AN ECOTOURISM MANAGEMENT PLAN

EJIDO 20 DE NOVIEMBRE

by

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A Thesis
Submitted in partial fulfillment of the
Requirements of the degree
MASTER OF SCIENCE
IN
NATURAL RESOURCES
ENVIRONMENTAL EDUCATION / INTERPRETATION
College of Natural Resources
UNIVERSITY OF WISCONSIN
Stevens Point, Wisconsin

August 2002
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ACKNOWLEDGEMENTS

I must first acknowledge two very important people to this project: Dr. Michael Gross (UWSP) and Dr. Edgardo Hernández Vázquez (AUCh, Mexico). Thank you for the project of a lifetime. Both of you have been wonderful mentors and have spent a great deal of time and effort in making this project possible; your assistance, guidance, and expertise made this management plan a success. Special thanks to the Calakmul Model Forest organization personnel: Luis Poot Chan, director; Luis Felipe Montejo Guzman, president; Javier Cauich Naal, and Camen Salgado for your project and logistical support.

Many thanks go out to so many supportive people in southeastern Mexico, such as Gloria Fuentes Libertad Libertad, Wilbert Gonzales Cervera, and Ejido 20 de Noviembre residents, in particular, Margarita Cauich Cauich, Humberto Dzib Tun, and Victor Cauich Cauich. Many thanks to Carlos Vidal, director of INAH in Campeche, and other INAH personnel for their assistance with the market study survey. Funding support for my project was made possible by a grant from the University of Wisconsin System’s Institute for Global Studies. Additional thanks go to UWSP CNR Dean Victor Phillips and Michael Dombeck with the GEM program and my graduate committee for their support.

Last, but certainly not least, special thanks go out to my friends and family for their emotional support throughout graduate school, and especially to my sister and best friend, Ruth, for always being there. I give thanks to my mother, who opened my eyes to a world of different cultures and languages and, to my father, who fostered my love of nature and the outdoors; both of you have truly given me everything.
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CHAPTER 1
AN ECOTOURISM MANAGEMENT PLAN
EJIDO 20 DE NOVIEMBRE

Statement of Problem

This research proposes to develop a management plan for community-based ecotourism development within 20 de Noviembre, an ejido within the Calakmul Model Forest. The plan involves a market study of the region, an inventory of natural and cultural attractions, and the identification of necessary trainings, promotional strategies, and recommended development priorities. An Ecotourism Management Plan will be the initial organizational step for community-based ecotourism and will benefit this local community and ecotourists who visit the area, in addition to establishing a framework that can be used throughout the Calakmul Model Forest region.

Figure 1. Region Area. A) The Calakmul Biosphere Reserve and region is located in southeastern Campeche State. B) The Calakmul Model Forest, shown in the dark shade, lies between the Calakmul Biosphere Reserve on its west side and the state borders of Campeche and Quintana Roo on its east side.
Figure 2. Site Area. C) Topography of the region and location of ejido 20 de Noviembre within the Calakmul Model Forest.
Sub-problems

(1) Identify goals and objectives for ecotourism development.

(2) Conduct a market study to identify and determine market audiences, their interests, and their needs.

(3) Examine existing ecotourism projects within other communities.

(4) Inventory 20 de Noviembre’s natural and cultural resources of interest to ecotourists.

(5) Identify and determine potential themes and messages that would be communicated in recommended interpretive media.

(6) Recommend promotional strategies, trainings and partnerships necessary for success.

(7) Recommend strategies for review, analysis, and evaluation of ecotourism activities.

Definitions

Ecotourism:

Kimmel (1999) uses the World Conservation Union (IUCN) Ecotourism Programme definition of ecotourism:

"environmentally responsible travel and visitation to relatively undisturbed natural areas in order to enjoy and appreciate nature (and any accompanying cultural features — both past and present) that promotes conservation, has low visitor impact, and provides for beneficially active socio-economic involvement of local populations"

Ejido:

The Mexican Revolution of 1910 brought about major land reforms in Mexico. Prior to this, the majority of the land in Mexico was owned by the few and wealthy elite, under the Hacienda system. After the Revolution, land was redistributed to peasant communities in the form of communally held village lands known as ejidos. Beletsky (1999) defines an ejido as a self-governing, cooperative land unit, typically made up of between 400-600 people that have been given a large tract of land for agriculture and
managing forest resources. With their own elected officers, ejidos decide how best to use their lands and what to do with profits from agriculture and commerce.

Project Site
Ejido 20 de Noviembre is located 18 km (11.2 miles) southeast of X’pujil, the municipal center of the Calakmul region (Figure 2-C). Established on November 20, 1971, founding members are primarily from Dzibalchen, a city in northern Campeche state. Ejido 20 de Noviembre consists of 32,000 ha (~ 80,000 acres) of tropical sub-deciduous forest. The most accurate data obtained on the ejido population is from INEGI (1996) which records 343 inhabitants (184 men and 159 women) consisting of 69 families, 100% of which are Mayan. The ejido’s principal activities include farming, wood extraction, bee keeping, reforestation, and chicle extraction.

Significance of Study
Shared by Mexico, Guatemala, and Belize, the Maya Forest is considered the largest area of humid, tropical sub-deciduous forest remaining in Central America. The Maya forest has an incredible cultural and natural richness but human population pressures and unsustainable forest practices are taking their toll. Attempts to protect the Maya Forest, such as the establishment of the Calakmul Biosphere Reserve in 1989, have done little to stop the looting of archaeological sites and the trading and over-hunting of endangered and rare species (Primack et al, 1998).

In searching for ways to protect the fragile natural and cultural resources of the Maya Forest while still providing for people’s needs, community-based ecotourism is being
seen as a viable alternative. One of these communities located within the Maya Forest is Ejido **20 de Noviembre**. In conjunction with the Calakmul Model Forest, the development of an Ecotourism Management Plan for this community will be the initial organizational step to developing ecotourism here.

This plan is the initial part of a larger effort. Future implementation of this or similar plans can lead to increased public knowledge, appreciation, and understanding of the region’s resources and cultural significance; better orientation for visiting ecotourists; increased income and employment opportunities for local communities where unsustainable uses of forest resources currently exist; and, ultimately, the increased preservation of the Maya Forest’s fragile natural and cultural resources.
CHAPTER TWO

REVIEW OF THE RELATED LITERATURE

This chapter reviews the related research and literature used to establish the background for this study. This literature review will discuss the following sub-problems identified in Chapter One:

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1. An Overview of Ecotourism: Goals and Objectives

Travelers have been drawn to nature areas and cultural attractions since the origins of tourism. Tourism today is one of the leading world industries; ecotourism is now considered tourism's fastest growing segment (Kimmel, 1999). The World Tourism Organization estimates that nature tourism generates 7% of all international travel expenditures (Lindberg, 1997) and the World Resources Institute found that while tourism overall has been growing at an annual rate of 4%, nature travel is increasing between 10% and 30% a year (Reingold, 1993).

Ecotourism is defined by the World Conservation Union (IUCN) Ecotourism Programme (Kimmel, 1999) as:

"environmentally responsible travel and visitation to relatively undisturbed natural areas in order to enjoy and appreciate nature (and any accompanying cultural features – both past and present) that promotes conservation, has low visitor impact, and provides for beneficially active socio-economic involvement of local populations."

This increase in nature tourism could be attributed to more international concern in protecting natural, tropical ecosystems in the last few decades as tropical forest loss has become more publicized. Tourism in protected areas works towards the following goals: to conserve the environment, enhance the quality of life for the resident community, and improve products and services. Because of its potential in helping conserve natural and cultural heritages, tourism in protected areas is becoming an important component of government policy in many developing countries. In addition, ecotourism provides many opportunities for on-site educational and interpretive programs that can play an important role in managing protected areas and connecting visitors with the site and its values (Kimmel, 1999).
Community-Based Ecotourism
According to Fennell (1999) “mega-tourism” development is focused on attracting as many people as possible, is often located around massive developments, and is tailored towards visitor expectations and demands. In many examples, this development uses non-local products, is owned by outside or foreign interests, and is often seen as the symbol of mass tourism's domination of a region.

In contrast, protection of natural and cultural resources are the top considerations under planning and development for alternative tourism, while also taking local community needs into account. Unlike developers of mega-tourism development who often do not live in the area, in community-based ecotourism, the local people are the first to see the benefits of conserving their natural resources and can even be converted into wardens or conservationists of these natural areas (Fennell, 1999). And because ecotourism usually takes place in regions where poor, rural populations live closest to protected areas, ecotourism can represent a viable, socioeconomic alternative for local people where unsustainable use of forest resources currently exist (Boo, 1990). Community-based ecotourism stresses community ownership and management and involves conservation, community development, and business enterprise; all of this enables a community to earn additional income and improve their quality of life (Sproule, 1999).

Pros and Cons of Ecotourism
Ecotourism can have both positive and negative effects on an area. On the positive side, ecotourism can generate local employment and encourage small-scale tourism enterprises, including lodging, restaurants, transportation, souvenirs and handicrafts, and
guide services (IUCN, 1992). In addition, in areas that might not otherwise receive any protection, ecotourism can sometimes be the economic justification for conservation (Boo, 1990).

Inappropriate management is one area where ecotourism could be detrimental. Boo (1990) stresses that ecotourism must be planned cautiously to minimize negative impacts such as environmental degradation, economic instability, and socio-cultural changes. Environmental degradation can include litter, trail erosion, or water pollution if garbage is not managed and appropriate sanitation facilities are not in place. According to IUCN (1992), environmental degradation can also involve behavioral changes and stress to wildlife, including disruption during prime mating seasons, hunting, or migration. Unfortunately, the long-term impacts that tourism may have on animals have not been studied.

Popular ecotourism destinations can be detrimental to their surrounding environments if overcrowding occurs (Boo, 1990), and too many people can also take away from the visitor's experience. This 'success' in numbers can also lead to inappropriate development, including large hotels and highways that change an area's main objective from conservation to mass tourism (IUCN, 1992).

In developing ecotourism, an important part to remember is that tourism, in itself, is an unstable source of income. There are external factors that a community has no control over, such as natural disasters, changes in international currency exchange rates, or
political unrest that can all affect tourism to an area. Because of this, ecotourism should never be the sole source of income for a community, but rather, compliment other activities. Lastly, socio-cultural changes should be taken into consideration. Socio-cultural changes can be positive if economic development and integration into international markets is something a community wants. Where it becomes problematic is if communities do not make these decisions themselves or play a primary role in planning (Boo, 1990).

Ecotourism in Southeastern Mexico

According to Boo (1990), the southeast region of Mexico offers many important coastal resort areas in the state of Oaxaca; the Lacandon jungle in Chiapas, the largest rainforest remaining in North America; and the Yucatan Peninsula (the states of Campeche, Yucatan, and Quintana Roo), known for its Mayan ruins. Primack, et al (1998) writes that the Maya Forest has many attractive features that could be a part of ecotourism development, including an abundance of Mayan ruins and many unique plants and animals that are endangered or extinct elsewhere in Central America. Although considered beautiful by many, Boo (1990) states that nationally and internationally, most natural protected areas in Mexico have yet to be considered tourist attractions.

The Yucatan Peninsula has enormous potential to attract people to destinations other than beaches, including rainforests and archaeological ruins. Tourism development to the Mayan ruins and nature areas can be alternatives to the initially popular attractions that mega-tourism focuses on (beaches and shopping malls). Visits to the Maya Forest from major hotel areas can also be promoted as easy day trips. In addition, infrastructure will
only need to be developed at nature sites since substantial infrastructure in major cities already exist (Boo, 1990).

In southeastern Mexico, the local, national, and international tourism markets interested in seeing how other people live, experiencing their culture, and understanding the natural environments that define their existence will be those tourists interested in visiting local indigenous communities (Steele-Prohaska, 1999). Markets for more adventuresome experiences can even be developed for the smaller ruins found in rural communities (Primack, 1998).

According to Boo (1990), Mexico is at an advantage with two important tourism markets (U.S. and Canada) close to its border that already represent a significant portion of Mexico’s general tourism. In addition, both countries also have many nature enthusiasts where nature tourism could become an important market niche. But in developing ecotourism, one needs to know the market audience and who the ecotourist is. This is where a market analysis is critical.

2. Market Study

Ecotourist Market Profile

By knowing your intended audience, you can understand what motivates and interests people in visiting certain areas and attractions. To determine target audiences, information can be obtained through focus group discussions, demographic studies, market studies, and nominal groups (Byrd, 1998).
According to IUCN (1992), a growing numbers of vacationers are seeking warm, tropical climates and want to see something new, different, and spectacular, and something to photograph. A growing number of people from the more developed countries are showing an interest in specialized tours that are orientated towards “exotic” natural and cultural features, often times found in developing countries; Mexico is one such example.

Mexico has a strong tourist industry, nearly half of which is made up of visitors to protected areas and archaeological ruins. According to A. Stareopolski (Director for the Office of Sports and Alternative Tourism within the Mexican Ministry of Tourism, personal communication, 2001), 800,000 people come to Mexico annually to enjoy some type of ecotourism, and this number has increased between 5% - 8% during the past five years. Ecotourism presents an excellent opportunity to bring new value to the Maya Forest’s natural and cultural resources.

From an analysis of different worldwide destinations and tourist motivations, Fillion (1992) reported that 40-60% of all international tourists are nature tourists and that 20-40% are wildlife-related tourists. Nature tourists are defined as “tourists visiting a destination to experience and enjoy nature”, and wildlife-related visitors can be defined as “tourists visiting a destination to observe wildlife”, including bird watching; both of these tourist types be categorized under ecotourism (Fillion, 1992).

As a group, nature tourists are generally more accepting of different accommodations (Boo, 1990). Nature tourists, in general, are choosing more “off-the-beaten-path”
destinations often located in remote areas with beautiful environments but little tourist infrastructure, rather than the well-known and traditional vacation spots. Many nature tourists do not expect luxury, or even comfort accommodations (lodging, food, nightlife) required by other tourists because experiencing a local culture – its customs, food, and local conditions – all add to the total experience. Basic services and infrastructure, however, are still required to make an ecotourism destination successful (IUCN, 1992).

Survey Design

According to Jacobson (1999), survey development for a market study should involve the following format:

1. Define Survey Objectives
   - Collecting different types of information can help guide planning and explain different audience interests, needs, and opinions.

2. Select a Sample from the Target Population
   - Collect data through volunteer surveys and interviews (non-probability sampling).

3. Develop the Survey
   - List potential survey questions and weed out irrelevant ones. The shorter the survey, the more likely respondents will complete it.
   - Make a list of topics to cover, then organize them logically; opinion questions go first, then knowledge questions, followed by socio-demographic questions.
   - Pilot test with 10-20 of the target population to eliminate any vague, biased, or confusing questions.
   - Provide a brief, but persuasive, introduction that stresses why the study is useful and why their participation is important.

In addition, the first few questions on a questionnaire should relate to the objective of the study, be easy to answer, and appear non-threatening. Sensitive questions should appear later in the questionnaire and demographic questions, which may be considered more personal, should appear last (Nichols, 1990).
Accommodations

Accommodations for nature tourists should be modest, but comfortable and clean (IUCN, 1992). This view can also be seen in a Market Demand Study (Wright, 2000), which found tourists desired a range of accommodations. Comments included "in Yosemite, want a cabin; in Hong Kong, want hotel/motel" and "if nature trip, want cabin; if sightseeing, want hotel". Ecotourists were far more likely to select from a range of intimate, adventure-type accommodations, such as cabins, lodges/inns, camping, bed and breakfasts, or ranches. The travel trade focus group interviews (HLA Consultants in TIES) support the conclusion that the accommodation is not a critical deciding factor that determines the vacation, but rather, it is the vacation experience that determines the accommodation. For example, although European travel trade customers generally want comfortable accommodations, they are prepared to "rough it", if this is part of the experience (ARA Consulting Group in TIES). Ingram and Durst (1989) found that there was relatively high use of rural and village-level accommodations in their study of nature oriented tour operations: 40% rural/village; 27% camping; 21% luxury hotels; and 33% other hotels.

Wight (2000) discusses considerations relevant to providing ecotourism accommodations, including the accommodation type (is it more rustic, intimate, and adventure-type and representative of its setting?) and environmental sensitivity (does it demonstrate credibility and sensitivity to the environment?). Although accommodation is part of the necessary infrastructure for the ecotourist to stay overnight in the area, the "add-ons" (programs, activities, and interpretation) ultimately determine the experience (Kerr, 1991).
A study by Reingold (1993) showed that 40% of interviewed travelers have a growing dissatisfaction with traditional sightseeing and more interest in “life enhancement” vacations. Ham and Weiler (2000) discuss all tourists’ common desire for authenticity, cultural and/or environmental immersion, and quality and unique experiences.

**Settings and Activities**

Wright (2000) summarizes in the following two paragraphs several ecotourist market studies. In terms of an ecotourist’s favorite setting, wilderness was rated as the most important feature, followed by a wildlife setting, national parks and other protected areas. Furthermore, when members of the travel trade were asked to rank the most important product characteristics, wilderness ranked first, followed by guides, outdoor activities (wildlife viewing and hiking/trekking), all-inclusive packages, park/protected areas, interpretive/educational programs, cultural experiences, and the ability of guides and other personnel to speak the tourist’s language. “Cultural experiences” involved artifact viewing, visiting ruins and museums, learning about an area’s history, visiting villages, and contact with the local people.

S. Ham (personal communication, April 6, 2001) comments that the main tourists in Central America are English speaking for most of the year and primarily come from the United States, with a small percentage of Canadians and Europeans. There are different tourist “seasons”, however, including a French season and an Italian season. Based on a study of tourists at the Panama Watershed Protected Areas (Ham and Weiler, 2000), Spanish (72%) and English (21%) were the most common native languages spoken by
visiting tourists. Only German (2.1%) and French (1.1%) were recorded as significant other languages spoken (above one percent). Furthermore, 52% of the tourists were bilingual; English (78%), Spanish (14%), and French (5%) were the second languages most frequently spoken.

**The International Ecotourism Society (TIES) Ecotourist Market Profile**

The International Ecotourism Society has constructed the following ecotourist market profile based on data collected by a survey completed by HLA and ARA consulting firms of North American travel consumers:

- **Age:** 35 - 54 years old, although age varied with activity and cost.
- **Gender:** 50% female and 50% male
- **Education:** 82% were college graduates, although there currently is an expansion into mainstream markets (from those with high levels of education to those with less education).
- **Household composition:** no major differences were found between general tourists and experienced ecotourists. (Experienced ecotourists = tourists that had been on at least one "ecotourism" oriented trip)
- **Party composition:** a majority (60%) prefer to travel as a couple, 15% prefer to travel with their families, and 13% prefer to travel alone.
- **Trip duration:** the largest group of experienced ecotourists (50%) preferred trips lasting 8-14 days.
- **Expenditure:** experienced ecotourists were willing to spend more than general tourists, the largest group (26%) stating they were prepared to spend $1,001-$1,500 per trip.
- **Important elements of trip:** experienced ecotourists top three responses: (1) wilderness setting, (2) wildlife viewing, (3) hiking/trekking.
- **Motivations for taking next trip:** experienced ecotourists top two responses: (1) enjoy scenery/nature, (2) new experiences/places.

It has been found that although tourists may look for more exotic and unique places to visit, this potential drops off fast as expense, time, and discomfort of travel increases or when danger is involved in reaching the destination. The reliability of sighting is also
necessary. It is not enough to know you have only a *chance* at seeing a rare or large animal; visitors want to have a reasonable guarantee that they will see whatever they were promised (IUCN, 1992). Wright (2000) concludes that the opportunity to enjoy scenery and/or nature was the number one reason for the next ecotourism vacation.


Required Characteristics
As a general guide (Fennell, 1999), to be successful in promoting ecotourism projects, a community should have these certain characteristics:

- **Natural and physical attributes.** This includes attractive views and landscapes, cultural resources, potable water, and access roads. An inventory and map of these attributes should be developed, as well as information provided in several languages.

- **Relationships with NGOs that can provide assistance.** In many situations NGO’s provide training, technical assistance, and even start-up funding.

- **Ability to work with other organizations.** This assists in developing and enhancing the tourism market, from the local tourism industry to tourism operators.

- **Transportation facilities and services.** Transportation access into the region, linking the attractions and development areas, and within the development areas.

- **Other infrastructure.** Other infrastructure, including water supply, electric power, sewage and solid waste disposal, and telecommunications may be necessary.

- **Institutional elements.** The institutional elements necessary to develop and manage tourism include organization, education, and training programs, marketing and promotional strategies, and public and private sector tourism organizational structures.
Community-Based Ecotourism Development Approaches

According to Wesche and Drumm (1999), there are three main community-based ecotourism development approaches:

1.) A community owned and managed enterprise. This system aims to benefit all community members. This method uses a rotation system that employs all members within the ecotourism enterprise, with any remaining profits used in various community projects. Unfortunately, this approach is the most difficult to implement and maintain. This is primarily due to the fact that in most communities, not everyone is interested in participating or may want to participate at different levels. Although traditions of sharing and communal labor in many communities does exist, community members need to commit to more long-term communal projects that requires a more permanent commitment. Problems can occur if short-term profits or income isn’t seen or if people don’t have promised employment. Once a steady or predictable income flow can be established, it may be easier to organize community support, especially in the long-term.

2) Family or group initiatives within communities. This system, based on voluntary participation and arrangements between individuals within a community, is more flexible than the first system. Many community members benefit because contracted work (labor and services) stays within the community.

3) Joint ventures between an indigenous community and a non-indigenous partner. This is the least frequent type of community-based ecotourism that usually follows two distinct arrangements:
• In the first case, the non-indigenous partner supplies the tourists (market audience), transportation to the community, and, where necessary, a multilingual guide. Program and other arrangements in the community are taken care of by the indigenous partner (community).

• In the second case, the non-indigenous partner and the indigenous partner (community) establish a long-term contract that allows the non-indigenous partner to construct various facilities and manage ecotourism (facilities and programs) within the community. In return, community benefits, such as employment and income, are guaranteed.

Carrying Capacity

Establishing carrying capacity of a destination ensures a limit to use and development that will not negatively effect the environment or the community’s culture (Inskeep, 1991). According to the IUCN (1992), carrying capacity implies that there are limits to visitor use but it is at the level that still satisfies the visitors without detrimental impacts on the resources.

Carrying capacity takes into account the following environmental factors:

• Size of an area and usable space
• Environment fragility (some areas have very fragile soils or other vulnerable features)
• Wildlife resources (carrying capacity is affected by numbers, diversity, and distribution of wildlife, and their concentration areas)
• Topography and vegetative cover
• The relationship between animal behavioral sensitivity and human visitation (this has to be determined by biologists versed in the ethnology of the involved species)
Carrying capacity takes into account the following social factors:

- Viewing pattern (what % of use occurs in what % of area)
- Tourists viewing choices
- Visitors' opinions (how do visitors rate the area at present use levels, what are their opinions about crowding)
- Availability of facilities

If tourism is to be successful, the tourist market must be matched with the attractions and services at a site, which also helps plan promotional approaches to use. Furthermore, various tourist market needs and demands will influence the type of additional infrastructure or services (Inskeep, 1991). In southeastern Mexico, the natural and cultural resources are the important ecotourist attractions.

4. Natural and Cultural Resources in Southeastern Mexico.

Natural Resources

Flora and Fauna

Mexico's natural resources are predominantly used and managed by local, community-based, indigenous communities who have developed an extensive knowledge about their environments (Castillo and Toledo, 2000).

According to Castillo and Toledo (2000), approximately 30,000 peasant communities manage more than 100 million hectares in Mexico, equaling 60% of the country's productive land area. About 70% of Mexico's remaining forests are now owned by communities and ejidos (Beletsky, 1999). Ejidos, law-supported and recognized self-governing, cooperative communities, are the main economic component in most forested
areas (Castillo and Toledo, 2000). Today 15,000 residents populate the Calakmul Biosphere Reserve (CBR) and adjoining areas. The Maya forest is the largest intact forest area in Latin America’s northern hemisphere and ancient Mayan cities dating as far back as 1200 B.C. are still found scattered throughout the Maya Forest, shared by Mexico, Guatemala, and Belize (Primack et al, 1998).

The Calakmul region, where ejido 20 de Noviembre is located, is classified as tropical sub-deciduous forest and in the dry season 20% to 40% of the trees shed their leaves. The limestone soils support tree species such as Ramón (*Brosimum alicastrum*), Copal (*Protium copal*), Cedar (*Cedrela mexicana*), Zapote (*Manilkara zapota*), Tzalam (*Lysiloma bahamensis*), Plantanillo (*Alseis yucatănensis*), Zapote borracho (*Pouteria campechiana*), and Pucte (*Bucida buceras*) (Beletsky, 1999).

**Natural Resource Management**

The Calakmul Biosphere Reserve (CBR) region offers many important natural resources. Chicle latex, from the Chicozapote Tree (*Manikara zapota*), the single most abundant species in the forest, is used in chewing gum (Primack et al, 1998). Chicozapote, however, lost its market value when artificial chewing gum was introduced during the Korean War. Presently, there is still enough demand for chicle and tapping is still an important economic activity, second to timber production.

Timber is among the most valuable resources of Maya Forest and logging is the most important economic activity in the region, although due to past heavy logging, the Calakmul region has less commercial timber in comparison to other areas. Beekeeping
and honey production, a non-timber alternative, is a new economic activity in the region. In addition, All Spice (*Pimenta dioica*) and chile pepper are widely harvested, although no management plans have been established (Primack et al, 1998).

Van Orsdol (1987) describes agroforestry in Calakmul and its important role in increasing forest biodiversity in degraded areas. Agroforestry, which combines crop production with tree and shrub planting, increases an agricultural area’s long-term productivity, in addition to providing other forest products. Corn production uses the slash-and-burn agriculture method in the first year. Timber trees (longer-term cycles) and fruit trees are then planted (medium-term maturation), which will start producing in the third and fourth years. Up until the fifth year, corn and other basic grains and subsistence crops can be planted on the same plots. Legumes are planted to add nitrogen to the soil and, as the timber trees mature, the area begins to look more like a forest. Within 10-20 years, residents can harvest trees such as cedar, mahogany, and other precious woods. In contrast, with shifting agriculture, after only 1-2 years the land is exhausted and new land must be used. Agroforestry is being used in Calakmul to address deforestation for agriculture production and non-sustainable collection of forest products, two areas that are having a huge impact on tropical forest resources.

From a management plan for CBR developed by Lillo, et al (2000), it is estimated that Calakmul contains 1,600 species of vascular plants and 73 species of orchids. The most important agricultural products include corn (*Zea mays*), beans (*Phaseolus* spp), gourd (*Cucurbita* sp), chile (*Capsicum* spp), tuber (*Ipomoea batatas*), and citrus (*Citrus* spp).
Other cultivated species include zapote (*Manikara zapota*), chaya (*Cnidoscolus chayamansa*), and nance (*Byrsonima crassifolia*). The fish populations of CBR are not well known. A study by Acosta and Ricalde in 1993 identified 18 species of fish, of which 5 families and 9 genera were represented. The Cichlidae family is the most represented with 8 species. A study done by ECOSUR and Stanford University, with support from CONABIO and PRONATURA, has confirmed the presence of 16 species of amphibians and 50 species of reptiles.

A total of 286 species of birds have been observed in the Reserve, but the continual addition of new species in other studies suggest that the total could exceed 300 species, of which 226 (79%) are resident species and 60 (21%) are migratory species. Of the migratory species, 40 (66.6%) are winter residents, 16 (26.6%) are transitory of spring and fall, and 4 (6.6%) are summer residents. Of the estimated 769 bird species that breed in Mexico and the 257 bird species that migrate through or spend the winters in Mexico (totaling more than 1000 species), the majority of them are found in the southern, tropical region. About 475 species alone are found in the Yucatán Peninsula and many families of birds are endemic to the area, including motmots, cotingas, toucans, and manakins (Beletsky, 1999).

**Threats to the Maya Forest**

Information from Castillo and Toledo (2000) suggests that Mexico's natural resources are threatened from rural production; throughout the country, nearly a million acres of forest are lost each year. According to recent estimations, nearly 90% of Mexico's original forest cover is gone and 77% of what is left is threatened (Beletsky, 1999).
Forests are now seen by many residents as nothing more than an obstacle to agriculture and ranching (Garrett, 1991) and slash-and-burn agriculture and unsustainable logging practices are two of the few means of survival. When an area is slashed-and-burned for agriculture production, after only a few years the thin soil is worthless and additional land is needed. This pressure on forest resources is made worse by the high migration of people into the region from all over other parts of Central America looking for land and opportunities that the natural resources may offer (Primack et al, 1998). The lack of basic human needs, such as healthcare and education, compound the problem and residents, to ensure their daily survival, are not able to consider the long-term use of their natural resources (Jacobson, 1995).

In addition to high migration, modern technology is playing its role. At the height of the Maya civilization in 700 A.D., there were thought to be roughly 5 million people inhabiting the Maya Forest. Today, the Maya Forest has fewer than 1 million inhabitants, but modern technology is having an enormous impact on the Maya Forest; scientists fear that the Maya Forest is being depleted at a much faster and more thorough rate today than during ancient times (Primack et al, 1998). Slash-and-burn agriculture seems to directly correlate with the reduction in the number of songbirds in the US and Canada. Many migratory songbirds migrate north from these forests in the spring to mate but live in tropical forests the other eight to nine months of the year. As their forest habitat declines, so has the number that migrates; some populations have dropped by as much as 30% (Garrett, 1991).
Diminishing wildlife within the Maya Forest may also be attributed to overhunting (Primack et al, 1998); populations of mammals ranging from monkeys to agoutis are in danger. Hunting for sport and hides also has a serious impact on big cats and other large mammals. Even the Spider Monkey, hunted for meat and considered to be the best-tasting monkey, has severely reduced populations in Mexico and because the monkey breeds slowly, hunted populations have little hope for recovery (Reid, 1997).

Forest Protection Practices
According to Primack, et al (1998), beginning in the 1980’s, two policies were put into place to help protect the Maya Forest: the creation of a Biosphere Reserve and the management of natural resources by organized peasants (ejidos). Calakmul Biosphere Reserve (CBR), created in 1989, was registered in UNESCO Man and the Biosphere Program in 1993. Out of the 723,185 ha (2.8 million acres) that make up the reserve, 227,860 ha have been set-aside as two core areas, with the remainder classified as buffer zones. Defined by the United Nations, Biosphere Reserves are protected areas, generally larger than 10,000 ha (24,700 acres) that contain one or more important biological zones and examples of the natural biomes of an area, including unique plant and animal communities. Biosphere Reserves have three primary goals: conserve biological and cultural diversity; provide areas for environmental research, education, and tourism; and develop and serve as models for sustainable land use (Beletsky, 1999).
K. Perzanowski (personal communication – educational lecture, July 17, 2000) describes the complimentary functions of a Biosphere Reserve:

Conservation (biodiversity)

↓

Development (sustainability) ↔ Logistical Support (Information)

Biosphere Reserves are made up of various zones. The core zone in the center is under strict protection but can be used for research related to conservation and low-impact tourism. Surrounding the core zone is the buffer zone, which protects the core zone from human impact and where research, education, ecotourism, non-destructive recreation, and limited management of natural resources is permitted. The third zone, the transition zone, permits community life and sustainable use of natural resources, although usually with training from conservation agencies.

Despite the good intentions, communities were already living within the designated core area when CBR was established and had never been previously informed. Furthermore, the creation of CBR has done little to stop the looting of archaeological sites, hunting and trading of rare and endangered species, or control of the narcotics trade (Primack et al, 1998). Biosphere Reserves throughout the area have become known as “paper reserves” because they exist only on paper and there is little enforcement (Garrett, 1991).
According to L.F. Guzman Montejo (Calakmul Model Forest president, personal communication, January, 2001), in an effort to make CBR more than a “paper reserve”, in 1994 the Calakmul Model Forest was developed to work with 45 ejido communities covering 380,000 hectares located in and around Calakmul Biosphere Reserve in the municipality of X’pujil in an effort to lessen the negative impact on the Reserve. Prior to this, the civil association within the X’pujil Regional Council wanted to organize themselves to take care of rural development problems; in 1989 the concept of the Model Forest was developed out of this regional council. Further organization for a Model Forest in Calakmul occurred in 1992, in cooperation with Mexican federal authorities, the Campeche State government, and the international network of Model Forests. The focus was to foster a sustainable development that considers the ecological, commercial, social, and cultural values and needs of the different regions.

From 1994 – 1996, the Model Forest was overseen by the X’pujil Regional Council and focused on providing forest management in local regional communities to achieve the goals of Calakmul Biosphere Reserve. In 1995, ecotourism, environmental education, and beekeeping were developed within the Model Forest communities. In 1997, the Canadian Model Forest partner granted the Model Forest of Calakmul autonomy based on their success. The Model Forest serves as a valuable resource in teaching ejido communities forest management skills, agroforestry, sustainable resource harvesting, and non-timber alternatives to preserve forest resources while improving the quality of life for the inhabitants of the region.
Cultural Resources

Archaeological sites

Eltringham, et al (1999) reports that there is no shortage of Mayan archaeological sites in Mexico and, in fact, more are discovered every year. Southeastern Mexico, specifically within the Calakmul region, is home to many famous and well-publicized archaeological sites, in addition to smaller ruins in ejido communities that have yet to be excavated. Many of the archaeological sites within the Calakmul region are known as the Río Bec sites, the dominant architectural style characterized by long buildings with matching towers at each end, rounded corners and narrow roof-combs.

The site Río Bec (“River of Roble Trees”) consists of 17 smaller sites in a 50-sq-km area southeast of the village X’pújil and located 12 km (7.5 miles) from the urban center of ejido 20 de Noviembre. The ruin Xpújil (“Place of the Cattails”) flourished during 400 to 900 AD (the Late Classic period), although a settlement existed here much earlier. Becán (“Path of the Snake”) is surrounded by a dry moat, which forms one of the oldest known Mexican defensive systems.

Another major ruin of the area, Chicanná, is located 3 km west of Becán. Here the Chenes style is seen, which uses elaborate decoration and repetitive masks of Chac, the Mayan rain god. Balam Kú is located 60 km west of X’pújil junction and 50 km beyond Chicanná and shows two huge cross-eyed red masks adorning the central temple. Discovered only in 1990, Balam Kú also shows stucco art of a jaguar flanked by two large mask designs and topped with various king images. Hormiguero archaeological site blends the Chenes and Río Bec styles. Of the two buildings that have been
excavated, the largest building depicts a huge gaping mouth as its central doorway, surrounded by elaborate carvings.

**Calakmul**, a Mayan city located in the middle of the Calakmul Biosphere Reserve, has only been partially restored but considered the most impressive of the Río Bec sites. Extending for some 70 km, with seven thousand buildings in the central area alone, it is believed to be the largest archeological area in Mesoamerica. Calakmul contains more stelae and pyramids than any other Mayan city and the great pyramid here, with a base covering five acres, is the largest Mayan building in existence (Eltringham et al, 1999).

Currently in southeastern Mexico, two tourism circuits in the Calakmul region have been established to avoid tourist crowding in one place. One circuit involves the archaeological sites of Balamkú and Calakmul and the other circuit involves the Mayan sites Becán, Chicanna, Río Bec, and Hormiguero located around the town of X’pujil (Primack et al, 1998). Visits to 20 de Noviembre and the archaeological site Río Bec (located within 20 de Noviembre) would be within the latter circuit. Although many of these forested areas owned by peasants are often the best potential ecotourism destinations (Ibarra, 1999), it is here where the culture and the communities are not oriented to provide tourist services and connect visitors to the site.
5. Interpretive media for ecotourism

Interpretive Planning

Many people come to protected areas with little knowledge or understanding of it. Interpretation helps make this connection between the meanings of the resource and the interests of the visitor (NAI, 2000). Interpretive planning addresses important components to developing effective interpretive media that will help make this connection. "While it is ecotourism that connects people and places at an intellectual, spiritual, and emotional level, it is interpretation that creates this connection". (Ham and Weiler, 2000).

According to Gross and Zimmerman (2003), interpretive planning begins with a “vision phase” of Why, Who, and What to determine why a project is needed, who it will serve, and what significant stories it will tell. Although developed as part of a concept plan for interpretive centers, this vision phase has importance and relevance in all interpretive planning and is, therefore, applicable towards ecotourism development.
Model for Interpretive Planning

Why determines the mission and goals and why a project is needed.

Who assesses the target market and who this audience is. The visitor is seeking experiences, often within a personal or social context. They have come voluntarily and are seeking something of value from their visit. It is important to not only know the background to their visitor, but also their needs, including desired uses and motivations, learning styles, special needs, and educational objectives.

