

4-13-2007

Socio-natural landscapes in the Palmarejo Valley, Honduras

James R. Hawken
University of South Florida

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Socio-Natural Landscapes in the Palmarejo Valley, Honduras

by

James R. Hawken

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Arts
Department of Sociology
College of Arts and Sciences
University of South Florida

Major Professor: E. Christian Wells, Ph.D.
Karla Davis-Salazar, Ph.D.
Nancy Marie White, Ph.D.
Linda M. Whiteford, Ph.D.

Date of Approval:
April 13, 2007

Keywords: Honduras, Mesoamerica, archaeology, settlement patterns, political ecology,
rank size analysis

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Acknowledgements

This study was conducted as part of the Palmarejo Community Archaeological Project, and I would like to extend my thanks and appreciation to co-directors E. Christian Wells, Karla Davis-Salazar, and José Moreno Cortés, all of the University of South Florida, Tampa. Additionally, all work was carried out with the permission of the Instituto Hondureño de Antropología e Historia to whom I am grateful for their continued support for our research. As always, a very special thank you to Jorge Bueso, whose friendship and hard work always keeps me full of laughs while working in Honduras. To the members of my committee, E. Christian Wells, Karla Davis-Salazar, Nancy White, and Linda Whiteford, I greatly appreciate all of your input, and I hope that this finished product makes you proud! I owe a great deal of gratitude to Patricia Urban and Edward Schortman for their continued support from my time as a student at Kenyon College to the present, and for convincing me to pursue further education in archaeology. Also, I sincerely thank my parents for their love and encouragement in whatever endeavor I have pursued. To my fiancée, Diana Torres, thank you for taking the time to read through lengthy drafts, but more importantly, thanks for agreeing to marry me! Last, and certainly not least, I extend all the gratitude in the world to the people of Cofradia and Palmarejo, Honduras for extending their warmth and kindness and allowing me to call their country “home” for several months.

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ABSTRACT

Communities have traditionally been viewed as spatially bounded social units composed of multiple households whose inhabitants are integrated by shared resources and a common sense of identity. While investigating resources and identity is useful for archaeological study because of their material correlates, such views of community ultimately fail to acknowledge the dynamic interaction between cultural and environmental forces in shaping and shifting those arrangements over time. This study examines settlement, excavation, and geoarchaeological data from the Palmarejo Valley in northwestern Honduras with the aim of modeling the process of community formation at the intersection of social and natural landscapes in both the past and present.

Chapter 1

Introduction

With a thorough analysis of ancient settlement systems, modern ecological dilemmas can be addressed by examining long-term, sustainable and non-sustainable resource use in past communities. Honduras has experienced many changes over the past 3000 years. Between 1000 B.C. and A.D. 1000, small-scale communities began to resemble “chiefdom” levels of organization, and arguably even states or state-level societies in western Honduras, leaving a thick archaeological record just beneath the surface. Populations dispersed across the landscape of Honduras after A.D. 1000 and declined greatly with the diseases and aggressive attitudes accompanying the Spanish invaders. It was not until the past 50 years that populations have once again surged in northwestern Honduras, reaching the levels seen slightly over 1000 years ago. Presently, larger populations in the region are leading to severe problems; possibly issues that are repeating themselves in history. The Palmarejo Valley, in northwestern Honduras (Figure 1.1), is a perfect example of this process. Large populations in relatively small regions can often lead to environmental degradation, most commonly stressing the soil and overall agricultural landscape. Economic, political, and social differentiation leads to many of these issues, as the average farmer is forced into an unsustainable system where the environment suffers as a result of human survival. Based on settlement pattern

