

“Biodiversity Is Diversity in Use”: Community-Based Conservation in the Calakmul Biosphere Reserve

by

Nora Haenn
Department of Anthropology
Arizona State University



America Verde Working Papers
Number 7
2000

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Series editor: Eva Vilarrubi

Cover design: Jonathan Kerr

ISSN: 1098-3848

This publication was made possible through support provided by the Office LAC/RSD/, Bureau for Latin America and the Caribbean, U.S. Agency for International Development, under terms of Grant No. LAG-A-00-95-00026-00. The opinions expressed herein are those of the authors and do not necessarily reflect the views of the U.S. Agency for International Development or The Nature Conservancy.

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America Verde Publications
Latin America and Caribbean Region
International Conservation Program
The Nature Conservancy
4245 North Fairfax Drive, Suite 100
Arlington, VA 22203-1606
U.S.A.
Phone: (703) 841-4531
Fax: (703) 841-4880
<http://www.tnc.org/amicaverde>
e-mail: amicaverde@tnc.org

The author can be reached at: Nora Haenn, Dept. of Anthropology, Arizona State University, PO Box 872402, Tempe, AZ 85287-2402, e-mail: nora.haenn@asu.edu

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“Biodiversity Is Diversity in Use”: Community-Based Conservation in the Calakmul Biosphere Reserve

I. Introduction

During the early and mid-1990s, the buffer zone of Mexico’s Calakmul Biosphere Reserve in Campeche state (see Map 1) was home to a pervasive program of integrated conservation-development. Because these projects saw high levels of local participation, Calakmul attracted the interest of Mexican and international environmentalists who saw the region as an example of the possibilities for community-based conservation. This paper outlines the content of those programs as well as challenges to their success. In particular, the paper describes how a government-farmer relationship built on patronage and land distribution is at odds with conservation programs that take land out of the agricultural base and anticipate a sustainable economy that has yet to develop. The desire for land is an enduring, politicized issue in Calakmul. This issue is so strong that government authorities have not been able to enforce changes in the Mexican constitution (Article 27) that ended the distribution of farm lands. These constitutional changes took place in 1991, and since that time, authorities have created two new farm communities in Calakmul in order to protect the Reserve from land invasions.

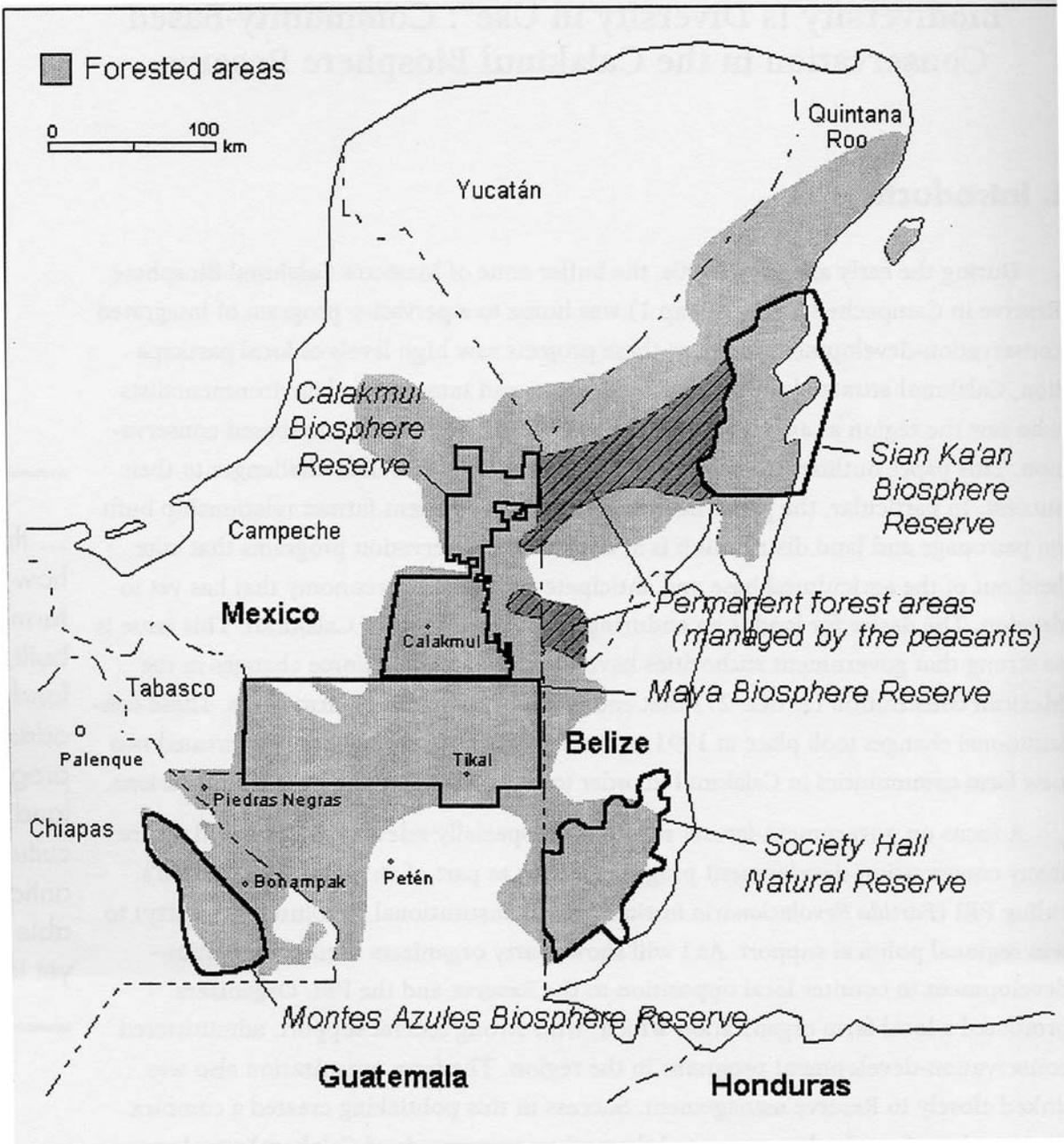
A focus on government-farmer relations is especially relevant to Calakmul where many conservation-development programs began as part of an attempt by Mexico’s ruling PRI (*Partido Revolucionario Institucional* or Institutional Revolutionary Party) to win regional political support. As I will show, party organizers used conservation-development to counter local opposition to the Reserve and the PRI. Organizers promoted a local farm organization which, with strong federal support, administered conservation-development programs in the region. The farm organization also was linked closely to Reserve management. Success in this politicking created a complex setting where farm leaders promoted themselves as stewards of Calakmul’s ecology. Privately, farmers resisted conservation programs that they believed threatened their subsistence. This combination of electoral politics and local control of environmental management created a powerful local movement in Calakmul in which Calakmul’s people pressed for increased financial aid. This movement was ambiguous about its commitment to conservation in the form of protected areas.