What analyzes the resource. The resource has tangible characteristics but also possesses intangible significances, such as concepts, values, compelling stories, and even the interpreter’s personal first-hand experiences with the resource. All of these significances give the resource meaning, its spirit of place (Genius loci).

The plan, located in the center of the model for interpretive planning (Figure 3), addresses where, when, and how interpretation will be used to facilitate a connection between the meanings of the resource and the interests of the visitor, the interpretive methods. Dahlen, et al (2000) stresses that developed interpretive methods should be accessible and participatory (where possible); heighten curiosity, awareness and appreciation; and be evaluated regularly for their effectiveness.
According to Dahlen, et al (2000), if even one of these components (mission, visitor, resource, interpretive methods) is not addressed in the planning process, effective interpretation will not be possible. Interpreters may know all there is to know about a resource, but without knowledge of the visitor, appropriate interpretive media will not be developed. On this same note, while the visitor may be known, planners will miss the “truly meaningful nature” of the resource if they are unfamiliar with it. Finally, while the technique to develop interpretive methods is known but used on the wrong audience or inappropriately with the resource, the results can be damaging for the resource.

Knudson, et al (1995) stresses theme development and interpretative media as an important part of interpretive planning at any site and uses the following organizational phases:

**Phase I: Background Questions**
- **Goals:** What end results justify the expenditure of time, money, and other resources?
- **Audience:** Who are the target audiences? What are their needs, expectations, and limitations?
- **Opportunities:** What significant sites, facilities, collections, stories, events are available for use for interpretation?
- **Parameters:** Under what circumstances must interpretation components be created (time, money) and under what conditions must they function (weather, vandalism, competing stimuli)?

**Phase II: Planning**
- **Themes:** what messages should be sent?
- **Media Prescription:** What media should be used and what sites developed?
- **Priority:** Which components should be developed and in which order?
**Interpretive Trail Design**

Trail design should reveal any beauty, mystery, or variety a site possesses (Gross and Zimmerman, 1994). According to IUCN (1992), three types of trails exist: self-guided, guided, and wilderness.

**Self-guided Trails** vary in length, but are generally short where groups of individual visitors can stop to view various features. Visitors are provided with brochures with information on individually marked sites or with interpretive panels along the trail.

**Guided Trails** involve a guide that accompanies visitors around a system of routes, interpreting natural features along the way.

**Wilderness Trails** are simply well-marked trails for visitors to explore on their own on a “see and discover” basis.

**Fraction of Selection**

Another part of summative evaluation involves a formula called fraction of selection. Normally applied to museum exhibits, fraction of selection could be applied in ecotourism to measure the success of various interpretive media (signs, wayside exhibits, interpretive panels). Interpretive media that is simple but has a well crafted message and appropriate design will be provoking and inviting, and will be chosen by more people; this is what fraction of selection measures (Gross and Zimmerman, 1994). Developed by Wilbur Shramm, the fraction of selection measures the expectation of reward over the amount of effort that is required. Creating successful interpretive media, therefore, depends on increasing the expectation of reward and decreasing the effort required.
Fraction of Selection = \frac{\text{Expectation of Reward}}{\text{Effort Required}}

Interpretive media that is too text-heavy or without graphics, for example, would tend to have a low fraction of selection, meaning that that effort required to understand the message is too high. Interpretive media with short, visible messages and graphics used to tell the story “visually” will require less effort and, therefore, be more successful.

According to Gross and Zimmerman (2003), the following strategies will help increase the Fraction of Selection:

- **Tell a good story that makes sense.** Visitors enjoy a story that shows relationships between facts and their meanings. They place little value on isolated facts or identification labels. In order to connect to the visitor, interpretation must be **thematic**.

- **Involve the visitor.** Everyone values an interactive experience.
  Strategies: provocative statements; challenges and questions in titles and text; demonstrations that invite participation; objects that can be touched and manipulated; and relating to visitor experiences and values.

- **Make interpretation accessible to diverse audiences.** Interpretive media should be accessible to both men and women, young and old; those with a whole range of learning styles and abilities; and those from different ethnic backgrounds and countries. The challenge is to create media that is universally accessible. One solution to this problem is to create diverse media. Given choices, visitors will select methods and techniques suited to their interests, learning styles, and abilities.
Ecotourism can be a powerful incentive for conservation in many parts of the world and can even be the economic justification to protect an area. Nature tourists are looking for protected areas, protected areas benefit from generated tourism revenue, but both must be managed. This is where strategic planning comes into play.

6. Strategic Planning: promotion, trainings, partnerships, and other services necessary for success.

Without proper marketing and promotion to attract the visitor, trainings to make sure adequate services are provided, and start-up technical and financial support through partnership and collaborative efforts, no potential community-based ecotourism destination will be successful. Each of these components has an important role in providing for the visitor's experience, promoting the destination, benefiting the community, and, in the long-term, protecting the resource.

Marketing
Tourism marketing should take into account the selected market segments of the travel market. The first stage involves identifying the organization or agency's priorities, followed by examining the market characteristics and needs. From this information, specific strategies can be developed and tailored to each identified market audience, with continual evaluation to help guide future planning (Fennel, 1999).

Market segmentation is an important part of tourism marketing; when market strategies are directed at all tourists, the “products” and promotion are often not geared adequately towards the potential audience. Market segmentation involves first putting potential and existing visitors with similar preferences into market segments, selecting the most
promising segments as your target market, and then designing marketing to address their needs and interests (Mahoney, undated).

Mahoney (undated) notes that there are major differences between parks and recreation marketing versus traditional marketing. Although applied to parks and recreation, this list below also applies to ecotourism. Recreation marketing differs from traditional marketing in the following ways:

1. Experiences are consumed at the site, often located far from home.
2. Travel costs to the site often times exceed the costs at the site.
3. People are attracted to a package of facilities and programs at the site.
4. Experiences are temporary and experiential; only memories can be possessed.
5. Product delivery and consumption occur simultaneously.
6. Visitors are actively involved in the production of their own experiences.
7. Poor experiences cannot be returned for a refund.
8. Sites and experiences are difficult to assess before purchase; word-of-mouth from friends and family plays an important role in choosing a site.
9. Products cannot be stored during low demand periods and sold at high demand periods.
10. Important aspects of the experience occur before and after on-site participation.

Veverka (2001) stresses the importance of answering some or all of the following questions when developing a marketing plan or materials:

1. **Identify the markets you serve**
   - Where are your visitors coming from?
   - What are their age groups?
   - How long does the average visit last?
   - What did they spend money on, and how much?
   - What visit components were most important? (shopping, food service, interpretive experiences, social interactions, recreation opportunities)
   - What were / are the visitors’ seasonal visitation patterns and influences?
   - Why did they decide to visit the site or attraction in the first place?
   - What experiences or recreational learning opportunities were they looking for?
   - Did the site/attraction meet or exceed their “expectations” of what they would see/do/experience, or did it “fall short” of the visitors’ expectations?
2. Market Creation – Generating new market groups
(school groups, local visitors, special-interest groups)

- What specific new target markets would be interested in the experiences of your site?
- What would you promote as the benefits for these new market groups in visiting?
- Would these be seasonal market groups?
- How do you contact these new market groups (advertisements in specialty magazines or publications, mail-outs to clubs and organizations, e-mails to specialty organizations, membership lists)?
- Do you have the support services in place to handle a surge in visitation if they show up (parking, staff, food service, volunteers)?
- Are these new market groups return visitors or one-time visitors?
- How are other attractions trying to attract these same market groups and what has been the key to their marketing success or failure?
- Experiential Marketing – visitors are looking for “experiences”
  “Memory Mapping” – look for / plan for where the best and most powerful memories of the visit will come from (or need to be created). Where will visitors want to have a photo taken of them? What will they take pictures of? What memory enhancements, or souvenirs, will you have available?

Promotion

After identifying target markets and determining the experiences and services wanted, both long-term and short-term objectives should be planned (Inskeep, 1991); promotion should first be directed at a few selected markets for short-term development while longer term planning can be directed towards potential markets. According to IUCN (1992), effective marketing involves identifying the audience most likely to visit a destination and determining effective promotional and advertising approaches.

Wright (2000) advocates a “benefits-sought” approach by stressing features that make a place unique as you begin developing promotion, such as opportunities to learn about wildlife and nature, viewing plants and animals, native cultures, a remote/wilderness setting, an un-crowded environment, and benefits to the host community.
Communicating the right message via the right vehicle to the right audience is required for successful promotion. Any publicity plan must consider the media, message and audience (Chiat, 1987). Distributing marketing materials, including brochures, travel agent manuals, and information leaflets plays an important role for tourists before and after they arrive at their destinations (Inskeep, 1991). Promotion by word of mouth or in local hotels and other establishments are often how new destinations begin promoting themselves, but destinations located in more remote areas, far away from major attractions or that lack sufficient transportation for visitors, may have problems promoting their attractions (Primack et al, 1998); sometimes a major obstacle in developing countries can simply be getting the word out to potential visitors that a destination exists.

Important organizations include travel agents and tour operators because they are the link between the destination and the tourist. In this respect, travel agents can be key for some out-of-the-way destinations or for recently developed tourism products (Ryel and Grasse in Fennel, 1999). Adequate information, including checklists for flora and fauna, must be given to tour operators to help attract prospective visitors (IUCN, 1992). Efforts in other locations have included a Community-Based Tourism Guidebook, which takes visitors along a country-wide trail of community-based ventures; production of videos highlighting community-based ventures; and familiarity tours for travel agents and tour operators to learn about community initiatives (Sproule, 1999).
Trainings
Quality guides are extremely important for ecotourism (Henning 1993), with environmental interpretation, language, natural and cultural history, and communication highly valued attributes. Quality experiences depend on guides that can speak English and have some background and/or training in natural history (Henning, 1993). Henning (1993) even goes as far as equating ecotourism’s success and contributions to the quality, competencies, and skills of the people involved. To guarantee that accurate information is presented to ecotourists, guide training is essential, and should include a variety of topics such as culture, environment, geography, geology, and safety (Kerr, 1991).

Food Handling
Although sometimes overlooked, food handling should be an important part of ecotourism development when dealing with the foreign tourist (Gray, 1981). In terms of standards, food must be catered towards the foreign visitor and the effects they might have with local bacteria. As a general rule, food being catered to foreign tourists must be more carefully prepared than food being catered to nationals.

Partners
Although infrastructure and trainings are important, communities need assistance from governments and non-government organizations (NGOs), both financial and technical, to successfully compete in the ecotourism market (Primack et al, 1998). Successful community-based ecotourism development is supported by partnerships between local communities, government agencies, NGOs and the private sector. NGOs can be valuable partners in developing community based ecotourism as sources for training,
technical assistance, financial assistance, and even advocacy in some cases. Most
government tourism bureaus' mandates include national tourism promotion and can help
community-based ecotourism. Many communities already work with local NGOs in
other community development improvement projects and because many NGOs often
have members that want information on ecotourism issues, in some cases they can
actually influence ecotourists (Sproule, 1999).

7. Evaluation Methods
The evaluation cycle can provide important data to ensure effective interpretive themes,
appropriate media choices, and location and avoidance of potential problems for greater
visitor satisfaction. The evaluation process starts at the beginning of the plan (Front-End
evaluation) and continues during development stages (Formative evaluation) and
concludes after the plan has been incorporated and installed (Remedial evaluation) (Gross
and Zimmerman, 2003).

The National Association of Interpretation (1990) defines evaluation as:

"a multidimensional process used to determine the qualities of
interpretation and an integral part of all interpretation
operations. The process includes input and feedback and
considers the interrelationship among people, organization,
environments, and technologies."

Front-end evaluation
Front-end evaluation is applied during conceptual planning when themes, story lines, and
program ideas are being considered. Through use of interviews, surveys and focus
groups with potential audiences, planners can learn what visitors know and what they
might want to experience (Gross and Zimmerman, 2003).
In an example of front-end evaluation, various methods were used at Tikal National Park to plan a communications program for targeted audiences. To accomplish this, a community workshop was held to gather information and insight into local attitudes, knowledge, and interests toward the area's natural and cultural resources. Questionnaire surveys were also distributed to Tikal's visitors in 5 languages to help determine needs and concerns regarding local natural and cultural conservation. A questionnaire helped determine popular park activities, visitor information needs, and interpretive media preferences. Socio-demographic questions on visitor background and education levels also helped guide material design (Jacobson, 1999).

**Formative evaluation**
Formative evaluation is used to test ideas on representative audiences. For example, Gross and Zimmerman (2003) discuss a case study of the "Children of Courage" exhibition at the Martin Luther King, Jr. National Historic Site. During formative evaluation, focus group sessions centered on inexpensive mock-up exhibits. Collected information revealed that the exhibits were too text-heavy and there was a need for more hands-on and visual exhibits. This evaluation provided important information to make necessary changes before any exhibit fabrication had occurred.

**Remedial evaluation**
Remedial evaluation is applied after a plan has been implemented and final adjustments can be made. Goals for remedial evaluation include: evaluating the plan's effectiveness in getting it's message across; providing information that could be used to modify parts of the plan; and providing a guide for future planning (Griggs, 1981).
Remedial evaluation can take place through visitor observation at various interpretive media, exit interviews, and written surveys. Oral interviews or written questionnaires can also provide immediate information on visitor satisfaction and suggestions for improvements. Using the same case study on the “Children of Courage” exhibition, (Gross and Zimmerman, 2003) observation and focus groups revealed that an introductory video within the exhibition was largely ignored but, at the same time, the critical message on the importance of involvement in the continued fight for human rights was taken away by visitors. Focus groups also revealed that better directional signage and lighting adjustments were necessary.

Summary
The Maya Forest of southeastern Mexico is home to diverse flora and fauna, as well as culturally important Mayan archaeological sites. Unfortunately, human population pressures, combined with unsustainable use of the natural resources, have resulted in the fragile and threatened status of the Maya Forest’s natural and cultural resources. Ecotourism, educational, and interpretive services can be a “win-win” situation through increasing the visitor’s understanding and appreciation of an area and instilling a commitment towards the preservation of natural resources, as well as creating an economic base for local communities.

Ecotourism profiles generalize the ecotourist as someone who is prepared to waive luxury accommodations for more “off the beaten track” destinations to experience the local natural and cultural environment. A main factor in developing ecotourism and
environmental interpretation programs, especially in and around the Calakmul Model Forest and Calakmul Biosphere Reserve, is community involvement. Strategic planning, involving market analyses and evaluations, and government and outside organizational support, are critical factors for ongoing modification and improvement, and overall success.

Using this background to the study will aid in developing methods for an Ecotourism Management Plan that considers the target market and their needs, local residents' needs, essential partners in the process, and natural and cultural resources in and around the ejido 20 de Noviembre.
CHAPTER THREE

METHODOLOGY

This chapter describes the methodologies employed to accomplish each of the following seven sub-problems:

1. Identify goals and objectives for ecotourism development
2. Conduct a market study to identify and determine market audiences, their interests, and their needs.
3. Examine existing ecotourism projects within other communities.
4. Inventory 20 de Noviembre's natural and cultural resources of interest to ecotourists.
5. Identify and determine potential themes and messages that would be communicated in recommended interpretive media.
6. Recommend promotional strategies, trainings, and partnerships necessary for success.
7. Recommend strategies for review, analysis, and evaluation of ecotourism activities within 20 de Noviembre.

The methods used in addressing each sub-problem, as well as the organization of the final ecotourism management plan, were based on an ecotourism planning model by Ross Dowling (1991) but have been modified to address community-based ecotourism within a small, rural, indigenous community located in a less developed country.
1. Identify Goals and Objectives for Ecotourism Development

Visits to Area Ejido Communities within the Calakmul Model Forest

This step was completed in January 2001 with initial visits by the researcher, Dr. Hernández Vázquez (Autonomous University of Chapingo representative), and Calakmul Model Forest organization representatives to various ejido communities within the Calakmul Model Forest. Visitations assessed community interests and needs for potential ecotourism development. Based on these visits, advice by Calakmul Model Forest representatives and UWSP graduate committee members, and perspectives by regional guides and government officials, the community 20 de Noviembre was chosen for this ecotourism management plan pilot project by the end of the January, 2001 visit.

In June 2001, community meeting with 20 de Noviembre established goals and objectives for the project and developed an ecotourism committee made up of all interested residents to participate in the planning process. Meetings with individual committees within the ejido, in a focus group format, determined interests and perspectives on ecotourism. Meetings were audiotape recorded (with prior consent) and later transcribed and translated into English with the assistance of Dr. Hernández Vázquez. Responses were presented to committee participants for approval and feedback before completion. The method for analyzing responses from various committees was taken from Kvale (1996) for meaning condensation. This is a process that identifies ‘natural meaning units’, or themes, from responses. The researcher, reading over the comments several times, identified naturally occurring categories.
Discussions with Government Officials, Local Hotel and Restaurant Owners, and Non-profit Organizations.

This process involved discussion and interviews with representatives of the Calakmul Biosphere Reserve, X’pujil government officials, area hotel owners, and guides in the area on their perspectives for ecotourism development and potential in the region during the researcher’s visits to the region (January 2001, June 2001, and January 2002). Interview responses were written down and reviewed with the interviewee for final approval. Responses were then translated into English with the assistance of Dr. Hernández Vázquez. Information was summarized on general perspectives on ecotourism development in 20 de Noviembre and the region, including such areas as attractions, challenges, and priorities.

2. Conduct a Market Study to Identify and Determine Market Audiences, Their Interests, and Their Needs

Market Study of the Region
Interviews were conducted with area hotel/restaurant owners regarding their knowledge of tourist demographics and profiles. A market study served to identify primary and secondary audiences to the region. Initially, ecotourist profiles, both general and more region specific, were collected as a reference as part of the researcher’s literature review section.

A developed survey was administered beginning in June 2001 at six archaeological sites within the region: X’pujil, Becan, Chicanná, Balamkú, Hormiguero, and Calakmul. The design of the survey was based off a questionnaire from a Panama Canal Visitor Survey
by Sam Ham and a Belize Ecotourist Survey by Rebecca Grossberg, with feedback and final approval from Calakmul Model Forest representatives, fellow UWSP graduate students, and the researcher's graduate committee. Technical difficulties and communication challenges limited involvement from 20 de Noviembre representatives.

Five-hundred (500) questionnaires were printed and translated into four languages: Spanish, English, German, and French; Dr. Hernández Vázquez assisted with the Spanish translation, Dr. Hans Schabel (UWSP) assisted with the German translation, and Dr. Alek Toumi and Dr. Marsha Parker (UWSP) assisted with the French translation. The survey addressed the following areas:

1. Preferences for visiting the region (archaeology, natural resources, recreation)
2. Visitor Demographics (nationality, age, group size)
3. Infrastructure and Service Needs (What services are most important, what stands out as needing improvements – information and physical / comfort services).
4. Values placed on educational and cultural experiences in a Mayan community.

Through prior arrangement, the National Institute of Anthropology and History (INAH) staff stationed at the selected six archaeological sites agreed to distribute and collect surveys from visiting tourists. All completed surveys were arranged to be sent to the state INAH office headquarters in Campeche City, Campeche before being sent to Dr. Hernández Vázquez at the Autonomous University of Chapingo (UACH) in central Mexico and delivered to the researcher. While the researcher was in the area (January 2002 and March 2002), she collected any other completed surveys. Surveys were analyzed qualitatively by separating responses into categories and showing levels of importance through percentage and bar graphs. Categories were also created for the more common responses to open-ended questions.
INAH Tourist Log

At every archaeological site open to tourists in Mexico, INAH has a logbook where visiting tourists can leave complaints and suggestions. Copies of these logbooks from the selected six archaeological sites (X’pújil, Becán, Chicanná, Balamkú, Hormiguero, and Calakmul), from the year 2000 and 2001 consisting of around 100 comments in total, were copied from the Campeche State INAH headquarters in Campeche City and qualitatively analyzed for services of most importance to tourists. This information complements the market study survey being conducted at these same sites.

The method used to analyze the comment and complain log was taken from Kvale (1996) for meaning condensation. Comments were first translated into English. Then researcher then went over the comments several times identifying naturally occurring categories. Codes were then assigned for various category names containing three to four characters of the alphabet. PRO, for example, refers to the category named “Promotion”.

Statements from the transcripts were then divided into the various identified categories (appendix).

3. Examine Existing Ecotourism Projects Within Other Communities.

Visits to Other Communities with Similar Natural and Cultural Resources to Assess Development, Challenges, and Perspectives of Community-Based Ecotourism Development.

Visits to other Community-Based Ecotourism (CBE) sites allowed the researcher to see how other communities have developed or are presently developing ecotourism activities.
Planned visited included: the Monarch Butterfly Reserve / Ejido El Rosario (Michóacan), Mujil within the Sian Ka’an Biosphere Reserve (Quintana Roo), and three communities in northern Chiapas: Misol-Ha, Ara Macao, and Comunidad Lacandona.

At CBE site visits, interviews were conducted with community leaders or residents involved with ecotourism activities. Insight into promotion, trainings, partnerships, challenges, and organization of ecotourism within these communities helped the researcher better plan and prepare 20 de Noviembre for ecotourism development based on what has been successful or ineffective for other communities. Information gathered of each ejido’s projects was recorded and summarized.

5. Inventory 20 de Noviembre’s Natural and Cultural Attractions of Interest to Ecotourists

Site Inventories of Interpretive Natural and Cultural Resources in the Ejido. This step involved site inventories of interpretive natural and cultural attractions in the ejido. An Interpretive Site Inventory form based off of Veverka (1998) and approved by the researcher’s graduate committee was used to conduct site inventories where interpretation could also be developed. The site inventories also identified GPS locations of natural and cultural attractions within the ejido. In addition, information was gathered both on-site and off-site through library research (secondary data); previous studies and inventories of the area, analysis of tourist attractions, and interviews conducted with local community members and agency representatives. A map of the ejido, with located interpretive natural and cultural attractions / resources, was created after the site inventory was complete (management plan).
Meetings with Residents
Meetings with committee members in the ejido on important cultural attractions were audiotape recorded (with prior consent) and then transcribed and translated into English by the researcher with the assistance from Dr. Hernández Vázquez. Responses were summarized and reviewed at future meetings for approval. Meetings took place on such issues as preferences for ecotourism development in the ejido, traditional Mayan food, and medicinal plants and their uses. Information gathered through focus groups was used to assess the validity of answers received through personal interviews and to help guide the planning process and organized ejido residents.

Inventory of Tourist Infrastructure and Services in the Calakmul Region
An inventory of tourism infrastructure and services in the Calakmul Region was done on such areas as lodging, restaurants, archaeological / tourist attractions, and complementary services (health clinics, taxi, public phone, bus, etc.)

6. Identify and Determine Potential Themes, Objectives, and Messages that would be Communicated in Recommended Interpretive Media.

It is within this step that interpretive themes were developed and interpretive media suggested for natural and cultural attractions identified from site inventory forms. Information on cultural or environmental importance was gathered through interviewing ejido members on the history of their community, interesting stories related to Mayan beliefs, authentic Mayan cuisine, and other information that could be incorporated into theme development. Furthermore, written primary and secondary documents were
reviewed to compliment or add to gathered information. Focus group or individual interview results were analyzed qualitatively using Kvale’s (1996) meaning condensation process to identify common responses and brought before the ejido’s ecotourism committee for feedback and consensus.

From this information, the researcher developed a primary theme and sub-themes to help guide the planning process. Resources identified from the site inventories were placed under various sub-themes and key potential messages and interpretive meanings were developed and organized. With developed themes, an interpretive concept plan was developed that suggested sample media and recommended other interpretive media to help connect the meanings of the resources with the interests of the visitor. Discussions with the researcher’s graduate committee and ejido residents looked into possible collaborative projects for interpretive media that various partnership organizations could help address.


Recommended Promotional Strategies

To aid in communication efforts, a web site was developed by the researcher and linked to the UWSP web site. The focus of this web site was to have photographs and information for promotional use when communicating with travel agencies and organizations.
Marketing strategies, such as existing promotional avenues to attract target audiences, were researched. This was obtained through searches and discussions with travel agencies and organizations involved with ecotourism and adventure travel efforts. Visits to other communities developing ecotourism (sub-problem 3) also helped determine what methods have been successful for promoting ecotourism. From this research, a contact list of travel agencies and organizations was developed for future reference.

Recommended Trainings
Necessary and important trainings for community-based ecotourism development were determined through interviews with various tourism bureaus, non-profit organizations, consultants working in the area of sustainable tourism development, and other experts through personal visits or electronic communication (e-mail). Information was also gathered through visitation to other Mexican communities involved with ecotourism projects (sub-problem 3). Information on necessary trainings, and what organizations exist that could provide them, was summarized and recorded.

Recommended Partnerships
Meetings with, and searches for, agency representatives, government officials, and private and non-profit organizations helped identify potential partners whose missions and objectives include similar projects on community-based ecotourism development. Organizations were also identified for key leadership involvement. Interviews and discussions with various organizations were recorded and summarized in a list of important organizations, including their missions and objectives, and contact information.

Evaluation is necessary to insure effective interpretive media and overall visitor satisfaction by identifying potential problems. Evaluation began at the onset of the project and will continue after the plan has been implemented.

Front-end Evaluation
Front-end evaluation occurred during the planning stages when the site inventories, themes, and development ideas were being considered. The market study surveys at six archaeological sites in the region collected information on visitor demographics, interests, and needs. Focus group and committee meetings with ejido residents identified important cultural and natural attractions in their community and important meanings behind them (history, cultural significance, and use.)

A part of front-end evaluation involved UWSP students during their Mexico Spring Break Study Tour in March 2001. Focus group meetings took place with visiting UWSP students and 20 de Noviembre community leaders to discuss student experiences as “ecotourists” to various parts of the ejido (archaeological ruins, crafts, authentic Mayan cuisine). Pre-visit expectations and post-visit experiences were discussed concerning current and potential services and attractions, as well as students’ suggestions for improvements. A written summary was turned in by each student and results were analyzed qualitatively using Kvale’s (1996) meaning condensation process to identify common responses.
Front-end evaluation for planning interpretive media occurred when the researcher presented a paper at the 2001 National Association of Interpreters (NAI) National Conference entitled “Interpretation’s Role in Ecotourism: A Case Study in Mexico’s Maya Forest”. The intention for this presentation was to get feedback and ideas for interpretive media from professional interpreters. The researcher presented the primary interpretive theme and sub-themes developed and provided examples of various resources under those sub-themes and their key meanings and potential messages. Some interpretive media options were suggested to guide audience feedback. Forms (appendix) were handed out with space available for audience members to further comment. Suggestions for interpretive media, based on their expertise and experience as professional interpreters, were recorded and summarized.

Formative Evaluation
Formative evaluation was applied to test ideas. One part of this evaluation involved UWSP students during their Mexico Spring Break Study Tour in March 2002. Responses from the previous year’s group, as well as ideas from visits to other community-based ecotourism sites (sub-problem 3), gave residents an opportunity to test and try-out various services. At the end of the day, a focus group meeting took place with visiting UWSP students and 20 de Noviembre community leaders to discuss student experiences as “ecotourists”, addressing pre-visit expectations and post-visit experiences and suggestions for improvements. A written summary was turned in by each student and results were analyzed qualitatively using Kvale’s (1996) meaning condensation process to identify common responses and aid in planning and prioritizing ecotourism development in the ejido.
Remedial Evaluation

Remedial evaluation will take place after the ecotourism management plan has been implemented within 20 de Noviembre. Goals for remedial evaluation will involve more on-going marketing for customer service including evaluating interpretive media and visitor satisfaction to guide future planning. Remedial evaluation methods can include observing visitors at various interpretive media, exit interviews, and written surveys. Oral interviews or written questionnaires can also provide an immediate assessment of visitor needs and interests.

One area of remedial evaluation will be a modified version of the survey distributed at area archaeological site for ecotourists entering 20 de Noviembre to visit Rio Bec. The survey was approved by the researcher's graduate committee and 20 de Noviembre representatives. One-hundred (100) surveys were printed up in Spanish and English (Hernández Vázquez assisted in the Spanish translation) (manual). The Calakmul Model Forest organization now has the Rio Bec surveys in their possession until the access road and bridge to Rio Bec are improved and ecotourists begin arriving.

The developed Ecotourism Management Plan will serve as the initial stage in community-based ecotourism development within 20 de Noviembre. The next stages involve carrying out necessary trainings, securing financial and technical support, and attaining partnerships and collaboration from various government, private, and non-profit organizations that can aid in carrying out and overseeing development efforts.
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CHAPTER 4

RESULTS

AN ECOTOURISM MANAGEMENT PLAN

EJIDO 20 DE NOVIEMBRE

Chapter 4 is a document that is intended to stand on its own. For this reason, the document has its own table of contents and begins on page 1. This document also has its own bibliography, separate from the Literature Cited section.
An Ecotourism Management Plan

Community-Based Ecotourism in Ejido 20 de Noviembre
A Master’s Thesis by:
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Introduction

This Ecotourism Management Plan has been developed as the initial organizational step to developing and implementing community-based ecotourism within Ejido 20 de Noviembre, Calakmul Model Forest, Campeche, Mexico.

Valuable participation and insight from representative community leaders, regional organizations, and government personnel interested in community-based ecotourism development in the Calakmul region are reflected in this plan. While Ejido 20 de Noviembre is the focus of this pilot project, this plan is also intended to serve as a framework for other communities within the Calakmul Model Forest involved in ecotourism development.

This document provides a market study of the region; an inventory of cultural and natural attractions within 20 de Noviembre with sample interpretive media; an analysis of other community-based ecotourism case studies within Mexico; recommendations for evaluation; and recommended promotional strategies, trainings, partnerships, and development priorities for success.

This cooperative project between the University of Wisconsin – Stevens Point (USA), the Autonomous University of Chapingo (Mexico), the Calakmul Model Forest, and Ejido 20 de Noviembre is a result of creative thinking and a willing community matched with the understanding that we all play a part in responsible stewardship of the world’s environment and must become an international community that works together across cultural boundaries to meet environmental challenges.
Significance of Study

Shared by Mexico, Guatemala, and Belize, the Maya Forest is considered the largest area of humid, tropical sub-deciduous forest remaining in Central America. The Maya forest has an incredible cultural and natural richness but human population pressures and unsustainable forest practices are taking their toll. Attempts to protect the Maya Forest, such as the establishment of the Calakmul Biosphere Reserve in 1989, have done little to stop the looting of archaeological sites and the trading and over-hunting of endangered and rare species (Primack et al, 1998).

In searching for ways to protect the fragile natural and cultural resources of the Maya Forest while still providing for people’s needs, community-based ecotourism is being seen as a viable alternative. One of these communities located within the Maya Forest is Ejido 20 de Noviembre.

This plan is the initial part of a larger effort. Future implementation of this or similar plans can lead to increased public knowledge, appreciation, and understanding of the region’s resources and cultural significance; better orientation for visiting ecotourists; increased income and employment opportunities for local communities where unsustainable uses of forest resources currently exist; and, ultimately, the increased preservation of the Maya Forest’s fragile natural and cultural resources.
Purpose of this Document

This Ecotourism Management Plan has three primary purposes:

1. This plan assesses project mission and goals, site attractions, target audiences, and recommendations for development priorities. This information establishes a rationale and parameters for planners and prospective funders of ecotourism development within Ejido 20 de Noviembre.

2. This plan serves as a draft for those interested to review and comment on ecotourism development within Ejido 20 de Noviembre prior to implementation.

3. This plan will assist other communities who will apply this framework towards ecotourism development within their own communities.
Site Description

The Calakmul Model Forest sits between the Calakmul Biosphere Reserve on its western border and the Quintana Roo state line on its eastern border.

Ejido 20 de Noviembre is found in southeastern Mexico in what is referred to as the Calakmul Region, within the Calakmul Model Forest. Ejido 20 de Noviembre is located 18 km (11.2 miles) southeast of X’pujil, the municipal center of the Calakmul region. Established on November 20, 1971, founding members are primarily from Dzibalchen, a city in northern Campeche state. Ejido 20 de Noviembre consists of 32,000 ha (~ 80,000 acres) of tropical sub-deciduous forest.

The most accurate data obtained on the ejido population is from INEGI (1996), which records 343 inhabitants (184 men and 159 women) consisting of 69 families, 100% of which are Mayan. The ejido’s principal activities include farming, wood extraction, bee keeping, reforestation, and chicle extraction.
The Planning Process - Why, Who, What

Many people will visit Ejido 20 de Noviembre and the region with little knowledge or understanding of their importance. Interpretation helps make this connection between the meanings of the resource and the interests of the visitor (NAI, 2000). Interpretive planning addresses important components to developing effective interpretive media that will help make this connection. According to Gross and Zimmerman (2003), interpretive planning begins with a “vision phase” of Why, Who, and What to determine why a project is needed, who it will serve, and what significant stories it will tell.

A Model for Interpretive Planning
(Gross and Zimmerman, 2003)

1. **Why** determines the mission and goals for the project.
2. **Who** assesses the target markets and the intended audiences. The visitor is seeking experiences, often within a personal or social context. They have come voluntarily and are seeking something of value from their visit. It is important to not only know the visitor’s background, but also their needs, including desired uses and motivations, learning styles, special needs, and educational objectives.
3. **What** analyzes the resource. The resource has tangible characteristics but also possesses intangible meanings, such as concepts, values, compelling stories, and even the interpreter’s personal first-hand experiences with the resource. All of these significances give the resource meaning, its spirit of place (*Genius loci*).
4. The plan, located in the center of the model for interpretive planning, addresses **where**, **when**, and **how** interpretation will be used to facilitate a connection between the meanings of the resource and the interests of the visitor, the interpretive methods. This part of the plan also addresses the **so what?**, which relates to evaluation.
Community-Based Ecotourism Development

The Ecotourism Management Plan involves the following steps:

1. Identify goals and objectives for ecotourism development

Why is ecotourism a viable option for 20 de Noviembre and the region? What goals and objectives does this community have in developing ecotourism? How will it benefit this community? As a Calakmul Model Forest community, how does ecotourism serve the Model Forest mission? This addresses the Why part of the planning process.

2. Conduct a market study to identify and determine market audiences, their interests, and their needs.

Who is the ecotourist that is visiting the Calakmul region? What are they seeking? Could this audience also be a target market for 20 de Noviembre? What other potential markets exist? This addresses the Who part of the planning process.

3. Examine existing ecotourism projects within other communities.

What other communities within the Maya Forest and throughout Mexico have developed ecotourism? How were these projects implemented? How are they promoting their destination and services? What has worked and what hasn’t? What have been / currently are their biggest challenges? In examining communities with similar resources and market audiences, this step also addresses the Who part of the planning process.

4. Inventory 20 de Noviembre’s natural and cultural resources of interest to ecotourists.

What are the natural and cultural resources within 20 de Noviembre that ecotourists would want to experience? What are their meanings (interpretive importance)? This addresses the What part of the planning process.
5. Identify and determine potential themes and messages that would be communicated in recommended interpretive media.

Themes and messages are based on the meanings of the resources, the mission and goals of the community, and the interests of the visitor to guide development and design. Interpretive media will link the meanings of the resource with the interests of the visitor. This addresses the Plan (How, Where, and When) part of the planning process.

6. Recommend promotional strategies, trainings and partnerships necessary for success.

Once market audiences have been established, how is 20 de Noviembre going to promote ecotourism and attract this audience? Based on the services 20 de Noviembre will provide, what trainings are necessary for the community? What organizations exist in the region that could assist with collaborative efforts for 20 de Noviembre and other interested communities with the Calakmul Model Forest? This also addresses the Plan (How, Where, and When) part of the planning process.

7. Recommend strategies for review, analysis, and evaluation of ecotourism activities.

Once ecotourism has been implemented, how will 20 de Noviembre evaluate developed services? Evaluation of the plan occurs throughout the planning process to locate potential problems and assess interpretive media and visitor satisfaction and addresses the so what? part of the planning model.
Step 1:

Identify goals and objectives for ecotourism development
To begin to identify goals and objectives for community-based ecotourism development, representatives from the region, including government personnel, business owners, and organization directors, were first interviewed on their perspectives on developing ecotourism in the region, including its potential, needs, and challenges. Various communities within the Calakmul Model Forest were then visited to assess their interests in developing ecotourism, the existing potential natural and cultural attractions, and needs and challenges they would face; Ejido 20 de Noviembre was eventually chosen for this pilot project.

**Regional Perspectives**

**Local Hotel / Restaurant Owners**

Three hotel / restaurant owners catering to the tourist market were interviewed on their perspectives on ecotourism development in the region. Two businesses are located in X'pujil (Hotel Calakmul and Mirador) and the third in Zoh Laguna (Mercedes Cabañas).

