for him as well.

Currently in *Namaldí*, there is only one man that sells completed baskets. He is asked occasionally by local whites and once an employee of ICE to weave a certain sized basket. The baskets are sold for about \$15.17 and perhaps five hours are needed to make a large, high quality basket. This young man is familiar with various styles of baskets. It is interesting to note that he does not sell bejuco to Jorge Alvarez.

Alvarez has been buying bejuco from the same two men of *Namaldí* for four years. As far as he knows, he is the only white in the Matina/Bataán region that purchases bejuco and he only buys it in Corina. He prefers "Bejuco del Hombre" (*Heteropsis oblongifolia*) because of its attractive white color and elasticity.

On October 23rd one of the indígenas brought down 34 kilograms of *Nalakichá* to sell. It was the first time he had made the four-hour trek in over two months. The lapses in sales are due to extreme rain and the seller waiting until he has a large load to bring down all together. Alvarez estimates that each indígena brings an average of 30-40 kilos three or four times a year for a total of 150-160 kilos a year.

Right now Alvarez is paying \$2.43 a kilo. This means that annually the Indian can earn up to \$376.65 (155 kg x \$2.43). To produce one saco containing 20-24 rolls of dried bejuocos

(each roll contains several bejucos), I estimate that 10-12 hours are needed. Each saco weighs about 5.3 kilos and is worth \$12.88. Therefore, the hourly wage oscillates at around \$1.17. Much of the labor is completed by children.

Together with the indígena Mr. Alvarez explained the process involved in the recollection, washing and drying of the vines.

Recollection: Vines must be collected during dry weather so they aren't left with black moldy spots. They are also lighter because they aren't retaining as much water. The man hikes into the mountains and searches out places where the vines have reached a certain length, usually at least five meters. Traditionally, only vines that had reached the ground and had begun to re-root themselves were collected (Ocampo, 1994).

Today, due to scarcity, bejucos that are within reach are pulled. It is said that if one looks into the canopy from where the vine descends it will break short upon pulling on it. So then it is better to casually glance at eye level at the vine and pull down hard and fast to break it higher up. Given its availability up to 15-20 vines can easily be collected in a morning's hike. Their average length is 3-4.5 meters. Vines that are too short or deformed are thrown away.

Washing: After its recollection the bejuco is boiled in old petroleum barrels for 6-7 hours, or until the hard green bark is softened. The vines are then tied together, tied to a tree and left soaking in a pool of water in a nearby stream. For at least six days they remain there, being washed by the flowing water.

Scraping: After these six or eight days the bejuco's bark is soft and removable. Often the family places sand in their hands and runs the vine through it, thus easily scraping off the bark.

Drying: At least a few days of intense sun are needed to dry the bejuco. Its color should be a clear off-white, without stains or deformations. It is then ready for sale.

Tools needed: petroleum barrels, firewood and horses for hauling.

As a cash income source bejuco is sensible; it requires few resources and not much energy for its recollection and readiment. For this reason it is being abused and its current scarcity is proof of the need to rethink the management of this natural resource so that it is exploited in a sustainable manner.

The loss of bejuco has led the indígena to depend on synthetic fibers that fulfill the same needs as the vines. The result is an alteration in the traditional arts and construction of the Cabécar culture.

7.3.3 Bamboo and Caña Brava

Both bamboo (*Bambusa vulgaris*) and Caña Brava are sold by various indígenas to the bananeras where they serve to support the fruit weighted branches. Caña Brava is found growing naturally along the river banks of the Chirripó and Surubre Rivers. The shoots are easily cut with a machete and then left in stacks near the Salón Comunal. Between 25 and 35 shoots (measuring 3.0 to 4.0 meters) of Caña Brava are sold at a time, each one valuing \$0.07 for a total of \$2.10 a stack. Perhaps four hours are needed to ready a stack of Caña Brava, therefore, the indígena earns about \$0.53 an hour. This resource is plentiful along the river banks and I didn't notice any lack of this species. However, on a large scale the extraction of Caña Brava is detrimental to a river system. These plants help to protect the physical stability of the rivers when the water level rises. With the lack of this species, problems of flooding become more common in communities located near the river's edge.

Bamboo is a much heavier product and thus requires more work. Yellow bamboo is preferable because it is much lighter than the green. Reportedly only growing if cultivated (Rehm, 1984), this resource is scarcer. Most of the fincas in the Reservation have bamboo stands; it is unclear if all were cultivated by the resident family. I met one man that claimed to cultivate bamboo and he was the main seller of this product. During September this gentleman sold 500 shoots at \$0.18 each. He thus earned \$90.00. His brother was hired to help transport the bamboo from the finca to the road, load it on the horse and haul it to the Salón Comunal. I observed this activity on at least three different days. I will assume that a full five-hour day is needed to cut and transport 50 bamboo shoots. Thus the indígena earns \$9.00 a day or \$1.80 an hour. The tools needed are a machete, a horse and a lot of energy.

The exploitation of bamboo and Caña Brava, in my opinion, doesn't affect the community as negatively as timber. As bamboo is cultivated and Caña Brava plentiful, the effect on the natural environment has thus far been minimal. As always, the involvement of cash immerses the Indian in the consumer world and the cultural effects are consistently damaging.

7.3.4 Abacá or Jute

Abacá (*Musa textilis*) was introduced to Central America from Malaysia before the Second World War. It was at that time valued for its extremely strong vegetable fibers. Today synthetic fibers have replaced Abacá, but the plant continues to grow naturally in lower tropical wet regions. In the Matina region Yute was cultivated during the war and processed in Bataán. Today in *Namaldí* Abacá is abundant and the women sell its leaves to buyers from San José where they are used in the confection of tamales. I became aware of this exploitation in August. The women worked occasionally throughout the time of this study. I would assume that in December, due to the traditional use of the "Christmas tamales" in Latin homes, this exploitation increases.

The readiment of Jute leaves involves hours of cutting and then drying the immense leaves over a fire. The work is exhausting and boring. Usually four people work together and

produce between 200 and 300 kilograms of leaves in an 8-hour day. The buying price fluctuates but I will estimate its constancy at \$0.12 a kilo. So then four people earn an average of \$30.34 a day; \$7.59 each or \$0.95 an hour. The tools needed are a machete, firewood and a lot of patience.

Abacá leaf cutting is described by most indígenas as degrading work. It involves no cultural knowledge and is laborious. In addition, it pays very little and for most is not worth the effort. Yet, I know of at least four women that regularly participate in this economic activity. It may be that the pay is less because women are doing the work.

Jute's abundance is in no way threatened by this exploitation. Cultural values of independence and time that could be spent cultivating crops are the main losses in this case.

7.3.5 Palmito

The sale of Heart of Palm (from *Bactris gasipaes*) in Costa Rica is a lucrative business. Although Palmito is often obtained from palms that are plantation grown, wild palms are sometimes utilized as well. The indigenous peoples of Costa Rica have recently involved themselves in this market, selling Palmito to white buyers that ask for a certain number and type of palmitos.

In *Namaldí* I only heard about one man that had sold palmito to a white but I know that other people take advantage of the ease of selling Heart of Palm for quick cash. Within a morning's walk into the mountains two or three palmitos can be cut, to later be sold for \$9.10 each. The result is that wild palmito is now scarce in this area and as the dominant society continues to appreciate its flavor it is becoming scarcer. The Indians complained of whites that come into the Reservation and cut palmito illegally, further pressuring this resource.

The process of cutting palmito involves a machete and the knowledge of which trees are ready to be cut; they should be between 5-8 years old. A knowledge of the varieties of palms is helpful. The tree is cut at the base, about 1.5 meters from the ground. Once felled, the top green stalk is removed, harvesting a stem of about 1.5 meters. The various layers of green tissue are removed and the thick white core is carried home. Only the very inner core is eaten. The whole cutting process takes maybe 15 minutes.

Responsibly exploiting palmito, to me, seems to be a worthwhile activity. The cultural values are altered in that it is seen as a cash product instead of a "neighbor" but the knowledge and relative ease make the harvesting worth the time. Unfortunately, the Indians have begun to extract palmito at an accelerated rate and today it is rarely found within the perimeters of *Namaldí*, indicating an alteration in the ecosystem. A well regulated management system, or perhaps even cultivating this resource, would help conserve the species while allowing for continued economic and cultural utilization.

7.3.6 Medicinal Plants

Traditional medicine has long been one of the only respected cultural aspects of the indigenous people of Costa Rica. Whites have, for centuries, been relying on this knowledge and the species involved in the curing of various diseases and ailments. Today the indígena has recognized that by simply saying a plant is "good for the strengthening of..." they can turn a quick buck. Usually the information is accurate but many times the species is not one used traditionally by indígenas. Such is the case of Cuculmeca (*Smilax* spp.). The sale of medicinal plants is totally contrary to the traditional belief system regarding the spirit of medicinal species and the ritual involved. This exploitation is a reflection of the changes not only in the traditional management system but also the religion that involves these species.

Namaldí's few older citizens are the most respected by Corina's inhabitants in terms of traditional plant knowledge. The majority of the plants sold are bejuocos such as *Tirrókichá* (*Passiflora* sp.), Escalera de Mono (*Bahuinia manca*) and Cuculmeca. I spoke with one Latin señora whose husband had paid \$9.10 for a bag of two types of bejuco and Cuculmeca. Prices range from \$9.10 to \$30.34 depending on the time involved in collecting the species and the quantity. It is my guess that at least \$15.00 can be made from a morning's work. The interaction between the whites and Indians sometimes involves intermediaries but not usually. Instead, an indígena passing through Corina or seen in the pulpería is usually approached and asked for a remedy for a certain ailment.

The sale of medicinal plants involves cultural knowledge in terms of the collection and preparation of a species and which species serve for what illnesses, but the end aim is money and thus the cultural values are crossed. The rational use of these resources may be a sensible way to make small amounts of necessary money while perpetuating on some level the value of cultural knowledge.