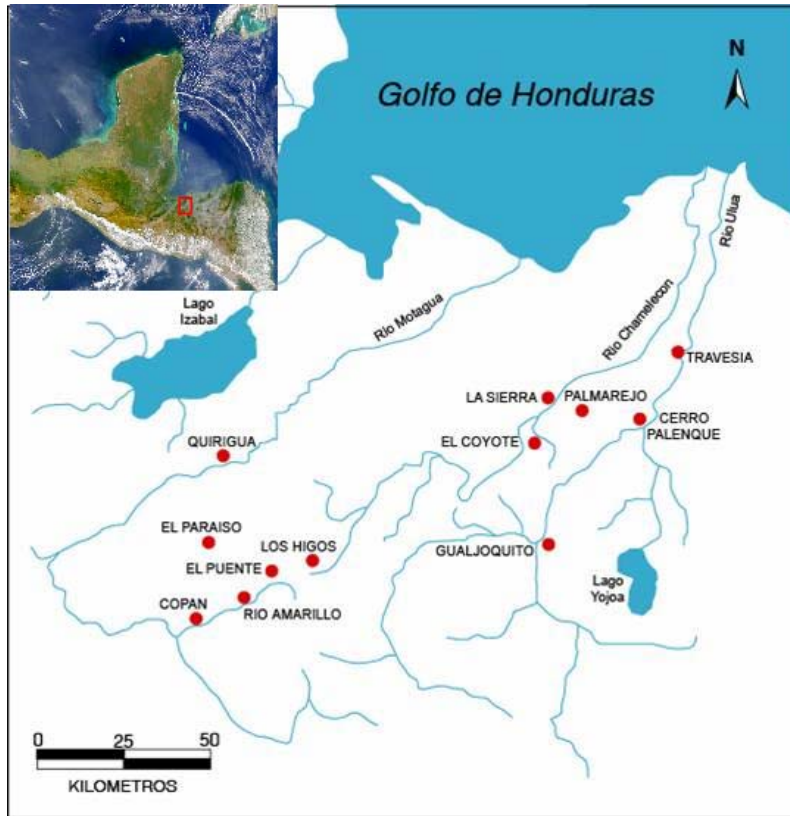


Figure 1.1. Northwestern Honduras. Modified from Wells et al. 2004:1.

research conducted in the Palmarejo Valley, it is seen that not only are the total number of people similar between the past and the present, but they also live in virtually the same locations. Overall, one can draw many comparisons between the ancient and modern populations living in the Palmarejo Valley, as will be seen over the course of this investigation. Since unsustainable practices may have led to the disintegration of the past communities, a study of the archaeological remains “with a goal of employing the knowledge gained from this research to improve the human condition in the contemporary world” (Erickson 1998:34-35) seems appropriate in this setting.

A constructive way to understand human and environmental interaction, with goals of applying archaeological knowledge to the present, is to incorporate a political ecology framework. Political ecology focuses on how ecological changes and the human

interaction with the environment are decided by social, political, and economic forces (Greenberg and Park 1994). Additionally, the framework investigates how the institutions or individuals that maintain control of the resources are likely to maintain social, political, and economic power. Settlement patterns of the ancient Palmarejo Valley reveal a hierarchical structure of sites in the valley that likely was maintained by access to basic subsistence resources, such as land and water, as well as other locally available natural resources. The present settlement system existing in the Palmarejo Valley is not much different. A few wealthy individuals maintain the majority of land and resources in the valley, forcing the rest of the population into dangerous situations that result in the degradation of their environment and overall health. Knowing this, we cannot be neutral scientists in cases where local communities and ecosystems become increasingly endangered by external agents (Kottak 1999:25), and we must use our knowledge as much as possible to ameliorate existing conditions. Archaeology has the power to reveal long-term relationships between humans and the environment with the unique ability to apply this information to the future (van der Leeuw and Redman 2002).

With this in mind, I examine the Palmarejo Valley in both its ancient and modern contexts in order to provide a comparison that may be used to show the dangers that lie ahead if current practices are not modified. In the following examination, a history of economics and the political legislation that has left Honduras in such a dire situation will be outlined in order to provide necessary background information concerning future possibilities for policy reform. Next, I apply a political ecology framework to the prehispanic and modern Palmarejo Valley, creating a bridge for comparison between the two periods. Following this, a background and settlement pattern study of the ancient

Palmarejo Valley is presented with archaeological data and quantitative analysis. Finally, a discussion and conclusion provide insights and directions for local community leaders and policy makers that may help the community move toward a sustainable socio-natural landscape, provided that is the direction they want to take.

Ultimately, this research seeks to explain the extent to which each of the prehispanic sites in the Palmarejo Valley were in control of local resources and how this would have structured economic relations between the ancient inhabitants. Not only does this study investigate modern resource use and power structures, but it also tests different models of settlement patterns and resource use. Understanding economic relations is crucial, particularly when many problems may stem from the issues surrounding too few people controlling the majority of the land, forcing others into nearly impossible situations.

Chapter 2

The Setting: Modern Honduras

Applying archaeology to modern issues can be a very difficult task, but it is certainly not impossible. This is an important component to the present study, especially considering that archaeological research questions have the potential to aid present populations by better understanding the modern local communities. By identifying the most pressing and prominent issues among a community or group of communities, with the community's help, the causes of these issues may be identified and addressed. In the case of northwestern Honduras, and specifically the Palmarejo Valley, lack of access to necessary resources, such as land and water, are at the root of the majority of economic and health problems. The following section will explore the social and political conditions that have led to minimal access to resources among rural communities with an investigation of agrarian reform in Honduras.