**Most important areas:**
- Trainings
- Promotion
- Information services
  - available tourist information
  - local police that will help tourists
  - local people who are “tourist friendly”.
- Physical services
  - potable water
  - better electricity service.

**Limitations:**
- Region’s water shortages
- Lack of financial and government support
- Unattractive and un-inviting regional center in X’pujil (garbage, odors, and waste water by vendors, with no control or management).

**Calakmul Biosphere Reserve: Jose de la Gala Mendez, director**

**Limitations to ecotourism development:**
- Language barrier
- Lack of cooperation
- Many groups have developed and carried out their own studies without collaborating with each other and market studies have not been done.
- In 1999, Calakmul Biosphere Reserve (CBR) provided trainings for ecotourism guides with the help of the Regional Council, SecTUR, ProNATURA, and other organizations that provided over 600 hours in site teaching.
X’pujil government: Wilbert Gonzalez Cervera, Ecotourism Division.

Limitations to ecotourism development:
- Lack of trainings
- Financial resources for development

The local government is developing a tourist information center just west of X’pujil where cultural and natural attractions of the region (and communities) can be promoted.

Local Study (1999) on Community-based Ecotourism Potential

Fernando Sastré Méndez and Leticia Valensuela Santiago, local residents involved with Servidores Turísticos de Calakmul, an organization for the development of regional ecotourism guides.

This study showed that 18 ejido communities within the Calakmul Model Forest region possess natural and/or cultural attractions (including 20 de Noviembre), making them potential destinations for ecotourism development. This study separated potential community-based ecotourism destinations into categories by services and infrastructure that are either already in place or could easily be developed.

Summary of Regional Perspectives

In summary, although challenges do exist, regional representatives interviewed feel that the region does possess many natural and cultural attractions, with many of these attractions located within ejido communities. The justification exists to develop community-based ecotourism if there are interested communities. Challenges, however, including trainings, financial resources, and cooperative efforts remain as obstacles in developing successful and viable ecotourism projects.
Development of Ejido Ecotourism Committee

Positive feedback from regional representatives led to the visitation and eventual identification of a community interested in developing ecotourism. The next step of the planning process was to identify and determine community goals and objectives for Ejido 20 de Noviembre.

Various committee representatives came together to discuss goals and objectives for ecotourism development in their ejido. Two focus group meetings were conducted with leaders of 20 de Noviembre committees; one with women’s committees and another with men’s committees.

Purpose and Objective

The purpose of this evaluation was to learn about perceptions to ecotourism development in 20 de Noviembre. Specific objectives of the study were:

1) To find out what the attractive features of the ejido were
2) To find out what visitor interests, demographics, and complaints were
3) To find out residents’ priorities for ecotourism development

Method

The focus group meetings involved key women leaders of the following committees: cabañas, kitchen, and artesania. Another focus group meeting involved key men leaders of the following committees: bee production, ecotourism, forest nursery, and wildlife management.

Initial meetings in 20 de Noviembre led to the formation of an ecotourism committee of those interested in working on the Ecotourism Management Plan. The new committee came together to develop goals and help guide project planning.
Summary
Ejido 20 de Noviembre would like to develop ecotourism based on the archaeological ruin Rio Bec, located in the ejido and an attraction on La Ruta Maya / Mundo Maya circuit. Rio Bec is promoted through international guidebooks and today is the only reason why visitors pass through 20 de Noviembre. Tourists bring their own transportation, their own guides, and their own food and the community never benefits from these visits. Ejido 20 de Noviembre wants to take advantage of the fact that tourists are passing through their community and offer other ecotourism services focused around the Maya culture and natural resources of the Maya Forest.

Mission
The Calakmul Model Forest organization, advisor to this pilot project, favors community projects, such as ecotourism development, that will benefit forest communities by providing socio-economic opportunities while protecting fragile cultural and natural resources.

Goals
- Develop ecotourism services that create employment opportunities and income for the community.
- Foster educational and cultural experiences of the Maya culture and forest resources, from archaeological ruins to traditional crafts and cuisine.

Objectives
The remaining steps (steps 2-8) of the Ecotourism Management Plan will address these goals by identifying natural and cultural resources, market audiences, promotional strategies, and development priorities for 20 de Noviembre.
Step 2:

Conduct a market study to identify and determine market audiences, their interests, and their needs.
Preliminary Ecotourist Profile

Prior to conducting a market survey, a preliminary regional ecotourist profile was sought out from area hotel and restaurant businesses catering to the tourist market. After this initial information was gathered, a survey was distributed at six regional archaeological sites to find out information on the tourist visiting the region (and a possible market for 20 de Noviembre), including demographics, their needs, and their interests. INAH (National Institute of Anthropology and History) logbooks from these same six regional archaeological sites were also analyzed to complement the administered survey information collected.

Interviews with Hotel / Restaurant Owners

No market studies have been done in the region to access tourist demographics, interests, and needs. Based on interviews with three tourist hotel / restaurant owners (Hotel Calakmul, Hotel Mirador, and Mercedes Cabañas) the following preliminary regional ecotourist profile characteristics could be summarized:

Ecotourist Profile:
- Europeans (most notably German and French with some English)
- an Italian “season” in November and December
- a German / French “season” in January and February

Major Attractions:
- Archaeological ruins
- Nature (forest resources)
- Lack of big crowds

Travel:
- Primarily in private / rented vehicles
- A few tour buses and vans
INAH Suggestion/Complaint Log

At every archaeological site open to tourists in Mexico, INAH provides a logbook where visiting tourists can leave complaints and suggestions. Copies of these logs from six archaeological sites (X’pújil, Chicanna, Balamkú, Hormiguero, Becán, and Calakmul) from the year 2000 and 2001 consisting of 73 comments (total) were qualitatively analyzed for services of most importance to tourists.

Summary of Overall Problems

- Visitors were very impressed, overall, with the maintenance, cleanliness, and care of the sites; visitors only suggested that more restoration, reconstructing and the uncovering of sites occur.

- Informational Services needs that were lacking varied from large, visible signs at entrances, directional signs to entrances and exits, open hours listed, maps of the sites, distance of trails, interpretive information at ruins and information on restoration work, and sign upkeep and maintenance. Many positive comments were made, however, on the attention and treatment by personnel.

- Physical Services that were lacking varied from trail and road maintenance, concessions (food and drinks), and the walking distance to the ruins (from parking lots, trails, and entrances). Visitors did, however, find sanitation facilities both clean and interesting (ecological bathrooms).

Market Study Survey

Survey

Five hundred (500) surveys were printed and distributed at the following six archaeological sites by INAH (National Institute of Anthropology and History) personnel: Calakmul, Becán, Chicanna, Hormiguero, X’pújil, and Balamkú. Due to communication problems and collection difficulties, only 85 surveys were collected and analyzed. Where applicable, comparisons are made to general ecotourist profiles from The International Ecotourism Society.
Totals in analyzing individual questions vary, due to incomplete surveys; a small percentage of respondents did not answer all the questions. This data does not account for this discrepancy but, rather, reflects data from the questions that were answered.

**Ejido 20 de Noviembre market study**

The survey was developed to address the following areas:

1. Preferences for visiting the region (archaeology, natural resources, recreation)
2. Visitor Demographics (nationality, age, group size, etc.)
3. Infrastructure and Service Needs (What services are most important, what stands out as needing improvements – information and physical / comfort services).
4. Values placed on educational and cultural experiences in a Mayan community.

**Questionnaire Results and Analysis**

**Question #1**

<table>
<thead>
<tr>
<th>Site of Questionnaire</th>
<th>Balamkin</th>
<th>Calakmul</th>
<th>Becan</th>
<th>Hormiguero</th>
<th>X'pujil</th>
<th>Chicanna</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>28</td>
<td>27</td>
<td>18</td>
<td>10</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**Interpretation of Data**

Due to communication difficulties, questionnaires at both X’pujil and Chicanna were not well distributed or collected and, therefore, have a poor return rate. Calakmul is the most popular archaeological site in the region and most likely received the most visitation.
Interpretation of Data
The majority of visitors are obtaining their information about the region from magazines and books (including international guide books), travel agencies, and the Internet. Friends and Family were also a significant resource, although whether this information was from past visitation or other sources is not known.

Additional Comments
Other sources of information included: signs outside park or on the road (7), television (4), school programs (4), tourist information (2), guides (person) (3), museum (2), and maps (1).

Recommendations
Based on where most visitors are obtaining information on these archaeological sites, promotion for 20 de Noviembre should focus on magazines and international guidebooks, travel agencies, and the Internet.

Question #3
Question #3 results were the same as question #2 results; question #2 accurately addresses both questions.
Interpretation of Data

The ruins shown in black are located in the Calakmul region while those shown in grey are located at various distances outside the region. Tourists who are coming to the region see several ruins and attractions.

Recommendations

Rio Bec would probably also be visited with proper promotion because it is located on the same Mundo Maya circuit as the other ruins. Rio Bec is unique in this respect, in comparison to the other ruins in the region, as it is still very undeveloped and visitors can interact with the local Maya people and their culture (crafts, food, and guided tours).

Question #5

Transportation to Site
**Interpretation of Data**

The majority of ecotourists are traveling through the region in a private (rented) vehicle; a small portion visits the region with a tour company or school program.

**Recommendations**

Promotion could be made available at car rental locations in tourist hubs: Cancun and Merida (Yucatan), Chetumal (Quintana Roo), and Campeche City (Campeche). Vehicle parking will need to be taken into consideration for visitation to 20 de Noviembre. Traffic to Rio Bec may also be a concern; too many vehicles driving to Rio Bec may take away from the experience and affect wildlife viewing. Ejido 20 de Noviembre may consider having all visitors park their vehicles in the center area and take transportation provided by the ejido, which could also require guide services. This could create additional employment for transportation services (bicycles, horses, wagon), interpretive guiding, and guarding vehicles and

**Question # 6**

![Bar chart](image)

**Interpretation of Data**

Ecotourists are primarily interested in archaeological ruins in the region and the Maya culture. One needs to take into consideration, however, that these surveys were distributed at archaeological sites and bias may exist. In comparison, the International Ecotourism Society (TIES) International Ecotourist Market Profile shows experienced ecotourists’ top three responses of important trip elements included: (1) wilderness setting, (2) wildlife viewing, and (3) hiking/trekking.
Interpretation of Data

A majority of visitors who answered this question (54 out of 69 or 78%) are staying overnight in the region (shown in black). Chetumal is located about 130 km / 80 miles from X’pújil, the municipal center, and Escarcega is located about 156 km / 92 miles away. The other cities mentioned (and shown in grey) are located at significant distances from X’pújil. This indicates that visitors are looking for lodging in the region when visiting. Of interest to this issue, a Market Demand Study (HLA Consultants in TIES) found that while tourists want a range of accommodations, ecotourists were more likely to choose from adventure-type and intimate accommodations, such as bed & breakfasts, cabins, lodges/inns, ranches, or camping.
**Recommendations**
While different visitors to the region will have different lodging needs, cabañas could certainly be developed to provide lodging for the sector of visitors coming to the region who would like this type of lodging experience.

**Question #8**

**Information Services**
Rate the Services from 1 (Excellent) to 5 (Inadequate)

**Physical / Comfort Services**
Rate the Services from 1 (Excellent) to 5 (Inadequate)

**Interpretation of Data**
Visitors were asked to rate quality of services, informational and physical/comfort, on a scale from 1 (excellent) to 5 (inadequate). Informational services consisted of publications, interpretive panels, and interpretive guides. Physical/comfort services consisted of ease of access (including roads), restroom facilities, and shelter. In some instances, such as interpretive guides, service choices were not applicable.
Overall, tourists were satisfied with informational and physical/comfort services, although for many visitors, shelter and interpretive guides were not always applicable or adequate and a small percentage did not think the publications available were adequate.

**Question #9**

<table>
<thead>
<tr>
<th>Additional Improvements / Services to Make Visit More Enjoyable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Concessions</strong></td>
</tr>
<tr>
<td>30</td>
</tr>
<tr>
<td>25</td>
</tr>
<tr>
<td>20</td>
</tr>
<tr>
<td>15</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

**Interpretation of Data**

A majority of the respondents would like to see some type of concessions available at archaeological sites, ranging from refreshments (water and juice) and snacks to restaurants serving meals. A distant second improvement was interpretive guides and third, additional stores (crafts) and road condition and access.

**Additional Comments (each made by one visitor)** included the following: more garbage bins, affordable hotels, gas station nearby, signs to not climb on ruin, public transportation / buses to ruins, tourist information office, public telephone, benches, more ruins cleaned-up / restored, more publications, bicycles, and a museum.
Recommendations
Certainly tourists need to have their basic needs met at any destination: water/food, bathroom facilities, and shelter. Ejido 20 de Noviembre does have 2 “corner stores” where tourists can purchase drinks and snack food. Making cold beverages and snack food readily available to tourists could be easily handled and create additional employment and income for residents. Offering traditional Mayan cuisine is of interest to many women within the ejido. Prior to developing the restaurant, visitors could arrange meal preparation with individual families and have the experience of eating in a traditional Mayan home. Foreigners may have some concern with bacteria exposure; food preparation training may help ease these fears.

Question #10

Interpretation of Data
Visitors are looking for a connection between the site they are visiting and the people and culture that once lived here. Tourists visiting these sites need to understand the intangible connection with the tangible site (ruin).

Additional Comments (each made by one visitor) on information to be presented included the following: maps of site, mandatory and professional guide training, signage indicating distances to the ruins, and information on the types of transportation available to visiting the area.
Recommendations
Residents of ejido 20 de Noviembre can help interpret the cultural and natural resources within their community and give ecotourists an inside look into the Maya culture. An interpretive guide from the community and interaction with community members will allow tourists to experience what life for the ancient Maya was like, based on the many traditions that have been passed down through the generations (cuisine, language, crafts, and forest plants, etc.).

Question #11

<table>
<thead>
<tr>
<th>Interested Activities in a Mayan Ejido</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ruins</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>23</td>
</tr>
</tbody>
</table>

Interpretation of Data
While under some categories respondents did not answer, this interpretation is focusing on the data that were actually provided. The areas that should be focused on are the “strongly interested” and “interested” responses. Of greatest interest are archaeological ruins, although, as mentioned earlier, there may be some bias, as questionnaires were all filled out at archaeological sites. Crafts and Guided Forest Walks were close 2nd and 3rd choices, with Cuisine and Bird Viewing a close 4th and 5th. Medicinal Plant Trail, Cabana, and Horseback rides to Ruins rounded out the last choices.
Recommendations
This information is useful in helping prioritize activities and services based on regional ecotourist interests. Some of these interests can be combined, such as forest trail walks to archaeological ruins while bird viewing and learning about medicinal plants. As stated in an earlier recommendation, although archaeological ruins are of great interest, 20 de Noviembre will be competing with other archaeological ruins in the region. What 20 de Noviembre can offer that the other destinations cannot, however, is the opportunity to experience the Mayan culture together in one place: ruins deep within the forest and contact with the Maya people and their culture.

Question #12

Interpretation of Data
Of those who responded, more national (Mexican) tourists (69%) are visiting the ruins in the region than international visitors (31%).
Interpretation of Data

Of the international visitors, the majority are from Europe. Of the Mexican tourists, 23 out of 57 (40%) were from the state of Mexico, primarily from Mexico City. Eighteen out of 57 (32%) were from the Yucatan Peninsula. One Mexican respondent did not specify which state he/she was from.
Question #13

Native Language

<table>
<thead>
<tr>
<th>Language</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish</td>
<td>70%</td>
</tr>
<tr>
<td>English</td>
<td>8%</td>
</tr>
<tr>
<td>German</td>
<td>1%</td>
</tr>
<tr>
<td>Dutch</td>
<td>1%</td>
</tr>
<tr>
<td>French</td>
<td>5%</td>
</tr>
<tr>
<td>Italian</td>
<td>1%</td>
</tr>
<tr>
<td>Mayan</td>
<td>1%</td>
</tr>
</tbody>
</table>

Interpretation of Data

Spanish is overwhelmingly the most dominant native language of the questionnaire participants (70%), which, considering the majority of visitors are Mexicans, is not a surprise. English was a distant second (8%).

Question #14

Other Languages Spoken Well

<table>
<thead>
<tr>
<th>Language</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish</td>
<td>62%</td>
</tr>
<tr>
<td>English</td>
<td>14%</td>
</tr>
<tr>
<td>German</td>
<td>5%</td>
</tr>
<tr>
<td>Dutch</td>
<td>1%</td>
</tr>
<tr>
<td>French</td>
<td>1%</td>
</tr>
<tr>
<td>Italian</td>
<td>5%</td>
</tr>
<tr>
<td>Arabic</td>
<td>12%</td>
</tr>
</tbody>
</table>

Interpretation of Data

English is the most dominant second language spoken by visitors (62%) with French a distant second (14%) and Spanish, third (12%). In comparison, a study of tourists at the Panama Watershed Protected Areas (Ham and Weiler, 2000) showed that Spanish (72%) and English (21%) were the most common native languages spoken by visiting tourists. Furthermore, 52% of the tourists were bilingual; English (78%), Spanish (14%), and French (5%) were the second languages most frequently spoken.
Recommendations
The most common languages spoken by visitors to the region include Spanish and English. All signage and promotional material should therefore be in both Spanish and English. Ejido 20 de Noviembre residents who will be in contact with tourists should also have some basic knowledge of English.

Question #15

![Age Distribution Chart]

Interpretation of Data
Most of the visitors were in their 20's and 30's. The age range increased in the 20's and decreased in the 40's. In comparison, the International Ecotourism Society (TIES) International Ecotourist Market Profile indicates that ecotourists are primarily between the ages of 35 - 54 years old. The relative youthfulness of visitors may be due to the fact that typically younger visitors are more comfortable traveling to more remote, "off-the-beaten-path" destinations. Because ecotourism can involve inexpensive travel, younger people and students can afford coming to these destinations. As people get older, they may have more reservations about traveling to remote places.

Recommendations
The market audience for 20 de Noviembre will probably be focused at the younger age groups through ecotourism and adventure tourism travel, although older or more passive travelers can also come to the ejido to buy crafts or try Mayan cuisine, avoiding the more physically challenging activities (hiking to Rio Bec, overnight in a rustic cabana, etc).
Question #16

Gender of ecotourists to the region is more or less equal. In comparison, the International Ecotourism Society (TIES) International Ecotourist Market Profile indicates that gender is equally 50% female and 50% male.

Interpretation of Data

Question #17

Years of Formal Education

Interpretation of Data

Visitors to the region tended to have high education levels (16 years = college educated). In comparison, the International Ecotourism Society (TIES) International Ecotourist Market Profile indicates that those with college degrees tend to travel more: 82% are college graduates, although ecotourism is now expanding into mainstream markets with all different education backgrounds.
Question #18

![Bar Chart]

**Interpretation of Data**

Travel to the region tends to be a social activity with family and friends. A small percentage of tourists (25% and 26%) traveled with one other person or in a small group of 2-3 people, while 43% traveled in groups of 4 or more people, and 6% traveled alone. In comparison, the International Ecotourism Society (TIES) International Ecotourist Market Profile indicates that a majority (60%) of ecotourists prefers to travel as a couple, 15% prefer to travel with their families, and 13% prefer to travel alone.

**Recommendations**

Expect couples or small groups of tourists to arrive at 20 de Noviembre for various activities. Services should be planned with this in mind (meals, overnight stay, and transportation — bicycles, horses and wagon-cart room).
Regional Ecotourist Profile:

Based on the questionnaires collected, a general ecotourist profile of visitors to the Calakmul region has been summarized and can be compared to a general international ecotourist profile developed by The International Ecotourism Society (TIES).

### Regional Ecotourist Profile:

- **Age:** primarily 20’s and 30’s. (with the age range increasing in the 20’s and decreasing in the 40’s).
- **Gender:** Equally male and female.
- **Education:** 79% are college educated.
- **Party composition:** a majority (53%) prefers to travel with one or two others, 38% in groups of 4 or more, and 9% travel alone.
- **Interests:**
  1. archaeological ruins
  2. the Maya culture
  3. flora and fauna

### TIES Ecotourist Market Profile

- **Age:** 35 - 54 years old
- **Gender:** 50% female and 50% male
- **Education:** 82% were college graduates, although there currently is an expansion into mainstream markets (from those with high education levels to less education).
- **Party composition:** a majority (60%) prefers to travel as a couple, 15% with their families, and 13% travel alone.
- **Important elements of trip:**
  1. wilderness setting
  2. wildlife viewing
  3. hiking/trekking

### Additional profile information on the ecotourist to the Calakmul region:

- **Nationality:** Two out of every five ecotourists to the region (40%) are from Mexico, and coming primarily from Mexico City or the Yucatan Peninsula. Of international tourists to the region, the majority is from Europe.

- **Language:** Spanish is overwhelmingly the most dominant native language spoken while English is the most dominant second language spoken.

- **Information:** The majority of information on the region is gathered from magazines and books (including international guide books), travel agencies, and the Internet.

- **Travel:** Ecotourists visit several ruins in the region (circuit). They primarily travel through the region in a private (rented) vehicle and look to stay overnight in the area.

- **Needs:** (1) concessions, (2) interpretive guides, (3) good accessibility (road and trails).

- **For visits to a Mayan community, participating ecotourists would be interested in experiencing the following:** archaeological ruins (1), crafts (2) and guided forest walks (3), and cuisine and bird viewing (4 and 5). Medicinal plant trails, cabanas, and horseback rides to ruins rounded out the last choices.
Step 3:

Examine existing ecotourism projects within other communities.
It can be helpful to your own project to see how other communities are developing their ecotourism efforts and to see what has been successful or ineffective. Several communities were visited, with similar natural and cultural resources, to assess development, challenges, and perspectives of community-based ecotourism. Several Mayan communities within Mexico’s Maya Forest were visited that have developed ecotourism around natural and cultural resources similar to those found in 20 de Noviembre; similar market segments also made these communities important visits.

Mujil, Sian Ka’an Biosphere Reserve (Quintana Roo)

**Services:** An archaeological ruin, guided medicinal plants walks, and freshwater lagoon boat rides are the main attractions. Currently residents are developing forest interpretive trails with boardwalks, a bird-viewing tower, and an interpretive center.

**Support:** Mujil has had a lot of initial and continuing support from various organizations: Friends of Sian Ka’an, ProNatura, Sian Ka’an Biosphere Reserve, and INAH (archaeological restoration, interpretive panels for ruins).

**Challenges:** While a few of the residents have had some English training, English remains to be one the biggest challenges they face with providing ecotourism services. Promotion is also something they would like to improve upon. One of the basic services that was lacking at Mujil were public restroom facilities.
Ara Macao (Chipas)

*Services:* Boat rides are provided down the Usumacinta River to the Mayan archaeological ruin Yaxchilán. Afterwards, the community provides lunch.

*Support:* Several travel agencies out of Palenque have package tours involving visits to Ara Macao. Due to the unsafe road conditions (Guatemalan bandits), a military convoy accompanies the travel agencies on their tour.

*Challenges:* This community has only had this boat service to Yaxchilán for one year. English and promotion remain the biggest challenges for their ecotourism development. Due to road safety conditions, the only tourists they receive are those arriving with travel agencies with the daily military convoy.

Ejido El Rosario, Monarch Butterfly Reserve (Michoacan)

*Services:* Guides (54 total) have been trained and several positioned along the 2 km trail through the pine forest where visitors can observe monarch butterflies between October and March. Public bathrooms exist and are well maintained (visitors pay 2 pesos), transportation up to Ejido El Rosario is offered in trucks that other community members have, crafts are for sale, and restaurants exist near the entrance. Promotional brochures exist and a visitor center is currently being developed.

*Support:* Ejido El Rosario has had support from the following organizations: Monarch Butterfly Model Forest, US AID, and SEMARNAP. Other organizations may also have been involved in various collaborative efforts.

*Challenges:* English remains to be a big challenge in providing services for tourists. While there are guides located along the trail, few have identification as guides.
Misol-Ha (Chiapas)

Services: The ejido San Miguel, established in 1964, consists of 57 members who began ecotourism development. The major attraction here is a large waterfall. Services provided include: 13 cabanas (with plans to build 5 more), crafts, a restaurant, and public bathrooms (visitors pay 2 pesos). A night patrol watch also exists to provide protection over tourists’ cars and belongings.

Support: In 1992 Misol-Ha initially received PMA credits (international organization connected with UNESCO) – totaling 200,000 pesos (US $20,000); SecTUR helped with past trainings (course on receptionist training) and current promotion. FONAIS (Mexican NGO) has assisted with development support. A travel agency out of Palenque, Viajes Misol Ha, helps bring tourists to the site.

Challenges: English and other trainings are the biggest challenge. They have also encountered some problems with residents that want to participate in ecotourism but are not part of the original committee and are, therefore, not included. One notable problem is that no health clinic exists and recent accidents have caused concern.
Comunidad Lacandona (Chiapas)

Services: Several residents of this community provide transportation to the ruin Bonampak (about a 2 km drive) at 50 pesos (US $5) each. Tourists are required to park their cars in a general parking lot and take resident vehicles to the entrance of the ruin. Although this isn’t much of an “ecotourism project”, there is a similarity between this community and 20 de Noviembre; both have an archaeological ruin within their community that visitors are driving to.

Support: This community received permission to control the road to Bonampak after tourists were throwing garbage onto the road. This is the only service they provide.

Challenges: For this one particular service, no challenges exist, although communication with tourists is sometimes a problem (English).

Summary of Community-Based Ecotourism Visits:

- All had initial support from outside organizations (financial, technical, trainings).
- For many of these communities, travel agencies played a key role in promoting their destination and bringing visitors there.
- All had started small with ecotourism development.
- The entire community is not involved; only a small group of residents has been involved since the project first started.
- Several communities could justify providing clean and well-maintained public restroom facilities if they could charge the tourist 2-3 pesos.
- Challenges: English, promotion, trainings, health clinics or first aid service.
- Lastly, the community-based ecotourism enterprises visited seemed to most follow the third type of community-based ecotourism development described by Wesche and Drumm (1999). This arrangement involves a joint venture between an indigenous community and a non-indigenous partner where, in this case, the non-indigenous partners are the travel agencies who provide the tourists (market) while community members handle program arrangements.
Step 4:

Site inventories of 20 de Noviembre's natural and cultural resources of interest to ecotourists.
Site Inventories

Information taken from Veverka (1998)

Step 1:
Begin an inventory of your community by thinking of the major interpretive resources that exist. Here are some examples of important interpretive resources:

Cultural Resources:
- Archaeological sites
- Crafts

Natural Resources:
- Lakes, rivers, and streams
- Areas where one can see animals, including rare or endangered species
- Areas of seasonal events (bird migrations, wildflower blooms)
- Areas of interesting vegetation (medicinal plants, primary forest, etc)

Facilities:
- Visitor Centers
- Museum
- Demonstration facilities (e.g. Artesania)

Sensory Areas:
- Scenic vistas
- Forest trails

Orientation Areas:
- Key locations for visitor orientation (major road intersections or visitor contact areas)

Step 2:
Organize your community and any outside specialists (e.g. those with knowledge on bird identification, medicinal plants, etc). Develop a site map (make a temporary map if one doesn’t exist) and with a site map, look to identify major interpretive resources.

Use resource inventory forms (see example forms) for each resource on location, access, and interpretive significance (what are the meanings – stories and significance behind the resource?)

Bring this information to your community to gather more information on various resources. Often, residents in the community and region have extensive knowledge on the importance of various natural and cultural resources.
<table>
<thead>
<tr>
<th>Location:</th>
<th>GPS points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>Characteristics of site (physical, perceptual, and sensory). (e.g. Is site a forest, meadow, or pond? Special vistas or other important visual characteristics? Sounds or smells? How will these features change seasonally?) Photos.</td>
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<tr>
<td>Accessibility:</td>
<td>How will visitors access site? Do seasonal access problems exist? (flooding, rainfall, etc.)</td>
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<tr>
<td>Interpretive Resources:</td>
<td>What features make this site important? (uniqueness of site, special capability for interpretation, significance of location with respect to other facilities). What are the opportunities / constraints? What components of the site are important for the interpretive services? Approximate dates and length of usage for interpretation? How will site interpretation relate to the major interpretive theme? “Intangibles” that affect the visitor’s experience at the site, such as smells, colors, sounds, etc.</td>
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<tr>
<td>Interpretive Significance:</td>
<td>What resources exist (people, references, or artifacts) in interpreting this site?</td>
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<tr>
<td>Interp. Theme &amp; Development:</td>
<td>“General story” to be told at site that relates to the dominant theme and goals of ejido.</td>
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<tr>
<td>Site Objectives:</td>
<td>Objectives clearly identified and stated for intended development / use of the site (in relation to interpretive services in the ejido).</td>
</tr>
<tr>
<td>Mode of Interpretation:</td>
<td>What specific media or types of interpretation are being recommended (wayside exhibits, signs, interpretive trails, publications, etc). Include photographs, illustrations, examples, or plans of recommendations.</td>
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<td>Interpretive Media Objectives</td>
<td>Cognitive – facts visitor might learn</td>
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<td>Emotional – feelings visitor will express</td>
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<td>Behavioral – behavioral reaction of visitor</td>
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<td>Development Priority</td>
<td>1 - 2 - 3 - 4 - 5</td>
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<td>Highest - Lowest</td>
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<td>Planner’s Comments &amp; Recommendations:</td>
<td>Any thoughts, impressions, observations, or general comments about this site and its potential use / development and other considerations related to the overall ecotourism management plan.</td>
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Ejido 20 de Noviembre
Site Inventory Map

Natural and Cultural Resources
- #1: Artesania (Crafts) / Information Center
- #2: Abandoned Cabanes & EE Center
- #3: Plant Nursery
- #4: Restaurant
- #5: Fruit Orchard
- #6: Museum
- #7: Plaza
- #8: Trail
- #9: Highway 186

Archaeological Ruins:
- #10: El Ramonal
- #11: Ojo de Agua
- #12: Okolhuítz
- #13: Mirador Maya
- #14: Pasión de Cristo
- #15: Rec Rec "B"
- #16: Two Towers
- #17: Nacan-Chan Na
- #18: 12 Lunas
- #19: 12 Lunas

Roads:
- Hwy 186
- Ejido Road

Directions:
- Chetumal -->
- Chetumal -->
- Hwy 186

X'pujil
SITE INVENTORY: Ejido 20 de Noviembre

SITE #1: Artesania (Crafts) / Proposed Visitor Center

SITE LOCATION: N 18°27.108' W 89°18.406'

LOCATION:
On the main road that passes through the ejido, across from the plaza

DESCRIPTION:
The actual building is a 20 feet long, one-story wooden house with a thatched palm roof. Inside, vertical boards separate the house into 2 rooms. “Rustic” looking on the inside – weatherworn wooden walls with no frills. Outhouse with thatched palm roof is outside in back yard, which is accessible through back door.

ACCESSIBILITY:
Very accessible – on main road. No area for parking except on plaza grass.

INTERPRETIVE SIGNIFICANCE:
“Huipil” – the traditional Mayan dress, which has survived since ancient times, is still worn by women of 20 de Noviembre. Hammocks and embroidered clothing are also made and wooden artifacts use tree species from the forest.

INTERPRETIVE RESOURCES:
People making crafts and the crafts themselves: the “Huipil” – traditional cotton, embroidered Mayan dress; wooden crafts made from forest tree species such as cedar and mahogany; and hammocks

INTERP. THEME & DEVELOPMENT:
Subtheme #3: The Maya culture in 20 de Noviembre, including the language, dress, cuisine, and crafts, has been passed down from ancient times.

SITE OBJECTIVES:
• Maintain one side as artesania: with “living history” part where women show tourists how crafts are made and interpretive panels reveal importance, use, and materials used. Crafts can be displayed and available for purchase.
• Other side serves as a visitor information center: visitor orientation information inside (maps, brochures, etc)

MODE OF INTERPRETATION:
• Attractive sign on side of Artesania
• Attractive sign on side of Visitor Info Center
• Promotion in publications (brochure).
• Inside artesania, interpretive panels with information on material, traditional use, and significance for various crafts (all interpretive signs should be in Spanish and English, with Mayan as a possibility).

INTERPRETIVE OBJECTIVES
• To learn about traditional Mayan culture through crafts that are produced
• To see women making various crafts and understand a tradition that has been passed down from generation to generation.
• To understand the connection between people and the environment by learning what materials or local tree species are used in producing these crafts.

DEVELOPMENT PRIORITY
1 - 2 - 3 - 4 - 5
Highest Lowest
PLANNER'S COMMENTS & RECOMMENDATIONS:
- Currently this site is not in use as women work out of their own homes. It is in an ideal location – right on main road through the ejido that tourists use to access the archaeological site Rio Bec.
- Few visible repairs needed: some holes in the thatched roof, repaint job needed outside, professional sign on front of artesania, and clean up and beautify yard.
- Outhouse was fixed up for UWSP visit in March, 2002 and is functional now but not environmentally appropriate. For the mid and long-term, an ecological outhouse should be constructed in its place.
SITE INVENTORY: Ejido 20 de Noviembre

SITE #9: Plaza

SITE LOCATION: N 18° 27.125' W 89° 18.406'

LOCATION:
100 m (~300 ft) from entrance into urban area of ejido. The plaza is located on main road across from the Artesania.

DESCRIPTION:
Large open area (~1/2 ha) with small open hut with thatched roof surrounded by concrete sidewalk with large plants at corners. A wooden fence separates the school and health clinic from the plaza. -20 de Noviembre stone.
- Forest surrounding urban area of ejido that is visible from plaza, sounds of birds.

ACCESSIBILITY:
Very accessible from main road into ejido

INTERPRETIVE SIGNIFICANCE:
Heart of the urban center of the ejido and the central location is ideal to welcome tourists. Located across from artesania and 2 small “corner stores”.
See and interact with local population; observe women wearing the traditional Mayan dress, Huipil; see women carrying milpa (corn) to be ground into maza.

INTERPRETIVE RESOURCES:
Ejido stone with decree date, central hut in plaza

INTERP. THEME & DEVELOPMENT:
Subtheme #3: The Maya culture in 20 de Noviembre, including the language, dress, cuisine, and crafts, has been passed down from ancient times.

SITE OBJECTIVES:
• To develop site as tourist-friendly, inviting plaza
• To beautify plaza with the planting of flowers and/or trees, benches, kiosk of information

MODE OF INTERPRETATION:
Kiosk of information about the ejido, orientation map maybe under shelter / hut area

INTERP. MEDIA OBJECTIVES
• To learn about the ejido: it’s history, demographics, and way of life from interpretive information in the kiosk.
• To interact with the ejido residents and see the day in the life of 20 de Noviembre.
• See and hear various bird species found in the area

DEVELOPMENT PRIORITY

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Highest  Lowest

PLANNER'S COMMENTS & RECOMMENDATIONS:
Beautify plaza perhaps with benches, flowers, trees (shaded areas), add garbage cans...needs to be more welcoming and inviting
-keep animals away?...fence?
There could be information on the history of the ejido, central map,
Southeast corner section of plaza is probably best location for small parking area (as grass doesn’t grow there).
plaza shelter

Proposed parking area
SITE INVENTORY: Ejido 20 de Noviembre

SITE #4: Cabaña

SITE LOCATION: N 18°26.965' W 89°18.511'

LOCATION:
Located at the top of a small hill (incline) about 50m (165 ft) from plaza.

DESCRIPTION:
Wooden cabin with metal roof, rustic but cozy. Bed and 3 hammocks, bathroom. 5 x 6 meters (15’x 18’)?

Large, cleared front yard (45’x 15’ ?) of gravel with little vegetation, rustic wood fence borders forest vegetation in front. Back and south side surrounded by forest, 1 ha forest in back. Beautiful view of mountainous forest range in front. Sights and sounds of bird life, especially vultures.

ACCESSIBILITY:
Easily accessible from ejido road, up a slight incline. Not a problem during the rainy season since it sits on top of a hill.

INTERPRETIVE SIGNIFICANCE:
Less remote than other cabañas – a chance to stay within the community and see their way of life.

INTERPRETIVE RESOURCES:
Bird life, Tropical, sub-deciduous forest (Ramón, Copal, Cedar, Zapote, Pucte, etc)

INTERP. THEME & DEVELOPMENT:
Subtheme #4: Trails through the Maya Forest will immerse your senses in the sights, sounds, and spirits of this ancient sanctuary from colorful tropical birds to lush, towering vegetation.