7.3.7 Sale of Wild Game

Although Costa Ricans are not big meat eaters, they do enjoy the taste of wild meat on occasion. This has created a market and wild species such Tepescuintle (*Agouti paca*), Cusuco (*Dasybus novemcinctus*) and Pizote (*Nasua narica*) are commonly hunted within the Reservations by both whites and indígenas. Tepesquintle is the most sought after species and thus experiences more pressure than the others. By law only the Indians have the right to *rationaly* utilize this resource but local farmers often take advantage of the free meat to supplement their diet.

As with medicinal plants, the sale of meat expresses a change in the traditional respect for the forest species. Today they are viewed as an income source and their spirit is simply exploited instead of valued culturally and as an important part of the indigenous diet.

It is said by the Indians that the mountains of *Namaldí* no longer have animals in hopes of keeping white hunters out. The truth is that while the abundance is no longer there various species leave their footprints along the paths as proof of their existence. Although the loss of

the forest is affecting the diversity of plant species these mammals feed off of crops of rice and corn and their numbers are not as drastically reduced as one might believe.

The commercial interaction involves either one of Corina's corner store owners or another person that knows the Indians. Usually tepescuintle is asked for and within a few days the species is delivered. The price of meat depends on the species, but tepescuintle usually costs between \$4.25 and \$7.89 a kilogram. An animal weighing six kilograms earns the indígena as much as \$36.42 (6.07 x 6). Considering that the meat is expensive, sales are not common.

It is impossible to estimate how much time a hunter may need to obtain a specific type of animal because the activity is often combined with another or unsuccessful. Due to the significant amount of cash generated and its importance in the Cabécar diet, it would be wise to regulate this resource so that it lasts. To do this the white hunters must be kept out and the Indian learn to respect the consequences of over-exploiting these animals.

7.4 Sale of Agricultural Products

Historically the families of *Namaldí* relied on the sale of various crops as a small but important cash income source. Rice, corn and cacao were sold to buyers from cities in quantity. Today rice is produced only for the family's consumption and usually must be bought to supplement. Corn has lost its traditional value as a food source and is no longer extensively cultivated in *Namaldí*. This year only one family sold corn to outsiders. Cacao (*Theobroma cacao*) remains as the only agricultural product cultivated exclusively for commercial exploitation. Today the occasional sale of a pig can also be an important cash resource. Tubers are sold to whites infrequently but more as a favor than a means of making money. Lastly, plantains were recently planted by one family that hopes to involve itself in the regional market.

7.4.1 Cacao

Previously unbeknownst to me, tropical regions, instead of Switzerland are the birthplace of chocolate. The international market of cacao seeds has involved small-scale farmers from Central and South America alike. The past decade has proved difficult for these farmers due to the spread of *Monilia* sp., a fungal disease that discolors and rots the fruit leaving it unmarketable. The cacao groves in the Reservation have, for several reasons, experienced less problems with *Monilia*. Due to their location in higher elevations the cacaotales are cooler, more breezy and less humid. This environment impedes the growth of fungi. The typical intercropping of citrus, pejobaye and cacao also help to deter the spread of *Monilia*.

The Salazar-Salazar family currently has 2.5-3 hectares of cacao cultivated. The cacaotales are located near the house, on level ground for the most part. The trees are planted at a distance of 4-5 meters apart and intermingled with a few pejobayes, citruses and forest tree species. The ground is kept free of underbrush and the trees reach a height of 6-7 meters. I counted about 120 trees in the first cacaotal and 100 in the next. They seem to be all of the same age, at least 30 years old.

To plant *Theobroma cacao* the Salazars first create a mini-nursery. Here they plant as many seeds as they hope to plant trees about 10 cm deep in the soil. It is preferable to plant the seeds (and seedlings) three days after the full moon so that the trees don't grow too tall. The area is maintained clean and free of critters. When the seedlings reach about .3 meters they are uprooted and replanted in the designated area four or five meters apart. The area must be free of underbrush and should not be burned previous to planting.

Throughout the development of the plant the cacaotal is maintained relatively clean, free of weeds and bushes and the trees are pruned to eliminate unhealthy leaves, branches and fruits. At a regular growth rate the cacao tree will begin producing fruit after four years.

Cacao is harvested twice a year, once in March and April and again in September-October-November. The ripe fruits are cut from the branches by machete or a long-reaching pole with a blade on the end (varilla). Each tree produces fruit during various weeks, thus a tree must be cut various times. The fruits are hauled to one place and left in a pile. The same or next day the fruits' hard shells are carefully opened with a machete and the gooey seeds are scooped out and put into a very large saco. The left over shells and monilia affected fruits are left in a discard pile to decompose. The only production activity left is that of drying the seeds. For this there must be intense sun during several days. It is important that the seeds do not get moldy and blacken or they won't be bought. To dry them they are placed on a wooden platform or zinc sheets and hand rotated once every few hours.

The dried seeds are transported by bus to Limón (total fare \$1.03) where they are bought by a señora who at this time is paying \$0.91 per kilogram. An average saco weighing 40 kilos earns the Salazar family \$36.40. This year they plan to sell a total of 10 sacos. If successful they will earn \$364.00 this year from the sale of cacao.

Tchirú is a traditional Cabécar crop and has been used as a form of currency since pre-Colombian times. Today its role in their economy is slightly changed but the exploitation has always been economic-based. For this reason it is my opinion that the production of cacao is a valid income source that neither undermines Cabécar values or significantly alters the landscape. In addition, the time and energy invested is little and the work agreeable.

I spent one easy morning alternately gossiping and cutting cacao fruits with a señora of the family. Within four hours we had cut, broken and emptied enough cacao to fill a saco to the brim; it would weigh around 40 kilos when dried. It can thus be estimated that two people working six hours (four cutting/breaking and two for occasional maintenance) can produce one saco.

2 people » 6 hours = \$36.41

They are each earning \$3.03 an hour. The cost of the bus and the time to transport is not included in this estimate.

The Salazar family depends mainly on the income from their cacaotales. The benefits of working on their own farm and time combined with the relative ease of the work and the fair hourly wage keep the Salazars determined to maintain their cacao. They are proud that they earn money from a product that is the fruit of their labor and a traditional crop in addition. Because this product induces no environmental degradation they feel it is a responsible form of earning cash.

7.4.2 Maize

Maize (*Zea mays*) was traditionally one of the main food crops of the Cabécar people. Today in *Namaldí* rice has taken its place to a large degree and in some communities, like *Namaldí*, corn is planted by only some families and rarely extensively. I was told that in past years some families harvested up to 30 or 40 sacos (900 kilograms) and sold what they didn't need to outsiders. This year only one family harvested enough to sell.

The planting and harvesting of corn is a somewhat laborious task. In a good year a family can reap up to 13 sacos (without the cob) from one hectare. The estimated time involved is five work days from planting until harvest and then perhaps three or four more depending on how much corn is to be picked. The market price this year was \$24.27 a saco. So then for 24 hours of work a family can earn up to \$315.51 or \$13.15 an hour. These estimates are assuming that the corn grows well and the harvest is plentiful, which is not always the case. Even so, when I finished the rough estimates I was surprised that more families didn't cultivate corn to sell. When I asked the families that cultivated corn, I was told that the others were lazy, didn't like to plant and worked outside the Reservation anyway. It must be mentioned that there might not be as large a market as would be necessary to buy corn from every family interested in selling, that is, there might not be enough buyers.

In any case, the cultivation and sale of maize seems to be a worthwhile business. The fact that corn is a traditional crop and has little effect on the ecosystem makes this business even more attractive. It would be interesting to know exactly why more families aren't willing to invest time in the planting of corn and what sort of measures could be taken to support a move towards using this crop as a responsible cash income source.

7.4.3 Pigs

The raising of pigs for sale is not big business in *Namaldí*, but considering the sizeable sums they bring it does play a mentionable role in the cash economy. Currently there is only one family that has more than two pigs; they raise an average of six-eight pigs continually.

If the pigs are not born on the farm they are bought for \$18.20 usually in Corina. They are raised mainly on pejibaye, sometimes bananas and are constantly munching wild vegetation. The investments are then: cultivation of pejibaye and bananas, firewood and general health upkeep. The pigs are independent, roaming the farm and cost very little energy.

An adult pig is sold in Corina, usually to a person that will then butcher it and sell the meat door to door. The family prefers to sell a whole pig instead of walk door to door because it is more economically secure, there is no risk of not selling parts of the product. Pork meat is selling at \$3.03 a kilogram right now. This means that a 30-kilogram pig earns the family \$90.90. Since pejibaye is the main investment, along with time and bananas (when pejibaye is out of season), the pigs bring in a fair amount of income. It may be that the amount of money earned isn't worth the effort to some but pigs and livestock are a status symbol among the Cabécars. Therefore, raising pigs is a sign of their wealth and plays a role in the culture's economic class structure.

8. UTILIZING FOREST PRODUCTS AS A FORM OF INCOME

The word "income" usually brings to mind hard cash, green bills. In this day and age it is difficult to imagine that some people continue to live without money; their primary resources taken directly from their natural surroundings produced and consumed without buying or selling anything. Thus there are at least two kinds of income: cash, and items that form a part of the economy but are not bought or sold, only produced and consumed. In *Namaldí* the Indians have integrated cash into their previous economy that simply relied on forest species and agricultural products as their income.

The forest of *Namaldí* houses a variety of species that serve as construction materials, tools, energy, food and medicine. Together these species and the traditional knowledge that makes them useful form an integral part of the Cabécar culture. Unfortunately, in recent decades the community has moved away from relying on these species and although much of the knowledge remains intact, the practices are absent. In this manner the knowledge will decrease from generation to generation until it is simply stories of how things used to be. The relationship between this Cabécar community and their environment will become merely a reflection of the dominant society's interaction with its natural surroundings. This change can be noted already in the construction of their houses, and the lack of traditional medicine and arts. In any case, the continued importance of several species makes reviewing their employment worthwhile.