Understanding the nature of these ambiguities is important to understanding the changing face of conservation at Calakmul. The late 1990s saw a decline in the region’s

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community-based programs, while the Biosphere Reserve and its buffer zone became incorporated into a new *municipio*, or county, hailed as Mexico's first ecological

Map 1: Forested areas and biosphere reserves in Guatemala, Belize, and the Southeast of Mexico. Source: Boege (1995).



municipio.¹ The names of influential figures who spearheaded regional community-based conservation barely merit utterance now. The number of households volunteering in programs such as agroforestry and wildlife management has diminished. At the same time, conservation issues have become institutionalized in a new way as government authorities build on the region's ecology to encourage ecotourism. Few people would suggest the programs' design failed to protect forest cover. The programs were in place too short a time to prove themselves. Instead, the decline of Calakmul's community-based conservation lies in a combination of factors that range from mundane questions of funding cycles to deeply held differences regarding the value of conservation and the place of community-based programs in a patronage society. The importance of beliefs and values in conservation's success (or failure) points to the growing need for in depth understandings of local culture and politics in formulating conservation programs.

The information I present is based on fourteen months (from 1994-95) of participant-observation in which informal interviewing comprised the chief data collection technique.² This was a time of turmoil in Mexico. In the first months of 1994, militant peasants in the state of Chiapas renewed long-standing demands for land by conducting an uprising under the mantle of the Zapatista army. Chiapas borders Campeche state, and Zapatista organizers work in Calakmul. That same year, the region received an influx of refugees fleeing the uprising. In December of 1994, Mexico experienced a financial crisis in which the value of the peso dropped from 3 to 7 pesos against the U.S. dollar. This national instability found a local manifestation during Easter of 1995. That weekend, hundreds of Calakmul's residents blocked a main highway to demand increased development aid and changes in how development funds were delivered to the region. This protest placed in doubt the validity of community-based conservation as it was then organized in Calakmul. In order to examine the effects of these changes, I worked in two villages conducting migration surveys, collecting household income data, and assessing cultural understandings of landscape features. Following a historical summary, I examine this data in light of regional conservation planning.

II. Populating the Frontier

The Calakmul Biosphere Reserve was declared by presidential decree in 1989. The reserve encompasses 1,787,000 acres of low and medium tropical forest and 950,000

¹ In the following, I use the word "Calakmul" to refer to the area now within the municipio's limits, while "Reserve" signifies the Biosphere Reserve.

² This research was supported by Fulbright funds as well as the Wenner-Gren Foundation for Anthropological Research. Of the many people who helped in my learning, I want to give special thanks to the technical outreach staff in Calakmul whose job in translating policy into practice is, perhaps, the most difficult. Thanks also go to Mauro Sanvicente, Eckart Boege, Deocundo Acopa, Julia Murphy, as well as The Nature Conservancy's editorial staff.

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acres of buffer zone (Mansour, 1995). The northern tip of the Reserve lies within a region continuously populated by Mayan speakers for at least 2,000 years. The body of the Reserve sits in an area marked as “sparsely populated” in maps dating from the time of the Spanish Conquest to this century (Antochiw, 1994; Farriss, 1984). Although people have always lived in Calakmul, recent work in ethnohistory shows how the region was poorly connected to colonial, then Mexican governments (Jones, 1999). Not until the twentieth century did intensive resource exploitation incorporate Calakmul into global markets.

The U.S. craze for chewing gum began this incorporation. The original chewing gum, or *chicle*, was based on the sap of the *zapote* tree (*Manilkara zapote*). During the first half of the 20th century, Campeche state was the world’s largest producer of chicle (Ponce, 1990). In the 1940s, synthetic latex replaced natural latex in the world market, and timber replaced chicle harvesting as Calakmul’s economic focal point. The chicle infrastructure passed on to logging interests who linked a series of forest camps and airplane landing strips with 800 kilometers of roads (Benjamin, 1951). In the 1970s, the timber industry was instrumental in connecting Calakmul to coastal cities through the construction of the region’s first paved road (Revel-Mouroz, 1972). The impact of these logging activities was profound. Esteban Martínez, a former assistant director of the Reserve, wondered at the precise effect of this exploitation. Photographs from the 1950s show a different forest, taller and housing trees of broad circumference (see Beltrán [1958] for an ecological history of Calakmul). Logging –principally for Spanish cedar (*Cedrella odorata*) and mahogany (*Swietenia macrophylla*)– may have altered the forest in a way that the capacity for forest growth in Calakmul remains unclear. In the 1980s, regional sawmills ceased operation because of a lack of adequate timber in Calakmul’s forests (Ericson, 1996).