SITE OBJECTIVES:
- Maintain as cabaña. Maybe a division made to cabaña or turn it into a kitchen. Development of 3 – 4 small cabañas around current cabaña in cleared yard.
- Beautify yard around cabaña – plants.
- Set-up bird feeders to attract various birds to the area (sugar water to attract hummingbirds, for example).

MODE OF INTERPRETATION:
None

INTERP. MEDIA OBJECTIVES
- To see and hear various bird and animal species found in the area
- To experience the sounds of the forest at night as you sleep in a hammock.

DEVELOPMENT PRIORITY
1 - 2 - 3 - 4 - 5
Highest  Lowest

PLANNER’S COMMENTS & RECOMMENDATIONS:
Clean up road to cabin and include signs. A few repairs needed to bathroom – water connection.

Various bird feeders to attract birds? (sugar water for hummingbirds, etc)
Front view of cabana

Inside the cabana

View of the Forest from Cabana

Ejido road leading up to cabana at top of hill. Signage should be put somewhere along this road to orientate tourist.

Forest area to the south side where other cabanas could be constructed.

Below are small cabanas located in Zoh Laguna that would also work well in 20 de Noviembre.
SITE INVENTORY: Ejido 20 de Noviembre

SITE #11: Cabaña Interpretive Trial

SITE LOCATION: N 18°26.957' W 89°18.528'

LOCATION:
Behind Cabana at top of hill

DESCRIPTION:
1 ha of sub-deciduous tropical forest with small dirt path through forested area. Trail is 154 m / 500 ft long. Trail winds past small clearing on right side (N 18°26.940' W 89°18.553') and a general incline in the trail begins until at the end of a path you find yourself on a small mound (N 18°26.908' W 89°18.576'). One is overtaken by the sounds of various bird life. Several medicinal trees such as Chaca, Chechen, and chicozapote can be seen.

ACCESSIBILITY:
Forested area begins 10 feet behind cabaña. Easy walking.

INTERPRETIVE SIGNIFICANCE:
Forest resources that the ancient and present-day Maya use(d) for medicine and other important uses.

INTERPRETIVE RESOURCES:
• Medicinal plants
• Sub-tropical deciduous forest (Chiclezapote, Chechen Chacah, Copal, Cedar, Pute, etc)
• Birdlife (toucans, butterflies, vultures, etc)

INTERP. THEME & DEVELOPMENT:
Subtheme #4: Trails through the Maya Forest will immerse your senses in the sights, sounds, and spirits of this ancient sanctuary from colorful tropical birds to lush, towering vegetation.

SITE OBJECTIVES:
• Maintain site as fully accessible trail through this 1 ha forested area
• Develop site as interpretive medicinal trail and bird viewing

MODE OF INTERPRETATION:
• Interpretive panels near various plant species with interpretive importance
• Interpretive panel at beginning of trail with information of what birds can be seen.
• Map at beginning of trail for visitor orientation

INTERP. MEDIA OBJECTIVES
• To learn about the medicinal plants used (and still used) by the Maya and how they are prepared.
• To see and hear various bird species found in the area
• To be immersed in a tropical forest environment
• To understand the connection the Maya had / have with their natural resources and the importance of preserving tropical forest environments.

DEVELOPMENT PRIORITY

1 - 2 - 3 - 4 - 5

PLANNER'S COMMENTS & RECOMMENDATIONS:
A great area of forest to have a trail but it is located out of the way for people just passing by on the main road. This trail would be of more interest for tourists staying overnight in the nearby cabaña.
Beginning of trail behind cabana

View of trail heading east back towards beginning (and cabana)
SITE INVENTORY: Ejido 20 de Noviembre

SITE #5: Kitchen / Restaurant

SITE LOCATION: N 18°27.17' W 89°18.379'

LOCATION:
15 m from entrance of ejido, 7 m (23 ft) north from central plaza on main road.

DESCRIPTION:
Cabin-type wooden house, thatched roof, small inside kitchen area 10' x 10' with wrap around porch. Gravel floor dining area on south side with thatched roof (no walls) ~ 12' x 7'. In back is small stream that passes through ejido. Residential homes across street and next door. Ecological outhouse in back not completed or functional.

ACCESSIBILITY:
From main road – easily. No place for parking vehicles (perhaps on plaza grass).

INTERPRETIVE SIGNIFICANCE:
Thatched roof is traditional roof used by the ancient Maya and still with many homes today from local palm. This restaurant will be where authentic Mayan cuisine will be prepared and served.

INTERPRETIVE RESOURCES:
Mayan cuisine: LA CHAYA, BRAZO DE REINA, PIDI POLLO, PIPIM DE FRIJOLE, NOPALES CON TOMATE

INTERP. THEME & DEVELOPMENT:
Subtheme #3: The Maya culture in 20 de Noviembre, including the language, dress, cuisine, and crafts, has been passed down from ancient times.

SITE OBJECTIVES:
- To maintain site as a restaurant
- To expand and fix-up, re-floor dining area to better accommodate tables and chairs.
- Finish construction on ecological bathroom.

MODE OF INTERPRETATION:
- Attractive sign hanging off site
- Posted attractive menu, in addition to menus that can be distributed with pictures and descriptions (Mayan word interpretation)
- Promotion (brochures)

INTERP. MEDIA OBJECTIVES
- To learn about various traditional Mayan cuisine
- To experience traditional Mayan cuisine which have been passed down through generations – both in preparation, ingredients, and flavor

DEVELOPMENT PRIORITY
1 - 2 - 3 - 4 - 5
Highest Lowest

PLANNER’S COMMENTS & RECOMMENDATIONS:
Although the infrastructure is there, I feel there are other priorities for development. Until the cabana is up and running and meals can be part of the package, it may be easier to have daytime visitors go to individual homes to have a meal prepared.
Restaurant's front view

Restaurant is along main road

Dinning area next to restaurant

Uncompleted ecological bathroom in back

Floor and size of dinning area
SITE INVENTORY: Ejido 20 de Noviembre

SITE #6: Museum (Fauna)
SITE LOCATION: N 18°27.264' W 89°18.356'

LOCATION:
10 m from entrance of ejido on main road, 10 m north of plaza

DESCRIPTION:
Small, wooden, rustic one-room cabin with thatched roof. About 15' X 15' in area, small, non-functional bathroom off to the side. Old wildlife posters hang on the wall, shelves with small stuffed animals and skulls of fauna found in the area.

ACCESSIBILITY:
Very accessible – on main road

INTERPRETIVE SIGNIFICANCE:
The Calakmul region, including 20 de Noviembre, is rich in fauna including white tailed deer, peccary, paca, agouti, in addition to an abundance of bird life.

INTERPRETIVE RESOURCES:
Skulls, stuffed animals found in ejido and region.

INTERP. THEME & DEVELOPMENT:
Subtheme #2: The ancient Maya depended on the Maya Forest for survival and spiritual guidance and today that dependence is still present in their need for building shelter, growing food, and curing the sick.

SITE OBJECTIVES:
• To develop interpretive exhibits and information on flora and fauna of ejido and region

MODE OF INTERPRETATION:
None (see planner’s comments)

INTERP. MEDIA OBJECTIVES
• To learn about the flora and fauna that exist in the ejido and region

DEVELOPMENT PRIORITY
1 2 3 4
Highest Lowest

PLANNER’S COMMENTS & RECOMMENDATIONS:
Although this is located on the main road, an ideal location would be right near the plaza. An idea is to take some of the important interpretive media that exists (skulls and specimens) and put this in the visitor information center that will be located next to the artesania.
SITE INVENTORY: Ejido 20 de Noviembre

SITE #12: Vivero (Nursery)

SITE LOCATION: N 18°26.972' W 89°18.390"

LOCATION:
100m (~300 ft) southeast from plaza.

DESCRIPTION:
1 ha fenced-in tree nursery including Mahogany, Cedar, Allspice, Ramon and ornamental species. Part of Nursery on an incline. Sounds and sights of birds.

ACCESSIBILITY:
Enterance gate to Nursery on road. During rainy season, bottom area (including entrance area) floods.

INTERPRETIVE SIGNIFICANCE:
Reforestation is an important part of living sustainably with the natural resources. The tree species grown in the Nursery were important in the ancient Mayan culture but are just as important for today’s Maya and their survival: home construction, furniture, boxes for bee keeping, animal feed, timber, and ornamentation.

INTERPRETIVE RESOURCES:
• Tree saplings and their uses

INTERP. THEME & DEVELOPMENT:
Subtheme #2: The ancient Maya depended on the Maya Forest for survival and spiritual guidance and today that dependence is still present in their need for building shelter, growing food, and curing the sick.

SITE OBJECTIVES:
• Maintain site as nursery and develop interpretive media to show their cultural use and importance

MODE OF INTERPRETATION:
• Interpretive panels by each tree area
• Information on past and present use

INTERP. MEDIA OBJECTIVES
• To learn about reforestation practices
• To learn about important trees species used by the ancient Maya and today
• To understand the importance to preserving the forest environment sustainable forestry

DEVELOPMENT PRIORITY
1 - 2 - 3 - 4 - 5

Highest
Lowest

PLANNER’S COMMENTS & RECOMMENDATIONS:
- Good location in ejido for visitors but may not be “big” attraction. I see this as more of an interest for visiting school groups.
- During rainy season, would not be ideal place to visit because of flooding at entrance.
- NOTE: As of March, 2002 Vivero had been left abandoned. Unless residents re-build it and have interest in developing a nursery, this will not be a part of ecotourism development.
SITE INVENTORY: Ejido 20 de Noviembre

SITE # 16: Rio Bec “B”

SITE LOCATION: N 18° 22.506’ W 89° 21.523’

LOCATION:
Rio Bec “B” is located 8 miles / 13 km south from the plaza along an old logging road.

DESCRIPTION:
Rio Bec “B” has a central doorway on the front (east) side and a doorway on each of the north and south sides. Panels with checkerboard designs are seen on the lower wall zone, next to the central doorway.

The 84 ft long structure has 55 ft. high towers on each end of the front façade, with rounded corners and nonfunctional (“false”) stairs leading to replicated temples (towers) on top. The name Rio Bec is also the dominant architectural style of the region characterized by long buildings with matching towers at each end, rounded corners and narrow roof-combs; Rio Bec “B” displays these characteristics.

The towers are decorated with monster-mouth masks on the east and west sides and inset panels display cross motifs (repeated 4 times vertically) on the north and south sides. The masks represent serpent heads with upturned snouts, curved eyeballs, and fangs. Because the towers are solid and contain no accessible rooms and it’s not possible to climb the steep stairs leading to the portal, it is suggested that the panels below the masks represent an entrance to another portal (perhaps the underworld).

Archaeologists believe Rio Bec “B” was probably built between 600 and 700 A.D. (Late Classic Period), but the exact date within this period is still debated.

ACCESSIBILITY:
As of March 2002, the access road is being repaired. (INAH has plans to re-do the road as “sacbe” – the limestone trails used by the ancient Maya). One must cross over a bridge that has also recently been repaired (located 1 ½ miles / 2¾ km from plaza). Road is accessible on foot and horseback but in the near future 4X4 vehicles and mountain bikes will be able to use the road.

INTERPRETIVE RESOURCES
- Ruin Rio Bec “B”
Possible other resources:
- Tropical sub-deciduous forest (Ramón, Copal, Cedar, Chiclezapote, Pute)
- Birdlife: laughing falcon, trogon, motmots

INTERPRETIVE SIGNIFICANCE:
Rio Bec translates to “River of Roble”; Rio is river in Spanish and Bec is Mayan for Roble, an evergreen oak species. One is immersed in the dense jungle vegetation and sights and sounds of birds.

Rio Bec “B” was one of the first structures to be discovered in the area. In 1906, French archeologist Maurice de Périgny first recorded the existence of pre-Hispanic structures in the region. One of the structures he found had square towers with rounded corners and
was unlike other known Maya buildings in the Petén or Yucatán. He named it Rio Beque, after a small stream in the area.

In 1912 Raymond E. Merwin and Clarence L. Hay, with the Peabody Museum of Harvard University, visited the area and relocated the structure discovered by Pérgny.

In the 1930’s there were several expeditions to the area sponsored by the Carnegie Institute of Washington by Karl Ruppert and John Denison in 1943.

The doorways of Rio Bec “B” were topped by wooden lintels (made from Chiclezapote). Some of these were still in place when the building was rediscovered, but they were replaced with new lintels to protect the structure.

**INTERP. THEME & DEVELOPMENT:**
Subtheme #1: Hidden by dense forest vegetation, archaeological ruins in 20 de Noviembre stand as testimony to the ancient Maya who lived here.

**SITE OBJECTIVES:**
- To maintain the site and an accessible trail to Rio Bec and surrounding ruins along the way
- To develop interpretive media at each site (INAH?)

**MODE OF INTERPRETATION:**
- Wayside panel at rest area providing trail and site map, information on important vegetation and common wildlife seen.
- Interpretive panel at ruin with information of the site: use, significance, current restoration stage and any recent findings. (INAH?)
- A brief overview of site in “visitors guide”

**INTERPRETIVE MEDIA OBJECTIVES**
- To learn how and in what environment the ancient Maya lived
- To see and hear a variety of wildlife common to the area
- To experience ancient Mayan ruins before excavation and restoration

**DEVELOPMENT PRIORITY**

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**PLANNER’S COMMENTS & RECOMMENDATIONS:**
Rio Bec already has a lot of publicity in international travel guides and the Mundo Maya / La Ruta Maya circuit. It makes sense to make Rio Bec priority #1 and the access road leading up to it, since this is one of the major attractions in the region and today is the only reason why tourists pass through 20 de Noviembre. Once visitors start returning to see Rio Bec, capitalize on other services to offer.
Front (south) tower

Front (north) tower

Rio Bec discovered in 1912 – SE view

Model of Rio Bec – SE view

Both photos Copyright: 1935 American Museum of Natural History, New York, NY
Rio Bec Site

Ejido 20 de Noviembre Map

Rio Bec Trail Map

12 Lunas

Two Towers

Rio Bec 'B'

0 200 400 600 Meters

0 300 1000 1500 2000 Feet
SITE INVENTORY: Ejido 20 de Noviembre

SITE #17: The Two Towers (Rio Bec)

SITE LOCATION: N 18°22.839' W 89°21.466'

LOCATION:
Two Towers is located ~165 m / 540 ft along a footpath off the main road through dense tropical vegetation. It is located ~ 745 m / 2445 ft from Rio Bec “B”.

DESCRIPTION:
Since March, 2002, vegetation has been cleared from this ruin by INAH for excavation purposes. Although the two towers are all that is left to see, one can imagine the enormity of this structure with the two towers of the ruin stretching 200 ft / 63 m apart!

ACCESSIBILITY:
Small footpath off the main logging road leads you to the ruin (footpath is ~165 m / 540 ft long). As of March 2002, the access road to Rio Bec is being repaired. (See Rio Bec inventory form)

INTERPRETIVE RESOURCES
- Ruin Two Towers
- Tropical sub-deciduous forest (Ramón, Copal, Cedar, Chiclezapote, Pute)
- Birdlife: laughing falcon, trogon, motmots

INTERPRETIVE SIGNIFICANCE:
Red can still be seen on the towers, a dye used that has survived since ancient times. This indicates that this structure was a very important place where sacrifices or offerings were most likely performed. Until further information is given by INAH, not much is known about Two Towers.

INTERP. THEME & DEVELOPMENT:
Subtheme #1: Hidden by dense forest vegetation, archaeological ruins in 20 de Noviembre stand as testimony to the ancient Maya who lived here.

SITE OBJECTIVES:
- To maintain the site and an accessible trail to Rio Bec and surrounding ruins along the way
- To develop interpretive media at each site (INAH?)

MODE OF INTERPRETATION:
- Trailhead markers (several – with distances) on road leading up to Two Towers and Rio Bec (end of road).
- Wayside panel at rest area providing trail and site map, information on important vegetation and common wildlife seen.
- Interpretive panel at ruin with information of the site: use, significance, current restoration stage and any recent findings. (INAH?)
- A brief overview of site in “visitors guide”

INTERPRETIVE MEDIA OBJECTIVES
- To learn how and in what environment the ancient Maya lived
- To see and hear a variety of wildlife common to the area
- To experience ancient Mayan ruins before excavation and restoration

DEVELOPMENT PRIORITY
1 - 2 - 3 - 4 - 5
Highest Lowest
PLANNER’S COMMENTS & RECOMMENDATIONS:
This ruin is impressive to see, just for the size it must have been. It is also a ruin leading up to Rio Bec. I think this and the other smaller ruins along this main road could be visited by tourists and have Rio Bec “B” as the final ruin, since it is the best reserved and the most impressive.
SITE INVENTORY: Ejido 20 de Noviembre

SITE #7: Okolhuitz

SITE LOCATION: Entrance: N 18°28.003' W 89°18.409'

LOCATION:
The entrance to Okolhuitz is located 2 miles / 3.13 km south from the Hwy 186 along the ejido road ~ 1 mile / 1.65 km north from the plaza.
Rest stop: N 18°27.972' W 89°18.676'
Structure 15: N 18°27.967' W 89°18.701'
Structure 14: N 18°27.996' W 89°18.808'
Structure 1: N 18°27.977' W 89°18.908'

DESCRIPTION:
Okolhuitz consists of 3 principal structures worth seeing within dense tropical forest vegetation. The rest / parking area is roughly 480m / 1575 ft from the road along a dirt road. The first ruin, visible from the rest area, is just 45 m / 150 ft away. The second ruin is another 200 m / 660 ft away along a narrow make-shift path through the forest vegetation. On the way to the third ruin, you pass a stelae sticking out of the ground. The third and final ruin is located about 180m / 590 ft over a small mound.

Seasonal changes: Trail / path muddy during the rainy season.

ACCESSIBILITY:
Okolhuitz is easily accessible by the main road leading into the ejido. From the main road there is an entrance into the forest (a dirt road) about 100 meters in. Then begins the trail.

INTERPRETIVE SIGNIFICANCE:
Visitor will feel as if they are the first people to come across this site, as vegetation still covers much of the ruin. One is immersed in the dense jungle vegetation and sights and sounds of birds.

Okolhuitz in Maya means “Over Hill” as the largest and last ruin is accessed over a small hill. The structures, which blend architectural styles of Rio Bec and Peten, are dated to around 500 - 600 AD. From a red color which appears on many stones, Okolhuitz was probably a religious or ceremonial center where sacrifices and offerings were probably held.

Stucco figures on a large portion of the roofcomb on Structure 1 also includes a probable representation of the site’s ruler on top of a big stylized Earth Monster mask. There are also human figures, glyphs, symbols, and rounded motifs (although badly eroded). The general design is formed by inverted T shaped and square slots. All these representations are similar to those found on other stelae and roofcombs of the Classic Maya world.

INTERPRETIVE RESOURCES:
Aside from the ruin, there are many interesting resources to interpret along the path: leaf-cutter ants, anthill, vegetation: tropical sub-deciduous forest (Ramón, Copal, Cedar, Zapote, Pute,), guano (palm) used for houses, polmolche (mayan name) – the bark is used for cuts, Chacah and Chechen – Chechen sap irritates skin and the bark of the Chacah tree stops this. Birds: toucans, forest falcon (pea), turkey vulture (chombo), grey-headed kite.
(gablian), red-billed pigeon, hummingbird (colibri).

**INTERP. THEME & DEVELOPMENT:**
Subtheme #1: Hidden by dense forest vegetation, archaeological ruins in 20 de Noviembre stand as testimony to the ancient Maya who lived here.

**SITE OBJECTIVES:**
- To maintain the site as an accessible trail to the 3 ruins of Okolhuitz
- To develop interpretive media at each site (INAH?)
- To develop rest stop or parking area at clearing in front of trail

**MODE OF INTERPRETATION:**
- Attractive trailhead marker on main road
- Interpretive wayside panel at beginning of trail (rest area) providing trail and site map, information on important vegetation and common wildlife seen.
- Each ruin will have an interpretive panel with information of the site: use, significance, current restoration stage and any recent findings. (INAH)
- A brief overview of site in “visitors guide”

**INTERP. MEDIA OBJECTIVES**
- To learn how and in what environment the ancient Maya lived
- To see and hear a variety of wildlife common to the area
- To experience ancient Mayan ruins before excavation and restoration

**DEVELOPMENT PRIORITY**

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**PLANNER’S COMMENTS & RECOMMENDATIONS:**
I propose a sign on the main road pointing to where Okolhuitz is located.

Vegetation needs to be cleared a little more from the trail and near ruins.

Residents suggested a gate be put up at the road entrance to the ruin so tourists are required to have a guide from the ejido escort them.

Structure #1:
sample shelter at rest area at Okolhuitz
SITE INVENTORY: Ejido 20 de Noviembre

SITE #10: El Ramonal

SITE LOCATION: N 18°26.373' W 89°18.547'

LOCATION:
The trail entrance to El Ramonal is located ~1.5 km / ~1 mile south from the plaza along the main road that passes through the ejido (towards Rio Bec). From the main road, one will arrive at a small foot path (GPS N 18°23.366 W 89°18.411*) heading west 240 m / 790 ft through forest vegetation and along an open pasture before arriving at the site.

DESCRIPTION:
One large structure still partially covered with vegetation. Trail passes by open field with hills in the distance until one comes upon an “outcropping” of El Ramonal. One can depict a small plaza still covered with vegetation with El Ramonal most likely the head temple.

ACCESSIBILITY:
Accessible from main road that runs through the ejido, and onto small trail. During the dry season one can drive a car up to the foot trail and the entire route is very accessible by foot. The best time to see bird life is between February – April.

INTERPRETIVE SIGNIFICANCE:
El Ramonal reveals symbols characteristic of the Rio Bec style (checkered, crosses, round corners). One can still see red on many of the stones, indicating that El Ramonal was a religious ceremonial site probably used for sacrifices. El Ramonal is named after the tree “Ramon” (Breadnut tree) that was once prevalent here.

INTERPRETIVE RESOURCES:
- The Ruin “El Ramonal”
- Tropical sub-deciduous forest (Ramón, Copal, Cedar, Zapote, Pute, etc)
- Birdlife: chacalacas, toucan (collard aracan), red-capped manakin, masked tiyra, boat-billed flycatcher, great kissadee, brown-crested flycatcher, tragon, barred antshrike

INTERP. THEME & DEVELOPMENT:
Subtheme #1: Hidden by dense forest vegetation, archaeological ruins in 20 de Noviembre stand as testimony to the ancient Maya who lived here.

SITE OBJECTIVES:
-Maintain site as accessible trail to ruin

MODE OF INTERPRETATION:
- To develop interpretive panel with information on ruin, use, significance, current restoration stage and any recent findings.
- To develop interpretive panel with information on forest and common wildlife seen
- Orientating sign / marker off main road before trail leading towards ruin.
- A brief overview of site in “visitors guide”

INTERP. MEDIA OBJECTIVES
- To learn how and in what environment the ancient Maya lived
- To see and hear a variety of wildlife common to the area
- To experience ancient Mayan ruins before excavation and restoration
DEVELOPMENT PRIORITY
1 - 2 - 3 - 4 - 5
Highest     Lowest

PLANNER’S COMMENTS &
RECOMMENDATIONS:
Clear back some vegetation from ruin,
trail improvements.

Not much work needed, although lacks
interpretative media.
El Ramonal Trail Map

Ejido 20 de Noviembre Map
SITE INVENTORY: Ejido 20 de Noviembre

SITE #8: Orchard (of Prodcencio Duarte)

SITE LOCATION: N 18°26.712' W 89°18.435'

LOCATION:
90 m (~300ft) from central plaza on main road across from small fenced-in sheep lot.

DESCRIPTION:
1 ha (2.5 acres) orchard of lemon, orange and allspice trees, with the occasional coffee, coconut, or avocado tree. A makeshift trail through orchard with rustic wooden gate entrance. A small river lines the back boundary but it is not cleaned-up and covered with vegetation. While walking through the orchard, one hears and sees a variety of bird life.

ACCESSIBILITY:
Easy access off main road through ejido. Nov – March / April is when fruit is available and probably the most pleasant time to be outside (not during the rainy season).

INTERPRETIVE SIGNIFICANCE:
This orchard is an example of self-sufficiency by ejido residents as well as their dependence on the land.

INTERPRETIVE RESOURCES:
- Orchard (Lemon, Orange, All Spice, few Mexican Cedar, Avocado, Coffee, and Coconut)
- Birds that are found in the orchard / use orchard trees for habitat or food

INTERP. THEME & DEVELOPMENT:
Subtheme #2: The ancient Maya depended on the Maya Forest for survival and spiritual guidance and today that dependence is still present in their need for building shelter, growing food, and curing the sick.

SITE OBJECTIVES:
- To maintain site as a fully accessible orchard with trail

MODE OF INTERPRETATION:
- Attractive sign on fence with information on orchard’s importance, fruit grown, common bird species.
- A brief overview of site in “visitor’s guide”
- Interpretive panels by fruit trees with English, Spanish, and Mayan names and how they are used in the Mayan culture (food, medicine, etc.)

INTERP. MEDIA OBJECTIVES
- To see how ejido residents live off the land and through self-sufficient means
- To learn about the different fruits grown in the orchards and how they are used in the Mayan culture

DEVELOPMENT PRIORITY
1 2 3 4 5
Highest Lowest

PLANNER’S COMMENTS & RECOMMENDATIONS:
- More attractive / important for student groups (represents self-sufficiency and living off the land)
- Minor maintenance needed: clean up trail and underbrush, sign at entrance (1992 began parcel, not much care given-takes care of itself)

Fruit Grown:
Lemon and Orange trees – 140
All Spice Tree – 140
Mexican Cedar – 100
Avocado Trees – 2
Coffee (Cordoba) – 50
Coconut
SITE INVENTORY: Ejido 20 de Noviembre

SITE #2: Cabañas (3)

SITE LOCATION:

LOCATION:
Along main road through ejido towards Rio Bec ~ 2 km (1.2 miles) from plaza and 100 m from El Ramonal. Cabañas are located around an abandoned Environmental Education Center.

DESCRIPTION:
Simple, palm thatched roof cabañas 10’ x 15’ made with local forest products located in dense tropical forest setting. One cabaña is nearly finished with bathroom, the other 2 need more work. A basic dirt trail (part of sacbe trail) through forest connects each of the cabañas to (abandoned) center.

ACCESSIBILITY:
A little long to walk from the ejido but accessible along the main road that runs through the ejido. A small dirt trail turns off from the main road for about 50 feet until arriving at the beginning of the complex (partially completed ecological bathroom, water tank, EE center).

INTERPRETIVE SIGNIFICANCE:
One has the feeling of being completely immersed in a tropical forest environment in a remote part of the ejido. Birds are heard and seen frequently and are plentiful year-round but probably the best time is March through June during breeding and during migrations (early spring and fall) when one can spot migratory species passing through the area. A small river is located 5 m (16.5 ft) away, which is high during the wet season but very low during the dry season. The river appears red from the leaves of the zapotillo tree.

INTERPRETIVE RESOURCES:
Bird life, tropical plants, river, cabañas made with local forest products, Tropical sub-deciduous forest (Ramón, Copal, Cedar, Zapote, Pute, etc)

INTERP. THEME & DEVELOPMENT:
Subtheme #4: Trails through the Maya Forest will immerse your senses in the sights, sounds, and spirits of this ancient sanctuary from colorful tropical birds to lush, towering vegetation.

SITE OBJECTIVES:
None (see planner’s comments)

MODE OF INTERPRETATION:
None (see planner’s comments)

INTERPRETIVE OBJECTIVES
- To learn about the flora and fauna found in the forest and their cultural importance and threatened status
- To see and hear various bird and animal species found in the forest
- To be immersed in a tropical forest environment and take in the variety of tropical plant species.
- To understand the importance to preserving the forest environment and the critical habitat for wildlife

DEVELOPMENT PRIORITY
1 - 2 - 3 - 4 - 5
Highest  Lowest

PLANNER’S COMMENTS & RECOMMENDATIONS:
- The main road from the ejido forks off several times to other roads without clear signage.
- These cabañas will not last long – termites have been eroding these
structures. For building cabañas here, you would need to tear down these structures and start new.

- The mosquitoes from April / May – September / October will be horrible here and not a very pleasant place to sleep or be for long periods of time. **This should not be a priority. Focus on other areas first.**
SITE INVENTORY: Ejido 20 de Noviembre

SITE #3: Cabana and EE Center Trail

SITE LOCATION:

LOCATION:
Around EE Center and 3 Cabañas

DESCRIPTION:
A basic dirt trail (part of the trail is sacbe) through the forest connects each of the cabañas to the (abandoned) EE Center.

ACCESSIBILITY:
A little long to walk from the ejido but accessible along the main road that runs through the ejido. A small dirt trail turns off from the main road for about 50 feet until arriving at the beginning of the complex.

INTERPRETIVE SIGNIFICANCE:
Forest resources that the ancient Maya, and present-day Maya, used for medicine and construction.

One has the feeling of being completely immersed in a tropical forest environment in a remote part of the ejido away from any human contact. Birds are heard and seen frequently and are plentiful year-round but probably the best time is March through June during breeding and during migrations (early spring and fall) when one can spot migratory species passing through the area. Tropical sub-deciduous forest and limestone soils are home to specific tree species. A small river is located 5 m (16.5 ft) away, which is high during the wet season but very low during the dry season. The river appears red from the leaves of the zapotillo tree.

INTERPRETIVE RESOURCES:
- Medicinal plants
- Sub-tropical deciduous forest (Ramón, Copal, Cedar, Zapote, Pate, etc)
- Birdlife (toucans, butterflies, vultures, etc)

INTERP. THEME & DEVELOPMENT:
Subtheme #4: Trails through the Maya Forest will immerse your senses in the sights, sounds, and spirits of this ancient sanctuary from colorful tropical birds to lush, towering vegetation.

SITE OBJECTIVES:
None (see planner’s comments)

MODE OF INTERPRETATION:
None (see planner’s comments)

INTERP. MEDIA OBJECTIVES
- To learn about the medicinal plants used (and still used) by the Maya and how they are prepared.
- To see and hear various bird species found in the area
- To be immersed in a tropical forest environment
- To understand the connection the Maya had / have with their natural resources and the importance of preserving tropical forest environments.

DEVELOPMENT PRIORITY
1 2 3 4 5
Highest Lowest

PLANNER'S COMMENTS & RECOMMENDATIONS:
Ejido residents were not able to estimate size of area where EE Center and
cabanas are — and the area they would like to make a trail.

Trail could be used by day visitors with interpretive guide, or by overnight guests in cabanas, or students spending time at the EE Center.

*NOTE: Because abandoned cabanas and EE Center are in such rough condition, their development is not at all a priority for development and, therefore, neither is developing a trail here.*
SITE INVENTORY: Ejido 20 de Noviembre

SITE #13: Orquídea / “Orchid”

SITE LOCATION:

LOCATION:
Located 1 mile (1.6 km) southeast of ejido along dirt road and another 100 feet along fenced pasture trail.

DESCRIPTION:
When approaching Orquídea, this ruin resembles a tower structure on top of a small hill although, from the side view, one can see that the structure begins at ground level but is heavily concealed by vegetation. Surrounding the ruins are open fields with various protruding mounds, most of which are other small ruins. As with the other ruins located in 20 de Noviembre, there is such a mysterious feeling associated with visiting these sites as they have yet to be officially excavated or analyzed.

ACCESSIBILITY:
Orquídea is accessible by dirt road which is in such poor condition that vehicles most likely cannot use. Arriving on foot is not a problem, although climbing up onto the ruin is steep and not secure, but one can easily walk around the ruin and admire the orchids and architecture without climbing it.

INTERPRETIVE SIGNIFICANCE:
Orquídea means "orchid" in Spanish, named by ejido residents because of the abundance of orchids growing all over the ruin.

INTERPRETIVE RESOURCES:
- Tropical sub-deciduous forest (Ramón, Copal, Cedar, Zapote, Pute, etc)
- The ruin “Orquídea” and surrounding “mounds”
- Orchids on ruin
- Abundant tropical bird life

INTERP. THEME & DEVELOPMENT:
Subtheme #1: Hidden by dense forest vegetation, archaeological ruins in 20 de Noviembre stand as testimony to the ancient Maya who lived here.

SITE OBJECTIVES:
- To maintain the site as an accessible trail to ruin
- To develop interpretive media at site

MODE OF INTERPRETATION:
- To develop interpretive panel with information on ruin, use, significance, current restoration stage and any recent findings.
- To develop interpretive panel with information on orchids found on ruin and common vegetation and see wildlife around site
- Orientating sign / marker off main road before trail leading towards ruin.
- A brief overview of site in “visitors guide”

INTERP. MEDIA OBJECTIVES
- To learn how and in what environment the ancient Maya lived
- To see and hear a variety of wildlife common to the area
- To learn about the various orchids growing on the ruin
- To experience ancient Mayan ruins before excavation and restoration
DEVELOPMENT PRIORITY
1 - 2 - 3 - 4 - 5
Highest Lowest

PLANNER’S COMMENTS & RECOMMENDATIONS:
-Roads criss-cross with each other and is confusing. There will need to be signs and probably best to have guided tours.
-This ruin may be a little too far to walk for most tourists and there are closer and more impressive ruins (Okolhuitz, El Ramonal).
-Of the ruins that are somewhat of a distance from the plaza, Orquidea is one of the more impressive ruins but other ruins should be more of a priority. Orquidea would work well with a horseback ride to show the countryside and bird viewing early in the morning.
SITE INVENTORY: Ejido 20 de Noviembre

SITE #19: 12 Lunas

SITE LOCATION: N 18°23.004' W 89°21.364'

LOCATION:
12 Lunas is located along the main road towards Rio Bec about 1 km / .6 miles from Rio Bec. From entrance of the trail, one walks 270 ft / 83 m to arrive at the ruin.

DESCRIPTION:
12 Lunas is badly deteriorated and almost completely covered by vegetation. There are a few stones that have been discovered with numbering or symbols on them.

ACCESSIBILITY:
Only ejido resident can show you the way as no clear path exists. As of March 2002, the access road to Rio Bec is being repaired (See Rio Bec inventory form).

INTERPRETIVE RESOURCES
- Ruin 12 Lunas and stones
- Tropical sub-deciduous forest (Ramón, Copal, Cedar, Chiclezapote, Pute)
- Birdlife: laughing falcon, trogon, motmots

INTERPRETIVE SIGNIFICANCE:
Not much is known about the significance of this site. The ruin was named 12 Lunas for the stones that were discovered which show symbols and letters that could represent the name of a ruler or an important date, such as a battle, a birth, or death.

INTERP. THEME & DEVELOPMENT:
Subtheme #1: Hidden by dense forest vegetation, archaeological ruins in 20 de Noviembre stand as testimony to the ancient Maya who lived here.

SITE OBJECTIVES:
- Possibly to visit on route to Rio Bec

MODE OF INTERPRETATION:
- Trailhead marker by road leading to 12 Lunas

INTERPRETIVE MEDIA OBJECTIVES
- To learn how and in what environment the ancient Maya lived
- To see and hear a variety of wildlife common to the area
- To experience ancient Mayan ruins before excavation and restoration

DEVELOPMENT PRIORITY
1 - 2 - 3 - 4 - 5
Highest Lowest

PLANNER'S COMMENTS & RECOMMENDATIONS:
This ruin is a ruin leading up to Rio Bec. The 2 stones with numbers and symbols are interesting but probably not worth visiting in comparison to the other ruins. I think this and the other smaller ruins along this main road could be visited by tourists and have Rio Bec “B” as the final ruin, since it is the best preserved and the most impressive.
SITE INVENTORY: Ejido 20 de Noviembre

SITE #14: Mirador Maya

SITE LOCATION:

LOCATION:
Located about 1.5 miles (2.5 km) east from ejido plaza along dirt road. It is along the same road taken to visit Orquidea and Pasión de Cristo. One also must walk 100 meter from the road to arrive at the site.

DESCRIPTION:
Mirador Maya is a large square structure standing 25 feet (est.) tall. It is visible from the road as it stands in a partially open field with few trees surrounding it.

ACCESSIBILITY:
The ruin is accessible by walking along the dirt road and through thick brush 100 meters from the road. A vehicle would have problems and during the rainy season, the field where the ruin is located would likely be marshy.

INTERPRETIVE SIGNIFICANCE:
According to ejido residents, Mirador Maya may have been an observatory. Apparently an arc on top of the ruin broke off several years ago. Jagged stones indicate that other parts of the ruin have broken off during time.