8.1 Construction

Historically and continually in some communities the Cabécar dwelling was a simple structure that had one main room for sleeping, working and eating and another for the kitchen area. The floor was dirt and the roof was made from woven together *suita* (*Geonoma congesta*) leaves that reached the ground, forming a conical roof. Today in *Namaldí*, as in most indigenous communities, the houses are no longer these typical "ranchos" but instead a combination of Latin and Cabécar construction concepts. The houses are built three feet off the ground, have wooden floors, zinc roofs and several rooms. What is unique is that often the kitchen is roofed with *suita* or a similar leaf while the walls are made from chonta (*Socratea durissima*) or bamboo. It is also common to see chicken coops built from chonta, bamboo,

suita, and bejuco.

The changes have been brought about by a desire to appear "civilized" and a (proclaimed) lack of traditional materials. The disadvantages are that these new houses are more expensive to build (one has to buy the wood and zinc) and often inappropriate for the climate. While ranchos are comfortable, quiet dwellings, the zinc roofs trap heat, reflect cold and are loud as hell when it rains. The advantages are that less work is involved in building and roofing the structure and the family doesn't share their abode with poisonous insects that live in the *suita* roofs.

Today the species used in building a house are: Cedro Macho, Laurel, *Suita*, *Nalákichá*, Caña Brava, Bamboo, Chonta and Cocopalmera. The last three are used when the others are unattainable. In addition to the zinc, a strong synthetic cord and nails must be bought outside of the Reservation.

The most interesting aspect of a Cabecár house are the woven leaves that serve as a roof. *Suita* leaves are attached to Caña Brava poles by tying their stems on with bejuco. These large leaves form a feather-like material that once overlapped and attached to the framework by bejuco are impenetrable by water or wind. From the outside rancho roofs look like a haystack, with all the straws flowing in a downward direction. Once dried the leaves shrink and occasional gaps allow leaks until the rain is absorbed and the leaves reexpand. A well built roof will endure 4.5 meters of rain annually for up to five years! The rest of the house's structure is like that of any other extremely basic home except for the use of Chonta or bamboo as walls. These materials are often useful because they are free while the wood is costly. Wood for a four-room house can cost as much as \$90.00. It is sold within the Reservation but must be bought from someone that has a chainsaw. The wood should be cut during the waning quarter moon so that the termites don't attack it later on.

It is important to recognize that the wood used in the construction of *Namaldí*'s houses comes from large trees. The other forest products such as bejuco, *suita*, and chonta are also extracted from healthy developed forest. Once these resources are lost the residents of *Namaldí* will be forced to buy wood and other construction materials outside of the Reservation. The conservation of these species is recommended so that the community can continue to use them as an income. While it would be ideal for the community to value once again the traditional construction concepts, I'm not sure that the type of roof under which a family lives determines their cultural values even though it is a reflection on them to some degree. Hopefully, the adoption of white construction methods will not severely affect the natural environment, since this would result in true cultural losses.

8.2 Tools

Historically the Cabécares used a variety of species to make the tools they needed for agriculture, hunting, fishing, construction and as weapons. Bows and arrows as well as blow guns were typically used for hunting for example. Today the main tool used is the machete

which serves for clearing land, planting and harvesting crops and other farm activities. Apart from the machete, axes are used to chop firewood and rifles are used for hunting. The following common tools are made by the Indians of *Namaldí* from forest species. It is interesting to note the changes in a culture's tools considering that they reflect a human group's economic activities and the evolution of these.

Varilla: These long slender poles are made from Varilla Negra, a very tall, straight, slim tree. The tree is cut at the base and the branches shaved off. The slender poles reach up to eight meters and are relatively light. A sharp blade is attached to the end. They serve for reaching cacao fruits and pejibaye bunches as well as other goods that are out of reach.

Pilón: The pilón is carved out of the base of a very large Manú tree. It is used for hulling the entire rice grain to rid the inner grain of the hull. This tree is preferable because of the hardness of the wood. The best way to describe this apparatus is like a huge conical shaped bowl. From the ground up they reach mid-thigh and are half a meter wide.

Maso: Looking somewhat like an immense Q-tip, the maso that is used for mashing the new rice is also made from Manú. This tool is about a meter long, fairly heavy, blunt ended on one end and smoothly pointed on the other.

Balsa boats: In *Namaldí* there is only one way to cross the Chirripó River when it is flowing full: on a balsa raft. These rafts are ingeniously constructed from the Balsa tree (*Ochroma lagopus*). The wood is unbelievably light and floatable. They are expertly maneuvered across the rapids by using a long Caña Brava pole and the water's own direction and motion. The rafts are simply built: two 3.5 meter trunks approximately 0.4 meters wide are attached horizontally with a half a meter between them. At the bow and stern as well as the middle of the craft are the sticks that serve to attach the trunks as well as hold on to. Crossings are done standing up balancing and holding on in a bent over position to the attachment sticks. As far as I know only one family owns balsas, their house is closest to the crossing point. To cross they must be notified ahead of time.

Bows and arrows: Only on one occasion did I see a set of bow and arrows. The bow was made from a strip of *Surubre* wood, a very flexible wood. The bowstring was made from a synthetic cord. The arrows were shaped from a slim Caña Brava shoot attached to a point of Chonta. The arrows looked almost more like spears. The two shafts are melded by honey and a thin, strong string from a plastic saco. A few of the arrows were characteristically blunt-pointed for killing birds.

The owner told me that he didn't really use them - he just had them around. But a week later his children showed me a toucan beak and I can't help but wonder... It seems the move away from traditional tools is exemplary of the desire to modernize themselves as well as the lack of necessity of certain tools related to the loss of traditional economic activities.

8.3 Firewood

Namaldí, needless to say, doesn't have electricity. The houses are lit at night by candles or kerosene "candelas" and food is cooked over a fire. In the case of the Salazar family I estimate that they spend the equivalent of one trunk 26 cm wide and 4 meters long once a week, or perhaps one medium sized tree a month. The family consists of three adults and one child. In harvest months of pejibaye the pejibaye (which cooks for three hours) is cooked for the pigs, spending a considerable amount of wood. The preferable types of wood are Wawa (*Inga* sp.) and Gallinazo. Exact studies concerning the weight, types and recollection patterns would be interesting considering that firewood is one of the main energy components of the household.

8.4 Handicrafts

Today, in *Namaldí*, traditional "artesania" is seen only in the baskets, gourd cups and, occasionally, woven items. As synthetic fibers are easier to work with and serve just as well woven items such as bags and hammocks once made from natural fibers are now made with these plastic cords.

In *Namaldí* I found only one señor that frequently makes baskets and he does it as a cash income source. In any case he was familiar with several traditional styles and spent one morning teaching me how to weave a basket from bejuco. Two kinds of vines are used: *Nalákichá* and Cucharilla (*Gydista diversifolia*). The Cucharilla is wider and very flexible while *Nalákichá*, which means "strong vine", is strong and flexible as well as an attractive white color.

The first step in making a basket is collecting the vines. Once collected, the vines are peeled of their stiff green bark by hand. Everyone participates in this activity making it go more quickly. Once the vines are prepared the artist begins to interweave the Cucharilla into what will be the frame. These strips form the bottom of the basket. They are slowly folded up into a square or circular form as the Bejuco del Hombre is wrapped around, weaving in and out of every Cucharilla strip. A single basket can use as many as eight to ten vines. A colorful touch is often added by weaving in an unpeeled vine; the green can be used to create a design or simply give a band of color. To finish the basket a final strip of Cucharilla is wrapped along the brim and attached by weaving in on with a *Nalákichá*.

The making of a large basket takes about four hours not including recollection time. Although the whole family can help collect and peel the vines only one person should actually weave the basket so that the rhythm remains constant, the weave even. The baskets that are used in the house are utilized for storage or simply as an attractive craft.

The other craft item frequently seen in *Namaldí* households are the gourds that are etched with designs. The squash are grown in the fincas, hollowed out and their rinds left to dry. The etchings didn't apparently have any meaning but I didn't specifically ask. The gourds are used as bowls and cups for drinking *chicha*.

8.5 Forest Species as Food

It goes without saying that the Cabécares at one time possessed an extensive knowledge of the forest species that served as food. With the slow transition to agriculture the Cabécar populations became more sedentary and their subsistence base was focused more on cultivated species and hunting. Several of these cultivated species grow wild and were adopted to the fincas, pejibaye and cassava (*Manihot esculenta*) are good examples.

8.5.1 Vegetables

Today the reliance on wild floral species as food is minimal. It's hard to know whether these wild species are few (due to being cultivated those that are most sensible and thus no longer "forest food products") or if they are ignored because they are considered "Indian food". The other possibility is that traditional knowledge is lacking, but it is my experience that a fair amount of knowledge is retained by the indígenas. On several occasions children pointed out plants that were "good for eating", thus proving that their parents are teaching them about these plants. What is confusing is that I never once saw a forest plant species being prepared or consumed.

The obvious advantages of exploiting these healthy, traditional (and free!) resources should outweigh whatever reasons of laziness or cultural denial there might be. Developing a study focusing on this sector of their potential incomes would prove helpful to the communities. I will mention here a few species pointed out to me on various occasions.

Shirábata: "helecho" (*Pteridaceae* family) is a species of fern that produces a new shoot that spirals into itself and is covered in tiny white hairs. This 10 cm shoot is cooked as a vegetable in meat soups.

Chotorró: Edible mushrooms are considered a tasty treat by the Cabécares even though the Costa Rican population at large does not value this resource. Due to the variety of mushrooms a complete study would distinguish between edible/poisonous/non-useful mushrooms. They are cooked in butter, added to soups and used to flavor meat.

Kelar Tubú, or palmito, is consumed on occasion but doesn't play a significant role in *Namaldí*'s food resources.