During the late 1960s and early 1970s, the old forest camps provided home sites for migrant farmers entering Calakmul. Migration to Campeche was part of the great population movements happening throughout Mexico in the 1960s to the present. Poor land availability and inadequate land productivity underpinned migration to Mexico’s urban areas and the United States. Federal authorities saw Mexico’s tropical frontier (Chiapas and Quintana Roo, in addition to Campeche) as holding a solution to agrarian problems in the country’s north (Arizpe, 1996). With little planning and no infrastructure support, agrarian offices directed land hungry farmers to southeast Campeche. Word of land availability in Campeche spread quickly, attracting people whose lifelong migratory journeys had already caused them to move an average of 1.5 times before arriving to Calakmul (Haenn, 1999a). As a vocal bloc in regional politics, migrant farmers differ from fellow Mexicans in their choice to remain in agriculture. As a group they are enormously diverse. The region’s 25,000 residents include representatives from at least 23 of Mexico’s 32 states, as well as members of numerous indigenous groups. One

village I researched had just 200 individuals practicing four religions. The residents spoke three dialects of Spanish and two dialects of an indigenous language.

Despite this diversity, Calakmul's people find a commonality in their identity as *campesinos* (Haenn, 1999b). While *campesinos* are people who farm, the word also indicates social class. *Campesinos* have no regular income. As one young man explained, "A *campesino* lives by his hands, eats because of his pure strength. When there is no money, a *campesino* looks for work to buy food, soap. This is how the years pass." Farmers use this identity to pressure government agents and sponsors of aid programs for access to both land and income generating projects. The strength of this pressuring has earned Calakmul's farmers a reputation for political rebelliousness. At the same time, Calakmul's hearty frontier character has other roots. Although the Zapatistas have underscored the connection between agrarian problems and violence in the state of Chiapas, Calakmul's people suggest this connection is widespread (see Ericson et al., 1999). Many left situations in which they had secure access to land because of village level violence. Murder rates in Calakmul were 2.5 times the national average during 1994-96,³ suggesting Calakmul and Mexico's tropical frontier are a dumping ground for Mexico's many agrarian problems. Rather than address problems of land distribution and power interests, government policy generally managed conflicts via the application of subsidies (Chevalier and Buckles, 1995, p. 30). In Calakmul, this application took place in the name of conservation.

III. Deocundo Acopa Lezama: Influence of the First Reserve Director

The creation of a regional program in community-based conservation took place over time and with the input of many actors (Acopa and Boege, 1998; Boege, 1995a; Boege, 1995b). Calakmul's programs had roots in similar work carried out during the 1980s and 1990s in the neighboring state of Quintana Roo (Bray et al., 1993; Flachsenberg and Galletti, 1998; Galletti, 1998; Murphy, 1990; Snook, 1998). Here, I will use the Reserve's first director, Deocundo Acopa, as a way to organize local ideas of conservation-development as well as the controversies surrounding those ideas. During his tenure, Acopa was arguably the most powerful figure in the region, earning him the nickname of *el tigre de Calakmul*, the jaguar of Calakmul. Acopa's personality was important in overcoming farmer cynicism toward government programs. Where donors found a wily negotiator, *campesinos* saw a man who understood and respected them. Acopa's tenure ended in 1995, when accusations against his administration began to surface. Acopa represents many of the contradictions faced by community-based conservation. Culturally

³ The rate for Calakmul was 45 per 100,000 compared to a national rate of 17 per 100,000. See *La Jornada*, March 3, 1997.

appropriate, local leadership may contain elements of fraud and demagoguery. Strong ideas for a locally generated conservation may reside in people whose actions are inconsistent with their ideas.

As Reserve Director, Acopa's most important decision was to focus his attention and resources *outside* the Reserve. He based this work on the notion that ecological systems are self-contained and relatively predictable. In contrast, social systems are dynamic and can be explosive in a way that would impinge on the Reserve's ecological integrity. Additionally, Acopa's emphasis on campesinos arose from a criticism of environmental regulations. He believed that regulations surrounding protected areas created conflict between campesinos and governing authorities. Overcoming these conflicts was Acopa's principal preoccupation.

In order to "encircle the Reserve socially," Acopa oversaw a multi-disciplinary committee that mediated various interests in the region and lobbied government agencies. Ideally, members of this group would pool their knowledge of local economics, politics, ecology, and history to assess the competing interests in land use. The group's work would then entail negotiating these interests in order to stem environmental destruction. During Acopa's tenure, a modified version of the committee met on a regular basis. Among the NGOs, government agents, and campesino farmers, Acopa generally favored the perspective of peasant farmers. Acopa believed the role of conservation groups within this committee was, first, to learn as much as possible about the region's social situation. Secondly, these groups should commit funds and other resources to conservation. Ideally, these projects would be instigated by campesinos' own internal review of their development needs. This approach left a limited role for conservationists. However, Acopa believed that long-term sustainability required campesino independence in analyzing and developing solutions to localized environmental and economic problems.

In order to carry out this philosophy, Acopa built a close relationship with the Xpujil Regional Council, a campesino organization. The Regional Council included nearly two-thirds of the buffer zone communities among its membership. During Acopa's tenure, the Reserve and the Regional Council were virtually indistinguishable. Acopa lent his technical staff to Council projects on a full-time basis. He hired Council members in various capacities and lobbied that Reserve entrance fees would also support Council projects. A significant portion of Reserve funds supporting sustainable development projects were channelled through the Council. Acopa advised the Council on project management and implementation, attempting to infuse these with his philosophy.