INTERPRETIVE RESOURCES:
- The ruin “Mirador Maya”
- Tropical sub-deciduous forest (Ramón, Copal, Cedar, Zapote, Pute, etc)
- Wildlife common in the area (birdlife, small mammals)

INTERP. THEME & DEVELOPMENT:
Subtheme #1: Hidden by dense forest vegetation, archaeological ruins in 20 de Noviembre stand as testimony to the ancient Maya who lived here.

SITE OBJECTIVES:
- Maintain site and accessible trail
- Develop interpretive media

MODE OF INTERPRETATION:
- To develop interpretive panel with information on ruin, use, significance, any findings
- To develop interpretive panel with information on forest and common wildlife seen
- Orientating signs / markers on road leading to ruin
- A brief overview of site in “visitors guide”

INTERP. MEDIA OBJECTIVES
- To learn how and in what environment and ancient Maya lived
- To see and hear a variety of wildlife common to the area
- To experience ancient Mayan ruins before excavation and restoration

DEVELOPMENT PRIORITY

Planner’s Comments & Recommendations:
In comparison to other ruins that exist in the ejido and the archaeological ruins visitors have access to in the region, this should not be a priority. Along with Pasión de Cristo, this ruin was also a bit far to walk, especially for an “unexciting” ruin when compared to others. There were also bees by the ruins and tall vegetation that would need some clearing. Don’t focus on this ruin.
SITE INVENTORY: Ejido 20 de Noviembre

SITE #15: Pasión de Cristo

SITE LOCATION:

LOCATION:
Located at least 2 miles (3.3 km) from central plaza on dirt road heading east. Road passes by other ruins (Orquídia, Mirador Maya) and fields before arriving at the site.

DESCRIPTION:
From the road one would not even know they had arrived as the entire ruin is covered with thick, dense forest vegetation. When on an upper part of the ruin, one can see a cave-type opening where residents said drawings and Mayan symbols can be seen on the walls but it is now closed-off.

ACCESSIBILITY:
Arriving to the site is accessible on foot but due to poor road condition, vehicles would have problems. Actual ruin is not very accessible. It is steep and difficult climbing and no cleared paths exist.

INTERPRETIVE SIGNIFICANCE:
Pasión de Cristo is named after pictures found inside ruin (according to ejido residents)

INTERPRETIVE RESOURCES:
• The ruin “Pasión de Cristo”
• Tropical sub-deciduous forest (Ramón, Copal, Cedar, Zapote, Pute, etc)
• Wildlife common in area (birdlife, small mammals, etc.)

INTERP. THEME & DEVELOPMENT:
Subtheme #1: Hidden by dense forest vegetation, archaeological ruins in 20 de Noviembre stand as testimony to the ancient Maya who lived here.

SITE OBJECTIVES:
None (see planner’s comments)

MODE OF INTERPRETATION:
None (see planner’s comments)

INTERP. MEDIA OBJECTIVES
• To learn how and in what environment the ancient Maya lived
• To see and hear a variety of wildlife common to the area
• To experience ancient Mayan ruins before excavation and restoration

DEVELOPMENT PRIORITY
1 - 2 - 3 - 4 - 5
Highest Lowest

PLANNER’S COMMENTS & RECOMMENDATIONS:
Based on research found and maps located with INAH, this site at one time was well maintained and visited by various tourists and specialists. Today, however, it is completely covered with vegetation and is such a long walk from the ejido plaza. Other sites in the ejido have more to offer that I would not have this site as any priority for tourists and would instead concentrate efforts on other, closer ruins.
SITE INVENTORY: Ejido 20 de Noviembre

SITE #18: Nacan – Chan Na

SITE LOCATION: N 18°23.586' W 89°19.407

LOCATION:
It is located along the main road towards Rio Bec.

DESCRIPTION:
Basically, this is a large “mound” of ruin rubble but what is still visible is a central doorway that you can (if you are adventurous) pull yourself up by trees sticking out from the dirt and climb up into the doorway. Old wooded lintels (chiclezapote) can still be seen scattered around and various remnants of walls still remain.

ACCESSIBILITY:
Only ejido resident can show you the way as no clear path exists. As of March 2002, the access road to Rio Bec is being repaired (See Rio Bec inventory form).

INTERPRETIVE RESOURCES
• Ruin Nacan – Chan Na
• Tropical sub-deciduous forest (Ramón, Copal, Cedar, Chiclezapote, Pute)
• Birdlife: laughing falcon, trogon, motmots

INTERPRETIVE SIGNIFICANCE:
Nothing is known about the significance of this site.

INTERP. THEME & DEVELOPMENT:
Subtheme #1: Hidden by dense forest vegetation, archaeological ruins in 20 de Noviembre stand as testimony to the ancient Maya who lived here.

SITE OBJECTIVES:
• Possibly a site to visit on route to Rio Bec

MODE OF INTERPRETATION:
• Trailhead marker by road leading to Nacan Chan Na

INTERPRETIVE MEDIA OBJECTIVES
• To learn how and in what environment the ancient Maya lived
• To see and hear a variety of wildlife common to the area
• To experience ancient Mayan ruins before excavation and restoration

DEVELOPMENT PRIORITY
1 - 2 - 3 - 4 - 5
Highest Lowest

PLANNER'S COMMENTS & RECOMMENDATIONS:
This ruin is a bit of a walk off the main road (the density of the forest vegetation would not allow for a GPS reading but I would estimate the distance at ½ mile) and there isn’t a lot that is left to see of the ruin. It is, however, on the road leading up to Rio Bec and if used at all, it would be a possible stop, along with other ruins along this main road, that could be visited by tourists with Rio Bec “B” as the final ruin, since it is the best preserved and the most impressive.
Inside Nacan Chan Na. This wood, chiclezapote, are remnants of lintels used during ancient times.
Summary of Site Development and Media Recommendations

Site Development:

Short-term (1)
Site 16. *Rio Bec*: access road and bridge, interpretive media at site, signage on road, rest area, ecological bathroom
Site 9. *Plaza*: informational kiosk, benches, fix thatched-roof shelter, beautify with plants, flowers, small fence to keep out animals (?), trash can, parking area at SE corner
Site 1. *Artesania / Visitor Center*: bathroom, signage, repaint outside, re-roof
Site 4. *Cabaña*: fix existing cabaña - bathroom (water connection), electricity, beautify yard (flowers), bird feeders to attract more birds?

Middle-term (2-3), after short-term priorities have been developed
Site 17. *Two Towers (Rio Bec)*: trailhead map, interpretive panel at ruin
Site 7. *Okolhuitz*: gate blocking entrance from main road (tourists must be accompanied by ejido guide), benches at rest stop and along trail, ecological bathroom at rest area, trailhead map and panel, interpretive panels at ruins
Site 4. *Cabaña*: 3-4 smaller cabanas
Site 11. *Cabaña Interpretive Trial*: bench at end, trail clearing, trailhead map
Site 10. *El Ramona*: benches at ruin, interpretive panels at ruin, trailhead map
Site 5. *Kitchen /Restaurant*: ecological bathroom in back, fix-up, re-floor dining area to better accommodate tables and chairs,

Long-term (4) after above development
Site 6. *Museum* - no development, but put interpretive media in new visitor center
Site 8. *Orchard*: signage
Site 13. *Orquidea*: interpretive panel, orientation signs on road

Lowest priority (5) –
Site 2. *Cabañas (3) and EE Center*: None (abandoned)
Site 3. *Cabana and EE Center Trial*: None (abandoned)
Site 12. *Plant Nursery*: None, unless nursery is re-built
Site 14. *Mirador Maya*: None
Site 15. *Pasión de Cristo*: None
Site 18. *Nacan-Chan Na (Río Bec)*: None
Step 5:

Identify and determine potential themes and messages that would be communicated in recommended interpretive media.
Purpose of Theme Development

The site inventories identified significant interpretive natural and cultural resources and infrastructure within Ejido 20 de Noviembre to be considered for ecotourism development. From these inventories, a primary theme and unifying sub-themes have been developed. Interpretive media is recommended that connects the interests of the visitors with the meanings of the resources.

From the market study of the region, the ecotourist is looking for a connection between the site they are visiting and the people and culture that once lived here; there is a desire to understand the intangible meanings of the tangible site. Interpretation will be an important part of ecotourism development.

The primary theme and four sub-themes focus on the Maya past (archaeological ruins), the Maya culture (crafts, cuisine, and language), natural resources of the Maya Forest (flora and fauna), and the connection the Maya past and present have to the Maya Forest (medicinal plants, survival). Inventoried cultural and natural resources have been placed under their appropriate sub-themes and potential messages have been created to help guide the planning process in recommending interpretive media.

Goals

• To give ecotourists an appreciation and understanding of
  o 20 de Noviembre’s natural resources
  o 20 de Noviembre’s cultural resources
  o The ancient Maya culture of the region
  o The present-day Maya culture in 20 de Noviembre

• To foster educational and cultural experiences for tourists of the Maya culture
  -Crafts, food, language, and contact with the people

• To show the connection between the Maya people’s dependence upon the Maya Forest

• To enhance the visitor’s overall experience while visiting 20 de Noviembre
Interpretive Objectives

Interpretation in Ejido 20 de Noviembre will connect visitors with the Maya of yesterday and today: from the ancient pyramids and their centuries old traditions, to their dependence on the Maya Forest for spiritual guidance and survival

Learning:
- Visitors will learn about the different styles of ruins that exist in the ejido and their probable uses during ancient times
- Visitors will learn what medicinal plants were used in the ancient Maya culture and those still used today
- Visitors will learn about various tree species found in the Maya Forest and their importance in construction, medicine, and Mayan folklore
- Visitors will learn about the bird and other animal life common to the area and their importance to the Maya culture

Emotional:
- Trail walks through the Maya Forest will immerse the visitor in the spirit, sights, and sounds of this ancient sanctuary
- Visitors will feel as if they are the first to discover these ancient ruins, many of which are located deep within the Maya Forest beneath the forest canopy
- Visitors will feel empowered to want to do their part in helping protect endangered bird and animal species found in the Maya Forest and their habitats

Behavioral:
- Visitors will make the connection between the role ecotourism plays in conserving the natural and cultural resources of the Maya Forest while benefiting the local people who live among these resources and will feel compelled to contribute to this community.
- Visitors will want to taste the exotic food of the Maya after observing how these traditional dishes are prepared.
- Visitors will purchase crafts from the artesania after seeing how various clothing and handicrafts are made.
Primary Theme

Discoveries of ruins deep in the tropical jungles of the Maya Forest have conjured up romantic images of a lost civilization and the "mysterious disappearance" of the Maya.

The truth is, the Maya have not disappeared. While they no longer live in ancient pyramids still found scattered throughout the jungle, they live around them, speak the same dialects, cultivate the same land, and follow the same traditions and customs passed down from their ancestors.

Sub-theme #1:

Hidden by dense forest vegetation, archaeological ruins in 20 de Noviembre stand as testimony to the ancient Maya who lived here.

Sub-theme #2:

The ancient Maya depended on the Maya Forest for survival and spiritual guidance and today that dependence is still present in their need for building shelter, growing food, and curing the sick.

Sub-theme #3:

The Maya culture in 20 de Noviembre, including the language, dress, cuisine, and crafts, has been passed down from ancient times.

Sub-theme #4:

Trails through the Maya Forest will immerse your senses in the sights, sounds, and spirits of this ancient sanctuary from colorful tropical birds to lush, towering vegetation.
Sub-themes

Sub-theme #1

Hidden by dense forest vegetation, archaeological ruins in 20 de Noviembre stand as testimony to the ancient Maya who lived here.

Archaeological Ruins = Connection with the past / Maya culture

- Rio Bec
- El Ramonal
- Okolhuitz
- Orquídea
- Mirador Maya
- Pasión de Cristo

Potential Messages:

- Limestone rock, which dominates the soils of the region, was the material used for constructing pyramids. In the ground, limestone is relatively soft, but it hardens after exposure. While fresh from the quarries, limestone was easily carved. When burned, it reduces to lime, which the Maya used as plaster for buildings and paving. Limestone was also used to sculpt important monuments such as stelae and altars and the roads and trails connecting cities called sacbe.

- New pyramids were often constructed over old pyramids. These older structures were either used as bases or were destroyed and used as fill-in for the new structures. It is still possible to see earlier structures on many of the ruins.

- The color most often associated with both pyramids and carved monuments is a dark red. This pigment was probably made from an oxide of iron obtained from natural deposits or even from anthills. Blue was the next common color. This pigment material was ground and probably mixed with copal (a resin). Many of the stones on ruins in 20 de Noviembre (El Ramonal, Okolhuitz) have retained a red color which indicate their use as ceremonial or religious centers where sacrifices and offerings were held.

- The dominant architectural style in this region, Rio Bec, is characterized by long buildings with matching towers at each end, rounded corners and narrow roof-combs.
Sub-theme #2:

The ancient Maya depended on the Maya Forest for survival and spiritual guidance and today that dependence is still present in their need for building shelter, growing food, and curing the sick.

Contact with Nature
- Interpretive Trails: important plant species (medicinal and other usage)
- Orchard
- Tree Nursery

Potential Messages:

- In the Maya Forest, when a builder cuts hardwood logs for house construction, he will cut on the full moon phase – three days before and three days after the full moon. This ancient Maya tradition of harvesting plants during the full moon is still practiced today.

- Some plants emit a sweet, sticky sap when cut that attracts termites and other insects. It is said that by cutting these plants when the moon is full, the sweet sap is retained in the lower trunk and root system and a bitter toxic sap is found in the major trunk portion, serving as a deterrent to insect infestation. A properly cut piece of hardwood lumber like mahogany or cedar can last for hundreds of years and show little sign of decomposition or insect attack.

- For centuries herb harvesting has also been based on this principle and certain plants are collected on the full moon and others in the waning moon.

- It is estimated that one of every four medicines that we buy in a pharmacy originates from tropical forests. Different forest products – from tree leaves, bark, and resins have played an important role with treating and curing various sicknesses.

- The Mayan doctors believed in curing “like with like”. Snakebites were treated with certain vines thought to resemble a snake; yellow plants or fruits were given for jaundice, and red plants or fruits were used to treat vomiting blood and dysentery. Crushed wasps nests and other stinging insects were used to treat skin eruptions resembling a wasp sting.

- Before the arrival of the Spanish conquistadors, the Maya had great learning centers and what we call “the great books of the Maya”, codices, with knowledge about medicinal plant use. When the Spanish arrived, the conquistadors burned the codices and these practices and teachings declined or were banned altogether. From then on, information of medicinal plants was passed down as an oral tradition rather than a written tradition. Unfortunately, knowledge about the uses of native plants could be in greater danger of extinction today than the plant resources themselves.
Sub-theme #3:

The Maya culture in 20 de Noviembre, including the language, dress, cuisine, and crafts, has been passed down from ancient times.

Contact with the People and their Culture = the Maya today
- Artesania
- Restaurant (cuisine)

Potential Messages:

- The traditional meals prepared today are made from the same ingredients that their ancestors grew from the Maya Forest, including Chaya and milpa.

- The women of 20 de Noviembre can still be seen wearing the Huipil – the traditional Mayan dress with its colorful and intricate embroidery, which has survived since ancient times. A Nahuatl word, the Huipil worn has its own unique design in every Mayan community. In the Yucatan Peninsula, which includes 20 de Noviembre, the Huipil is a white, cotton, loose-fitting dress, measuring the same width from top to bottom and sewn at the sides with holes for the arms and a square opening for the head. The armholes, neck opening, and bottom hem of the garment are beautifully embroidered in cross-stitch.

- Wooden crafts are made from the trees species found in the Maya Forest: Cedar, Mahogany and Ramon.

- Traditions of language in Maya culture continue still today to be the most resistant to change. A secondary knowledge of Spanish is obviously useful in dealing with the outside world but Mayan dialects have persisted as the first learned and sometimes only languages used in traditional family life. The residents of 20 de Noviembre’s first language is Yucatec Maya.
Sub-theme #4:

Trails through the Maya Forest will immerse your senses in the sights, sounds, and spirits of this ancient sanctuary from colorful tropical birds to lush, towering vegetation.

- Bird-life
- Fauna
- Interpretive Trails

Potential Messages:

- About 200 migrant bird species spend part of each year in the region, including at least 2 hummingbirds, nine raptors, six swallows, 12 flycatchers, six thrushes, and more than 30 warblers.

- **Jaguar.** In Maya culture, the jaguar is the form taken by the sun as it descends to the underworld at night. Its image symbolizes power and strength.

- At one time, the wild cats of the jungle native to the peninsula: the jaguar, jaguarondi, ocelot, and the puma, could be considered "common". Today, however, it’s unlikely you’ll ever get to see one of these in the wilderness because civilization has driven them deeper into the shrinking forest.

- Legend tells us that the ancient Maya had a conservation ethic embedded in their culture, passed down through generations with many of their myths and traditions focused on stewardship of the land and local animals. There were Lords of the Forest and spirits that guarded forest practices. One was the Giant Turkey Spirit, which was said to take revenge on villagers who killed more ocellated turkeys than needed.

- Ancient Mayans called the King Vulture “Oc” and believed that vultures, when near death, changed into armadillos; the proof being that both were “bald”.

- The Ceiba tree is considered the sacred tree of the Maya. In Mayan, the name given to the ceiba tree can be interpreted in two ways, depending on the pronunciation. The ancient word for ceiba has been translated as *ya'axche*’ (“green tree”) as well as *yáaxche*, meaning “first tree”. The ceiba’s canopy symbolizes the upper world where thirteen “upper” gods were found. The trunk portion of the tree (middle) represents the human world. Below spreads the roots of the underworld, home to the nine gods of sorrow and pain.
Interpretive Media Recommendations

Interpretive Panels
Site 1. *Artesania*: Three (3) interpretive panels (24” x 14”) on various crafts, such as the Huipil, hammocks, wooden handicrafts, and honey

*Visitor Center*: Three (3) various interpretive panels (24” x 14”) about the ejido, such as archaeological ruins, Mayan cuisine, crafts, trails, and bird viewing.

Site 7. *Okolhultz*: Interpretive panels at the 3 largest ruins (INAH help?), perhaps identification panels by various tree species

Site 9. *Plaza*: Informational Kiosk

Site 10. *El Ramonal*: at ruin (INAH help?), commonly seen birdlife

Site 13. *Orquidea*: at ruin

Site 16. *Rio Bec*: at ruin (INAH help?)

Trailhead Interpretive Panels
Site 7. *Okolhultz*: Trailhead marker at rest area with information on commonly seen birds, and general info on ruin

Site 10. *El Ramonal*: Trailhead marker

Site 11. *Cabaña Interpretive Trial*: Trailhead marker Commonly seen / important plant and bird species

Additional Signage:
Site 1. *Artesania*: Attractive sign on building and sign for “Public Bathroom”

Site 1. *Visitor Information Center*: Attractive sign on building

Site 4. *Cabaña*: directional sign leading up to cabana

Site 5. *Kitchen / Restaurant*: Attractive sign on building

Site 8. *Orchard*: Attractive sign on gate

Site 13. *Orquidea*: orientation sign on main road to ruin

Site 16. *Rio Bec*: orientation sign on main road to ruin

Site 17. *Two Towers (Rio Bec)*: orientation sign on main road to ruin

- Welcome sign at entrance to ejido (N 18°27.390 W 89°18.338')
- Orientation sign at cross roads of Highway 186 and ejido road (at military check-point)

Brochure*

General promotional brochure to send to travel agencies and distribute at restaurants, hotels, and other frequently visited tourist locations.

*Cost estimates for these recommendations have been summarized in a table under Cost Estimates (page 116).*
Interpretive Media Samples

1. Brochure
This brochure is intended to serve as general promotion for ecotourism within Ejido 20 de Noviembre. This brochure can be sent to perspective travel agencies, tour operators, and potential funders.

2. Rio Bec “B” Interpretive Sign Panel
This panel is an example of what could be placed at the Rio Bec archaeological site. A copy should also be sent to INAH for their input and possible funding assistance with developing interpretive panels.

3. Medicinal Plant Trail Head Interpretive Sign Panel
This panel is an example of interpretation at a trail-head or rest-stop to show the various types of medicinal plants visitors can frequently identify in Ejido 20 de Noviembre.

4. Huipil Interpretive Panel for the Artesania
Along with selling crafts and demonstrating how various crafts are made, the Artesania may also want to have interpretive signage. This is an example of interpretation that could be included in the Artesania.

5. Center Plaza Kiosk Panel
The center plaza kiosk will be a central location where visitors can relax on a bench, enjoy concessions purchased across the street at the corner store, and meet to begin their scheduled tour. Scheduled to be located under the existing thatched-roof shelter, this panel will help orient visitors to Ejido 20 de Noviembre and give them a glimpse into the variety of resources they can experience.
Step 6:

Recommendations for promotional strategies, trainings, and partnerships
Recommendations for Promotion

To begin with, a community should think about how their attractions and services are different than other destinations around them within the region.

Communities should think about the following questions:
- What attractions does your community have that differ from other destinations?
- What unique services do you offer?
- What experiences can visitors have in your community that they will not have elsewhere? (Examples include a remote/wilderness setting, contact with the local community, or even having an un-crowded destination).

The following attractions set 20 de Noviembre apart from others in the region:
- Contact with the local people
- Authentic Mayan cuisine
- Biking and horseback riding to the ruins
- Archaeological ruins in a more remote, ‘natural state’ surrounded by forest vegetation
- Crafts made by Mayan women in the same traditional ways as their ancestors

Short-term Ecotourist Market to 20 de Noviembre:

In the short-term, promotion should be directed at a few selected markets; other potential markets can be part of longer term planning.

1. *Individual tourists* passing through the region visiting archaeological ruins on the Mundo Maya / la Ruta Maya circuit (such as those who filled out the questionnaires).

2. *Organized tours through travel agencies and tour operators*
   From visits to other communities with developed ecotourism services, travel agencies and tour operators played a *key* role in bringing visitors to their destination. It is evident that these players are the important link between the ecotourist and the destination, especially for more rural, “off-the-beaten-path” locations. One marketing focus, therefore, should be attracting the interest of travel agencies and tour operators involved with ecotourism and adventure tourism.
Longer-term potential market (currently very small short-term market):

3. **School groups**
Various Mexican university study tours occasionally visit the Calakmul Model Forest organization and its example communities; ejido 20 de Noviembre is one such community.

**Promotion of Market Audiences**

From the regional market study, the majority of ecotourists are traveling in a private (rented) vehicle and look to stay overnight in the region. Marketing could target car rental locations in tourist hubs: Cancun and Merida (Yucatan), Chetumal (Quintana Roo), and Campeche City (Campeche). The majority of ecotourists also obtain their information from magazines and international guidebooks), travel agencies, and the Internet.

Promotion could start by looking through travel directory listings and by having representatives attend the annual *Expo Adventura y Ecoturismo* (Adventure and Ecotourism Expo) in Mexico City (every June). At the expo, representatives of adventure tourism and ecotourism travel agencies, community-based tourism operators, lodging operators, equipment manufacturers and distributors, NGOs, media and promotional organizations, and transportation companies (airline, land travel) in Mexico come together to network, exchange and share information and promote their products and services. (See appendix for a list of sample tour operators that have been contacted and /or appear as examples for possible marketing targets).

To attract the market of individual tourists passing through the region, residents could provide promotional materials for X’pujil’s developing tourist information center and area hotels and restaurants. In addition, promoting Rio Bec and other services at the other archaeological sites in the region (through INAH) would be an excellent way to inform visitors of unique experiences offered here. This is where the X’pujil municipal government, INAH, and the Calakmul Model Forest could collaboratively help promote ecotourism efforts in 20 de Noviembre.
Recommendations for Trainings

The following trainings are recommended for 20 de Noviembre in the short-term based on ecotourism development priorities:

1. **English competency** (at least for interpretive guides or those who will have contact or regular communication with visiting tourists). The market study revealed that although Spanish is the most dominant native language spoken, English is the most dominant second spoken language, particularly by international visitors. Visits to other ecotourism communities also revealed that English was, by far, the biggest challenge these communities faced in providing services. All signage and promotional materials should also be in both Spanish and English.

2. **Interpretive guiding** (includes knowledge of flora and fauna, archaeology, and the Maya culture). Currently, one guide exists in 20 de Noviembre. More interested residents need to be trained in providing interpretive guiding services to the various ruins in the ejido and knowledge about important plant species and flora and fauna (birds, in particular.) The market study in the region indicated that interpretive guides were also important to a visitor’s experience. Victor Cahuich Cahuich, a 20 de Noviembre resident now working as an interpretive guide outside the region and Humberto Dzib Tun, current ejido guide, could play an important role in training other interested residents and passing on their knowledge of ruins, flora, and fauna.
3. **Food handling.** Although sometimes overlooked, food handling should be an important part of ecotourism development when dealing with the foreign tourist (Gray, 1981) as some rural, under-developed destinations are not able to maintain the same levels of local hygiene and sanitation standards that many tourists are accustomed to. As a general rule, food being catered to foreign tourists must be more carefully prepared than food being catered to national tourists. Food handling and preparation training may be a solution to help ease these fears. Certification that could be shown may ease travelers’ minds and secure package tours by travel agencies and be beneficial in the long-term for developing food services.

Along this same issue, **first-aid supplies** should be available for injured or sick tourists. Currently no type of first aid supplies exist in the ejido and the hospital in X’pujil can handle only minor illnesses and injuries. Anything needing major medical attention must be taken care of in Chetumal, located some 80 miles from X’pujil.

4. **Lodging.** Lodging is another training recommended for the mid-term. This area of training focuses on room presentation and organization for visiting tourists.

The difficult part for many communities seems to be the financial resources to provide the workshops and skills training necessary. This is where collaborative partnership efforts are vital to providing the financial resources for the trainings or conducting the workshops themselves.
Recommendations for Partnerships

The communities developing ecotourism that were visited in step #3 all had initial support from various organizations – NGOs, government-sponsored and private. Communities like 20 de Noviembre will not be successful or sustainable in the long-term without collaborative support from various partners as sources for training, technical support and financial assistance. Seeing that partnerships and collaborative efforts are key in community-based ecotourism, several organizations have been identified that could play an important role in the short-term:

1. Calakmul Model Forest

The Model Forest of Calakmul was developed in 1989 and works with some 45 ejido communities located around the Calakmul Biosphere Reserve. They focus on teaching forest management skills, agro forestry, sustainable resource management, and non-timber alternatives to preserve forest resources while improving the quality of life for the inhabitants of the region. The mission of all Model Forest organizations is to foster a sustainable equilibrium that considers the ecological, commercial, social, and cultural values and needs of the different regions.

The Calakmul Model Forest will play a leading role in organizing and managing ecotourism in Ejido 20 de Noviembre. With the developed ecotourism management plan, the Model Forest should play a proactive role in seeking out financial and technical support to implement ecotourism development. The Calakmul Model Forest could also play a role in promoting visitation to the ejido by various Mexican university study tours that come to the region to see example or model communities of the Model Forest.
2. INAH (National Institute of Anthropology and History)

As the organization in charge of archaeological sites in Mexico, INAH plays the leading role in the restoration, preservation and promotion of archaeological ruins. INAH is currently working in 20 de Noviembre at the Rio Bec sites.

INAH could help project development in the following areas:

- Maintenance of the road to Rio Bec
- Restoration of various archaeological sites and trails
- Development of interpretive panels at primary ruins chosen
- Development of interpretive brochures (INAH has brochures for other regional ruins).
- Promotion of Rio Bec at other regional archaeological sites.
- Development or support in developing ecological bathrooms at Rio Bec and other archaeological sites (INAH archaeological sites in the region all have ecological bathrooms).

3. SecTUR (Secretary of Tourism) Campeche

SecTUR has been a leader in sponsoring and organizing training efforts in the region, including English and knowledge of the region’s natural resources. SecTUR can play a leadership role in helping establish needed trainings in the region to better prepare communities for ecotourism. SecTUR also has a web page (Internet) that promotes attractions in the region; 20 de Noviembre could be shown as one of these attractions.

4. X’pujil Municipal Government

The X’pujil Government realizes the importance of ecotourism to the region and the need to prepare residents. In September 2001, a public tourist information center was scheduled to begin development. The local government can work with the Calakmul Model Forest in identifying and contacting organizations and institutions that could assist financially or provide technical support for ecotourism development in 20 de Noviembre, and in the region; with a “tangible” written plan to present, there is now justification that 20 de Noviembre is committed towards developing ecotourism but simply lack the necessary financial and technical resources.
5. PRONATURA

Pronatura is currently involved with the National Wildlife Federation (NWF), Calakmul Biosphere Reserve, and some other NGO’s in the region in the development of a P&E (Population and Environment) Resource and Training center in Zoh Laguna. A regional training center would be an ideal location where various recommended trainings and workshops that could benefit several communities in the region, including 20 de Noviembre, could take place. Pronatura’s mission is to protect and conserve Mexico’s biodiversity. They collaborate with local communities, government agencies, and other national and international organizations on various projects, including community development and organization. Under these projects, Pronatura participates in skills training to support sustainable, socio-economic alternatives for communities.

Aside from these key regional organizations, other institutions throughout Mexico could also assist in various development goals, based on their mission statements and work experience. It would be the role of key leading ejido residents, with the support of Calakmul Model Forest personnel, to contact these various communities (See appendix for other organization suggestions).

Calakmul Model Forest representative Carmen Salgado leading a discussion with Ejido 20 de Noviembre Ecotourism Committee members on medicinal plants
Step 7:

Recommendations for review, analysis, and evaluation strategies
Evaluation is important in assessing interpretive media and visitor satisfaction. In addition, evaluation can also help locate potential problems before major development has occurred. The evaluation process starts at the beginning of the plan (Front-End evaluation), continues during the development stages (Formative evaluation) and concludes after the plan has been implemented (Remedial evaluation).

**Front-end evaluation**

Front-end evaluation occurs during the planning stages when themes and ideas are being developed. Interviews, surveys, and focus groups can help assess visitor information, interests, and needs. The survey distributed at area archaeological ruins was a part of front-end evaluation, gathering information on visitor demographics and interests.

**Focus Group with Student Groups**

In March 2001, a student group from the University of Wisconsin – Stevens Point visited Ejido 20 de Noviembre. Students began the day with an introductory meeting with key residents. Students next toured the abandoned Environmental Education Center and surrounding cabañas, followed by a small river area and the archaeological ruin El Ramonal. On their return, students ate a traditional Mayan meal and women brought over various crafts to sell. Afterwards, a focus group discussion with students and residents allowed for students to share their experiences and suggestions for improvement.

<table>
<thead>
<tr>
<th>What did the students enjoy most?</th>
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<tbody>
<tr>
<td>• Ruins and their location within forested areas</td>
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<tr>
<td>• Authentic Mayan cuisine</td>
</tr>
<tr>
<td>• Cabañas (the idea of staying overnight in the forest)</td>
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<table>
<thead>
<tr>
<th>What improvements can the ejido make?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ejido clean up (garbage cans and clean bathrooms).</td>
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<tr>
<td>• Thematic trails (medicinal plants, birds, and virgin forest areas).</td>
</tr>
<tr>
<td>• Incorporate the Maya culture in all aspects of ecolourism: stories, customs, etc.</td>
</tr>
<tr>
<td>• English trainings for guides</td>
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<tr>
<td>• Horseback rides to the ruins.</td>
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</tbody>
</table>
Formative evaluation

Formative evaluation takes place during the development stages of a project to test interpretive media. Ejido 20 de Noviembre residents "tested" various ideas on a visiting University of Wisconsin student group, based on comments and suggestions from the previous year’s visit and the researcher’s visits to other communities (from step #3).

Residents “tested” the following ideas:
- Bathroom: $2 pesos were charged for use of a clean facility.
- Artesania: A demonstration of craft making, along with the sale of other crafts (huipiles, honey, and hammocks).
- Food: A preparation demonstration and explanation of the day’s meal began the students’ tour.
- Ruins: Cold beverages (beer) was brought to Rio Bec. The guide also sold his own artwork (paintings).

Focus Group with Student Groups
After the day, a focus group discussion with students and community members provided information on student expectations and experiences in 20 de Noviembre.

What did the students most enjoy?
- An interpretive guide from community
- Artesania: learning how different crafts are made
- Food: experiencing traditional Mayan cuisine and learning how it was prepared
- Trip to Rio Bec (ruins): Rio Bec possessed a “magical” feeling, located deep within the forest with bird watching opportunities.

What complaints did the students make?
- Language barrier was an inconvenience
- Sanitation problems (garbage and the polluted stream)
- While the truck ride to Rio Bec was “adventurous”, the noise from the truck ruined any possibility to see wildlife.

What improvements can the ejido make?
- Bike trips or horseback rides to Rio Bec (so wildlife can be seen along the road)
- Clean up garbage
- Develop signs and other materials for better tourist orientation.
- English training (at least for the guide)
- Guided nature walks around the village
- Camping near ruins.
Interpretive Media Samples

Interpretive media samples developed for this plan (step #5) should all be evaluated for their effectiveness, which include the Rio Bec interpretive panel, Kiosk informational map, Huipil panel (Artesania), and the trailhead panel on medicinal forest plants. These panels can be temporarily set-up and evaluated by visiting tourists. Information can be gathered through observation, exit interviews, focus group discussions, or a short survey that visitors can complete prior to leaving. Evaluation information on these panels can include content interest by visitors, the ease of reading and understanding the information, and panel placement. Appropriate changes to these panels can then be made before any final panels are developed.

Remedial evaluation

Remedial evaluation occurs after a plan has been developed and installed and final adjustments can be made. Remedial evaluation can be used to modify parts of the plan and provide a guide for future planning. A very easy way to evaluate visitor satisfaction and their interests and needs is through interviewing tourists after their visit or asking them to fill out a simple survey. A suggestion/complaint box or logbook could also be placed in the visitor center and decisions on improvements and services could then be made to better satisfy the tourist. A sample Rio Bec questionnaire survey has been developed to administer once tourism resumes to Rio Bec (appendix).
Development Priorities

Based on site inventories, market study results, and financial position of Ejido 20 de Noviembre, the following development priorities are being suggested: Start small utilizing already existing resources and infrastructure, especially since no financial or technical support has been secured. The ejido should develop attractions and services utilizing existing resources that will encourage tourists presently passing through 20 de Noviembre to spend more time in the ejido.

- **Rio Bec “B” priority #1.**
  Considering promotional material already exists on Rio Bec “B” in various international guidebooks, Rio Bec’s location on Mundo Maya / La Ruta Maya circuit maps, and considering Rio Bec is the only reason why people drive through ejido 20 de Noviembre, this ruin should be the first priority. With poor road conditions and the bridge washed away, tourists simply left if they were not able to visit Rio Bec “B”. Development should focus on fixing and maintaining the access road to Rio Bec “B” and providing informational and physical services for tourists visiting Rio Bec “B”.

- **Artesania**
  The artesania is located on the main road that tourists pass through on route to Rio Bec “B”. The infrastructure will not require a lot of work and, in fact, the rustic appearance inside adds to the experience. Women have been making many crafts out of their homes that are ready to sell, including hammocks, wooden handicrafts, and embroidered clothing. An attraction sign on the front is necessary for visitor orientation.
• Visitor Center
Visitors need a central place to get information or ask questions. The north half of the artesania could be used for this purpose. The location is ideal (right across from the plaza) and may also draw more attention to the crafts next door. The short-term public bathroom is currently located behind this building. As mentioned above, not many repairs are necessary, but interpretive materials inside, possibly artifacts and specimens from the abandoned museum, and an attractive sign, would help orient the visitor.

• Plaza and Informational Kiosk
The plaza should be an inviting place for tourists, as it serves as a central location in the community. An information kiosk should be developed for the central plaza, under the existing shelter. The kiosk would have a large map orienting the visitor to various attractions and an introduction to Ejido 20 de Noviembre. In addition, a major beautification of the plaza needs to occur: flowers and attractive shrubs and bushes should be planted, benches placed, garbage picked-up, and animals kept out. Both UWSP student groups complained about the garbage and animals in the plaza. A small, attractive fence around the plaza could help keep animals out and one or two trashcans could help alleviate the litter problem. Special jobs could be appointed for residents to regularly clean up the plaza or empty garbage cans. From the INAH complaint/suggestion log, visitors were very impressed, overall, with the maintenance, cleanliness, and care of the archaeological sites. It must be understood that if visitors arrive to the ejido and it is dirty, tourists will not stay.