The fruits of various trees are munched on by adults and children alike. Examples of these are Wawa, avocado (*Persea americana*), soursop (*Annona* sp.), guava (*Psidium* sp.) and citruses. Citruses are planted and form an important part of the Cabécares' nutritional balance. Other food species such as tubers and pejibaye are discussed in Agricultural Products seeing as how they are now cultivated species.

8.5.2 Wild Meat

In contrary to floral species the fauna of *Namaldí* is exploited at regular intervals and plays an important role in the diet. Although I only once witnessed the remains of a mammal in a kitchen, on several occasions I saw men carrying rifles, and bullets are bought regularly at Corina's pulperías. Hunting is done only by the men. At times the men take their rifles and dogs along with them while working in the mountains collecting bejuco etc...in case they see an animal. But in *Namaldí* it seems that hunting is mostly an isolated activity carried out at night. It is said that the hunters should go around 6 pm and arrive home before midnight. At midnight the devil comes out and it is unsafe to be in the forest. I spent an agreeable evening listening to stories about hunters that had experienced spirits in the forest at night and laughing at jokes told about whites trying to hunt at night. In this way I learned several tips about hunting while listening to folklore that gives guidelines for when and how to hunt. Unfortunately, I think much of the traditional folklore has been lost and the ceremonies are no longer given before going on a hunt.

The following species are those that are found and eaten in *Namaldí*:

1. iguana - *Iguana iguana*
2. sloth - *Brodypus variegatus*
3. armadillo - *Dasyopus novemcinctus*
4. rabbit - *Silvilagus floridanus*
5. squirrel - *Sciurus* sp.
6. wild pig - *Agouti paca*
7. guatuzá - *Dasyprocta punctata*
8. raccoon - *Procyon lotor*
9. pizote - *Nasua narica*
10. tapir - *Tapirus bairdi*
11. mountain pig - *Tayassu tajacu*
12. deer - Cervidae family

All classes of birds (except vultures which are considered filthy) are eaten by the community. These are some which were mentioned to me.

1. turkey
2. wild hen
3. toucan
4. chachalacas
5. pajuilas
6. dove

Fishing, until recently, was a subsistence activity that provided a nutritious part of the diet of *Namaldí*'s residents. Due to the earthquake of 1991 the rivers were so disturbed that many fish died and their species have yet to make a comeback. Therefore, while the children go fishing for fun and occasionally come home with shrimps, crawdads and small fishes this activity is no longer seriously practiced.

In general the forests' wild species are ignored as a potential income in *Namaldí*. For the families these species could provide a key ingredient in meeting their nutritional needs. Considering that mal-nutrition is one of the challenges indigenous communities face the revival of traditional exploitation of forest food species would prove enriching.

8.6 Medicinal Plants

Ethnopharmacology has, within the last few years, pushed the American indígena into an uncomfortable spotlight. These people suddenly find themselves the focus of the attention of pharmaceutical companies, botanists and anthropologists alike. Various people have recently published works glorifying the knowledge that tropical peoples have of medicinal species and at the same time congratulating themselves for having revealed this knowledge to the world health organizations. The result is that people totally unconcerned with the well-being of the indigenous groups involve themselves in the lucrative business of ethnopharmacological research. What does the Indian get out of this deal? Further contact with whites and western cultural values. Their natural resources are often over-exploited as a result of "new finds". In addition, environmentalists are now impressing these people with the responsibility of safeguarding their forests and declaring what methods should be taken to accomplish this conservation, often disregarding the cultural implications involved. The politics and ethics of ethnopharmacology could fill a book. In my opinion these issues should be addressed as a central part of ethnobotanical research.

When I began working in *Namaldí* and people realized that I was interested in plants they all assumed that I was only interested in medicinal plants. They were reluctant to discuss other resources, they wanted to give me a generic run-down on basic medicinal plants and leave it at that. Obviously they had had experience with scientists coming in and asking only about medicinal plants, ignoring the interpersonal relationships that are invaluable for gathering holistic information. As a result I shied away from medicinal plants and learned the following information through observing the use of plants in the home. The little information I gained is interesting in that it illustrates the aculturation *Namaldí* is experiencing, their faith in traditional medicine and the balance they have between "white doctors' pills" and "plants that cure."

As mentioned earlier in the text, people occasionally travel to Talamanca to visit *awapas*. Doña Serafina Salazar is one of the elders that has traveled to Talamanca. This surprised me because she is the daughter of an *awapa* and thus is familiar with a large variety of medicinal plants. So then why did she need to see an *awapa* if she knew which plants to use? According to Cabécar tradition only an *awapa* knows the name of the sickness' spirit, thus only he can communicate with it. For this reason a *jawá* has the ability to cure with the same plants that another couldn't cure with. In white terms, he accurately "diagnoses" the disease and then administers the appropriate treatment. The absence of an *awapa* in *Namaldí* has weakened the community's ability to service its own health needs. Traditional knowledge is intact for the most part but not used extensively. On my walks with children they liked to point out medicinal plants and explain their preparation. Later when I reviewed the information with an adult it was incorrect. I attribute this to the lack of years but also to the lack of experience, it is much easier

to learn a process if it is seen, not just explained.

The species most commonly used such as Saragundí (*Cassia reticulata* L.), Ortiga (*Urera* sp.) and Limón are cultivated near the homes. One of the older men has a small patch of plants that is a mixture of spices such as Basil (*Ocimum* sp.) and Peppermint (*Hedeoma aff pulegioides*) and medicinal species such as Hyptis sp., Chamaesyce sp. and *Siwakapí* (possibly a Portolaceae). Plants that are gathered from the forest, such as *Tirrókichá* and Gavilana (*Neurolaena lobata* L.) are relatively few.

The preparation of these plants varies but I found that there were no exact rules about who, when or how to collect plants. Mainly women collected plants near the home and men went into the mountains to collect bejucos and Cuculmecca. I only observed women preparing the remedies. The following information is a combination of what I learned in the field and what I have read in El Uso de Algunas Plantas Medicinales en Costa Rica (Ocampo S., 1987).

Saragundí: This small tree reaches up to eight meters. Its leaves are oblong and rounded. The tree's color is dark, olive green, the flowers a brilliant yellow. It is native from Mexico to Brazil. Saragundí grows well in Costa Rica's humid lower elevations.

According to Don Alfredo this plant is used to treat rheumatism. The larger leaves and small new shoots are combined and boiled in a large pot for about 20 minutes. The very hot water is used to sponge bathe the body. Doña Serafina prepared a mixture of five small branches of Saragundí, two large leaves of Tabacón (*Araceae* family) and three large, three small leaves of Ortiga to bathe her brother's twisted, swollen knee. First she added the Ortiga, then about two minutes later the Tabacón and Saragundí. The leaves are unceremoniously thrown away when finished.

Ortiga: This is the plant I most commonly observed being used. Curiosity getting the best of me, I asked what effect slapping it casually against the arm, leg, etc. had and Hugo mischievously took my arm. One simple smack of the Ortiga leaf brought tears to my eyes, my arm turned to fire and there were red, raised welts from the tiny spines. "Its an anesthetic. It numbs the pain." Within two minutes I knew he was right. I felt a strange soothing in my arm, in my entire body actually.

The Cabécares recognize two sub-species of Ortiga: *sinarkút* and *quá*. The leaves of this bush are heart-shaped and covered with spines. The leaves of *quá* are much larger and more effective. (I was never brave enough to try it after my experience with *sinarkút*!) Serafina has both of these plants cultivated in her patio and due to her age uses the freshly picked leaves frequently, to alleviate rheumatic or arthritic pain.

Gavilana: Also known as Capitana, this bush grows well in disturbed soils on both the Atlantic and Pacific coasts of Costa Rica. Its leaves have three points, looking like a bird in flight, thus the name Gavilana. The color is a light green while the flowers are yellow. Not growing over three meters tall this bush is often found in large patches.

Serafina uses the leaves (7-8) to make a tea that alleviates stomach-aches, headaches and reduces fevers. She says that with one or two teas at a two-day interval that should be enough. Although I never actually saw her use this plant, several other people mentioned its uses though too.

Limonos (limes) are used to treat the common cold. Families have lime trees planted near the home and the fruits are gathered by children. Usually made into a lime-aid drink this source of Vitamin C is a valuable part of the maintenance of the families' health. The fruits also serve for curing farm animals of the common cold, I was told. On one occasion Flor administered straight lime juice to a very displeased turkey; apparently he had been stricken by a runny nose.

Pichichio (*Solanum mammosum*) is planted in the full sun of Alfonsina's patio. Only here have I seen this plant although it is common throughout Costa Rica. The most distinguishable characteristic are the fruits, a golden yellow and contorted shape. It is these fruits that Alfonsina uses to treat skin infections. The center of the fruit, with its seeds and sappy juice, is applied to an afflicted area of the skin and left. Apparently this plant is also used to treat sinitus but she didn't mention this use.

Tirrókichá and **Siwakapí** are the two forest species most frequently used by *Namaldí*. **Tirrókichá** (*Passiflora* spp.) is a bejuco that has a spongy feel and distinct smell. **Siwakapí** (identified possibly as "garrapatía") is an epiphyte that grows near the houses. On one occasion I witnessed a young woman cook about .5 kilogram of **Tirrókichá** and a tiny branch of **Siwakapí** in about five gallons of water. Once the water is black, it is drunk as a tea. It is said that **Siwakapí** strengthens the heart while **Tirrókichá** treats a variety of ailments. **Tirrókichá** is a species widely used by *jawás* and I observed it in at least four different homes. In addition to these plants I observed Escalera de Mono and Cuculmeca in the homes but I was told they were for sale not for personal use.

Several more species were casually pointed out to me but I never thoroughly investigated their preparation. It would be wise to identify exactly which species are being used in this area as an integral part of understanding the traditional management of *Namaldí's* resources.