Each project encouraged campesino independence in resource management. Each project also attempted to demonstrate and add economic value to a variety of forest products. For example, faunal management projects assessed the species and number of animals present in a village. As part of the project, technical staff and campesinos documented animals killed for household consumption. At the end of a year, staff

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...

presented an estimate of the total kilos of wild meat consumed in a village along with its cash equivalent. With information on animal populations reinforced by data on the cash importance of game meat, campesinos had a basis to begin managing their wildlife for long-term hunting. This same logic followed for timber and the collection of tree products such as allspice. Technical staff provided the scientific knowledge to assess existing resources and suggest sustainable extraction patterns. Staffers also conducted the paperwork and negotiated government bureaucracies for harvesting permits. Farmers carried out the actual harvesting. In addition to faunal and timber programs, the Xpujil Regional Council administered and collaborated on programs in organic agriculture, reforestation, bee keeping (for honey), ecotourism, and environmental education.

The variety in the programs was important. Acopa believed that no single conservation project would be effective in combatting the permanent felling of forest. Instead, a variety of projects were necessary to address the problem from different angles. Acopa asserted that “biodiversity is diversity in use.” Projects should thus utilize the broadest array of natural resources possible, so campesinos see the value in managing forests for diversity. Projects that focus on just one aspect of the forest tend to insert communities into boom and bust cycles. This economic instability leads farmers to continue to rely on farming and cattle ranching, two leading causes of regional deforestation.

In the interest of political negotiation, Acopa saw the need for some projects that would be environmentally destructive. Cattle ranching is a case in point. Acopa found that projects often sought to substitute a sustainable activity for a destructive one. In the case of cattle ranching, Acopa saw attempts to get campesinos out of cattle ranching as futile, because cultural ties to cattle are too strong. He decided to contain cattle ranching by promoting small-scale, intensive cattle programs. This satisfied the demand for cattle but entailed less destruction. Most importantly, it let farmers see the unsustainability of cattle ranching in a region with scarce water resources. In one village I researched, families participating in an intensive cattle ranching program abandoned the project after one year. The failure of this project was a kind of environmental success, as families found that stall feeding the cattle required considerable time and labor.

The Council’s cornerstone project was the establishment of protected areas on village lands. The aim of these reserves was two-fold. The first was to make forest management compatible with farming and create financial incentives for conservation. The second was to create a way for people to relate to the Calakmul Biosphere Reserve. The idea of a protected area remains alien to Calakmul’s people. Planners hoped that if farmers built sympathetic links to their village reserves, these feelings might transfer to the Calakmul Biosphere Reserve. Acopa took this notion even farther. He believed the Calakmul Biosphere Reserve belonged to the region’s farmers. Village reserves provided a context for claiming ownership over the larger landscape. In this way, Acopa defined

community-based conservation as programs which encourage campesino control over their land. Acopa echoed Roland Bunch (1986) in asking, “How can people protect something they do not control?” Questions of land control immediately lead to consideration of power structures. Certain aspects of Calakmul’s regional power structure challenged Acopa’s ability, as an agent of the federal government, to put his vision into practice.

IV. Working Through Communities: Institutional and Political Obstacles

Two immediate obstacles included an unstable political climate and the Regional Council’s structure. The two points are related. The Calakmul region had long been considered rebellious, and government aid to the Regional Council (via the offices of the Reserve Director) aimed at gaining support for the ruling PRI. The amount of monies flowing through the Council created even greater demand for development funds. Although the Council had broad participation, many people felt left out of the new sustainable economy. These people demanded development structures that bypassed the Regional Council. These demands burst dramatically onto the political stage during the Easter Holiday of 1995. Most Mexicans travel on vacation this weekend, when campesinos opposed to the Regional Council blocked a major transport artery. For three days traffic came to a halt, while protestors demanded the personal presence of the state governor to negotiate their petitions. The governor did arrive and acquiesce to some demands. The success of this demonstration resulted in the formation of no fewer than four new campesino organizations to represent the region’s farmers. Each group pressed for greater control of development funds. Had the Regional Council become a victim of its own success?

Before the Easter crisis, the Xpujil Regional Council managed a budget rivalling the largest governmental agency operating in Calakmul. Although technically an NGO, the Council’s money came principally from government coffers. The group worked on road construction and water management, programs usually left to government offices. These activities, along with the group’s association with the Reserve, left many to believe the Council was a government body. Quasi-governmental organizations, such as the Regional Council, are not unusual in Mexico. In the past, these groups have appeased public desires for political representation without presenting any real threats to Mexico’s single-party rule. However, their awkward place in the ruling structure makes them somewhat like third-party candidates in U.S. presidential elections. The groups often bring attention to specific issues but have limited effectiveness. Quasi-governmental organizations often endure less than a decade when their success leaves them open to internal division, corruption, and the formation of rival groups (Stanford, 1994). The Easter 1995

protestors established new organizations to counter the Council's board of directors who had trouble evading the corruption accusations continuously levied against them.

Ironically, the Council was the most representative and democratic organization in Calakmul. A board of directors oversaw funds and programs. This board was voted into office by representatives of more than half of the 72 villages then located in the Reserve buffer zone. These representatives were mostly men, but women's groups could also vote representatives. One-third of the delegates attending the Council's monthly assemblies were women. As such, the Regional Council was the only place where Calakmul's women held formal power.

Assemblies had an attendance of 150 to 300 people. During the day-long meetings, board members reported on activities and expenditures. Delegates solicited projects for their villages, attempted to enforce transparency in the group's financial accounting, and pressed the Council's technical staff to fulfill project obligations. Acopa used assemblies to educate representatives on his theories of land use and conservation.

Given that delegates were voted to office by fellow villagers, Acopa expected his lessons would disseminate through delegates when they reported on assembly events to their neighbors. In practice, many delegates used their positions for personal enrichment. They might even refrain from sharing Council news in order to keep their connection with the Council an exclusive one. Well-organized villages kept their delegates in line and required reporting on Council affairs. The majority of villages were less capable of insisting on democratic processes. The Easter protest included many people whose Council delegates effectively limited participation in Council projects.