• Food
Concessions were a major suggestion made by both tourist comments in the INAH logbook and the market survey. Ejido 20 de Noviembre does have two corner stores where tourists can purchase drinks and snack food.
Making cold beverages and snack food readily available to tourists could be easily handled and create additional income for residents. Offering traditional Mayan cuisine is of interest to many women within the ejido. The work and financial support needed to get the restaurant up and running could perhaps be a more mid- to long-term development goal, along with food-handling training. Perhaps, in the short-term, travel agencies could arrange for interested homes to provide authentic Mayan cuisine for visitors. This could be developed through a rotation system, which has worked well with other case studies. In these examples, a rotation system list was put up in the main plaza. Tourists pay a family for meals but a percentage of this (decided by the community) goes into a “community fund” that can then be used for further ecotourism development.

- **Control road to Rio Bec**

Because numerous vehicles driving to Rio Bec could affect the overall experience of the visitor and scare away wildlife, residents discussed arranging for non-motorized travel to Rio Bec, including mountain bikes, horses, or a horse-drawn wagon. At any rate, 20 de Noviembre should control transportation to Rio Bec by requiring visiting tourists to take transportation provided by the ejido. Residents should also require a guide from the ejido to accompany tourists to all archaeological sites. This will provide more income and employment opportunities for residents.

- **Public Bathroom facilities / Ecological bathroom facilities.**

The first group of UWSP students complained of the poor and unsanitary condition of available bathroom facilities. During the second visit of UWSP students, a clean bathroom was available and students paid $2 pesos to use it. In return for the $2 pesos, bathrooms were guaranteed clean and toilet paper was available. This concept was “tested” after the researcher noticed that several communities involved with ecotourism development (Step #3) could justify providing clean and well-maintained public restroom facilities if they could charge the tourist 2-3 pesos. Visitors must have clean, functional bathroom facilities.
Due to the water shortage problems in the region and the expense involved in bringing water in, ecological bathroom facilities would eliminate the need for water and could also serve an educational purpose. In fact, results from the INAH complaint/suggestion log showed that people were very impressed and interested with the ecological bathrooms. Bathroom facilities should be available for public use in the following locations: in the short term, near the plaza (one already exists at the artesania, although it is not an ecological bathroom) and at Rio Bec “B”. Another desired location includes Okolhuitz (at the rest area), if developed as a tourist attraction.

INAH archaeological sites in the region all provide ecological bathrooms. The design and construction assistance is an area where INAH could collaboratively assist with ecotourism development in 20 de Noviembre. The existing toilet at the cabana uses water, which could be maintained as such in the short-term, considering water will also be necessary for showering. Management of wastewater from the cabana will need to be addressed, either collected in a septic tank or discarded far from the forest areas behind it that will be developed into interpretive trails for visiting tourists.

• **Cabañas**

Cabañas offer the tourist the opportunity to spend the night in the Maya Forest, falling asleep in a hammock to the sounds of the forest. Overnight visitors could also have their meals provided by a host family in the ejido. Staying overnight in the ejido would even allow for the ecotourist to interact with ejido residents and observe daily activities. Various interpretive night programs could also be planned, including ancient Mayan astrology or night and early morning walks to observe fauna. In the longer-term, if there was interest, camping areas could also be developed. The market study of the region showed that 78% of ecotourists are staying overnight in the region. While different tourists will have different lodging needs, other studies addressed earlier in this thesis show that ecotourists were more likely to choose from adventure-type and intimate accommodations.
The existing cabana should be completed, as necessary repairs are minimal. If there is success with one cabana and additional cabanas are needed, more could be built (middle to longer term), similar to the cabanas at Mercedes Cabañas in Zoh Laguna which are all made from local materials and thatched roofs (see site inventory #4).

**Community involvement:**

With organizational support from the Calakmul Model Forest, 20 de Noviembre will need to decide if they want to establish a community fund and, if so, what percentage of ecotourism revenue will go to this fund? How will this fund be managed? Can the Calakmul Model Forest help manage this fund? How will prices be determined, who will collect the money, and how will it all be divided?

Ejido 20 de Noviembre will also need to address other important services involving community participation, such as:

- **Plaza maintenance**
- **Bathroom facility maintenance**
- **Litter clean up.**

This is an area of employment that can be created for various residents to keep the plaza and ejido free of litter animal waste. Garbage bins should be set-up in the plaza area and outside the two stores. Along trails, there should also be garbage bins set-up. Garbage pick-up and disposal (burning?) also needs to be determined.

- **Communication.**

Considering the relative isolation of 20 de Noviembre and the communication difficulties with the ejido, residents will need some time to prepare for visitors’ arrivals when they involve group tours, food preparation, or over-night stays. There is a telephone in the ejido located in one of the small stores. Perhaps this storeowner could be employed as a secretary for tours or reservations? Or could the phone be moved to the new visitor center in the artesania?
• **Parking**

From the market study, the majority of ecotourists travel by private (rented) vehicle or tour/school bus. In addition, because of 20 de Noviembre’s relatively isolated location, tourists will bring their own transportation. It would be advisable to prepare for such transportation and allocate a designated parking area. The far southeastern end of the plaza is primarily dirt (no grass) and was discussed as a possible parking area for vehicles (see inventory site #9). While tourists leave their vehicles to visit Rio Bec or other areas of the ejido, some residents could be employed as security guards. This could also be part of a general fee for visiting Rio Bec.

• **Money Exchange / Banks.**

At present time, there is only one place in the area where traveler’s checks can be cashed (Hotel Calakmul). Visiting UWSP students had problems when not carrying small bills, as ejido residents could not always make change. While only accepting cash (not credit cards or traveler’s checks) is not necessarily a problem, not being able to make change could become an inconvenience for visiting tourists. If organized tours visit and tourists have paid all costs in advance (with the exception of crafts and snack food), the travel agency can pay one resident representative for later distribution to the appropriate residents. But for individual tourists passing through the region, this could be problematic. Could the Calakmul region purpose propose a banking corporation in X’pujil where traveler’s checks could be cashed? Could the ejido ecotourism committee somehow establish a safe with additional funds (perhaps at the visitor center) if larger bills need to be changed? Could the Calakmul Model Forest help oversee this?
• Carrying Capacity

An important part of tourism development is carrying capacity. According to the World Conservation Union, a destination’s carrying capacity is the level of visitor use an area can handle without negatively impacting the surrounding environment or resources, while still leaving the visitor satisfied. Establishing a carrying capacity in 20 de Noviembre implies that there will be limits to visitor use but will help ensure that development will be managed in a way that protects the natural and cultural resources from being depleted or degraded over time.

In communities whose economies are very small, such as 20 de Noviembre, even small numbers of visitors can make an impact. While 20 de Noviembre doesn’t need to attract thousands of visitors to have successful ecotourism, residents may want to bring in more people, or larger groups, to earn more income. This is where management support by the Calakmul Model Forest is important to help teach residents why a carrying capacity is important and how too many tourists can affect the natural environment. The Calakmul Model Forest, Calakmul Biosphere Reserve, or other environmental organizations that have this expertise could be involved with establishing a carrying capacity. It would be detrimental to see the region’s main conservation objective change to mass tourism.

• Other communities

Other ejido communities in the region that want to develop ecotourism should try to build on special, unique attractions or services to avoid competition with each other. There has been discussion by the X’pujil local government of developing a community-based ecotourism circuit in the region. Residents of 20 de Noviembre that have experience with ecotourism development could assist other communities with their organization. Other community representatives could even visit 20 de Noviembre to see first-hand how ecotourism is being organized and developed.
Aside from other communities that may want to develop ecotourism, the entire region needs to awaken and understand the importance of making the region tourist-friendly, including clean streets, information centers, and friendly and helpful citizens. The opportunities for employment and income that ecotourism can bring to the region are endless. Tourists are passing through the region and if the local people don’t take advantage of this, private, non-local enterprises, which are also now developing in the region, will be the only ones who benefit.

Cost Estimates
Although only rough approximations, costs estimates for recommended trainings and interpretive media development give Ejido 20 de Noviembre, other interested communities, and potential funders an idea of initial costs to help implement the Ecotourism Management Plan.

Interpretive Panels and Publications:
These costs (Ostergaard, 2001) include interpretation & design, fabrication, and framing. **Interpretation & design**: This work involves the interpretive plan with established goals, objectives, and thematic statements, along with panel layout and graphic design. The U.S. Park Service lists costs between $500 - $1000 per panel and design costs range between $1,000 - $1,750 per panel, depending on the content and extent of planning services.

**Fabrication**: Price range for fabrication: $600 – 1200 +. Estimates are based on a single 24” x 36’ (864 sq. in.) sign. Sample materials include: fiberglass embedded, high-pressure (composite) laminates, vinyl laminates, digital, and aluminum frames.

Advantages and disadvantages exist for each material used; some materials are more expensive than others, are more durable and will withstand more abuse than others, or have better graphic resolution and color. Still other materials may be more appropriate for a site if a more “rustic” or natural appearance is desired. The U.S. Park Service costs greatly depend on the material used and the panel size; various materials and panel sizes on low profile and up-right bases range anywhere between $425 and $3,200.
**Framing:** (sign support / base). Sign bases serve to support and complement the area theme or structures related to the site where the sign is to be located. Support costs range between $500 - $600 for two supports (Schmeeckle Reserve, UWSP estimate). The U.S. Park Service lists costs between $600 – 800 for two supports.

A cost estimate summary for recommended interpretive media (from *Interpretive Media Recommendations*, page 94) is outlined in the following table. Several sample interpretive panels and brochure sample are included in this plan (Step 5).

- 3 Trailhead Panels (24”x 36”)
- 6 Interpretive Panels (24”x 36”)
- 1 Kiosk panel (36”x 48”)
- 3 Artesania panels (24” x 14”)
- 3 Visitor Center panels (24” x 14”)

Recommended fabrication material is:
- Fiberglass Embedded or Composite Laminates (~$50 / sq. ft.)
- Brochure recommendation: 2000 copies on 60 lb. white, opaque paper (cost estimates were obtained by averaging costs from various printing business in Stevens Point, Wisconsin).

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<th>Interp. (planning)</th>
<th>Design</th>
<th>Fabrication (material)</th>
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**Total** $50,550
Trainings:
There are several organizations that provide various trainings for communities developing ecotourism (see step #6 and appendix for several examples). Unfortunately, many cost estimates could not be obtained for this plan. Two organizations that did share training cost information were the RARE Center for Tropical Conservation, a NGO that works with selected communities throughout Latin America and Asesores en Desarrollo Turístico Sustentable, S.C. (Consultants for Sustainable Tourism Development), a Mexican NGO. The new regional training center that is being developed in Zoh Laguna would be an ideal location to train 20 de Noviembre and other community residents.

- **Nature Guide Training Program** (Rare Center for Tropical Conservation)
Cost: US $50,000 - $120,000. Costs include the one-year course, 800 hours of instruction (and many more informal hours), salaries for five full-time staff and management salaries, project management costs, and 16 participants at three sites over three months. Follow up and site visits and 2 books (an English workbook and a natural history-interpretation book designed for each specific site) are also included in these costs.

- **Municipal Training for Alternative Tourism Development**
(Asesores en Desarrollo Turístico Sustentable, S.C.)
Cost: U.S. ~$1,200. Costs include the 2-3 day training that involves participation from various regional communities, tourism sector organization representatives, local authorities, and teaching and investigation centers, among others, in a planning process. Local social and environmental problems are identified and possible alternative tourism services and attractions are considered, taking into account the needs of local people in the region.
**Planner’s Discussion**

For those involved in future community-based ecotourism efforts, the researcher recommends some suggestions for planning:

- **Spend more time in the community**
  Unfortunately, I was only able to spend time in the community during winter and summer vacation from the university. Time with community residents is essential to earning the trust and friendship required for participation. Spending time with a community is just as important as other project work.

- **Market study survey**
  In retrospect, a different system for survey distribution and collection would have resulted in a higher return rate. Perhaps allocating funds to hire community members or other assistants in the region would have had better results.

- **Locate and secure experts early**
  During site inventory work, earlier identification and seeking out the assistance from regional experts in various areas would have greatly added to the interpretive information collected. The bird study in this plan, for example, is very preliminary, due to both the researcher’s time constraints and the difficulty in identifying and securing expertise assistance.

**Conclusion**

As this plan is being completed, ecotourism development within ejido 20 de Noviembre is still within the beginning and conceptual stages. Although a general ecotourist profile of the region has been created, cultural and natural resources have been inventoried, sample promotional materials have been developed, and initial development have been recommended, financial and technical assistance and appropriate trainings through secured partnerships and collaborative efforts are still missing. This project is a small part of a larger effort; this plan will serve as a foundation for the next phase of ecotourism development within 20 de Noviembre: obtaining funding support, trainings, and implementing development.
Bibliography


The International Ecotourism Society (TIES) web site: http://www.ecotourism.org/index.htm


Veverka, John. 1998. *Interpretive Master Planning (2nd ed.)* Acorn Naturalists:Tustin, California

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Appendix A

Visits to ejido communities within the Calakmul Model Forest

January 2001
Diaz Ordaz / San Antonio Soda is home to 300 inhabitants, about 20% Mayan. A committee of roughly 19 women is organized for ecotourism development. Tourist attractions include a cabana built at the foot of an archaeological ruin (El Mirador), handicrafts (wood carvings, hammocks, clothes), an agroforestry project (maize, coco, fruit), and a river 2-3 km away where caiyuko rides (traditional wooden canoes) could be developed. There are two archaeological sites in the ejido: El Mirador and Mulsia. El Mirador covers 25 ha and was previously a fire look-out until a study was done on the site around 1994. There is still forest vegetation cover over the ruin and no restoration has taken place. Mulsia, the second ruin located here, is a smaller site located near the river. The local government in Campeche plans to build 2 more cabañas. Residents have a good knowledge of plants and birds species.

The following residents are part of the Ecotourism Committee: Valentina Gomez, president; Daisy Lara Perez; Ruth Lara Perez; Marcela Gomez; Graciela Arreda; and Isabel Estrella. Tourists do pass through on occasion and residents have noted some of their nationalities (Chile, Canada, Israel, Japan, Russia, Nicaragua). The biggest challenges for ecotourism development here is English, trainings, and promotion. One advantage is that there is a public bus stop nearby but no signs or promotional materials have been developed here.

20 de Noviembre is home to roughly 500 inhabitants, 100% of which are Mayan. The ejido consists of 32,000ha (~80,000 acres) of forest. Tourist attractions include a cabana, restaurant, handicrafts (clothing, embroidery, hammocks, wooden crafts), and honey production (organic honey). The famous and well-promoted archaeological ruin, Rio Bec, is located about 12 km from the center of the ejido but the road is in such poor condition that many tourists no longer visit. Other ruins that are not publicized include Okolhuitz, El Ramonal, Pasión de Cristo, Orquidia, and several other smaller ruins.

There is an ecotourism committee (men) and WAYIM (women). This initial meeting was with WAYIM and they included: Maria Josephina Dzip Cahuich, president; Rosa
Maria Koo Pech, secretary; Hilda Maria Tun Cahuich; Ernestina Cahuich Tun; Maria Margarita Cahuich Cahuich, artesania president; and Olga Maria Chek Camal. The biggest challenges they face in ecotourism development include the road condition to Rio Bec (and no resources to repair it), English, trainings, and promotion. One resident, Victor Cauich Cauich, went through a regional training several years ago but now works at Konholich, an archaeological ruin in the state of Quintana Roo open for tourist visitation. Currently there is one guide in the ejido.

**Cristobal Colon** is home to roughly 300 inhabitants. The big attraction here is a subterranean river / cave located 3 km from the center of the ejido. The cave is about 700m long and during the wet season, it is not possible to visit. Residents have discovered pottery and a visiting French anthropologist, several years ago, believes a stone that sits at the end of the cave was used for sacrifices, according to residents. The one currently active resident, Lucio Hernandez García, went through a regional training years ago. The major challenges they face for ecotourism development include English, trainings, promotion, and the distance they are located from X’pujil (~21 miles / ~33.5 km) and the region’s major archaeological sites.

**Nuevo Becar** is home to about 400 inhabitants, 30% of which are Mayan. Ecotourism attractions include a cabana, handicrafts (a committee of 18 women and 3 men), wildlife trails (25,000 ha of forest), and a lake (400 m from the ejido center). In the past there was an Ocellated Turkey project and a lot of money was invested but little benefit for the people. Nuevo Becar is considered the best ejido in the region to see wildlife, and one of the few places with so much intact forest (90% is still forested). There are 8 certified guides from the regional training several years ago. Members of the ecotourism committee include: Tomas Juarez Cordova, president; Lazaro Juárez; Gumaro Arias Dominguez; Jose Osario Perez; and Modesto Perez Gomez.
Appendix B

20 de Noviembre Focus Group Meetings
July 6, 2001  20 de Noviembre Meeting 
Committee Waim (Women’s group = cabañas, kitchen/restaurant, crafts) 

Number of participants = 8 women leaders

1. What is your name, your role or committee, and something you love about living in 20 de Noviembre?

1. Argella Caamal Yam – Wood Handicrafts President = water (well)
2. Olga Maria Che Caamal – Ecotourism Treasurer = safe environment for the children
3. Ana Berta Cauich Cauich – Embroidery Secretary = weather/climate
4. Martha Alina Dzib Mukal – Embroidery = farming, planting
5. Maria Margarita Cahuich Cahuich – Embroidery President = safety, no contamination
6. Rosa Maria Ku Pech - watchdog for ecotourism = tranquility
7. Maria Josefina Dzib Cahuich – Ecotourism President = forest (plants)
8. Maria Gilda Kuk Cauich – Ecotourism Secretary = safety

Summary Paragraph for Question #1
In general the participants feel that their ejido is a very safe place and, in comparison to X’pujil and other cities, the ejido is very tranquil and uncontaminated. Others mentioned that they like their ejido because of the climate, living and working from the land, and the forest environment.

2. When tourists have visited in the past, what did you show them, what did they ask to see?

Key Point Number of times mentioned
Rio Bec 8
El Ramonal 6
Okolhuitz 6
Plants – cedar, mahogany 4
Food – how it is prepared 5
Artesania – hammocks, embroidery 6
Cabañas 3

Summary Paragraph for Question #2
The majority of visitors who enter the ejido request to see, or ask about, the archaeological site Rio Bec. Others have heard about El Ramonal and Okolhuitz and others ask about crafts. On occasion, visitors ask if there is traditional Mayan cuisine to try or if a specific dish can be prepared. Some have asked to see the forest resources (plants) and a few have asked about lodging / cabañas.

3. Where are the visitors from?
Canada 1
Chapingo (students) 5
France 2
Groups (almost all) 8
Some Backpackers (international) 6
Summary Paragraph for Question #3
The majority of visitors who have entered the ejido are groups and generally students from Mexican universities (Chapingo students are the more frequent visitors). International backpackers (individuals or small groups) comprise the 2nd most common visitor.

4. Have visitors made complaints about anything?
Cabaña – no lighting and water  4
There needs to be more to buy  4
Road condition to Rio Bec  8

Summary Paragraph for Question #4
The most common complaint by tourists is the road to Rio Bec, which is only accessible during the dry season (November - April). Others who have stayed in the cabaña complain of the water and lighting conditions. Still others have asked if there were more crafts to purchase.

5. What do you think are the major attractions of the ejido?
Ruins  8
Forest  6
Birds, animals  3
Stream  1
Cabañas  4
Dress attire (women)  6
Children  2
Language  4

Summary Paragraph for Question #5
Everyone agreed that the archaeological ruins are the biggest attractions in the ejido, most notably Rio Bec, but also El Ramonal and Okolhuitz. The forest (plants) and the style of dress (the Huipil worn by women) is also a big attraction of the ejido. The cabañas offered and the Mayan language were also considered somewhat of an attraction, with bird and animal life, children, and the small river that runs through the ejido getting some mention of attraction value for ecotourists.

6. If tourists arrive today, what is ready to offer them (services and attractions)
Artesania – embroidery, hammocks  8
Food  6
Lodging  5

Summary Paragraph for Question #6
Everyone agreed that crafts for tourists to buy are available today and food could be made available with some notice. One cabaña is almost ready, although the water system for the bathroom still needs to be repaired.
7. Committee Focus: what has already been done, vision

**Kitchen/Restaurant**
- kitchen, stove, tables, chairs, refrigerator
  Missing: bathroom, maintenance (roof), tables, chairs, light, plates, and training

**Cabaña**
- One cabaña is ready = 1 bed, 3 hammocks, table, chairs, bathroom, towels
- 4 cabañas and Environmental Education Center are located further in the forest but construction is still necessary
  Missing: hot-water heater, light, and water tank
- More construction is necessary or make a division in the existing cabaña.
- Have kitchen services nearby
  Idea: the cabaña can be converted into a kitchen with more cabañas built around

**Embroidery/Wood Handicrafts/ Crafts**
- Craft Shop (half is for embroidery, half for wooden handicrafts)
  - rope, hammocks, wooden handicrafts, embroidery, 6 embroidery machines
  Missing: promotion, little maintenance to building (roof, paint outside)

8. What are the limitations that could be a problem with ecotourism development? / Trainings (English, guiding) 6
   Resources for construction (bathroom, painting, repairs) 8

**Summary Paragraph for Question #8**
All agreed that they lack resources (primarily financial) to finish construction or make necessary repairs and this is a huge limitation to ecotourism development in 20 de Noviembre. Training in such areas as English language and guide services also create limitations for providing adequate ecotourism services.

9. Is there a specific type of visitor you want to attract?
   Student Groups – buy more 8
   International tourists 7

**Summary Paragraph for Question #9**
Unanimously participants want to attract student groups, partly because they seem to purchase more crafts. International tourists are also seen as a market they want to attract, based on past visitors to the ejido.

10. What is the most important area for ecotourism development here – services, trainings, facilities that are the most important.
    Cabanña 1
    Promotional Signs 2
    Entrance to Rio Bec (road) – many said 5
Summary Paragraph for Question #10
When asked what was the single most important area of development for ecotourism in 20 de Noviembre (services, trainings, infrastructure), 5 out of 8 participants said the road to Rio Bec was of most importance. Following this response, promotion for the ejido and repairs to the cabaña were 2nd and 3rd choices.

A Focus Group Report on Ejido Ecotourism Development
20 de Noviembre Women Committee Leaders

Purpose and Objective

The purpose of this evaluation was to learn about perceptions to ecotourism development in 20 de Noviembre. Specific objectives of the study were:
1) To find out what the attractive features of the ejido were
2) To find out what visitor interests, demographics, and complaints were
3) To find out participants' priorities for ecotourism development

Method

The focus group consisted of leaders of women committees in the ejido: cabañas, kitchen, and artesania. Additional questions were asked to expand on a comment or probe an area being discussed as necessary. The focus group was audio taped recorded with prior consent, transcribed with the assistance of Javier Cahuich Naal (20 de Noviembre representative to Calakmul Model Forest organization), and translated into English with the assistance of Dr. Edgardo Hernandez Vazquez (Chapingo representative).

Results

Description of the Participants

The focus group consisted of 8 leaders of women committees in the ejido: cabañas, kitchen, and artesania

What are the attractive features in the ejido?

The archaeological ruins are the biggest attractions in the ejido, most notably Rio Bec, but also El Ramonal and Okolhuitz. The forest (plants) and the dress attire (the Huipil worn by women) are also considered an attraction, followed by overnight stays in the cabañas.

What have been visitor interests, demographics, and complaints?

The archaeological ruins, specifically Rio Bec, are what visitors are interested in seeing. On occasion visitors ask if there are crafts, traditional Mayan cuisine, and lodging. Some have asked to visit the forest.
The majority of visitors who have entered the ejido are groups and generally students from Mexican universities (Chapingo students are the more frequent visitors). International backpackers (individuals or small groups) comprise the 2nd most frequent visitors.

The most common complaint by tourists is the road to Rio Bec, which is only accessible during the dry season (November – April). Others who have stayed in the cabana complain of the water and lighting conditions. Still others have complained that there are not many (nor a great selection) of crafts to buy.

What are the priorities for ecotourism development?

The road to Rio Bec was the most important priority for ecotourism development, followed by promotion for the ejido and repairs to the cabaña.

July 8, 2001 Ejido 20 de Noviembre Meeting
Men: Apicultura (Bee Keeping), Ecoturismo (Ecotourism), Viviro Forestal (Nursery), Manejo de Fuana Silvestre (Wildlife Mgmt)

What is your name, your role or committee, and something you love about living in your community
1. Gonzalo Marin Martin – Ejido President = farming
2. Ezequiel Cauich Cauich – Watchdog Committee for ecotourism = ruins, forest, water
3. Luciano Cauich – Bee Keeping representative = forest – a good habitat for bees, good soil for farming
4. Antonio Jesus Chuch Contreras – Ecotourism Committee Treasurer = tranquility and safety in the community
5. J. Luis Chuch Contreros – Ecotourism Secretary = good soil
6. Humberto Dzib Tun – Ecotourism President = richness of nature
7. Arsenio Chi Dzib – Watchdog Committee Secretary = forest, good soil
8. Ernesto Dzib Pech – Wildlife Mgmt President = wildlife
9. Javier Cauich Naal – Bee keeping President = richness of resources, water.

Summary Paragraph for Question #1
The majority of the participants feel that their ejido has an incredible richness of resources: forest, plant, and animal and good soil for farming.

2. When tourists have visited in the past, what did you show them, what did they ask to see?

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<th>Key Point</th>
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<tr>
<td>Vegetation</td>
<td>5</td>
</tr>
</tbody>
</table>
Summary Paragraph for Question #2
The majority of visitors who enter the ejido request to see, or ask about, the archaeological ruins in the ejido (Rio Bec, Okolhuitz, and El Ramonal). Inquiries of forest plants / vegetation have also occurred.

3. Where are the visitors from?
International (don’t know which countries) 7
Student Groups 9

Summary Paragraph for Question #3
The majority of visitors who have entered the ejido are student groups. International backpackers (individuals or small groups) comprise the second most common visitor.

4. Have visitors made complaints about anything?
Road to Rio Bec 9
The trip to Rio Bec is too long 5

Summary Paragraph for Question #4
The most common complaint by tourists is the road to Rio Bec, which is only accessible during the dry season (November – April) and the time it takes to make the 12 km trip from the ejido to Rio Bec (due to the poor road conditions).

5. What do you think are the major attractions of the ejido?
Protected Areas (Wildlife Reserve) 2
Orchids and other flowers 5
Mayan Cuisine and refreshments 6
Wildlife, birds (toucans) 5
Ruins 9

Summary Paragraph for Question #5
Everyone agreed that the archaeological ruins are the biggest attractions in the ejido, most notably Rio Bec, but also El Ramonal and Okolhuitz. Traditional Mayan cuisine was also considered a strong attraction, followed by plants and animals in the forest. Protected areas, including the Fauna Reserve, were also mentioned by two participants.

6. If tourists arrive today, what is ready to offer them (services and attractions)?
Ruins 9
Cabaña 4
Kitchen-Restaurant 5
Artesania/Crafts 7

Summary Paragraph for Question #6
Everyone agreed that the 3 most known archaeological sites (Rio Bec, El Ramonal, and Okolhuitz) can be visited today, crafts can be purchased, traditional Mayan food can be prepared, and lodging is available.
7. Committee Areas: what has already been done, vision

**Producion Apicola / Bee Keeping**
Flower protection (honey production)
Honey – 100 – 500 kilos (depends on climate)

**Ecoturismo**
Transportation – horses, bicycles, truck
Developed cabanas

**Manejo Vida Silvestre ('92-93) / Wildlife Mgmt (since '92-93)**
animal and insect identification
Museum

**Viviro Forestal / Forest Nursery**
Reforestation

8. What are the limitations that could be a problem with ecotourism development?

<table>
<thead>
<tr>
<th>Limitation</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication / promotion</td>
<td>8</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>5</td>
</tr>
<tr>
<td>Services</td>
<td>4</td>
</tr>
<tr>
<td>Equipment / Tools</td>
<td>4</td>
</tr>
</tbody>
</table>

**Summary Paragraph for Question #8**
All agreed that the lack of promotion is a major limitation. Inadequate of the lack of infrastructure, services, and equipment in general (resources) are also significant limitations to ecotourism development in the ejido.

9. Is there a specific type of visitor you want to attract?

<table>
<thead>
<tr>
<th>Type</th>
<th>Score</th>
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</thead>
<tbody>
<tr>
<td>International</td>
<td>9</td>
</tr>
<tr>
<td>Student Groups</td>
<td>7</td>
</tr>
</tbody>
</table>

**Summary Paragraph for Question #9**
Unanimously participants want to attract international tourists. Student groups are also seen as a market they want to attract, based on past visitors to the ejido.

10. What is the most important area for ecotourism development here – services, trainings, facilities that are the most important.

<table>
<thead>
<tr>
<th>Area</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road to Rio Bec</td>
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</table>

**Summary Paragraph for Question #10**
When asked what was the single most important area of development for ecotourism in 20 de Noviembre (services, trainings, infrastructure), all 9 participants said the road to Rio Bec was of most importance.
A Focus Group Report on Ejido Ecotourism Development
20 de Noviembre Men Committee Leaders

Purpose and Objective

The purpose of this evaluation was to learn about perceptions to ecotourism development in 20 de Noviembre. Specific objectives of the study were:

4) To find out what the attractive features of the ejido were
5) To find out what visitor interests, demographics, and complaints were
6) To find out participants' priorities for ecotourism development

Method

The focus group consisted of the committee leaders of the four male committees in the ejido: Bee production, Ecotourism, Forestry Nursery, Wildlife Management. Additional questions were asked to expand on a comment or probe an area being discussed as necessary. The focus group was audio taped recorded with prior consent, transcribed with the assistance of Javier Cahuich Naal (20 de Noviembre representative to Calakmul Model Forest organization), and translated into English with the assistance of Dr. Edgardo Hernandez Vazquez (Chapingo representative).

Results

Description of Participants

The focus group consisted of 9 committee leaders of the four male committees in the ejido: Bee production, Ecotourism, Forestry Nursery, Wildlife Management. All were residents of the ejido 20 de Noviembre.

What are the attractive features in the ejido?

The archaeological ruins are the biggest attractions in the ejido, most notably Rio Bec, but also El Ramonal and Okolhuitz. Traditional Mayan cuisine was also considered a strong attraction, followed by plants and animals in the forest, including protected areas, such as the Fauna Reserve

What have been visitor interests, demographics, and complaints?

The majority of visitors who enter the ejido are interested in the archaeological ruins in the ejido (Rio Bec, Okolhuitz, and El Ramonal). Inquiries of forest plants / vegetation have also taken place by visitors.

The majority of visitors who have entered the ejido are student groups. International backpackers (individuals or small groups) comprise the 2nd most common visitor.
The most common complaint by tourists is the road to Rio Bec, which is only accessible during the dry season (November – April) and the time it takes to make the 12 km trip from the ejido to Rio Bec (due to the poor road conditions).

**What are the priorities for ecotourism development?**

When asked what was the single most important area of development for ecotourism in 20 de Noviembre (services, trainings, infrastructure), all 9 participants said the road to Rio Bec was of most importance.
Appendix C

Interviews with Area Hotel/Restaurant Owners
Perspectives on Ecotourism Development in the region
June 6, 2001 Interview with Restaurant and Hotel Calakmul

- 1st hotel in X'pujil (12 years)
- Cost: 200 – 300 pesos por noche

Promotion: international guide books
Agencies stop here: Mex-Atlantica, Tena (Guatemala)

1. What is the make-up of most tourists that visit?
Nov-Dec Italians
Jan-Feb French, German

2. What are tourists looking for?
Tourists are attracted to the Maya culture

3. How do tourists arrive at the hotel? (tour, rented car, etc)
Before 1999 mainly bus tours but now more rented cars

4. What do you have in terms of services for foreigners
Menu is in english, french, spanish
Information in english (packages) available

5. What are the most important areas for ecotourism development?
His perspective is that trainings are very important, as is information services – police
that will help tourists, available tourist information, potable water, better electricity
service.

6. What are the limitations we are facing here?
Water shortages, financial and government support

June 6 Restaurante y Hotel Mirador in Xpupil Moises Carreod Cabrera
-Also has taxi service cost 250 pesos double
17 years 9 cabanas each with 2 camas
Promotion: Noveallas Frontias (French) and 2 other companies

1. What is the make-up of most tourists that visit?
Tourists: german, english, french

2. What are tourists looking for?
look for where there are less tourists, contact with nature

3. How do tourists arrive at the hotel? (tour, rented car, etc)
both tours and rented cars but probably more rented cars
4. **What do you have in terms of services for foreigners**
   menu in english

5. **What are the most important areas for ecotourism development?**
   Trainings

6. **What are the limitations we are facing here?**
   Xpujil center has a lot of garbage, odors, dirty water by vendors with no control or management
   No training, people are not “tourist friendly”

Promotion: Noveallas Frontias (French) and 2 other companies

---

**June 7** Mercedes in Zoh Laguna Antonio
6 year 6 cabanas (goal = 10)
   cost 140 pesos single, 180 pesos double

Promotion: there was a general web site for Calakmul that included his information
   Signs in X’pujil centro and one on each side of the road before Zoh Laguna
   Business cards

1. **What is the make-up of most tourists that visit?**
   Europeans primarily

2. **What are tourists looking for?**
   Ruins, nature

3. **How do tourists arrive at the hotel? (tour, rented car, etc)**
   some groups but mainly 1-2 people with private car

4. **What do you have in terms of services for foreigners**

5. **What are the most important areas for ecotourism development?**
   Available information / Promotion

6. **What are the limitations we are facing here?**
   - Information
   - Xpujil center dirty, black water, no place for garbage
   - Jealously among hotels ..... competition.
Appendix D

Interviews with Regional Representatives
Calakmul Biosphere Reserve: Jose de la Gala Mendez, director

Two years ago, Calakmul Biosphere Reserve (CBR) provided trainings for ecotourism guides with the help of the Regional Council, SecTUR, ProNATURA, and other organizations that provided over 600 hours in site teaching. The guides were part of the organization Servidores Turísticos de Calakmul.

According to de la Gala Mendez, field studies have been done in the Reserve but no serious ecotourism projects have ever been implemented. De la Gala Mendez thinks there is a need to provide general guidelines to develop a full-scope ecotourism management plan. The language barrier is a major deterrent to providing tourist services. He complains about the lack of cooperation; a thousand groups have developed and carried out their own studies without collaborating with each other. Market studies have not been done and he stresses the need of an overall ecotourism management plan.

X’pujil government: Wilbert Gonzalez Cervera, Ecotourism Division.

There are a lot of attractions in the region from archaeological ruins to nature (flora and fauna) to the indigenous Maya culture with beautiful crafts and delicious foods. Tourists are passing through the region and the local people must take advantage of this opportunity, but the lack of trainings and financial resources for development are obstacles communities face. The local government is developing a tourist information center just west of X’pujil where cultural and natural attractions of the region (and communities) can be promoted.