9. AGRICULTURAL PRODUCTS AS A FORM OF INCOME

9.1 *Namaldí's* Farms

When the Spanish Conquistadors arrived to the Atlantic shores of Costa Rica they encountered sparse groups of indigenous people hunting, fishing and cultivating various crops. These traditional crops included corn, beans, pejíbaye, tubers and coffee. With the introduction of bananas, rice and citruses these foods were slowly added to the indigenous diet. Today the Cabécares rely mainly on bananas, corn, rice and beans as their staple foods.

In *Namaldí* very little agriculture is practiced in comparison to the extensive crops seen in Alto Chirripó. For the most part, what is grown in the communities is similar except for two important differences: coffee (*Coffea arabica*) is not grown in *Namaldí* while rice is. In Alto Chirripó rice doesn't grow well due to the cold climate, while coffee doesn't like the warmth of *Namaldí*. This difference in climate plays an interesting role in the cultural changes noted from Bajo to Alto Chirripó. For example, in *Namaldí*, where jute is abundant, slash and burn techniques must be used to clear this plant's immense leaves. In addition, the Indians say that the burnt leaves help to fertilize the weak soils.

The obvious cultural benefits of cultivating traditional crops have been reviewed already. In this section I would like to point out that in addition to perpetuating traditional values, sustainable agriculture, as practiced in *Namaldí*, produces little damaging effects over the natural environment, is time efficient and fairly easy work.

In *Namaldí* the farms average between 10 and 50 hectares, they are delineated by streams, trails or fences made of noticeably colored plants. Each includes a section of land that is forested, another planted with bananas, corn, rice or beans and often a small pasture for grazing the family's horse. The farms are not European in any sense, that is, their crops lack exact delimitations or plans, they look like random tracts of mostly forested land. Once traversed, one finds that within the charral areas are planted citruses, pejibayes and other fruit trees. The variety of cultivated species and the small plots of rice, corn or cassava begin to stand out. Being surrounded by forest and charral, these crops, never covering more than a hectare, are subtly located on hillsides at a distance from the houses. Each of the fincas is traversed by at least one stream. Often the forested areas are found along these waterways.

Although each family cultivates one product or another, none of the farms are as well maintained, diverse or productive as that of the Salazar-Salazar family. The following description of their finca and its products gives the reader an idea of the traditional agriculture practiced in *Namaldí* and highlights the advantages of maintaining a productive finca.

9.2 The Salazar-Salazar Finca

Together with Francisco Salazar we measured his farm at about 30 hectares. On our walks we mapped that at least 10 hectares were dedicated to (currently) planted crops and two others to pasture for their cow. Perhaps five hectares are charral, five more Secondary Forest and the remaining ten Primary Forest. The crops are located at random sites, at about a 10 minute walk from the house so as to deter the pigs. The charral is found in recovering areas that were once cultivated or used for their timber. The forests are located on steep slopes and along the streams. Francisco likes to leave healthy forest along his farm's two streams, "Without the trees the streams dry up, they die." Both Francisco and his grandmother are very aware of the need to carefully plan the location of their newly cleared lands, the rotation of their crops and the use of their soils in order to conserve their natural resources. This philosophy is not easily seen, it comes out in chance comments and through observing the overall plan of the farm.

Serafina has lived on this farm for over 30 years and has been cultivating cacao, rice, corn, pejobaye, bananas and tubers throughout these three decades. Today two of her grandsons and a granddaughter-in-law live with her and help on the farm. The majority of the work is completed by Francisco and Serafina, with help from a neighbor who works as a peón or from Doña Donate Salazar Salazar, Serafina's sister.

The planting of crops follows a certain schedule. Unexpectedly, this schedule has little to do with the seasonless climate, but revolves instead around the supply and demand of goods. For example, if Francisco plants rice in June it is because his February crop didn't produce enough to last the year. Considering that crops produce standard amounts of food they are spaced apart so that the harvests last until the next time that planting is appropriate.

The Salazar family rotates their crops to lessen the impact on their fragile soils. A crop will not be planted two years in a row in the same plot of land. But a different crop may be planted the following year. For example, if rice is planted in an area the next year beans may be planted there. After two or three years of use a plot is left to regenerate for at least five years.

The site of a crop is chosen depending on the crop, how much sun it needs, if it should be far from the house, on a hillside, etc. The site is cleared of brush and jute with a machete. Clearing a hectare takes one strong person a morning. Medicinal plants and large trees are left growing. The same or next day the plot is burned to clear the left over jute leaves and weeds. The crops are planted the next day and maintained until harvest. The following descriptions were told to me by Francisco.

9.2.1 Beans

Beans (*Phaseolus vulgaris*) are planted on a 1/4 hectare plot that is flat or sloped. Plots that were previously cultivated with corn or maize are often used to plant beans. The land must be totally clear of trees because they drop water that spots and ruins the bean plants. The planting is done in January, February and March so that the plants will be past their flowering stage when the July rains come. The seeds that are planted have been saved from last year's harvest. Groups of three or four seeds are planted at a depth of 5 cm and a distance apart of 3 cm. The dirt is lightly packed over the planted seeds. During the next three months the area is maintained by clearing invading herbs perhaps on two occasions. The harvest arrives in May. At least two days are needed to pick all of the beans. The vines are left in the area, only the pods and some branches are taken. They are then dried in the sun, either in the pod or out, and then stored. A quarter hectare can produce up to 50 kilograms of beans per harvest. The work is not strenuous and the economics make sense.

Time invested:

Clear land	1 day
burn	1/2 day
plant	1 day
maintenance	1 day
picking	2 days
drying	1/2 day

6 days or $\frac{30}{2}$ hours = 50 kg beans

Right now 50 kilos of beans cost \$51.57. So then working as a peón an indígena has to work 8 1/2 days to buy what he could harvest in 6 days work on his own farm. The only tools needed are a machete and a stick for planting.

9.2.2 Rice

Rice (*Oryza sativa*) is planted after corn or in a newly cleared patch on a steep hillside. The area should be sheltered from the wind so that the stalks aren't flattened to the ground-making cutting difficult. Usually a half a hectare is planted. After clearing and burning the plot the rice grains are planted at 6-8 cm deep. Up to twenty grains are put in each hole. The distance between these plants should be about 50 cm. Planting is done during three so that the plants mature at different rates. This is because rice is hard to cut and no one could cut all of the mature rice in one day. Planted in February and June, rice is harvested three months later. During these three months the maintenance includes cutting invading weeds and fumigating once, if needed. Cutting the ripe rice is a costly activity. Three people working during three days can cut the whole plot. Another two days are needed to separate the grains from the stalks. The rice is then stored and small amounts are hulled throughout the year, as needed. In a good year up to 250 kilograms of rice can be harvested from 1/2 ha. The tools needed are a machete, a pilón and maso and perhaps a fumigator and chemicals.

Time invested:

clear land	1 day
burn	1/2 day
plant	2 days
maintenance	2 days
cut	3 days/3 people
separate grains	2 days/3 people
hulling	2 hours = 12 kilos

23 days or $\frac{115}{5}$ hours = 250 kg rice

At this time rice is at \$0.61 a kilogram. Working for \$6.07 a day one would have to work 25 days to be able to buy 250 kilos of rice. Once mashing time is included, harvesting your own rice is as time costly as buying it, the main benefits are cultural.

9.2.3 Corn

Preferably planted in flat areas, corn grows well with lots of sun in places recently cleared of jute. After clearing and burning the whole hectare is planted by lifting the dirt with a stick, from an angle, inserting three or four seeds and letting the dirt fall back into place. Corn is planted in January and September, or when it begins to run out. The area is maintained during the three months growth time by fumigating once and cutting weeds once. The picking of corn takes a few days, usually two people can pick up to 25 sacos (the normal harvest) in three. Once removed from the cob the kernels harvested fill up to 12 sacos weighing a total of 50 kilograms. Corn is a relatively easy crop and used for feeding the chickens for the most part.

Time invested:

clear land	1 day
burn	1/2 day
plant	1 day
maintenance	2 days
cut	3 days/2 people

10.5 days or 52.5 hours = 700 kg corn

The tools needed for planting maize are a machete, a stick and fumigating equipment.

9.2.4 Bananas

The banana is a semi-perennial that is planted by Francisco nearly every month during the full moon. The farm has various 1/2 hectare plots of banana trees. Each tree produces only one bunch of bananas and is then useless. Banana trees produce several underground stems that upshoot forming a cluster of trees in one area. Once a tree has produced fruit it is cut and the younger stalks are left. Francisco often plants these new stalks apart, he cuts them from the mother plant and plants them in a different area. Bananas are planted after charral or Secondary Forest has been cleared. They are harvested daily, bananas are planted so extensively that they are found ripe throughout the farm on any day. Because the planting of bananas is an ongoing activity I cannot measure the time invested. Every family has bananas, they are the staple in times of need and are very easy to cultivate.

9.2.5 Tubers

Several tuber crops are found scattered around Serafina's farm. Cassava is planted in plots of 1/4 hectare while taniens, taro and yams are found in patches. Cassava is planted in cleared, burned land one or two days after the full moon so they grow large "fruits" (roots). Two sticks measuring 50 cm long, are planted by crossing them to form an "X" and putting them about 20 cm into the ground. The tiny sprouts should be facing up and the ends of the sticks cut diagonally, to induce regrowth.

9.2.6 Pejibaye

On the Salazar farm we counted at least 100 pejibaye trees. Nearly all of them had been planted by the family. Francisco plants the seeds during the quarter waning moon so they don't grow too tall. The trees are all located fairly close to the house on slopes or in flat areas. Pejibaye trees that sprout naturally are cared for by cleaning the area around them. Pejibaye fruits are used to feed the pigs and as food as well. Each tree produces between six and eight bunches of fruit a year. Each bunch yields between six and ten kilos of fruit for a total of 56 kilos a year. Because some of the one hundred trees are too young to produce we can estimate that $80 \text{ trees} \times 56 \text{ kilos} = 4480 \text{ kilos}$ of fruit a year. As Francisco puts it, "During pejibaye season those pigs are so sick of pejibaye they stop eating!" Pejibaye produces two times a year, once in January and again in September.