These intensely localized politics point to a difficulty in working with the grassroots organizations that often implement community-based conservation. The information flow between the board of directors and its member communities was constant. Local gossip underlie the selection of board members, their dismissal, and the effectiveness of project staff. The most productive agents in this setting were those who had detailed knowledge of who the players are, what their source of authority is within the campesino community, how campesino social organization operates, and how the organization changed when campesinos dealt with outsiders.

Among its strengths and weaknesses, the Council succeeded in giving farmers a taste for democracy. It also made Calakmul's people self-conscious about their power as caretakers of the region's ecology. By pressuring researchers and NGO staff to request from the Council permission to work in the region, Acopa reversed the usual hierarchy found in rural Mexico. These same staff benefitted by gaining access to the Council's member villages. Many, certainly not all, campesinos viewed the groups working through the Council as respectful of the campesino position. At the same time, Council members never set aside their interest in conservation's monetary aspects. While Mexico's macro-

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political climate was moving toward a neo-liberal state with greater democracy, Calakmul's people used their worth as voters to demand greater financial inputs. The following section explores how local ambivalence toward conservation programs arose, in part, from a government-farmer relationship built on access to farm land and financial subsidies.

V. Government-Farmer Relations and Challenges to Conservation

Government-farmer relations in Calakmul are the result of a combination of historic, symbolic, and economic factors whose strength can be startling. In this section I will briefly address the historical source of a social contract between Mexico's farmers and federal government, a contract which entails making land available for agriculture. Although the legal basis for this contract has changed, Calakmul's people continue to hold the government accountable for its original promises of land reform and support of social causes. Reserve policy and federal subsidies are evidence of how this contract remains in force in Calakmul. This contract has important implications for conservationists who have entered unwittingly into a contentious relationship.

Mexico's land grant system has its roots in the revolution of 1910 which came about, in part, because many farm communities had lost control of village lands to the owners of large estates. During the revolution peasant armies proved formidable. In the negotiated peace that ended the fighting, peasant demands for land became enshrined in the Mexican constitution (Hart, 1987; Nugent, 1993). Until 1991, Article 27 of the constitution mandated both the distribution of land to needy farmers and support to the agricultural sector. Over the decades, peasant farmers periodically won access to land as well as government-sponsored technological inputs and development projects. The quantity of agricultural programs in the 1970s led some researchers to conclude that Mexican farmers were basically salaried through government credit (see Paré in Hewitt de Alcántara, 1984, p. 154). However, land reform did not present consistent results throughout the country. Many farmers, especially in Mexico's south, continued to work on small, marginalized plots of land. The struggle for secure access to land resonates today in the Zapatista movement, in which armed farmers use the symbol of one of the revolution's agrarian populists to pressure for socially just farming structures (Collier, 1994). The Zapatistas were spurred into action, in part, because of a change in Article 27 in which the federal government ceased its promise of land distribution. This change proved so controversial that government agents do not carry it out. In Calakmul and elsewhere, government authorities have authorized the creation of new agricultural villages on national lands.

Given this background, we can better understand the circumstances surrounding the declaration of the Calakmul Biosphere Reserve and the way government agents quickly linked conservation to economic development. In 1989, when a presidential decree made the Calakmul Biosphere Reserve a reality, regional farmers were already antagonistic toward government authority. In the words of one farm leader, “The state government had almost no authority here.” Although Calakmul’s communities participated in government-sponsored agricultural programs, they lacked other services such as schools and health care facilities. It could take up to ten hours of travel to reach their most local seats of government. Government agents did little to overcome the logistical barriers to communicating with their constituents. In turn, Calakmul’s people had little respect for the efforts it did attempt. They allied themselves with an opposition political party and cultivated their reputation for rebelliousness.

The Reserve quickly became a rallying point for people’s frustrations. The protected area breached two aspects of the social contract. First, it took land out of the agricultural base. In addition to eliminating the Reserve as a source of future farmland, in the early days of the Reserve’s existence, a number of villages were threatened with relocation. Carrying out relocations would have required the government to contradict its ideal role by taking land away from farmers to whom it had already given title. (These cases were later settled in favor of the farmers.) Second, the Reserve’s existence meant greater enforcement of regulations in respect to hunting and the felling and burning of forests. For subsistence swidden farmers, these regulations were and are a direct threat to their livelihoods. Calakmul’s residents reacted militantly. Today, farmers say they were ready to lynch anyone who presented themselves as an “ecologist.” In 1995, a government agent charged with monitoring forest clearing was murdered by farmers under investigation for cutting older growth forest.⁴

In the early 1990s, government support of the Xpujil Regional Council aimed at quelling both anti-government and anti-conservation sentiment. However, sustainable development aid did not diminish demands for land or opposition to the Reserve. Instead, Calakmul’s residents believed that conservation laws allowed the government to take with one hand what it gave with another. Local commitment to conservation was consequently ambivalent. As one man explained:

What we are going to care for is the Reserve and we are not going to care for the forest, because the government gave it to us. If the government prohibits something on the land it donates, why does it donate [the land]?

⁴ This federal agent was rumored to be an extortionist. Rather than apply the law, he demanded money in return for not reporting campesinos cutting down older growth forest. Whether or not this rumor is true, it is relevant that people see enforcement of environmental regulations as part of an overall pattern of government corruption (see Haenn, 1999b).

In the early 1990s, such feelings demanded immediate action as they also carried the threat of violence. Farm leaders from this time report that they took their grievances to a state governor, then running for office. He promised relief in the form of his connection with the president, to whom the campesinos would propose that they care for the Reserve. After the region voted with the governor and the majority party, the president did make a personal visit and offer relief. He accepted the idea that campesinos “care for the Reserve.” Through the President’s National Solidarity Program (PRONASOL, see Dresser, 1991), the Reserve would become part of a seemingly populist program of self-determination. In practice, this caretaker role meant an influx of conservation-development funds for the Xpujil Regional Council. This pact produced a confusing local rhetoric of simultaneous antagonism and dependence in respect to government authority.