Local Study (1999) on Community-based Ecotourism Potential by Fernando Sastré Méndez and Leticia Valensuela Santiago, local residents involved with regional ecotourism development. This study showed that 18 ejido communities within the Calakmul Model Forest region possess natural and/or cultural attractions (including 20 de Noviembre), making them potential destinations for ecotourism development. This study separated potential community-based ecotourism destinations into categories by services and infrastructure that are either already in place or could easily be developed.
Category 1: Highly Developed Urban Zone
- Sanitation Services
- Food Services
- Hotels
- Crafts
- Bicycle Rentals
- Camping Equipment Rentals

Category 2: Rural Ecotourism Zone with Complete Services
- Sanitation Services
- Food Services
- Crafts
- Bicycle Rentals
- Camping Equipment Rentals

Category 3: Rural Ecotourism Zone with Limited Services
- Limited Access
- Trail System
- Sign Use
- Information of flora and fauna
- Places to sit

According to this study, based on an inventory of community-based ecotourism of the Calakmul Model Forest from January – December 2000, Ejido 20 de Noviembre is listed under Category 2: Rural Ecotourism Zone with Complete Services.
Appendix E

INAH logbook entries
INAH Suggestions and Complaints by Tourists:

- Go through responses and circle meaningful comments
- Assign codes to responses
- Arrange responses by codes

-How many times, % out of all of them, frequency (1 = most frequent response)

Negative Comments = Neg / Positive Comments = Pos

Promotion = PRO

Informational Services = INFO
-sighns, interpretive guides, personnel, interpretive media

Physical & Comfort Services = PHY
-Restroom facilities, shelter, trails, ease of access

Cleanliness, Restoration, Maintenance of archaeological sites = CAR

X‘puijl

1) “La zona [arqueologica] se visitaba más facil con el otro acceso” = One could visit the zone [archaeological] much easier with the other entrance. Neg. = PHY

2) “Tambien proque estan muy bien cuidados y arreglados y por su excelente estado impeccablen limpio del sitio arqueologico.” = Also because they [the ruins] are well restored and cared for and for the impeccable clean and excellent state of the archaeological site. Pos. = CAR

3) “…el estado impeccabcle de la zona arqueologica” = …impeccable state of the archaeological zone” Pos = CAR

 “…la calidad de la informacion” = …the quality of the information. Pos. = INFO

4) “Deben de promocionar mas estos lugares para q’ reciban mas visitantes” = You must promote these places more to receive more visitors. Neg. = PRO

5) “Me gustaría que protegieran la zona con lazos como otras ya q’ con el tiempo se destruiran más si dejamos q’ la gente suba.” = I would like the zone protected with ropes as other sites because already with time the sites are destroyed more if we let people climb them” Neg. = CAR

6) “Felicito la labor que desempeñan los custidios, por mantener las zonas arqueologicos en buen estado” = I congratulate the work the custodians have done in maintaining the archaeological zone in good condition. Pos. = CAR
Felicitamos a la custodia Isavel Briceno por la muy buena atención e información que nos dió" = We congratulate the custodian Isabel Briceno for her attentiveness and information given. Pos. = INFO

7) "Colocar anuncio grande y visible a la entrada" = Put large and visible signs at the entrance. Neg. = INFO

8) "Arreglar el caminito – muy abandonado [y] peligroso. Se puede uno caer." = Fix the trail – its very neglected. Someone could fall. Neg. = PHY

"Las ruinas tambien muy abandonados" = The ruins are also very neglected Neg. = CAR

Chicanná

1) "Los través que soportan la fachada de los estructuras II y VI se deben cambiar las maderas que las soportan...." = The wooden crossbeams that support the II and VI structures must be changed.." Neg. = CAR

2) "Ojalá nos den mas información de estas zonas para que aprendamos a apreciar nuestras raíces y la defermamos de los invasores transculturales” – I hope that you give us [visitors] more information of these [archaeological] zones so that we can learn to appreciate our races and defend ourselves from the transcultural invasions. Neg. = PRO

3) "..y el sistema de sanitación es muy bueno” – and the sanitation system is well done. Pos = PHY

4) “Todo muy bien. Muy limpio y organizado” – Everything is great. Very clean and well organized Pos. = PHY

5) “Estoy muy preocupada sobre Estructura II – la Boca de la Serpiente—la entrada parece muy cerca de destrucción. Quizas auyde una columna para soportar la boca” – I am very concerned about Structure II – the Serpents’s Mouth – the entrance seems almost destroyed. Maybe a column could help support the mouth” Neg. = CAR

6) “No hay mapas del sitio arqueologico en la entrada....distancias, etc. en suma no se puede planificar la visita. Si es turismo ecologico por lo menos saber hacen donde se va.” – There a no maps of the archaeological sites at the entrance...distances, etc. in summary one can not plan their visit. If this is ecological tourism, at least let people know where they are going Neg. = INFO
Balamkú

1) "El diseño de los sanitarios...muy origina!" – The toilet design [ecological bathrooms]...very original!  Pos. = PHY

2) "Por el sitio pues lo mantienen en muy buen estado" – The site is very well maintained and in good condition  Pos. = CAR

"Falta un mapa general del sitio con fichas tecnicas de cada uno" – The site lacks a general map with locations of each site. Neg. = INFO

"Falta una tienda para rehidratarse pues despues del recorrido.." – The site lacks a store where one can buy fluids to rehydrate after the visit. Neg. = PHY

3) "Hay muchos ruinas tapadoas con malesa que deberian descubrir para que no se acerquen tanto los viboras" – There are many ruins covered with weeds that must be removed so as not to attract vipers [poisonous snakes]. Neg. = CAR

4) "Es muy bonito encontrar que todo se encuentra en buen estado y muy buena atencion" – It’s nice to find everything in good condition and receiving then necessary attention. Pos. = CAR

5) "Muy cuidado y todo esta muy limpio" – Well cared for and everything is very clean. Pos = CAR

6) "Me gustaria que pusieran una pequena reseña de cada una de la piramides" – I would like to have small summaries at every pyramid. Neg. = INFO

Hormiguero

1) "Muy bien protegido y cuidado" – Very well protected and cared for. Pos. = CAR

2) "Muy bien cuidado" – Well cared for. Pos. = CAR

3) "Mas informacion! = More information! Neg. INFO

4) "La atencion al publico es muy buena" – Good attention towards the public [visitors]  Pos. = INFO

"Excelente instalaciones" – Excellent installations [facilities]. "En general es muy bien servicio" – In general this is a great service.  Pos. = PHY

5) "La atencion del Sr. Jose Mota es excelente" – Mr. Jose Mota’s was very attentive to our needs.  Pos. = INFO
“Las instalaciones se encuentran en muy buenas condiciones” – The installations [facilities] were found in great condition. Pos. = PHY

6) “Buen estado y limpio [el sitio]” – In good condition and clean [the site] Pos. = CAR

“Falta reconstruir las piramides” – Reconstruction of the pyramids needs to be done. Neg. = CAR

7) “Falta nada más seguir buscando y reconstruir un poco más!” – The only thing lacking is a little more searching and reconstructing! Neg. = CAR

8) “Hace falta mas promocion para que mas gente lo conozca” – Promotion is missing so that more people can know the area. Neg. = PRO

9) “Felicidades por el buen mantenimento” – Congrats on the great care / maintenance. Pos = CAR

10) “Falta mas promocion ojala y sigua asi” – Promotion is lacking. Hopefully it will be done. Neg = PRO

Becán

1) “Una zona muy limpio” – A very clean [archaeological] zone Pos = CAR

“...pero no muy reconocida en el pais le sugerimos que te hagan mas promocion” - ...but not well recognized in the country and we suggest that you do more promotion. Neg. = PRO

2) “Esta muy bonita la zona Arqueologica solo que necesitan reconstruirla en su totalidad” – the archaeological zone is bery beautiful only that you need to reconstruct it entirely. Neg. = CAR

“Darle mayor promocion” – Give it better promotion Neg = PRO

3) “El sitio que se ha descubierto esta bien presentado” – The site that has been uncovered is well presented. Pos = CAR

4) “Los felicito lo encontramos limpio, ordenado” – I congratulate you on how we found them [ruins]. Pos = CAR

“Muy buena atencion del personal” – Personnel were very helpful Pos = INFO

5) “Muy malo que no hay informacion acerca de que gran parte de la zona esta vetada por las explicaciones y reconstruccion” - It’s very bad that there isn’t information covering a large part of the zone [archaeological] relating to explanations and reconstruccion. Neg = INFO
6) “Falta promocion a nivel nacional e internet” – Promocion is missing at the national level and via internet. Neg = PRO

7) “Me parece un hermosa lugar, muy limpio y cuidado” – It seems to me a beautiful place, very clean and well cared for – Pos = CAR

“Deberian darle mas promocion a nivel nacional” – You must give it more promotion at the national level. Neg = PRO

8) Clean and well maintained Pos = CAR

9) “Es necesario invertir mas para restaurar y discubrir lo edificados que aun estan sin descubrir” – It’s necessary to invest more in the restoration and uncovering of the sites that are still undiscovered. Neg = CAR

10) “Un sitio en verdad hermosos, deseamos que sea restacado lo mas pronto posible” – A site truly beautiful, we would like it restored as soon as possible. Neg. = CAR

“La atencion muy buena y buenos guias” – Very good attention and helpful guides” – Pos = INFO

“Hay que promover mas este lugar” – One has to promote this site more. Neg = PRO

11) “...cuidado y sobre todo el servicio esta muy bien.....“es un lugar agradable y limpio” – ..maintained at overall, the service was very good. Pos = CAR

“Sugiero un poco de publicidad” – I suggest a little more publicity. Neg = PRO

12)“Centro poco conocido y promocionado” – A little known or promoted center. Neg = PRO

“Muy limpio y la atencion fue muy cordial por parte del personal” – Very clean and very cordial attention by the personnel Pos = CAR, INFO

13)“Bien conservado” – Well conserved. Pos = CAR

“La gente es muy agradable” – The people [personnel] are very pleasant. Pro = INFO

15)“Que la arqueologa da una explicacion de lo descubierto o restaruado en Becan, para poder saber que se ha hecho” – The archaeologist should give an explanation on the discovery or restoration in Becán en order to know what has been done. Neg. = INFO

16)“Consideramos que es muy importante poner letreros de los sitios de chicana y Becan con sus respectivos kilometros de destancia” – We consider it very
important that signs for Chicana and Becán are put up with their respective distances (km). Neg = INFO

17) “En especial le quiero felicitar por lo bien que estan los sitios. Limpios, reciclando letrinas secas” – I would especially like to congratulate you for the condition of the sites. Clean, recycling dry latrines” Pro = CAR, PHY

**Calakmul**

1) “Por favor indicar la salidas me perdi y no encontre la salida por mucho tiempo” – Please indicate the exists. I got lost and could not find the exit for a long time. Neg = INFO

2) “Favor de arreglar la carretera tiene muchos baches, todos con plantas estan sobre la carretera” – Please repair the road that has many holes and plants that hang over the road. Neg = PHY

   “Poner señalamientos del kilometers” – Put signs indicating kilometers. Neg = INFO

3) “Se sugiere arreglar el camino” – It is suggested that the road be repaired. Neg = PHY

   “Faltan señalamientos, poco guías…” This place lacks signs, few guides. – Neg = INFO

4) “No se informo el horario del lugar” – No one is informed on the hours of the site. Neg = INFO

   “El camino esta en muy malas condiciones” – The road is in very bad condition. Neg = PHY

5) “Limpieza de la carretera o camino.. relleno o bacheo. Sobre todo descuorrar arboles para poder entrar con autobuses” - The cleaning of the highway or road…full of holes. Above all, clear away tress to let buses enter. Neg = PHY

6) Para la promocion del sitio, hace falta el facil acceso por carretera. La limpieza y erlleno de la misma es necesario” – For promoting the site, what’s missing is easy access along the road. Cleaning up and filling [holes] is also necessary. Neg = PHY

7) “Mantenimiento de la carretera y señalamientos” – Maintenance of the road and signs. Neg = PHY, INFO

8) “Agradecemos al personal su amabilidad” – We are grateful for personnel’s kindness. Pos = INFO
9) La entrada al centro de Calakmul está muy lejos” – The entrance to the center of Calakmul es very far away. Neg = PHY

“Dar información de donde se localiza Tikal y los otros centros importantes Mayas” – Give information of where Tikal and other important Mayan centers are located. Neg = INFO

10) “Les sugeriría que venden refrescos y comida” - I would suggest to you that you sell refreshments and food. Neg = PHY

“Les sugiero que pongas las instrucciones de lo que se debe hacer en los baños, es decir que pongan letreros que digan que se le debe de poner agua y acerín a los baños...” - I suggest to you that you put instructions of what you must do in the bathrooms, that is to say that you should put up signs that indicate you must put water or wood chips in the toilets. Neg = INFO

11) “Vendan agua” – Sell water. Neg = PHY

12) “Pongan botes de basura!!” – Put out trash cans!! Neg. = PHY

13) “Favor de componer con mas frecuencia la carretera para mayor seguridad” – Please make more frequent repairs to the road for increased security. Neg = PHY

14) “....la carretera es estrecha y terriblemente en mal estado!!” – The road is narrow and in terrible condition!! Neg = PHY

“Además, no existen señalamientos que indiquen la distancia recorrida en kilómetros” – In addition, there are no signs that indicate the distances in kilometers. Neg = INFO

15) “Será conveniente acercar el estacionamiento a las pirámides – tardamos en arribar a esas 30 minutos caminando” – It would be convenient for the pyramids to be closer to the parking area – we were late in arriving from the 30 minutes we had to walk. Neg = PHY

16) “Segerir que se tenga señalamiento de kilómetros para saber que tanto de distancia...” – It is suggested that you have signs showing kilometers to know the distances. Neg = INFO

17) “Me gustaría que arreglaran la carretera y que vendan agua y refrescos y algo para comer...” – I would like it if you repaired the road and sold water and refreshments and something to eat. Neg = PHY, PHY

18) “Todas las ruinas están bien cuidados” – All the ruins are well maintained. Pos = CAR

19) “El estacionamiento está demasiado lejos de los pirámides” – The parking lot is located too far away from the pyramids. Neg = PHY
20) “Excellentes trabajos de rescate y restauracion” – Excellent rescue and restoration work. Pos = CAR

“Me Parecio muy bien la señalizacion, los baños ecologicos” – The signage was very well done, and the ecological bathrooms. Pso = INFO, PHY

“Felicidades y gracias a todo el personal del INAH y por las atenciones y facilidades de los amigos custodios” – Congratulations and thanks to all the personnel with INAH and for the attention and congratulations to the custodians” Pos = INFO

21) “...malo del camino y lo estrecho que tiene la carretera ya que devido a las ramas el bus se raya completamente de los lados” – the road is very bad and narrow and the branches strachted the sides of the bus. Neg = PHY

22) “Ojalá piensen el las personas de la 3° edad” – I hope that you think of elderly people. Neg = PHY

23) “Que vendan agua, coca-cola, Gatorade, lo que sea que se puede tomar...” – That you sell water, coca-cola, Gatorade, or whatever there is to drink. Neg = PHY

24) “If we have to pay so much for a street we expect it to be at least so good that we don’t have to be afraid to break our car down.” Neg = PHY

25) “Tengo problema para caminar y el recorrido es demasiado largo” – I have problems walking and the distance covered to too long. Neg = PHY
INAH Tourist Log Coding System (developed by researcher)

PRO = Promotion
CAR = Cleanliness, Restoration, Maintenance of site
INFO = Informational Services (signs, guides, personnel, interpretive media)
PHY = Physical & Comfort Services (facilities, shelter, trails, ease of access, food)

(+) = positive comments    (-) = complaints or suggestions (negative comments)

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<td>CAR: (+):</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>9</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>PHY: (+):</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>
Appendix F

Inventory of Tourism Infrastructure / Services – Calakmul region
## Inventory of Tourism Infrastructure / Services in the Calakmul Region

### Restaurants:

<table>
<thead>
<tr>
<th>Restaurant</th>
<th>Type of Food</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Templo Maya</td>
<td>Regional, seafood and fast food</td>
<td>Xpujil</td>
</tr>
<tr>
<td>Calakmul</td>
<td>Vegetarian, seafood, Mexican</td>
<td>Xpujil</td>
</tr>
<tr>
<td>Cocteleria Genesis</td>
<td>International, Mexican and seafood</td>
<td>Xpujil</td>
</tr>
<tr>
<td>La Victoria</td>
<td>Fast food, regional and seafood</td>
<td>Xpujil</td>
</tr>
<tr>
<td>Mercedes</td>
<td>Mexican</td>
<td>Zoh Laguna</td>
</tr>
<tr>
<td>La Concha del Caribe</td>
<td>Fast food, seafood and vegetarian</td>
<td>Xpujil</td>
</tr>
<tr>
<td>Fernandos</td>
<td>Fast food, Mexican, tacos and tortas</td>
<td>Xpujil</td>
</tr>
<tr>
<td>La Victoria</td>
<td>Fast food, regional and seafood</td>
<td>Xpujil</td>
</tr>
</tbody>
</table>

### Hotels:

<table>
<thead>
<tr>
<th>Hotel</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicanna Ecovillage Resort</td>
<td>Chicanna</td>
</tr>
<tr>
<td>Calakmul</td>
<td>Xpujil</td>
</tr>
<tr>
<td>Mirador Maya</td>
<td>Xpujil</td>
</tr>
<tr>
<td>Cabanas el Viajero</td>
<td>Xpujil</td>
</tr>
<tr>
<td>Cabanas Mercedes</td>
<td>Zoh Laguna</td>
</tr>
<tr>
<td>Hotel Bosque Modelo</td>
<td>Zoh Laguna</td>
</tr>
<tr>
<td>Puerta Calakmul</td>
<td></td>
</tr>
</tbody>
</table>

### Archaeological Sites:

<table>
<thead>
<tr>
<th>Site</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>X’pujil</td>
<td></td>
</tr>
<tr>
<td>Becán</td>
<td></td>
</tr>
<tr>
<td>Chicanná</td>
<td></td>
</tr>
<tr>
<td>Calakmul</td>
<td></td>
</tr>
<tr>
<td>Balamkú</td>
<td></td>
</tr>
<tr>
<td>Hormiguero</td>
<td></td>
</tr>
<tr>
<td>Rio Bec</td>
<td></td>
</tr>
</tbody>
</table>

### Complementary Services:

- Health Clinic – very basic
- Public Phone – 2 in Xpujil
- Pharmacy - Xpujil
- Gasoline Station – 1
- Taxi Service – 2 businesses
- Mechanic - 2
- Bus stop - Xpujil
Appendix G

Calakmul Regional Survey

and Survey Design Methods
Survey Design

The following points can be used as a guide when developing a questionnaire survey (Jacobson, 1999):

• Write down the information you want to obtain from tourists.

• With your list of potential questions, weed out irrelevant ones. As a general guide, the shorter the survey, the more likely respondents will complete it.

• With your list of topics to cover, organize them logically; opinion questions go first, then knowledge questions, followed by socio-demographic questions.

• Pilot test the questionnaire with 10-20 of your targeted population to eliminate any vague, biased, or confusing questions.

• When your questionnaire survey is ready, make sure you have a brief, but persuasive introduction that states why the study is useful and why their participation is important.

• In distributing questionnaire surveys, hand out and collection is the most effective way to getting the most back.
Cuestionario  
Fecha Hoy Día ___/___/____

1. Este cuestionario se llena en la siguiente localidad (escoja la que se aplique en su caso):
   _X’pil _Becán _Calakmul  
   _Oficina Reserva de la Biosfera Calakmul _Otro_________

2. ¿Cómo obtuvo la información que le motivó visitar este lugar?
   _Revistas / Libros, especifique cuales ______ _
   _Agencias de Viajes, especifique cuales y su ubicación ______
   _Internet, especifique la página y su dirección _____________
   _Otros _______

3. ¿Cómo obtuvo la información relacionada a esta localidad?

4. ¿Qué otros sitios ha planeado visitar en las inmediaciones de esta localidad o en la región donde se encuentra?

5. ¿Qué medio de transporte utilizó para llegar a esta localidad?
   _Vehículo particular
   _Autobús
   _Taxi
   _Autobús de empresa turística, especifique su nombre y ubicación __
   _Otros, especifique __________

6. ¿Qué fue lo que más lo motivó para visitar este lugar? (escoja las opciones que se apliquen en su caso):
   _Recorrer los sitios arqueológicos _Observar la flora / fauna
   _Apreciar la cultura Maya ( _ Prehispánica _ Moderna)
   _Otro, especifique________________

7. ¿Dónde se hospeda esta noche?
   Ciudad________
   Nombre del hotel__________

Requerimientos del visitante:

8. Califique en una escala del 1 al 5 los servicios ofrecidos en la localidad donde se encuentra. (1 = excelente, 5 = inadecuado, NA = no aplicable)

   Servicios de Información  Instalaciones / Conveniencia
   _Publicaciones  _Fácil acceso
   _Letreros  _Servicios sanitarios
   _Guías intérpretes  _Refugios
   _Otros, especifique ___________  _Otros, especifique ___________

We are developing cultural and educational experiences in local Mayan ejidos (communities) and need your help! By completing this survey, you are helping to develop programs and offer these unique experiences in the future. Thank you for your time and valued comments! (page 2)

Nous sommes en train de développer des culturelles et éducatives expériences chez les communautés locales mayas et nous avons besoin de votre aide! En complétant ce sondage vous aiderez à développer des programmes et à offrir ces expériences uniques dans le futur. Merci de votre temps et de vos commentaires. (page 3)

Wir entwickeln die kulturellen und pädagogischen Programme für gewisse Maya Gemeinden und brauchen Ihre Hilfe! Mit Ihrer Zusammenarbeit kann ein entsprechend Angebot entwickelt werden. Vielen Dank für Ihre Hilfe und wertvollen Beitrag! (seite 4)

Requerimos de su cooperación para proponer e instrumentar actividades culturales y educativas que beneficien a las comunidades de la Región Sur de Campeche. Al contestar el presente cuestionario usted aporta ideas que contribuirán al desarrollo de planes y programas recreativos adaptados a los recursos disponibles en las comunidades aledañas. Agradecemos de antemano su valiosa colaboración en la aportación de la información. (pagina 5)

THANK YOU! MUCHAS GRACIAS! VIELEN DANK! MERCI !

Model Forest / Bosque Modelo / Modellwald von Calakmul
Ejido 20 de Noviembre • Universidad Autónoma Chapingo (Mexico)
University of Wisconsin – Stevens Point (USA)
Fragebogen: Heutiges Datum __/__/____

1. Ich fülle dieses Formular am folgenden Ort aus (bitte einen markieren)
   _X'pújil_ _Becán_ _Calakmul_  
   _Büro Calakmul Biosphere Reserve_ _Anderes_ ___________

2. Wo bekamen Sie Information zu Ihrer Reiseplanung?
   _Illustrierte/Buch______________
   _Verkehrsbüro; Name_________________
   _Internet: bitte Name und Adresse_________________
   _Andere Quelle_____________________  

3. Wo erhielten Sie Information für diesen Ort?

4. Welche anderen Orte in dieser Gegend wollen Sie besuchen?

5. Mit welchem Verkehrsmittel kamen Sie hierher?
   _Privatfahrzeug_  
   _Öffentlicher Bus_  
   _Taxi_  
   _Bus eines Reiseunternehmens__________________
   _Sonstiges (welches?)_____________________

6. Was zieht Sie am meisten an? (alle betreffenden markieren)
   _Archäologische Ruinen_  
   _Flora und Fauna_  
   _Maya Kultur (historisch/modern)_  
   _Anderes (was?)______________________

7. Wo übernachten Sie?
   Stadt_________ Name des Hotels________________

8. Beurteilen Sie die Dienstleistungen an diesem Ort
   (1=ausgezeichnet 5=ungenehm  NA=trifft nicht zu)
   _Informationsdienst_  
   _Veröffentlichungen_  
   _Tafeln_  
   _Broschüren_  
   _Sonstiges____________
   _Unterkunft_  
   _Zugang_  
   _Toiletten_  
   _Zimmer_  
   _Sonstiges____________

9. To make your visit more enjoyable, what additional services or improvements would you recommend?

10. To make your visit more enjoyable, what types of information would you like to see presented?

11. Please rate the activities which you might enjoy experiencing in a Mayan community: 1 = strongly interested, 2 = interested, 3 = not interested
   _Archaeological ruins_  
   _Over-night stay in Cabana_  
   _Medicinal Plant Trail_  
   _Guided walks through original tropical forests_  
   _Bird Viewing_  
   _Guided horseback rides to area ruins (El Ramona, Olcolwitz, Rio Bec)_  
   _Mayan Crafts_  
   _Authentic Mayan Cuisine_  
   _Other (suggestions)______________________________

12. Where are you from? Write the country if you are an international visitor or the state if you are a resident of Mexico
   COUNTRY_________
   MEXICAN STATE or PROVINCE________________

13. What is your native language? ____________

14. What other languages do you speak well? ____________

15. What is your age? ____________

16. Are you ___ MALE ___ FEMALE

17. How many years of formal education have you completed? (circle one):
   0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20+

18. How many people are in your party today
   _I am alone_  
   _One other person_  
   _2-3 other people_  
   _4 or more people_
Appendix H

Rio Bec Survey
Please rate (circle) the activities that you might enjoy experiencing in a Mayan community:
Indique sus preferencias respecto a las actividades que a usted le gustaría disfrutar en una comunidad Maya considerando una escala del 1 al 5:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Rating</th>
<th>Strongly Interested</th>
<th>Neutral</th>
<th>Not Interested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Archaeological ruins</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ruinas arqueológicas</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over-night stay in Cabaña</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospedaje en cabaña</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicinal Plant Trail</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senderos con plantas medicinales</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wildlife viewing (birds and local fauna)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observación de aves y fauna local</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mayan Crafts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Artesanías Mayas</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authentic Mayan Cuisine</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Platillos auténticamente Mayas</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (suggestions)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Otros, especifique ___________________________ _

Where are you from? Write the country if you are an international visitor or the state if you are a resident of Mexico
Country __________________ Mexican State __________________

¿De donde es usted? Por favor, proporcione el nombre de su país en caso de que sea un visitante extranjero o bien el nombre de su Estado natal si es residente de México.
Pais __________________ Estado __________________

What is your native language? ________________
¿Cuál es su idioma nativo? ________________

What other languages do you speak well? ________________
¿Qué otros idiomas domina? ________________

What is your age? __________ Are you ______ Male ______ Female ______
¿Qué edad tiene? __________ Usted es ______ Hombre ______ Mujer ______

VISITORS TO RIO BEC
Your involvement is important in developing ecotourism (cultural and educational experiences) in 20 de Noviembre, the Mayan community you have just driven through, and Rio Bec. By completing this survey, you are helping to develop programs and offer these unique experiences in the future. Thank you for your time and valued comments.

VISITANTES A RIO BEC
Su cooperación es vital para proponer e instrumentar ecoturismo (actividades culturales y educativas) en la comunidad Maya 20 de Noviembre y Rio Bec. Al contestar este cuestionario usted contribuye al desarrollo de planes y programas recreativos adaptados a los recursos disponibles en la comunidad. Agradecemos de antemano su valiosa colaboración.

THANK YOU! MUCHAS GRACIAS!
Model Forest / Bosque Modelo Calakmul
Ejido 20 de Noviembre,
Universidad Autónoma Chapingo (México)
University of Wisconsin – Stevens Point (USA)
Rio Bee
Today's Date/Fecha Hoy Dia: ___/___/___

How did you obtain information about Rio Bee?
¿Cómo obtuvo la información relacionada a Rio Bee?

What did you enjoy most about visiting Rio Bee?
¿Qué le gustó más de su visita a Rio Bee?

Rate (circle) the importance of services that you feel should be developed at Rio Bee from 1 to 5.
Califique en escala del 1 al 5 la importancia de los servicios a su juicio requieren en Rio Bee

Information Services
Servicios de Información
Publications (information on Rio Bee and region)
Publicaciones (Información de Rio Bee y la región)
1 2 3 4 5

Panels (on ruins, wayside exhibits, maps)
Letreros (ruinas, exhibiciones diversas, mapas)
1 2 3 4 5

Interpretive Guides (people)
Guías intérpretes (personas, entrenamiento) 1 2 3 4 5

Physical / Comfort Services
Instalaciones / Conveniencia
Ease of Access (road and trails)
Fácil acceso (caminos y senderos) 1 2 3 4 5

Rest Room Facilities
Servicios sanitarios 1 2 3 4 5

Shelter (sun and rain shelter, information center)
Paraderos (protección del sol y la lluvia, centro de información) 1 2 3 4 5

To make your visit more enjoyable, what additional services or improvements would you recommend at Rio Bee?
¿Qué otros servicios o mejoras recomendaría usted para que su visita a Rio Bee fuera más satisfactoria?

20 de Noviembre
Discoveries of ruins deep in the tropical jungles of the Maya Forest have conjured up romantic images of a lost civilization and the “mysterious disappearance” of the Maya. The truth is, the Maya have not disappeared. 20 de Noviembre is the name of the community you passed through to reach Rio Bee. We are a community that is 100% Mayan and speak the same dialects, cultivate the same land, and follow many of the same traditions and customs passed down from our ancestors. We are interested in developing ecotourism and would like to know your interests in the Maya culture and our forest resources.

Los descubrimientos de ruinas en la profundidad de la selva tropical han evocado imágenes románticas acerca de los Mayas como una civilización grandiosa cuya desaparición está matizada de misterio. La verdad es que los Mayas no han desaparecido. 20 de Noviembre es el nombre de la comunidad que ustedes acaban de pasar en su trayecto a Río Bec. Nosotros somos una comunidad 100% Maya que hablamos nuestro idioma, laboramos nuestra tierra, y mantenemos muchas de nuestras tradiciones y costumbres que han sido transferidas de generación a generación. Actualmente, nosotros estamos interesados en desarrollar el ecoturismo comunitario y por lo mismo nos interesa saber que les gustaría conocer de nuestra cultura Maya y de los recursos naturales que poseemos.

Please answer questions on the following page.
Conteste por favor las preguntas en la página siguiente.
Appendix I

National Association of Interpreters (NAI) Presentation Form

Suggestions for Interpretive Media
Interpretation's Role in Ecotourism: A Case Study in Mexico's Maya Forest

The Role of Interpretation is to facilitate a connection between the meanings of the resource and the interests of the visitor. As I present key resources and their meanings and significances under each subtheme, I ask for your assistance, as professional interpreters, in suggesting interpretive options to connect these meanings of the resources to the ecotourist.

Discoveries of the ruins deep in the tropical jungles of the Maya Forest have conjured up romantic images of a lost civilization and the "mysterious disappearance" of the Maya. The truth is, the Maya have not disappeared. While they no longer live in the ancient pyramids still found scattered throughout the jungle, they live around them, speak the same dialects, cultivate the same land, and follow the same traditions and customs passed down from their ancestors.

**Subtheme 1:** Hidden by dense forest vegetation, archaeological ruins in Veinte de Noviembre stand as testimony to the ancient Maya who lived here.

Key resources: Archaeological Ruins

**Subtheme 2:** Traditional uses of the Maya Forest for food, shelter, and medicine are still practiced today.

Key resources: Medicinal Plants (medicinal plant trail)   Orchard
Tree Nursery   Museum

**Subtheme 3:** The Maya culture in Veinte de Noviembre (the language, dress, cuisine, and crafts) has been passed down from ancient times

Key resources: Artesania and crafts, Restaurant and traditional Mayan cuisine, Maya language

**Subtheme 4:** The Maya Forest offers rich experiences with subtropical flora and fauna

Key resources: 2 thematic trails

Visitor Orientation in Veinte de Noviembre

Thanks for your participation!
Appendix J

Potential Promotion List
International Guide Books

1. *Guide to the Yucatan*

Bruce Write, author, will include information on 20 de Noviembre. Send in a description of activities offered, contact information, and location.

2. *Lonely Planet*

Free publicity - send in a description of activities offered, contact information, and location.

3. *The Maya World – A Rough Guide*

Free publicity - send in a description of activities offered, contact information, and location.

Travel Agencies that promote Ecotourism (Internet – Web Page)

There are many travel agencies and tour operators that could be interested in bringing tourists to 20 de Noviembre. Promotional brochures (see sample interpretive media) with invitations to visit would be a start to promoting ecotourism in 20 de Noviembre. The following examples are sample organizations identified. Because ejido residents do not have access to the Internet, someone from the outside who has access to the Internet could explore possible agencies to target.

1. *Ecotravel.com* – webzine focused on ecotourism that features a directory of ecotourism operators, lodges, and guides. Purpose is to inspire individuals to travel purposefully to preserve the environment and benefit local communities in marketing their services. Offers free listing in EcoDirectory.

   Contact: Laura Ricketts  laura@ecotravel.com


   Contact: www.tourismconcern.org.uk
3. **Espeleotours**
Ecotourism tours (archaeology, flora and fauna) in the Yucatan Peninsula
Expressed interest in working with 20 de Noviembre and in March, 2002, he brought a trial group through 20 de Noviembre.
Contact: Miguel Molina espeleotours@hotmail.com

4. **ATC Touroperadores**
This company is involved in the operation of receptive Tourism in the state of Chiapas, southeastern Mexico and northern Central America. Cultural tours and contact with nature are the focuses of their trips.
Contact: http://www.atctours.com.mx

5. **AMTAVE** (association)
Their mission is to promote ecotourism and adventure destinations in Mexico. The ejido would join as an “affiliate” to receive benefits from promotional support, information at national and international exhibitions, and participation in various training programs.
Contact: info@amtave.org

6. **Ecoclub.com**
Free promotion (link on their site) for 3 months

7. **Ecotourismolatino.com**
Free promotion (link on their site)

8. **EcoColors**
http://www.mexonline.com/ecocolors.htm
Contact: Kenneth Johnson ecoco@cancun.com.mx

9. **Ecoaventura Mexicana**
http://www.ecoaventuramex.com
Contact: Yolanda Ruanova ecovent@prodigy.net.mx
Appendix K

Potential Organization / Collaboration List
Organization List

INI Instituto Nacional Indigenista (National Indigenous Institution)
INI works with indigenous communities with various community development projects.

SEMARNAP Secretaria de Medio Ambiente Recursos Naturales y Pesca
(Secretary of Natural Resources and Fisheries)
There has been expressed interest in working on ecotourism projects with women’s
groups in the Calakmul region.
Contact: Itzá Casteñeda, Director of Gender Projects for SEMARNAT, Mexico City

FONAES Secretaria de Economía (Secretary of the Economy)
FONAES works on projects that assist people and communities that do not have access to
public or private financial programs and institutions. Projects focus on developing
economic and social development skills that will generate employment, income, and a
better quality of life.
Contact: Ing. Erick Martín Acosta Palma  e-mail fonacam@campeche.sureste.com

Maya Ik*
Margarito Ruiz: San Cristobal de las Casas, Chiapas
Tel./fax: 967-86998 mayaik@sancristobal.podernet.com.mx

Yaxche (Arbol de la Vida)*
Victor Sumuhano / Carlos Meade: Apartado Postal 8, Felipe Carillo Puerto 77200,
Quintana Roo  Tel/fac: 988-47987; 983-40842  eyaxche@akumal-ek.com

*Maya Ik and Yaxche (Arbol de la Vida) often work together to assist Mayan and other
indigenous communities in southern Mexico, including tourism projects.
Conservation International (CI)

CI is a nonprofit organization whose mission is to conserve the world's living natural heritage, global biodiversity, and to demonstrate that human societies are able to live in harmony with nature. The organization's Ecotourism Department provides training and capacity building to field staff and partners. They also act as a liaison between local communities and the tourism industry to develop and support economically sustainable ecotourism enterprises that contribute to conservation and serve as models for other ecotourism initiatives. CI's Travel & Leisure Program works with leading travel and leisure corporations to integrate biodiversity considerations and community development principles into their core management practices.

Contact: E-Mail: d.vizcaino@conservation.org
Website: www.conservation.org; www.ecotour.org

Conservation Mexico, A.C.

Started in 1998, Conservation Mexico focuses on developing conservation projects that will be economically, environmentally and socially sustainable. They work directly with communities and find funding from governments and private organizations.

Contact: Susan Block, Project Assistant www.technet.net.mx/cmac/Eindex.html

Asesores en Desarrollo Turístico Sustentable (ADTS)
(Consultants in Sustainable Tourism Development)
Lic. Angel Nieva García, director
http://www.geocities.com/turismosustentable/

This Mexican NGO is involved with consulting, education and training, and leading ecotourism trips. ADTS works within communities interested in developing community-based ecotourism in such areas as manual and guide development, identification and development of sustainable tourism products, and environmental education and interpretation. Additional work includes environmental impact statements, carrying capacity limits, and “eco” technological design planning and development within communities.
RARE Center for Tropical Conservation

RARE works in partnership with local communities, non-governmental organizations, and other stakeholders to protect biological diversity by empowering local people to benefit from their preservation. RARE works to raise public awareness about the value of biodiversity and get local people involved in protecting their natural resources. RARE also promotes sustainable economic alternatives to link conservation with community development (primarily through ecotourism).

Mexican Contacts:
Claudia Virgen: claudiavirgen@chiapas.net
Web site: http://www.rarecenter.org/
Appendix L

Medicinal Plant List
MEDICINAL PLANTS

Plants known by ejido residents and Carmen Salgado (Model Forest representative in Zoh Laguna) and additional information taken from the following 3 sources:


Roys, Ralph L. The Ethnobotany of the Maya 1931. Institute for the Study of Human Issues (ISHI): Philadelphia


1. ANNATTO  \( Sp = \text{Aniote} \quad M = \text{Ku-xub} \)

* Bixa orellana L. 

Plant Family: Bixaceae

Description: Woody tree or shrub 2-8 m tall, with a dense rounded shape and short trunk; dark brown bark; green leaves; inflorescences with pink flowers, covered with soft, reddish-brown spines; seeds covered with orange-red pulp

Habitat: Cultivated in yards, orchards, farms

Traditional Use:

**Diarrhea and Dysentery**: 3 young annatto leaves are crushed in 1 glass of water, strained, and taken in \( \frac{1}{2} \) cup doses.

**Vomiting Blood**: Older leaves (3 of them) are boiled in 3 cups of water for 10 minutes and drunk

**Sores, Rashes, and Infected Insect Bites**: handful of leaves are crushed in water and allowed to sit in the sun all day; the residue is strained out and the infusion used as a cool wash.