9.2.7 Fruit trees

Various types of citrus trees are found throughout the farm. Perhaps a total of seven are planted. They are planted near the house and in the cacaotales. The best time to plant these trees, as with all fruit trees is during a full or waning moon so that the trees don't grow too tall. Serafina says that pregnant women and their mates must stay clear of the trees or they will begin to die. Avocado, mango and soursop trees are found on various fincas.

9.2.8 Chickens and Pigs

The twenty or so chickens of Serafina's farm provide the family with eggs and occasionally meat. I would guess that at least four eggs are gathered weekly. Although pigs are raised the Salazars rarely slaughter them, only on very special occasions.

9.2.9 Culantro

Culantro (*Eryngium foetidum*) is grown in small patches near the house and collected and used nearly daily in the cooking of rice and beans.

The Salazar-Salazar family is described by the other Indians as hard working. The truth is that I found them to be very laid-back, spending their afternoons reading, talking or perhaps visiting. On occasion they work after lunch but not usually. They live well, eat well and what's more, they enjoy their farm and the activities involved. From a glance one can see that this family is living well by comparison, could this be attributed to their continued dedication to traditional agriculture, the sale of cacao, the combination? They are an example of a family living with the influences of the white world and yet retaining certain cultural values that enable them to live well and maintain a healthy environment.

10. DISCUSSION AND CONCLUDING IDEAS

Costa Rica's indigenous population accounts for less than 1% of the national population. Nevertheless, this small number of people owns 7% of the nation's land area. Although these natural environments are deteriorating in some areas, such as the Reservations of the Pacific, many communities still have the sufficient natural resources to uphold traditional resource-use management systems. In any case, these communities are slowly drifting from their traditional values and perceptions in regards to their environment.

This aculturation process is due to several factors. The primary factor is the loss of traditional leaders. These people help guide the communities in their relations with the environment, both natural and social. Many traditions involve these leaders and without them aren't carried out. This lack in human resources has led to socioenvironmental problems and a general degradation of indigenous cultures. A side effect is the deterioration of their resources as a result of abuse.

The slow move into consumer economics is an aside of this aculturation. The desire to buy goods that are not related to their subsistence needs, such as radios and televisions, has pushed the Indian to exploit his/her environment with the aim of earning cash. By many, the forest is viewed as a mine from which to extract and extract; balanced reciprocity plays no role in this form of management. The increased interaction between indigenous and white communities perpetuates this trend.

In *Namaldí* the social and economic interactions between the Indians and certain aspects of the white community influences the non-traditional exploitation of *Namaldí's* natural resources. As the community moves into a consumer economy families are faced with finding a balance between cultural values and making ends meet. Thus far the losses have been both cultural and environmental.

The human ecological interactions between *Namaldí* and Corina, as analyzed in this study, are exemplary of the situation of many indigenous and rural communities of Latin America. The future of these communities is one full of certain change and adaptation to an evolving environment. Our ability to support these communities in this transition depends on the depth of our understanding of these peoples and their environment.

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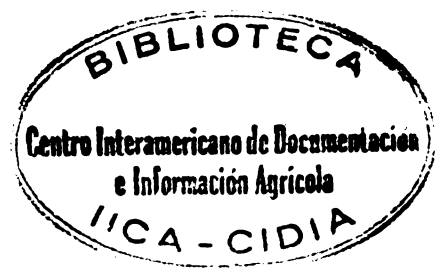
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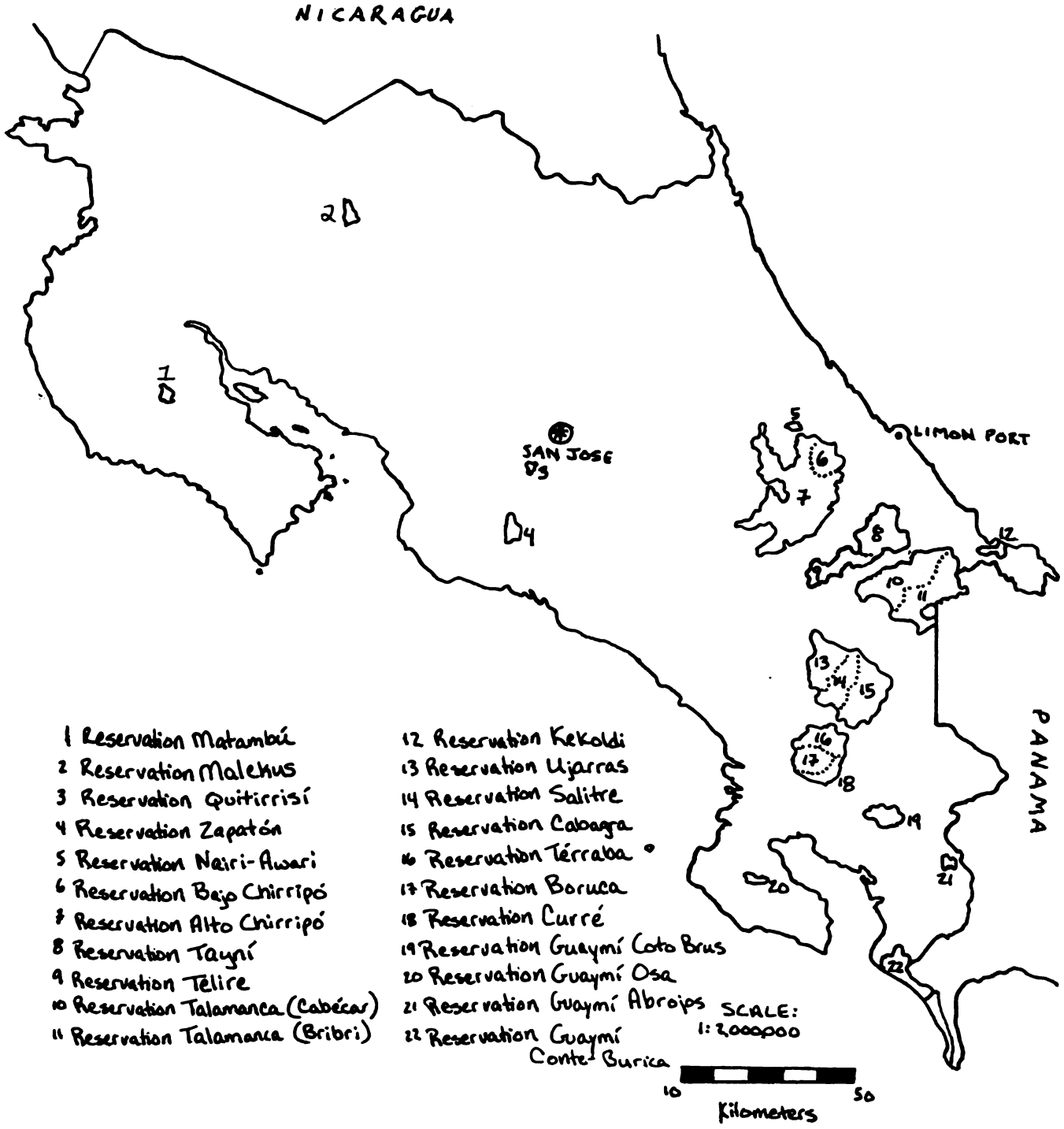
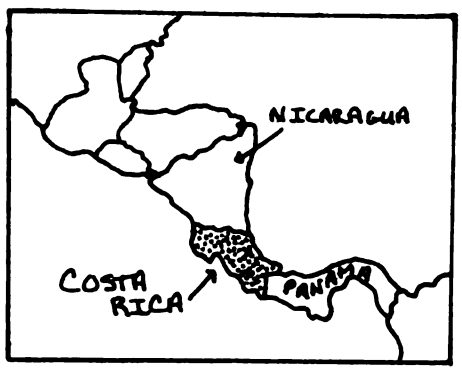
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12. ANNEXES

MAP 1

CENTRAL AMERICA

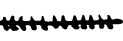
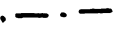
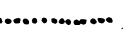


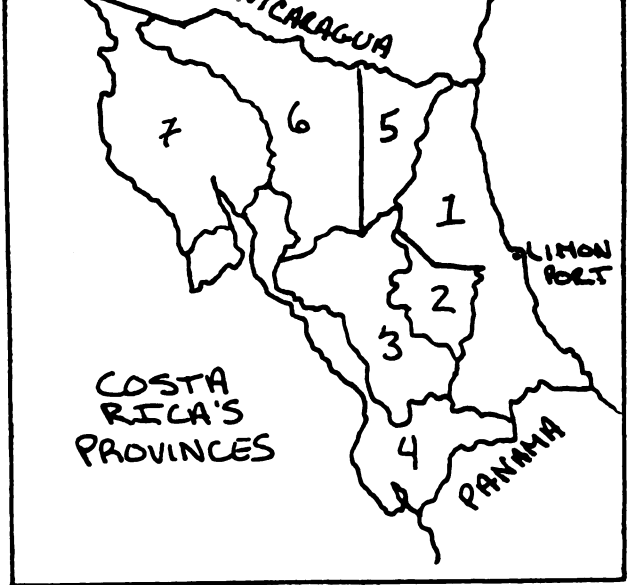
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- 3 Reservation Quitirrisí
- 4 Reservation Zapatón
- 5 Reservation Nairi-Awari
- 6 Reservation Bajo Chirripó
- 7 Reservation Alto Chirripó
- 8 Reservation Taynít
- 9 Reservation Téllire
- 10 Reservation Talamanca (Cabécar)
- 11 Reservation Talamanca (Bribri)
- 12 Reservation Kekoldi
- 13 Reservation Ujarras
- 14 Reservation Salitre
- 15 Reservation Cabagua
- 16 Reservation Terraba
- 17 Reservation Boruca
- 18 Reservation Curré
- 19 Reservation Guaymí Coto Brus
- 20 Reservation Guaymí Osa
- 21 Reservation Guaymí Abrojos
- 22 Reservation Guaymí Conte-Burica