During 1994-95, the sum total of subsidies and projects on offer to Calakmul’s farmers was impressive. One village of 230 people participated in no fewer than eight small-scale development projects. Many of these were managed by the Regional Council. All received their ultimate source of funding from the Mexican government. These projects took place in addition to various subsidy programs. Subsidy programs in general contributed a significant portion to household incomes. The size of these programs and the way they encourage certain kinds of land use demands further consideration.

Table 1: Sources of income as percent contribution to overall income (figures based on six months of reporting).

House	Chile Sales	Misc. Sales	Wage Labor	Dev'p Wages	Scholarships	Despensas	Total from Subsidies
A	61%	23%	1%	0%	10%	6%	15%
B	59%	0%	9%	0%	20%	6%	26%
C	31%	16%	15%	22%	10%	7%	38%
D	47%	12%	22%	15%	0%	4%	19%
E	0%	0%	50%	0%	38%	12%	50%
F	5%	0%	92%	0%	0%	1%	1%

Table 1 breaks down household incomes for six families according to the percent contribution of income sources. The figures cover a six-month period from the end of 1994 through the first quarter of 1995. This period includes the chile harvest, when most farm income is earned. The category of “development wages” includes money earned working on either government sponsored or NGO development projects. The category of *despensa* includes support in the form of basic foodstuffs. Generally, a *despensa* fed a family of six for three days. Its cash value was roughly 25-30 pesos (equal to one or two days of wage labor). Farmers received *despensas* from a number of sources. Small-scale development projects offered food in lieu of wages. Emergency relief programs that compensate for crop loss also offered *despensas*. One example of a *despensa* distribution will provide a sense of the sometimes arbitrary yet pervasive character to subsidy offerings in Calakmul. On Mother’s Day of 1995, a truck bearing foodstuffs, t-shirts, and

water bottles appeared unannounced in the village where I was then living. Government agents, employed by the federal Integral Family Development office (DIF), distributed the Mother’s Day gifts, took photographs of villagers receiving the goods and quickly departed.⁵

Children’s scholarships were one of the most important subsidies entering the Calakmul region. Scholarships provided \$118⁶ (the equivalent of seven days of wage labor) and one *despensa* for each month of the calendar year. The subsidy aimed to pay the school expenses of one child. The program was designed originally to support first and second graders at risk of leaving school because of their parents’ poverty. Because both communities I researched were quite small, all families with a school-age child received a scholarship.

Table 2: PROCAMPO earnings and hectareage committed to the program.

	Village A	Village B
Avg. # of hectares per farmer inscribed in PROCAMPO	3.4	4.6
Avg. income from PROCAMPO per farmer (based on payments of \$440/hectare)	\$1,496	\$2,024
Equivalent of avg. income in days of wage labor (based on the 1995 rate of \$15/day)	100	135

The impact of government subsidies is actually larger than the above figures suggest, as the time of data collection did not cover disbursement of payments through the region’s largest subsidy program, PROCAMPO. PROCAMPO pays farmers a fixed sum for each hectare of land planted in one of ten subsistence crops, including corn, beans, and rice. The size of the payments are such that they often surpassed net earnings from the region’s principal cash crop, jalapeño chile peppers. Furthermore, the money earned in PROCAMPO is free of the capital inputs and risks associated with chile production. Government authorities devised the fifteen-year PROCAMPO program when NAFTA threatened to bring cheap U.S. corn onto the Mexican market. PROCAMPO aims to support the livelihood of Mexico’s poorer farmers. Calakmul’s people knew little of these policy objectives. Instead, they described PROCAMPO, as they do all projects, as “a help” that rewards them for their hard work. Table 2 outlines the amount of land committed to the program and the respective earnings from PROCAMPO payments for two villages.

⁵ Later that year, the same villagers were visited with the surprise disbursal of unsolicited orange tree saplings. The trees were not the same kind of gift, as farmers were threatened with a fine if they failed to plant them. I was unable to learn whether this fine was ever levied.

⁶ All prices are in pesos. Because of the dramatic change in the peso’s value during 1994-95, I provide a comparison with local payments for wage labor in order to give a sense of the value of these subsidies.

The overall importance of these subsidies in the early 1990s is greater still in light of the scarce employment then available in the Calakmul region. Only a few full-time jobs were available in the commercial center of Xpujil or with the various development projects. Large-scale chile producers hired seasonal laborers during the harvest. At these times, villages became nearly empty as all able bodied adults and children took advantage of the opportunity. Some farmers sent family members to neighboring cities or to Mexico's Caribbean coast where more jobs were available. However, unlike in other parts of Mexico, this kind of migration had not yet been incorporated as a permanent part of a household's earning strategies. The creation of the municipio altered the regional economy by increasing the local administrative budget (from \$441,527 in 1996 to \$9,000,000 in 1997, *Diario de Yucatán*, January 2, 1997) and expanding job opportunities. Also, anecdotal evidence suggests more households now send family members to the U.S. in search of work. The effects of changing opportunities in employment and government programs for the region's ecology has yet to be examined.

In whatever time frame, Calakmul's farmers would likely disagree with my depiction of them as beneficiaries of government aid. The importance of government cash handouts was offset by a few factors. Payments did not arrive as scheduled. Families passed months without seeing money owed to them, only to receive a sudden windfall. Dissatisfaction over delayed scholarship payments formed part of the demands put forth by the Easter 1995 protestors. After the demonstration, three months in back payments were quickly delivered to the region. Delays left farmers little chance to make concrete plans for the money. Once the money did arrive, managing it presented a problem. There were no banks in the Calakmul region. Many campesinos are not good money managers (a trait certainly not particular to them) and had difficulty budgeting so these brief bonanzas could carry them through the year.