**Swellings**: An herbal bath made from leaves

**Stoppage of Water**: 9 seedpods are boiled in 3 cups of water for 10 minutes and 1 cup is taken before each meal

**Pesar (grief) in infants**: 3 leaves are boiled in 1 gallon of water for 10 minutes; when this is luke-warm, it is used to bathe the baby for 3 consecutive days. The baths are given out of doors, before noon, on sunny days.

The Maya texts prescribe the crushed young leaves in a drink and the boiled root and the pulp for dysentery. The boiled leaves are a remedy for vomiting blood. The young leaves are crushed and rubbed on the skin for what is probably erysipelas and the red pulp is applied to hemorrhoids (Roys, 1931).
2. AVOCADO  

**Sp = Aguacate**  
**M = Om**  
*Persea Americana* Mill.  
Plant Family = Lauraceae

Description: Medium to large tree growing 30 m tall; green leaves 10-30 cm long, growing in panicles 6-20 cm long, mostly near the tips of the branches; fruits vary in size and shape (round to pear-shaped), skin color, texture, taste, and flesh color (greenish to brownish).  
Habitat: Cultivate, escaped and possibly wild  
Traditional Use:  
**Colds, High Blood Pressure, Coughs, Fever, Diarrhea and Painful Menses:** 3 avocado leaves are boiled in 3 cups of water for 10 minutes and 3 cups are taken daily before meals.  
**Headaches, Rheumatism, or Sprains:** A poultice is made of the mashed leaves  
**Intestinal Obstructions:** Seeds are ground or mashed and boiled in 2 cups of water for 10 minutes; 1 cup of the hot decoction is taken 2 times daily  
**Asthma:** Same decoction, with honey added, is drunk 3 times a day to ease onset of and wheezing  
**Contraceptive:** 3 seeds dried, chopped, and boiled in 3 cups of water for 10 minutes; the cooled decoction is drunk daily for 5 days before menses. This treatment is repeated monthly but can lead to sterility after 1 year of regular use.  
**Conditioner:** Mashed fruit applied directly to hair and skin

Traditional healers advise patients suffering from new or infected wounds or sores to not eat avocados, as they are believed to delay healing and encourage pus formation.

A drink is prepared from the roasted seed for **diarrhea** and of the boiled seed for **bladder complaints**. The crushed young leaves are a remedy for certain skin eruptions (Roys, 1931).

3. CHICLEZAPOTE  

**Sp = Sapodilla**  
*Manilkara zapote*

This tree is easy to find in the forest because its trunk will show diagonal slashes made by a machete. The ancient Maya chewed chicle to **quench their thirst** as they worked, and the practice must have been passed on. The cuts, shaped like small troughs, funnel the latex into one thick stream for collection. Chicle is boiled over an open fire in the rainforest to evaporate some of the excess water. Once it is thick and taffy looking, it is packed into wooded forms to make blocks.

Chicle is harvested from July through February—the rainy season. Once a tree has been chicleado (harvested)—producing from 500 grams to two kilograms of latex—it should be left alone for up to five years or so, depending on the number of times it has been harvested. This product is exported and is a major source of income for many families.
The chicle resin, in addition to being chewed, also reduces swelling from burns or can be applied as a patch over open wounds.

Other uses: the bark, dissolved in water, is used for dysentery (cut part of the bark facing the sun, put in water for 15-20 minutes) and the fruit for stomach amoebas (3 zapotles every 3 days). The wood of the tree is very hard. Five hundred years after being set in place, zapote doors and lintels are still visible in many ancient Mayan structures.

20 de Noviembre began as a chicle camp where men came to the area to harvest Chicle. They then brought their families with them and wanted to establish an ejido community.

4. BAY CEDAR  \( Sp = \text{Tapaculo} \quad M = \text{Pixoy} \)
*Guazuma ulmifolia* Lam.

**Plant Family:** Sterculiaceae

**Description:** Large shrub or tree 10-12 m tall; stem to ca. 25 cm in diameter with gray-brown bark; leaves 5-15 cm long with serrated edges; flowers small, greenish-yellow to white, fragrant; woody fruit, oval and 2-4 cm long, black if ripe

**Habitat:** Pastures, fields, and disturbed areas, forests

**Traditional Use:**

**Dysentery and Diarrhea:** A small handful of chopped bay cedar bark is boiled in 3 cups water for 10 minutes, 3 cups taken daily, 1 before each meal.

**Prostrate problems and Childbirth:** same decoction with honey added

**Skin sores, infections, and rashes:** A large handful of chopped bark is boiled in a gallon of water for 10 minutes and allowed to cool; the affected area is bathed 3 times daily and allowed to air dry

**Bewitched:** Bark of bay cedar is soaked in a tea or marigold and sip are taken all day.

The stems are used in making rope and the wood for ribs of small boats. The Maya texts prescribe a decoction of the pixoy for abdominal pains and retention of urine and an infusion of the crushed young shoots for diarrhea and cramps (Roys, 1931).

5. BUTTONWOOD  \( Sp = \text{Cordonsillo} \)
*Piper amalago* L.

**Plant Family:** Piperaceae

**Description:** Slender, branched shrub 1.5 – 3 m tall; branches shiny; leaves 7-14 cm long x 3.5 – 7 cm wide; flowers in greenish or white spikes each 3-7 cm long and 2.5 mm thick

**Habitat:** forests, old fields, roadsides, backyards

**Traditional Use:**

**Aches, pains, rheumatism, swellings, skin conditions, fatigue, sleeplessness:** Large double handful of freshly picked leaves is boiled in 2 gallons of water; after allowing this
to cool to very warm, the patient is bathed by soaking in a tub or by pouring the bath water over the body using a bowl as a scooper.

**Toothache:** portion of root dug up, mashed into a poultice, and applied over the gum area.

**Snakebite:** Piece of root equal to the length of the victim’s forearm is boiled in 3 cups of water for 10 minutes and given to the victim to drink while being transported to a hospital or snake doctor or 9 mature leaves are boiled in 3 cups of water for 5 minutes and the victim drinks 1 cup before meals

**Headache, Constipation, as a Sedative:** Leaves are mashed in water and the cold drink is consumed

**Menstrual cramps or delayed menses:** Soak 20 min. in a bath before bedtime for 3 consecutive nights

**Bewitched (mal vientos/bad winds):** bathing patient in an herbal bath made with buttonwood.

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**6. CALABASH TREE**  
*Crescentia cujete* L.

*M = Luch, Lek*

Plant Family: Bignoniaceae

Description: Tree growing to 5 m tall, leaves sparse, shiny green fruits, globe-shaped, 25 cm in diameter with white, stringy, seedy pith inside

Traditional Use:

**Asthma, Bronchitis, Coughs, Lung Congestion:** The inner, stringy pith of a mature calabash fruit is boiled with 2 cups of sugar and two quarts of water for 30 minutes, strained, and taken by the spoonful 6 times daily or a handful of leaves or flowers is boiled in 3 cups of water and ½ cup sugar for 30 min.

**Prevent Hypertension:** Remove the inside of the green fruit and at noon take this fruit to the river and dip it in the water; 9 sips of river water are drunk, the rest is thrown over the head, and the fruit itself is tossed into the water while the person avoids looking to see where it goes.

**Hiccups:** Nine sips of tap water (preferably from rain) placed in a freshly cleaned green fruit

It is useful for many household services. It serves for a jar, plate, cup, pitcher, and every sort of such vessel. The Maya medical texts prescribe the juice for coughs and asthma and the strained pulp for retarded parturition. The boiled fruit is taken for diarrhea and the steamed pulp for certain skin diseases (Roys, 1931).
7. CANCER HERB / CAT TAIL  \( Sp = \) Hierba del Cancer  \( M = \) Mis xiv  
*Calyptra arvensis*  
Plant Family: Euphorbiaceae

Description: Herb to 50 cm tall, often growing in groups of several plants; green flowers, in short spikes  
Traditional Use:  
**Skin Conditions:** chronic rashes, blisters, peeling skin, deep sores, ulcers, fungus, ringworm, inflammation, inching, burning of labia: one entire plant is boiled in one quart of water for 10 min. and strained; the area is washed with this very hot decoction 3 times daily.  
**Sores, skin infections, boils:** Leaves are dried, toasted, and passed through a screen to make a powder and sprinkled on the skin.  
**Stomach complaints and urinary infections:** one entire plant is boiled in 3 cups of water for 5 min.; 3 cups of the warm decoction are drunk 3 times a day (1 cup before each meal).  
**Excessive Gas:** honey or brown sugar added to a tea made from the leaves.  
**Swellings:** 3 entire plants are boiled in 1 gallon of water for 10 min. and the decoction is used as a warm bath once daily (in the evening).

8. CEDAR  \( Sp = \) Cedro  \( M = \) Ku-che  
*Cedrela odorata*  
Plant Family: Meliaceae

Traditional Use  
**Bruises, falls, postoperative states, internal injuries, abdominal pains, clear lungs of mucus:** A handful of grated cedar bark is soaked in 3 cups of water for 6 hours and taken in sips all day.  
**Contraceptive for women:** 10-in piece of bark is boiled in 3 cups of water for 10 min.; taking 3 cups of this tea daily for 3 days before menses is said to provide protection for 1 month.  
**Nose Bleeding:** Sniffing a piece of fresh bark all day is believed to cure the condition permanently.  

The 20\(^{th}\) Century Maya used the wood to make altars and chairs for sacred ceremonies as their ancestors once did. In fact, the Maya name, *ku-che*, which means God Tree, stems from the centuries-old practice of carving likenesses of idols from this wood.

The name means tree of God. The young leaves of the kuche are prescribed for *dysentery*. The roasted young leaves are applied for *earaches* and the gum for *toothaches* (Roys, 1931).
9. COPAL  \(M = \text{Pom}\)

 Protium copal

Plant Family: Burseraceae

Description: A tree growing to 30 m tall

Traditional Use:

**Painful Cavities:** Chicleros who stayed in the bush for months relied on fresh copal resin—a piece of resin was stuffed into the cavity and in a few days, the tooth broke apart and was easily expelled.

**Wounds, sores, infections:** bark scraped and powdered applied

**Stomach complaints and intestinal parasites:** piece of bark 2.5 cm x 15 cm is boiled in 3 cups of water for 10 min and 1 cup is drunk before meals

Copal is one of the sacred trees of the ancient Maya who used the aromatic resin for ceremonial incense when saying prayers and to ward off evil magic, evil spirits, and the evil eye. According to an old Mayan custom, the tree bark is sliced open on a night when the moon is full. To ensure that the resin runs freely, the collector should to home and drink a very hot cup of very think corn atole.

It is called the super odor of the center of heaven and the brains of heaven. The medical texts prescribe a decoction of the gum for **coughs and asthma, diarrhea, and biliousness, abdominal pains, sore rectum, diarrhea with pus or mucus and swelling of the body.** The patient is smoked with the burning gum to facilitate the **delivery of a dead fetus and to cure hemorrhoids** (Roys, 1931).

10. CORN  \(Sp = \text{Maíz} \quad M = \text{Ix-im}\)

 Zea mays L.

Plant Family: Poaceae

Traditional Use:

**Retained urine, burning urine, kidney stones, bladder infections, gonorrhea, a lymphatic system cleaner:** Silk from 3 ears of corn is boiled in 3 cups of water for 5 min. and taken in sips all day

**Blood in urine:** an infusion is made by soaking a handful of fresh, un-dried kernels in 1 quart of water all day in the sun. Throughout the following day it is sipped on.

**Measles:** A handful of dried kernels is boiled in a quart of water for 20 min. and drunk

Many indigenous people of Central America believe that maize is the ‘food of the Gods’, given to humankind as a benediction. Another belief is that people were created from corn by the Gods.

Besides the atole (dough of crushed maize dissolved in water) and posole (dissolve a little ball of cooked maize in water until it thickens) which are the medium for taking certain drugs, the Maya medicinal texts prescribe raw maize soaked in water for **blood in the urine** and it is roasted and crushed with the macal-kuch (Dioscorea spiculiflora) to poultice a **sore of swelling caused by sorcery** (Roys, 1931).
11. SCOGINEAL  

*Opuntia cochenillifera*

Plant Family: Cactaceae

Traditional Use:

**Headaches and fever:** A fresh nopal pad is peeled, sliced, and tied around the head.

**High blood pressure, fever, malaise:** boiling 1 pad in 3 cups of water for 5 min. and drinking 1 cup of the decoction before each meal.

**Prevent Falling Hair:** Crushing and soaking 5 fresh pads in 1 gallon of water into a rinse.

**Bladder conditions:** “and used as a tea to drink.

**Childbirth:** drink 1 cup of juice from a fresh pad at onset of childbirth to ease delivery and midwives recommend drinking ¼ cup of juice daily for 7-10 days prior to delivery.

**Arthritis** Peeled, steamed, and chilled pads are eaten in salads to alleviate arthritis.

**Skin ulcers:** pad is sliced in half and applied over the sores until they heal.

12. GIVE AND TAKE  

*Cryosophila stauracantha*

Plant Family: Arecaceae

Traditional Use:

**Wounds** – to staunch bleeding, prevent infection, and alleviate pain: inside part of the sheath and petiole is pink, cotton-like and sticky and this part is applied to wounds.

The name “give and take” refers to the fact that the spines on this palm can “give” a very bad stinging cut but other portions of the plant provide a remedy that “takes away” bleeding, infection, and pain.

Brooms are made from young, dried leaves tied together on a slender stick.

13. GUMBOLIMBO / Birch bark  

*Bursera simaruba*

Plant Family: Burseraceae

Traditional Uses:

**Antidote to poisonwood (Chechen) sap that causes blistering, swelling, itching, severe discomfort:** a strip of the gumbolimbo bark 2.5 – 5 cm x 30 cm is boiled in 1 gallon of water for 10 min., when cool, this is used to bathe the affected area 3 times daily.

**Insect bites, sunburn, rashes, skin sores, measles:** bark bath – same as above.

**Internal infection, to purify blood, urinary tract conditions, fevers, sun stroke, colds, and flu:** same as above.

**Headaches:** forehead is wrapped with leaves.

**Typhoid:** A steam bath of the leaves used when patient is placed on a bed of the leaves.
Kidney ailments or pain: piece of bark 15 cm x 30 cm is boiled in 3 quarts of water for 10 min, drinking this all day in place of water is said to cleanse the kidneys and remove any infection that may be present

Anemia: same

Aid weak and elderly: tonic

Fresh gumbolimbo leaves are mashed in a basic of water and used as a hand wash for those who have recently attended to or touched the dead, such as undertakers. This ensures that crops planted by the hand of the attendant will not be tainted and will continue to yield good harvests.

The gumbolimbo tree is described as a tree sometimes 85 feet high with a trunk 3 feet in diameter, but usually smaller. Its smaller leaves are good for sores, placed upon them to dry the sores and changed 3-4 times a day. Its fruit and shoots are crushed, dissolved in water and drunk as an effective remedy for snakebites. The liquor from the leaves is good for swelling; the water into which they are thrown is a remedy for rashes. The Maya texts prescribe the young leaves, crushed and boiled, for both a bath and a drink to cure asthma. The bark is crushed and steeped in water for spider-bites. The fruit is eaten for diarrhea. A drink made from the leaves cures blood in the stools and urine and accelerates parturition. A bath of the infusion of the young leaves cures fever and itching rashes and the crushed leaves are applied to a swollen knee and to venereal and other ulcers. The leaves are also a remedy for infected gums, quinsy and retention of the urine (Roys, 1931).

Still in 20 de Noviembre, The Gumbolimbo Tree, called Chacaj in Spanish, is used as an antidote for the sap of the Poisonwood Tree (CheChen) which causes blistering, swelling, and itching.

14. JABIN / DOGWOOD  \textit{Sp}=Palo de gusano

\textit{Piscidia piscipula}

Traditional Use:

Diarrhea, dysentery, excessive menstruation: a 5x5 cm square of jabin bark is boiled in 3 cups of water for 10 min. and drunk

Wounds, rashes, and skin conditions: same preparation but used as a wash

Bleeding gums: same preparation but used as a mouthwash

The lumber is also very durable and could last up to 50 years if cut on the full moon phase.
15. SANTA MARIA ("female" species)  \( M = \) Ix-chal-che

*Pluchea odorata*

Plant Family: Asteraceae

Traditional use:

**Asthma attacks:** tea made by boiling 3 leaves in 3 cups water for 2 min. followed by 15 min. of steeping—patients are given 3 cups to drink very hot over a 3 hour period.

**Coughs, colds, and flu:** same

**After childbirth:** large double handful of leaves is boiled in 1 gallon of water for 20 min, then the woman sits over the steaming pot of herbs for 30 min with a towel wrapped around both her and the pot in order to allow the steam to be absorbed into her vagina—this ensures that the uterus returns to its proper position and prevents infection and excessive bleeding

**Swelling, tumors, inflammation, bruises:** bathed in this herbal decoction

**Sore muscles, rheumatic pains, neuritis and arthritic joints:** A few leaves warmed in oil are wrapped in a piece of cotton or flannel and applied as a poultice.

The Maya texts prescribe a decoction of the leaves as a bath for aches and pains, pain in the lungs or pleura, phthisis, and to be taken internally for a head cold, retention of placenta, and dysentery. The crushed leaves are poulticed for heart or stomach pains. The patient is steamed with the boiled leaves for diarrhea accompanied by chills and convulsions. The same decoction or the boiled sap is rubbed on the joints for malaria. The leaves are steeped in water and applied externally for convulsions and boiled in wine and rubbed on the boiled for a bath for fainting and giddiness. Boiled leaves are placed on the forehead as a remedy for a headache (Roys, 1931).

16. PAPAYA  \( M = \) Put

*Carica papaya*

Plant Family: Caricaceae

Traditional Uses:

**Wounds, cuts, and infections:** a combination of sliced papaya fruit and crushed seeds is applied

**Irritated red skin (from contact with fire coral):** Very ripe (even rotting) fruit is rubbed onto skin

**Foot Corns:** juices from the sliced stem applied to make corns dissolve

**Warts:** Milky sap from sliced green fruits is applied

**Venereal Disease:** Boiled root is used in a formula

**Contraceptive for women:** 3 oz of seeds are roasted and ground and 1 teaspoon of the powder is taken in ½ glass of warm water once a day for 3 days before menses; taken consecutively for 2 ½ years, this leads to permanent sterility.

**Internal Parasites:** Green fruits are boiled and eaten much like zucchini and eaten as a regular part of the diet

**Constipation, sluggish liver, indigestion, high blood pressure, diuretic:** ripe fruit eaten
The ancient Maya believe that planning a papaya tree too close to the house or bedroom will cause the man of the household to become lazy.

The Maya text prescribes the juice of the cooked young shoots for a **sore eye and hemorrhoids**. The crushed young shoots are poulticed on eruptions of the skin (Roys, 1931).

17. **SKUNK ROOT**  
*Sp = Zorillo  *  
*M = Pay-che*

Traditional Use:
- **Delayed menstruation, ulcers of the stomach or intestines, constipation, obstructed bowels, colitis, endometriosis, pain, nervousness, dementia, and depression**: small handful of chopped root boiled in 3 cups of water for 10 min. This is strained and 1 cup is drunk before each meal.
- **Stubborn sores, rashes, ulcers**: same preparation
- **Alcoholism**: one handful of chopped root placed in about 1 quart of rum, vodka, or gin. This is soaked in the sun for 5 days and strained and then drunk.

The ancient Maya used Skunk Root to dispel **evil magic and the “evil eye”** and shamans drink its tea to strengthen their spiritual powers. It is said to be the “thinking herb” of the Maya; able to give relief and used when all else fails or the practitioner is unsure of the ailment.

Called this because it stinks like one. The odor is really more like that of garlic. The patient is steamed with a decoction of the leaves and the crushed root poulticed on the rectum as a remedy for **dysentery**. The decoction is drunk to cure a **cold in the head**. A decoction of the leaves is also taken for **dysentery** (Roys, 1931).

18. **YAMA BUS**  
*Sp = Frijolillo  *  
*M = Buul-che*

*Senna occidentalis*

Plant Family: Caesalpiniaceae

Traditional Use:
- **Tonic**: A tea made from an entire yama bush plant boiled for 10 min. in 3 cups of water:
  - **Heart**: 2 cups daily
  - **Fever and flu**: one root boiled with 2 cups water for 10 min and consumed warm twice daily
- **Weakness and exhaustion**: Leaves are toasted, ground, and mixed with egg white and brandy and applied as a poultice to the wrist pulse of a child or adult
- **Pregnancy test**: Women urinate on yama bush leaves. If the leaves then look scorched, she is pregnant
- **Menstrual pain**: roots of 1 plant are boiled in 3 cups water for 10 min, 3 cups drunk hot before meals
- **Weakness of heart**: mashed leaves mixed with egg and rum and wrapped in cotton cloth are laid over the heart against the skin for 1 hour daily.
According to Mayan tradition, to rid a rude, craggy child of its bad temper, the child is spanked with branches of this plant; then the branches are thrown away.

It is a remedy for dislocations, sore eyes and quinsy (reddish or whitish in the throat) (Roys, 1931)

### 19. PURSLANE

*Sp = Verdolaga  
*Portulaca oleracea

*M = Xucul

**Plant Family:** Portulacaceae

**Traditional Use:**

- Pulsane is said to be a “cooling” plant and is used as both medicine and food
- **Diuretic, clean the blood, nourish the system**: leaves and stems are said to be rich in minerals, protein, and Vitamin C. 1 large plant is boiled in 3 cups of water for 5 min.
- **External Bleeding, heal ulcers, wounds, sores**: Crushed fresh plant material applied as a poultice
- **Dry coughs**: Fresh juice of the plant is taken with sugar and honey
- **Headaches caused by over-exposure to sun**: Mashed stems and leaves are applied as a poultice over the forehead

The boiled plant is rubbed on the part for **heart pain**. The juice is given for **spitting blood and giddiness**. An infusion is used in a bath to cure **convulsions** and the plant is a remedy for **retention of urine** (Roys, 1931).

### 20. COCKSPUR

*Sp = Cuerno de vaca, Cornizuelo  
*Acacia cornigera

*M = Zubin

**Plant Family:** Mimosaceae

**Traditional Uses:**

- **Snake Bite Remedy**: root and bark used. Snake-bite victim should cut a piece of the bar equal in size to the length of his forearm and chew this, swallowing the juices, and applying the leftover fibers as a poultice to the bite. The victim can then start walking home while chewing on the root and swallowing the juice. The poultice is said to delay reaction to the toxin, adding 6-8 hours of time to allow the victim to get help.
- **Male impotency**: 2.5 x 15 cm strip of bark boiled in 3 cups of water for 10 min. and 1 cup is taken before meals for 7 days. If results are slow, the strength of the tea is doubled and taken for 3 more days.
- **Infantile catarrh**: (an inflammation of the mucous membranes in an infant’s nose and throat, causing an increase in mucus secretion): 9 of the small black ants that inhabit the thorns and protect the tree from attack from other insects are squeezed into ½ cup of boiled water; this is strained and given to the infant by the teaspoon throughout a single day until all is consumed.
Asthma attacks, cough, lung congestion: 9 thorns containing ants and boiled in 3 cups of water for 10 minutes and the mixture drunk. This is also said to be useful for treatment of poisoning and headaches.  

Bad luck or envy: large piece of bark is boiled in 1 gallon of water for 10 min. 1 cup is drunk and the rest is used as a bath on a Friday.

The Maya text prescribes an infusion of the crushed root for certain abdominal complaints. The wood is black (Roys, 1931).

21. CHAYA  Sp= Chaya  M=Chay

*cnidoscolus chayamansa*

The leaf of the Chaya plant, resembling spinach leaves, is used in many Mayan dishes. It is also believed to have the following medicinal properties:

The boiled juice of the crushed leaf is used for jaundice and biliousness (biliousness is a liver condition where bile builds up and causes various symptoms, such as constipation, headache, loss of appetite, vomiting, and irritability), the crushed leaf as a poultice for hemorrhoids, and the roasted leaf, rubbed on the gums, for an infection of the gums (Benedict and Steggerda, 1937).

Residents of 20 de Noviembre know of its medicinal benefits to controlling cholesterol and cleansing the kidneys.
Appendix M

Birds of Ejido 20 de Noviembre
Birds of Ejido 20 de Noviembre

Information on birds was taken from a study on frugivore birds seen in the ejido (Figueroa-Esquivel, 2001) and personal sightings with ejido residents. This is by no means a complete list of the birds that can be frequently seen in ejido 20 de Noviembre, but a start for ejido residents to expand on or a list of species to choose from. Understanding what various bird species eat would be a way to attract various species to specific parts of the ejido (cabaña or trails). Aside from sightings, additional information on these birds was taken from the following sources:


Bowes, Anne LaBastille. 1964. Birds of the Maya. West-of the Wind: Big Moose, NY

Out of the more than 1000 bird species that are seen in Mexico (769 breed there and about 257 spend winters there or migrate through); 475 species alone occur over the Yucatán Peninsula.

Year-round birds are frequently seen and heard but probably the best time to observe the most variety of birds is between March – June. This is the breeding season and is also a time when migratory birds (early spring and fall) pass through the area. Many southern Mexican birds breed from March through July or August, which happens to coincide with the greatest food abundance (for offspring). The best part of the day to observe birds is during the early morning or late afternoon hours.

Passed down through the generations and rooted in their culture, the indigenous Maya have a conservation ethic where many of their myths and traditions are focused on land and animal stewardship; one example relates to hunting. According to legend, there were spirits and Lords of the Forests that guarded the forest. If a villager hunted more turkeys than were needed, the Giant Turkey Spirit (usually the Ocellated Turkey) would take revenge on that villager.
Parrots:
The Mayan word *T'uu*t' means “to pick and clean itself rapidly’ because parrot pairs feed and preen each other. Parrots form couples for life and often are seen moving or feeding in flocks (there is safety in numbers). Parrots use up to 25 different calls, most calls have their own particular purpose. They look for fruits, seeds, and flowers with nectar. In the morning they are the loudest and most easily seen, but during day, pairs become quiet.

Woodpeckers:
According to Maya legend, the ancient Maya thought that the woodpecker kept a lucky green stone under its wing. When you find the woodpecker hole, you should cover it and, after nine excavations, the woodpecker would drop the charm, and whoever was there could claim it.

Trogons:
Trogons build their nests in early March often in rotting tree trunks or abandoned termite nests. One can spot trogons sitting alone on high branches and their tails, hanging straight down, rock from side to side like a pendulum, especially when they are excited.

Motmots:
Motmots are called “bird clocks” after the motmot’s pendulum-like tail. Hanging straight down, the tail clicks from side to side. The ancient Maya believed motmots were the birds of nobility, medicine men, and the brave.

Chacalacas
Chacalacas travel in groups of 4-20 through the jungle and typically before a thunderstorm or during a full moon, groups of chacalacas call to one another. Chacalaca males, in particular, make some of the most characteristic sounds of tropical American forests “cha-cha-LAW-ka” or “cha-cha-lac”
Frugivore birds found in 20 de Noviembre.
Information taken from:


*Scientific name* (Distribution) English / Spanish / MAYAN  
For Distribution:  
(R) = Resident  (M) = Migratory  (T) = Transitory (CE) = Almost Endemic

Several of the following birds species listed below have been declared threatened, rare, or vulnerable. This information was obtained from the following reference:  

According to the IUCN/World Conservation Union, these categories have the following definitions:

**Threatened** - species that are often genetically impoverished, of low fecundity, dependent on patchy or unpredictable resources, extremely variable in population density, persecuted or otherwise prone to extinction in human-dominated landscapes.

**Rare** - species with small world populations that are not at present 'Endangered' or 'Vulnerable', but are at risk. These species are usually localized within restricted geographical areas or habitats or are thinly scattered over a more extensive range

**Vulnerable** - species believed likely to move into the 'Endangered' category in the near future if the causal factors continue operating. Included are taxa of which most or all the populations are decreasing because of over-exploitation, extensive destruction of habitat or other environmental disturbance; taxa with populations that have been seriously depleted and whose ultimate security has not yet been assured; and taxa with populations that are still abundant but are under threat from severe adverse factors throughout their range.

1. *Ortalis vetula* (R) Plain Chacalaca / Chachalaca / BAACH

2. *Amazona albifrons* (R) White-fronted Parrot / Loro Frentiblanco / T’UUT’  
   Rare

3. *Amazona xantholora* (Cuasiendémica) Yucatán Parrot / Loro Yucateco / GUILI  
   Threatened
4. *Aratinga nana* (R) Olive-throated Parakeet / Perico Pechisucio / COCHAH

5. *Attila spadiceus* (R) Bright-rumped Attila / Atila Rabadilla-brillante

6. *Aulacorhynchus prasinus* (R) Emerald Toucanet / Tucancillo Verde

7. *Pionus senilis* (R) Red-lobed Parrot / Loro Frentirrojo

8. *Pteroglossus torquatus* (R) Collard Aracari / Tucancillo Collarejo
   
   Rare

9. *Ramphastos sulfuratus* (R) Keel-billed Toucan / Tucán Pico-multicolor
   
   Threatened

10. *Celeus castaneus* (R) Chestnut-colored Woodpecker / Carpintero Castaño
    
    Threatened

11. *Melanerpes aurifrons* (R) Golden-fronted Woodpecker / Carpintero Frentidorado

12. *Columbia flavirostris* (R) Red-billed Pigeon / Paloma Piquirroja / TZUTZUY

13. *Columbia speciosa* (R) Scaled Pigeon / Paloma Escamosa / CHUQUIB
    
    Rare

14. *Leptotila verreauxi* (R) White-tipped Dove / Paloma Caminera / CHAC TZUTZUY

15. *Trogon melanocephalus* (R) Black-headed Trogon / Trogon Massena
    
    Rare

16. *Trogon violaceus* (R) Bop Violaceous Trogon / Trogon violaceus
    
    Rare

17. *Empidonax minimus* (M) Least Flycatcher / Mosquero Mínimo

18. *Tolmyias sulphurescens* (R) Yellow-olive Flycatcher / Picoplano Ojiblanco

19. *Myiarchus tuberculifer* (R) Dusky-capped Flycatcher / Copetón Triste

20. *Myiarchus crinitus* (M) Great crested Flycatcher / Copetón Viajero

21. *Pitangus sulphuratus* (R) Great Kiskadee / Luis Grande

22. *Megarynchus pitangus* (R) Boat-billed Flycatcher / Luis Piquigrueso

23. *Myiozetetes similis* (R) Social Flycatcher / Luis Gregario
24. *Myiodynastes luteiventris* (*Summer resident*) Sulphur-bellied Flycatcher / Papamoscas Vientre-amarillo

25. *Tyrannus melancholicus* (*R*) Tropical Kingbird / Tirano Tropical


27. *Tyrannus tyrannus* (*T*) Eastern Kingbird / Tirano Viajero

28. *Pachyramphus aglaiae* (*R*) Rose-throated Becard / Cabeón Degollado

29. *Tityra semifasciata* (*R*) Masked Tityra / Titira Enmascarada

30. *Tityra inquisitor* (*R*) Black-crowned Tityra / Titira Piquinegra

31. *Vireo griseus* (*M*) White-eyed Vireo / Vireo Ojiblanco

32. *Vireo flavifrons* (*M*) Yellow-throated Vireo / Vireo Gorjiamarillo

33. *Vireo olivaceus* (*T*) Red-eyed Vireo / Vireo Ojirrojo

34. *Vireo flavoviridis* (*Summer resident*) Yellow-Green [red-eyed] Vireo / Vireo Amarillo-verdoso

35. *Hylophilus decurtatus* (*R*) Lesser Greenlet / Verdillo Menor

**Rare**

36. *Cyclarhis gujanensis* (*R*) Rufous-browed peppershrike / Vireón Cejirrufo


Brown Jays live in flocks

38. *Cyanocorax yucatanicus* (*CE*) Yucatán Jay / Chara Yucateca

39. *Catharus ustulatus* (*T*) Swainson’s Thrush / Zorzalito de Swainson

40. *Turdus grayi* (*R*) Clay-colored Robin / Zorzal Pardo

41. *Dumetella carolinensis* (*M*) Grey Catbird / Pájaro-gato Gris

42. *Vermivora peregrine* (*T*) Tennessee Warbler / Chipe Peregrino

43. *Dendroica petechia* (*M*) Mangrove Warbler / Chipe Manglera

44. *Dendroica magnolia* (*M*) Magnolia Warbler / Chipe de Magnolia

**Rare**
45. *Dendroica virens* (M) Black-throated green Warbler / Chipe Dorsiverde

46. *Habia fuscicaduda* (R) Red-throated Ant-tanager / Tangará-hormiguera Gorjirroja

47. *Piranga rubra* (M) Summer Tanager / Tángara Roja

48. *Thraupis abbas* (R) Yellow-winged Tanager / Tángara Aliamarilla

49. *Cyanerpes cyaneus* (R) Red-legged Honeycreeper / Miélero Patirrojo

50. *Saltator coerulescens* (R) Grayish Saltator / Saltador Grisáceo

51. *Saltator atriceps* (R) Black-headed Saltator / Saltador Cabecinegro

52. *Cardinalis cardinalis* (R) Northern Cardinal / Cardenal Norteño

53. *Pheucticus ludovicianus* (M) Rose-breasted Grosbeak / Picogrueso Pechirrosado

54. *Cyanocompsa cyanoides* (R) Blue-black Grosbeak / Picogrueso Negro Rare

55. *Cyanocompsa parellina* (R) Blue Bunting / Colorín Azulinegro

56. *Icterus dominicensis* (R) Black-cowled Oriole / Bolsero Cabecinegro

57. *Icterus mesomelas* (R) Yellow-tailed Oriole / Bolsero Coliamarillo

58. *Icterus galbula* (M) Baltimore (Northern) Oriole / Bolsero de Baltimore

**Other bird species recorded by researcher and ejido residents**

1. *Herpetotheres cachinnans*  Laughing falcon / Halcón Guaco

2. *Trogon melanocephalus* Black-headed Trogon / Trogón Cabecinegro

3. *Trogon Massena* Slaty-tailed Trogon / Trogón Colioscuro

4. *Eumomota superciliosa* Tourquoise-browened Motmot / Momoto Cejiturquesa / TOHOD

5. *Pipra mentalis* Red-capped manakin / Saltarín Cabecirrojo

6. *Tityra semifasciata* Masked tiyra / Titira Enmascarada

7. *Myiarchus tyrannulus* Brown-crested flycatcher / Copetón Tirano

8. *Thamnophilus doliatus* Barred Antshrike / Batará Barrada
9. *Falco sparverius* (M) American kestrel / Cernícalo Americano

10. *Sarcoramphus papa* King vulture / Zopilote Rey / BATAB CHOON
    
    Vulnerable

11. *Quiscalus mexicanus* Great-tailed Grackle / Clarinero

12. *Psarocolius montezuma* Montezuma’s Oropendola / Oropéndola de Moctezuma / K’UBUL. Montezuma’s Oropendola birds live in colonies of woven nests strung on isolated trees
    
    Rare

13. *Amazilia t. tzacatl* Rufous-tailed hummingbird / Colibrí colirufo / TS’UNU’UN
    
    Rare
Appendix N

Calakmul Biosphere Reserve

List of Threatened Bird Species
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<thead>
<tr>
<th>Scientific Name</th>
<th>English Name</th>
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<td>Leptotila rufaxilla</td>
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<td>Momotus momota</td>
<td>Momoto Corona Azul, Burgo Verde</td>
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<td>Odontophorus guttatus</td>
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<td>Oncostoma cinereigulare</td>
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<td>Tecolote Vermiculado, Estucurú</td>
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<td>Cucillo Canela, Urraca Marron, Tingázú</td>
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<td>Loro Cabeza Oscura</td>
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<td>Arasari de Collar, Cusingo, Tucancillo Collarejo</td>
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<td>Seiurus aurocapillus</td>
<td>Chipe Suelero</td>
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<td>Chipe Charquero</td>
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<td>Spanish Name</td>
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<td>Carpintero Café, Carpintero Pardo Oliva</td>
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<td>Pato Real, Pato Criollo</td>
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<td>Chipe Corona Café</td>
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<td>Zopilote Rey, Buitre Real, Jote Real, Cóndor Blanc</td>
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<td><em>Spizaetus ornatus (E)</em></td>
<td>Águila Elegante, Aguilucho Penachudo</td>
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<td><em>Spizastur melanoleucus</em></td>
<td>Aguila Blanquinegra, Aguilucho Blanco y Negro</td>
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</table>
Appendix O

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June 13, 2002

Miriam Wyman
University of Wisconsin – Stevens Point
College of Natural Resources
Stevens Point, WI 54481

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