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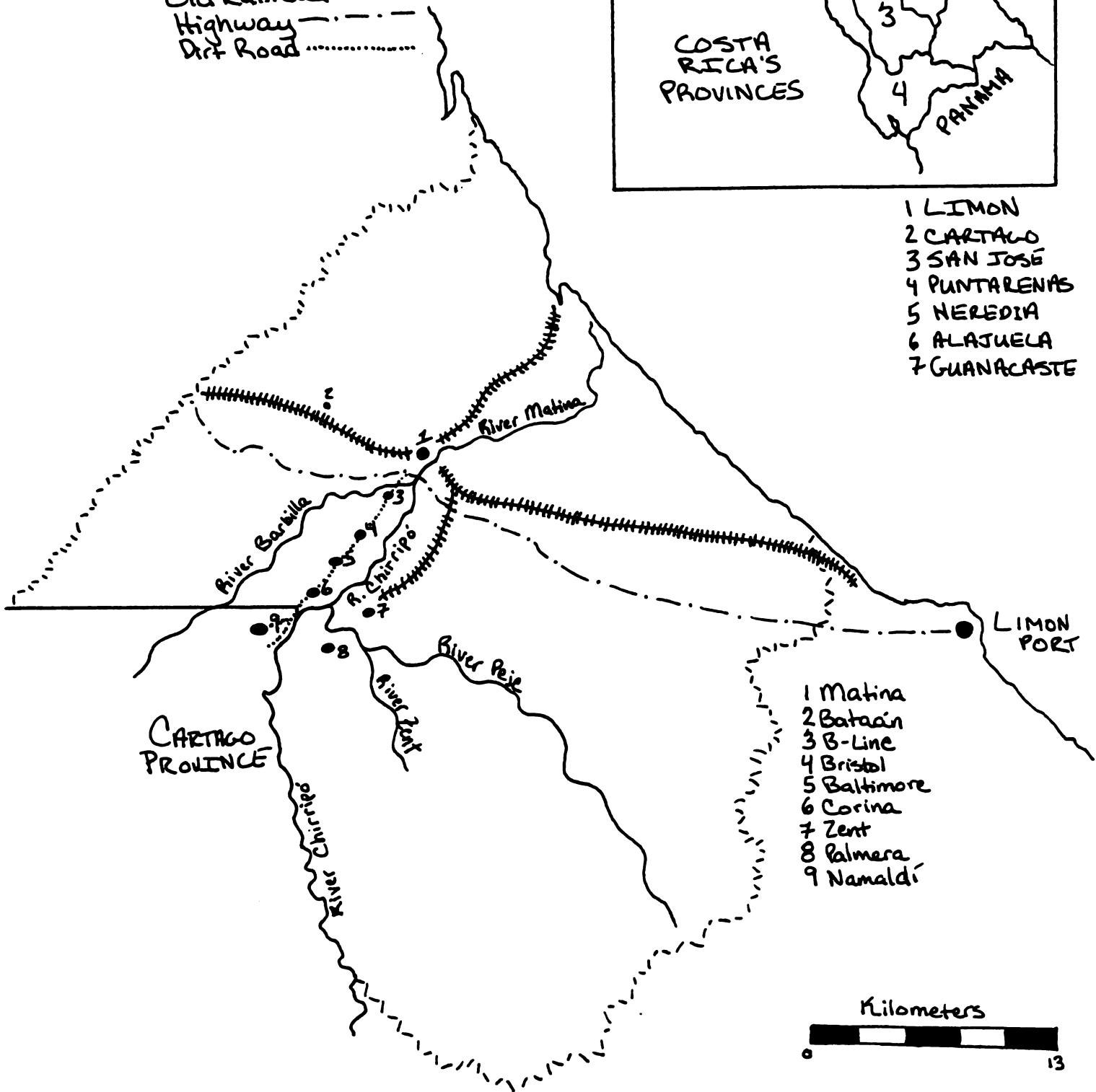
INDIGENOUS RESERVATIONS OF COSTA RICA

Legend:

- Old Railroad 
- Highway 
- Dirt Road 



- 1 LIMON
- 2 CARTAGO
- 3 SAN JOSE
- 4 PUNTARENAS
- 5 NEREDIA
- 6 ALAJUELA
- 7 GUANACASTE



- 1 Matina
- 2 Batacin
- 3 B-Line
- 4 Bristol
- 5 Baltimore
- 6 Corina
- 7 Zent
- 8 Palmera
- 9 Namaldi



MATINA COUNTY OF LIMON PROVINCE

Map cut from Barbilla leaf (Noja # 3545 IV) of
Cartographic Maps of Costa Rica.
Instituto Geográfico de Costa Rica, 1962.

SPECIES OF NAMALDI AREA*

TREES

	Common Name	Scientific Name	Family	Present State
1	Laurel	<i>Cordia alliodora</i>	Boraginaceae	A
2	Costilla de Danto	<i>Swartzia cubensis</i>	Caesalpiniaceae	A
3	Aguacatillo	<i>Phoebe brenesii</i>	Lauraceae	R
4	Fruta Dorada	<i>Virola koschnyi</i>	Myristicaceae	A
5	Jobo	<i>Spondias Mombin</i>	Anacardiaceae	E
6	Jabillo	<i>Hura crepitans</i>	Euphorbiaceae	VA
7	Balsa	<i>Ochroma pyramidale</i>	Bombacaceae	VA
8	Guácimo Blanco	<i>Goethalsia meiantha</i>	Tiliaceae	A
9	Guácimo Colorado	<i>Luehea seemannii</i>	Tiliaceae	A
10	Ceibo	<i>Ceiba pentandra</i>	Bombaceae	A
11	Sangrillo	<i>Pterocarpus officinalis</i>	Leguminosae	A
12	Cedro amargo	<i>Cedrela mexicana</i>	Meliaceae	A
13	Jaboncillo	<i>Talisia Nervosa</i>	??	A
14	Gallinazo	<i>Dipterondendron costarricensis</i>	Sapidaceae	A

* Adopted from RECOPE, 1994.

VA = Very Abundant

A = Abundant

R = Rare

E = Endemic

SPECIES OF NAMALDI AREA CONTINUED

TREES

	Common Name	Scientific Name	Family	Present State
15	Espavel	Anacardium excelsum	Anacardiaceae	R
16	Anonillo	Rollinia Pittieri Safford	Annonaceae	A
17	Panamá	Sterculia apetada	Sterculiaceae	R
18	Hule	Castilla costarricana	Moraceae	A
19	Achotillo	Spp.	Spp.	A
20	Lagartillo	Zanthoxylum spp.	Rutaceae	R
21	Indio pelado	Bursera simaruba	Bursereceae	R
22	Chaperno	Lonchocarpus spp.	Papilionatae	A
23	Guácimo	Guazuma ulmifolia	Sterculiaceae	A
24	Cachimbo	Lecityis costarricensis	Lecythidaceae	R
25	Muñeco	Cordia nitida	Boraginaceae	A
26	Mastate	Cordia megalantha Blake	Boraginaceae	R
27	Guayabón (Surá)	Terminalia lucida	Combretaceae	A
28	Cashá	Pithecolobium mangense	Mimosaceae	R

SPECIES OF NAMALDI AREA CONTINUED

TREES

	Common Name	Scientific Name	Family	Present State
29	Lechoso	Brosimun utile	Moraceae	R
30	Ojoche	Brosimun costarricanum	Moraceae	R
31	Poró	Erytrina spp.	Papilionatae	A
32	Guatuso	Spp.	Spp.	R
33	Zapotillo	Manilkara zapota	--	R
34	Canfín	Protium spp.	Burseraceae	R
35	Caimito montaña	Chrysophyllum caimito	Sapotaceae	--
36	Silvestre	Spp.	Spp.	R
37	Guabo colorado	Inga coruscans Willd	Fabaceae - Mim	A
38	Manú plátano	Vitex Cooperii Standley	Verbenaceae	A
39	Cedro macho	Carapa guianensis	Meliaceae	A
40	Guabillo	Inga spp.	Leguminosaea	A
41	Manguillo	Aspidosperma Cruentum Woodson	Apocynaceae	R
42	Chilamate	Ficus tondazii	Moraceae	A

SPECIES

AMPHIBIANS

Family	Scientific name	Vernacular name
Microhylidae	Gastrophryne pictiventris Glossostoma aterrimum Hypopachus variolosus	
Lepidodactylidae	Eleutherodactylus pictiventris (*) ? E. cruentus E. crassigitus E. fitzingeri E. talamancae (*) E. bransfordii	rana
Bufonidae	Bufo coccifer (*) B. coniferus B. haematicus B. marinus (*)	sapo sapo marino
Hylidae	Agalychnis annae (*) A. callidryas Hyla rufitela H. phlebodes (*) ? H. boulengeri H. elaeochroa H. uranochroa Phyllomedusa lemur	rana calzonuda rana calzonuda ranita boulenger
Dendrobatidae	Dendrobates auratus (*) D. pumilio (*) Phyllobates lugubris	rana venenosa rana venenosa
Centrolenidae	Centrolenella illex C. pulverata C. fleshmanii C. talamancae (*) ? C. valeroi (*)	ranita de vidrio
Ranidae	Rana palmitis	rana