The second point that detracted from the cash handouts was their use as a substitute for infrastructure building and regional planning. The result of this is continued poverty. For example, in late 1995 two hurricanes buffeted the region, destroying the year's crops for most families (government agents immediately implemented a program to replace lost corn harvests). The village I was living in at the time lay at the end of a 30 km road so rife with pot holes that travelling the road took an hour. After the hurricanes, floods undermined the road's foundation to such an extent that springs gurgled up from the center of the potholes. This road provided more than 1,000 people their only access to markets and jobs. Immediately after the rains, government agents issued an early disbursement of PROCAMPO payments. Flushed with cash, farmers overlooked government negligence in road repair. As of 1999, the road remained impassable.

Without government subsidies, far fewer people would be able to live in Calakmul. Even with the subsidies, standards of living in the region remain low. Land use strategies reflected a belief that, in times of crisis, government agents will care for Calakmul's

people. During the 1990's, this has been a correct assessment. Government authorities continue to maintain a minimum standard of living through subsidies. Given the strife surrounding the Reserve's declaration, many believe these subsidies forestalled an armed uprising in Calakmul. Comparisons between Calakmul and Chiapas are not unwarranted. Local newspapers report rumors of guerilla activity in Calakmul (*Diario de Yucatán*, April 9, 1997), and Zapatista organizers have been active in the region. The Zapatistas are one example of how complicated government-farmer relations are at Calakmul, and how the impact of conservation programs must be understood in light of this relationship.

The strength of government-farmer relations is such that Calakmul's people believe most conservation and development programs, regardless of their sponsor, are somehow government associated. One U.S. researcher, conducting participatory research in Calakmul for an NGO, found that "even though I explained to them that I was a foreigner from the U.S. and couldn't possibly be a federal employee, they nonetheless associated me with that powerful gift-giving machine that is the Mexican government" (Jenny Ericson, personal communication). Because of presumed government connections, project participants bring considerable baggage to non-governmental programs (Miraftab, 1997). At Calakmul, farmers consistently reshaped grassroots approaches into hierarchical, patronage relationships. Meanwhile, the size of government subsidies left farmers little interested in small-scale projects. Within this dynamic economy, campesinos saw farming and cattle ranching as producing the most economic stability. Attitudes toward the environment reflect this pragmatism, while presenting challenges even to those conservation programs that emphasize resource use.

VI. An Ethno-Conservation?

A locally generated, community-based conservation must rest on local ideas of the environment. In Calakmul, people base their ideas of the environment, in part, on their personal experience of working and living in particular places. As such, they have no understanding of *the* environment, and one never hears the Spanish phrase for environment, *medio ambiente*, in everyday campesino conversation. Instead, people talk about specific forests and fields. Local ideas of the environment already include an understanding of diversity. How might local environmental ideas contribute to ethno-conservation or conservation programs that operate within a local cultural logic and take into account Calakmul's social world?

At Calakmul, local ideas of forests rest on the notion that forests are a place of work (Haenn, 1999b; Murphy, 1998). In interviews, I asked ten men to categorize a series of landscape features (taken from local descriptions of villages and farm plots) according to whatever criteria seemed relevant to them. The men unanimously grouped areas currently under cultivation and described these as "where we work." They grouped categories of

secondary growth and older forests separately and described these as future farmlands, “where we’re going to work.” Furthermore, the men joined protected areas and described these places as “where we cannot work.”

A popular slogan of environmental posters in Mexico is *Cuidemos la selva*, “let’s care for the forest.” Calakmul’s people repeatedly expressed a need to care for their forests, but they defined “caring” in particular ways. When I asked specifically what this phrase meant to farmers, they explained that “caring” means maintaining the paths that mark the boundaries to farm plots. These paths keep neighbors from encroaching on one another’s farmland. In this sense, “caring” for land meant defending land rights. One man told me that “caring” for his land meant daily visits to his cornfield to scare off birds and animals that eat away his hard work. Still another man told me that “caring” means planting one’s land. In short, working the land is seen as a form of caring.

People most commonly used the word *cuidar* in reference to fires. They described a need to protect their fields and orchards from fires gone out of control. The topic of fire control brings out strong feelings in the region both because the ability to control swidden fires is fundamental to survival and because government programs that regulate when and how people burn were seen as unwelcome intrusions into people’s daily work routines. In all these cases, caring and land stewardship were linked to agricultural work in a way that overseeing the local environment required a kind of intervention that is situational and resists regulation.

Under Reserve Director Acopa, regional sustainable development programs tapped into ideas of environment as a place of work and attempted to foment a kind of ethno-conservation. However, there were important limitations to conservation built on resource use as Acopa envisioned. One limitation lie in the way the conservation half of “conservation-development” was often set aside by farmers and, even, the Regional Council technical staff overseeing project implementation. Despite sporadic assertions that the Council’s programs represented a new kind of conservation that supported subsistence farming, people remained skeptical. If land is a place of work, then Calakmul’s residents surmised that outsiders must have some use in mind for the Biosphere Reserve. Along these lines, farmers viewed conservation as an attempt by government agents and urban environmentalists to control forests for their own ends (Haenn, 1999c). In order to avoid these sentiments, promoters emphasized a project’s economic reward, rather than its use in sustainable land management.