SPECIES CONTINUED

REPTILES

Family	Scientific name	Vernacular name
Gekknoidae	Coleonyx mitratus Gonatodes albogularis (*) Lepidoblepharis xanthostigma Sphaerodactylus homolepis	
Iguanidae	Anolis frenatus (*) ? A. insignis (*) A. microtus Basiliscus plumifrons (*) B. vittatus Iguana iguana (*) Norops cupreus N. humilis (*) ? Sceloporus malachiticus	garrobo garrobo iguana lagartija lagartija lagartija espina
Teiidae	Ameiva festiva(*)	chisbala
Boidae	Boa constrictor (*)	boa o becquer
Colubridae	Amastidium veliferum (*) Clelia cleila (*) Dipsas bicolor Drimarchon corais Erythrolampus spp. Imantodes spp (*) Sibon annulata (*)	sabanera zopilota
Elapidae	Micrurus alleni M. clarki M. nigrocinctus	coralillo coralillo coralillo
Viperidae	Bothrops asper (*) Bothriechis lateralis B. picadoi B. godmani (*) Lachesis muta	terciopelo lora toboba toboba cascabel muda

SPECIES CONTINUED

MAMMALS

Family	Scientific name	Vernacular name
Bradypodidae	Bradipus variegatus (*)	perezoso tres dedos
Cabidae	Alowatta villbsa Ateles geoffroyi	mono congo mono araña
Dasypodidae	Dasypus novemcinctus(*)	armado
Didelphidae	Caluromys derbianus (*) Didelphis marsupialis (*)	zorro pelón
Erethizontidae	Coendou mexicanus (*)	puercoespín
Geomydae	Orthogeomys spp	
Leporidae	Sylvilagus floridanus (*)	liebre
Muridae	Mus musculus (*)	ratón
Mustelidae	Mustela frenata (*) Eira barbara (*)	comadreja tolomuco
Myrmecophagidae	Tamandua mexicana (*)	hormiguero
Procyonidae	Procyin lotor (*)	mapachín
Sciuridae	Sciurus spp (*)	ardilla
Glossophagidae	Teyassu pecari T. tajacu	pecari saíno
Vespertilionidae	Mytis nigricans	murciélago pardo
Heteromydae	Heteromys desmarestianus	ratón

SPECIES CONTINUED

BIRDS

Family	Scientific name	Vernacular name
Cracidae	<i>Crax rubra</i> (*)	pavón
Pandionidae	<i>Pandion heliaticus</i>	
Accipitridae	<i>Buteo magnirostris</i> <i>B. swansoni</i> (*) <i>Leptodon cayanensis</i> <i>Morphnus guianensis</i> <i>Falco peregrinus</i> (*)	gavilán chapulinero gavilán
Charadriidae	<i>Charadrius alexandrinus</i>	
Parulidae	<i>Dendroica palmarum</i> (*)	reinita
Columbidae	<i>Rhychortys cinctus</i> <i>Columba speciosa</i> (*) <i>C. cayannensis</i> <i>C. nigrirostris</i> <i>Leptotila verreauxi</i> <i>L. cassini</i> <i>Geotrygon</i> <i>verguensis</i> (*) ? <i>C. montana</i> (*) ?	paloma paloma paloma perdiz roja
Psittidae	<i>Brotogeris jugularis</i>	perico
Cuculidae	<i>Crotophaga ani</i> <i>Crotophaga sulcirostris</i> (*)	tijo
Strigidae	<i>Galucidium minutissimum</i>	
Caprimulgidae	<i>Nyctodronus albicollis</i>	cuyeo
Trochilidae	<i>Florisuga millevora</i> (*) <i>Thalurania millevora</i> (*) <i>Amzilia tzacatl</i> (*)	

SPECIES CONTINUED

BIRDS

Family	Scientific name	Vernacular name
Alcedinidae	Choroceryle americana	martín pescador
Momotidae	Momotus momota (*)	bobo
Icteridae	Quiscalus mexicanus (*)	zanate

ENDANGERED SPECIES LIST*

BIRDS

Buteo magnirostris	Accipritidae
Buteo swansoni	Accipritidae
Dentroica palmarum	Parulidae

MAMMALS

Bradypus variegatus	Brady poclidae
Coendou mexicanus	Erethizontiadae
Mustela frenata	Mustelidae
Eira barbara	Mustelidae
Tamandua mexicana	Myrmecophagidae

REPTILES

Iguana iguana	Iguanidae
Boa constrictor	Boidae
Cleila cleila	Colubridae

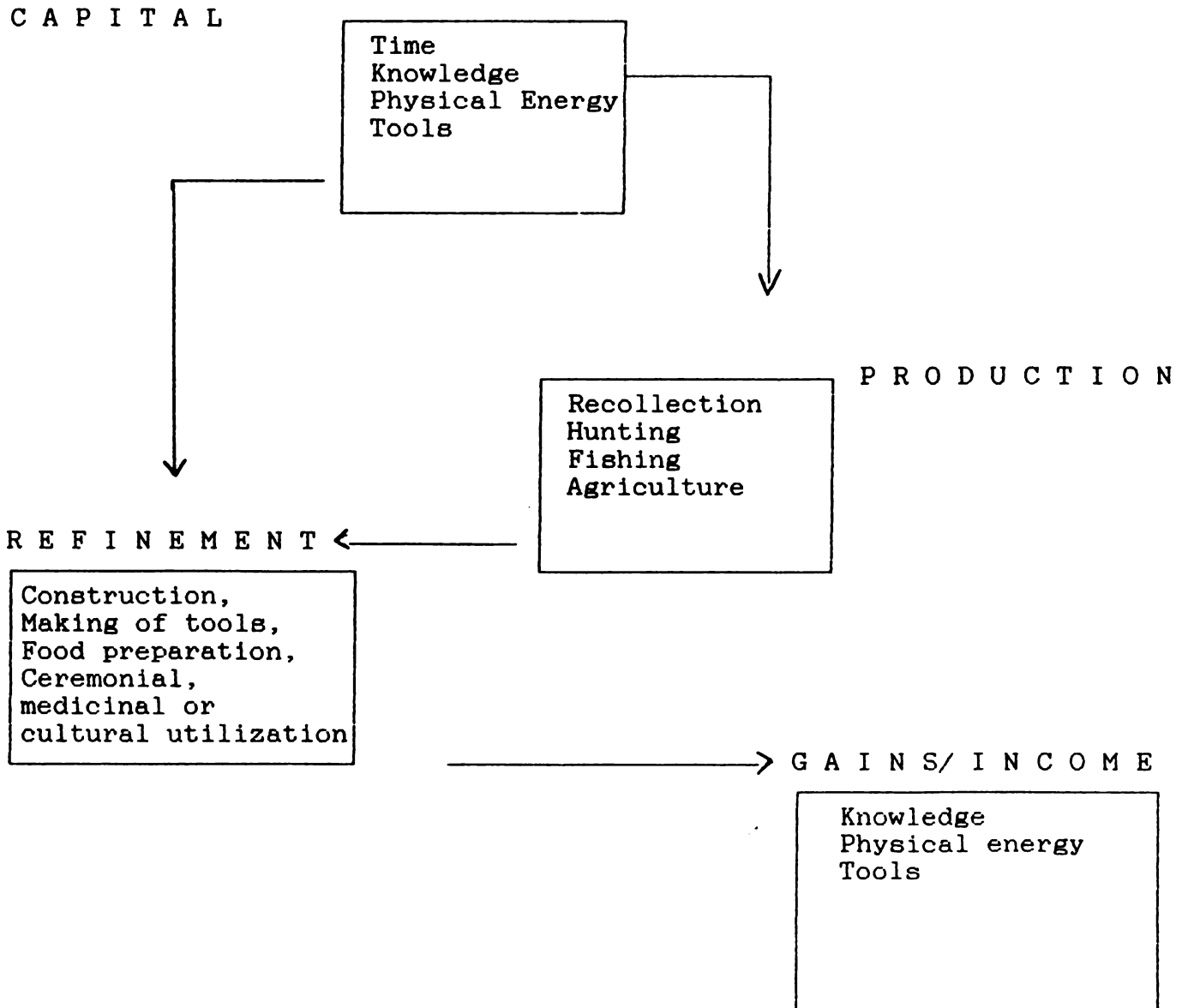
AMPHIBIANS

Bufo haemeticus	Bufo nidae
Hyla boulengeri	Hylidae
Dendrobates auratus	Dendrobatidae
Dendrobates pumilio	Centrolenidae

RECOPE's survey did not find any endangered tree species.

* Adopted from RECOPE. 1994.

FLOW CHART OF A
SUSTAINABLE RESOURCE USE ECONOMY



VOCABULARY

<u>Cabécar</u>	<u>English</u>	<u>Spanish</u>
namorwút	lemon	limón
china	orange	naranja
jamó	avocado	aguacate
buë	taro	tiquisque
seridbát	tuber	ñampí
shkú	cassava	yuca
salirba	yam	ñame
diká	-	pejibaye
salát	plantain	plátano
chómo	banana	banano
kañí	beans	frijoles
kelartubú	heart of palm	palmito
pashtú	sugar cane	caña dulce
xsa	soursop	guanabana
pís	squash	ayote
baga kewō	sweet potato	camote
hárwo	chayote	chayote
kapē	coffee	café
jiguwé	corn	maíz
tchirú	cacao	cacao
shotorró	edible mushrooms	hongos comestibles
shirábata	fern	helecho
mapachí	raccoon	mapache
cuná	squirrel	ardilla
tswí	armadillo	cusuco
conó	wild pig	coche de monte
sirák	-	pizote
hurés	toucan	tucán
tswá	oropendola	oropendola
oró	vulture	zopilote
namalna	dove	paloma
bambú	bamboo	bambú
vó	palm	cocopalmera
ukákla	cane	caña brava
ulúk	cedar	cedro macho

VOCABULARY (continued)

Cabécar

English

Spanish

juwáy

laurel

laurel

tcúc

-

chonta

datcha

balsa

balsa

waskú

-

gavilana

siwakapí

-

garapatía

tirrokichá

vine

bejuco

nalákichá

vine

bejuco del hombre