Opposition to what they saw as oppressive regulations meant that farmers even resisted admonitions to act in accordance with their own ideas of land management. This became clear in 1995 when the burning season brought a rash of forest fires. After weeks of battling flames, federal fire fighters held a regional assembly to discuss fire control techniques. The people surrounding me at the assembly responded to the lecture, saying “they talk as if it’s so easy,” and “if we do all this work, when will we do the work that

... under Reserve Director Acopa, regional sustainable development programs tapped into ideas of environment as a place of work and attempted to foment a kind of ethno-conservation ...

feeds us?” Authorities asked each farmer in the region to build firebreaks and requested that each village submit a schedule of when people would burn. Authorities would then have teams on hand for rapid response in case fires grew out of control. The village where I was living at the time refused to comply with the requests. People said the government was asking for additional labor on their part with no compensation. They agreed to cooperate in this resistance, saying “we don’t want anyone coming to damage our work, because if they come and there aren’t any firebreaks, it will hurt everybody.” In part, they worried the fire control program was an excuse for government agents to investigate whether they were illegally felling older growth forest.

Exploring this anti-environmentalist sentiment might prove a fruitful way to find an ethno-conservation that genuinely combines both resource use and protection (Johnson, 1999). For example, three men, vociferously opposed to the Calakmul Biosphere Reserve, nonetheless formed their own mini-reserve on their adjacent farm lands. The men all enjoyed hunting and appreciated the value of forest cover for maintaining game. Since all three farm parcels ascended a small hill, the men decided among themselves that they would leave the ridge line in forest. The total amount of land protected would approximate only ten acres. However, given the men’s antipathy to environmental regulations, this truly self-generated conservation goal is remarkable. The men’s plan reflected some basic ingredients to an ethno-conservation. The land is on a slope and is not highly valued for farming. The long-term goal is continued use of some forest product. The plan is not mandated, so it is flexible. With little ability to predict the future, farmers are most interested in keeping a variety of resources on hand to meet unforeseen circumstances. And, finally, the people participating in the plan trusted one another’s land claims. Two of the men were brothers.

In addition to its emphasis on resource use, an ethno-conservation at Calakmul would likely emphasize creating greater security in land tenure. For reasons of space, I have excluded discussion of land tenure in Calakmul. However, it should be mentioned that people feel a deep insecurity about their long-term ability to control the land they sow. Conservation built on use could alleviate these insecurities. At Calakmul, however, the structure of project implementation tended to reinforce worries that people could lose control of their land (Haenn, n.d.). In this politicized atmosphere, Calakmul’s people drew a kind of line in the sand in defense of their land and livelihoods. They resisted regulations of tree-felling, burning, and hunting that touched most closely on their ability to feed themselves.

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VII. Lessons From Calakmul

Calakmul's peculiarities demonstrate the importance of cultural, political, and social diversity to programs that aim to protect biodiversity. As such, biodiversity management needs to be matched with diversity in both land management and the institutions that support conservation through use. At the most international levels of conservation and development, talking in short hand about the "African example" or the "Latin American case" proves convenient. However, even the diversity of situations in Mexico warrants against such generalization. For example, Elizabeth Umlas has documented a case in Chiapas where, contrary to Calakmul, local people have built alliances with environmentalists in order to pressure the government to enforce environmental regulations (Umlas, 1998). Throughout Latin America, distinct political histories and cultural rules regulate how government authorities and citizens relate to one another. The same can be said for the way people relate to non-governmental organizations.

At Calakmul, patronage and expectations of government welfare shape the way people react to conservation and development goals. The amount of subsidies entering Calakmul may be unusual. However, the case still offers a broader lesson. The success of conservation-development and community-based conservation partly depends on how these programs fit into a series of economic opportunities. It is not enough that conservation pays, when conservation's beneficiaries ask, "How much are we getting paid?" "Is there something that pays better?" "Are some people getting paid more than others?" "What trade offs does this payment require?"

At Calakmul, programs appeared enormously successful because they enjoyed high participation rates. Farmers are sufficiently poor that they never decline a project offered to them. Nonetheless, within a broader economic picture, the rewards of conservation-development were fewer than the bonuses offered by government subsidies. Even if government programs offered less to farmers, conservationists would still have to address the cultural weight assigned to patronage relationships. This can be a difficult point for a U.S. audience to understand. In the U.S., an individualistic work ethic and hopes for social equality can cause people to recoil from the exploitative aspects of a patron-client tie. In contrast, for Calakmul's residents, the ability to activate patron-client relationships is a mark of power.

As conservationists combine the social and physical sciences to develop creative management strategies (Brandon et al., 1998), I hope this work will include developing and promoting a conservation that relies on existing popular opinion rather than conversion to foreign ideals. Building on existing environmental ideas would foster closer identification between farmers and conservation managers and, in turn, facilitate the use of local environmental knowledge in land use negotiations. Discussions of land use in Calakmul have tended to use legalistic ideas, Western science, and the social

contract between government and farmers. All of these are either politically charged or alienating to the farm community. Shifting the discussion to local environmental knowledge and ideas of ethno-conservation neutralizes the political field. This move also avoids the questions on which there is little agreement. Instead, it focuses on areas where relationships can be built and land use practices can be agreed upon.

A more intensive relationship between conservation managers and local people requires conservation staff who are beyond reproach. The element of trust here is crucial. Managers should appear trustworthy and above the political fray. This is a tall order, but one that some managers do achieve. Identifying people whom campesinos find trustworthy might be difficult. Most people prefer the company of people like themselves, and conservationists are no different in this respect. The cultural and class gulf that currently exists between campesinos and conservation managers at Calakmul suggests that conservationists might consider managers who are *unlike* them, but more like campesinos.

Calakmul's complexities and its intensely politicized atmosphere highlight how effective community-based conservation entails difficult compromises for conservationists. The compromises are actually fewer for the people of Calakmul. In the past, they agreed to conservation-development projects. At the same time, they have shown that, if it becomes economically expedient to change their behavior, they will do so. Will the compromises be worthwhile? The answer to this lies within the response to a second question. In the world of possible conservation strategies, how important is community-based conservation and the support of local people to biodiversity survival?

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