Background

Honduras, one of the poorest countries in the Americas—and the poorest country in Central America—experienced high rates of landlessness well into the 1970s (Lapper and Painter 1985; Loker 1996). With a total area approximately the size of Ohio, Ponce (1986) contends that Honduras is the least studied and least understood country in the western hemisphere. Honduras received independence from Spain in 1821 and scripted a constitution though, according to Mendez (1986:161), the benefits prescribed for the

public in the constitution did not reach the marginal groups. The one major exception in Honduras' history was agrarian reform that began in the 1960s. Before the 1960s, the government seemed to have little interest in the *campesinos* (rural farmers), as the focus was mainly on its international exports of bananas and silver in order to take part in the world economy after World War II (Euraque 1996; Kincaid 1985; Stonich 1991, 1993).

Agrarian Reform

The first action to put agrarian reform in motion followed the 1957 election of Liberal Party leader Ramón Villeda Morales. Facing pressure from petitions and protests of organized peasant groups and in the midst of globally mounting liberal attitudes, Villeda Morales created the National Agrarian Institute in 1962 with goals of reelection in 1963. Under the original agrarian reform, the government called for “the expropriation with full compensation of farmland not fulfilling its ‘social function,’ that is, those cultivable lands left idle and nonproductive” (Kincaid 1985:138). The response of those wealthy enough to leave land idle was immediate. Landowners fearing expropriation of unutilized agricultural and forest land were able to fence it, plant pasture, and stock it with cattle to achieve the necessary production status without greatly increasing labor inputs (Stonich 1993:68). Another technique used by wealthy landowners to exempt land from expropriation was engaging in continuous land transactions (Lapper and Painter 1985). This allowed for the landowners to claim that the unutilized land was switching hands, although it was clearly a technique to retain their holdings. Many of these efforts by the wealthy minority to retain their land resulted in increased cattle herding across the country (Figure 2.1).

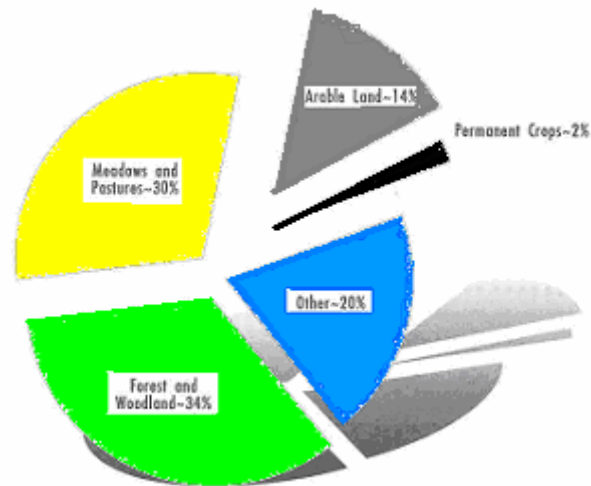


Figure 2.1. Land use in Honduras. Modified from Norsworthy and Barry 1994:70.

Although agrarian reform officially began in 1962, the Agrarian Reform Law was not properly enacted until 1972 (Euraque 1996:154). There were several reasons that contributed to this period of non-action. First, in 1963—only one year after Villeda Morales created the National Agrarian Institute—Colonel Oswaldo López Arellano assumed the presidency following a military coup. Even though military rule is often able to aid the majority better due to its somewhat autonomous status from the oligarchy (Lapper and Painter 1985:45), López Arellano was preoccupied attempting to establish political control in the country. As a result, only 453 families received land from agrarian reform between 1962 and 1966 (Kincaid 1985:136). In 1971, civilian rule was restored with the election of Ramón Cruz. However, with promises to enact agrarian reform, López Arellano was able to muster public support and regain presidency in a bloodless coup in 1972 (Euraque 1996:153).

Following the coup, the Agrarian Reform Law was successfully enacted in 1972. The following years (1972-1975 especially) resulted in many landless families receiving plots of sustainable land, with 35,000 families gaining from the reform (Lapper and

Painter 1985:64; Norsworthy and Barry 1994:76). By the end of 1982, 55,000 peasant families had been granted plots, yet this was only 14 percent of the country's rural population (Kincaid 1985:135). One of the strategies used by the government under López Arellano during this period was to place ceilings on the amount of land that could be privately held. While this allowed *campesinos* to receive slightly more governmentally distributed land, the ceilings were quite high, and lands used for export crops, including transnational holdings, remained exempt from the law (Norsworthy and Barry 1994:76). Despite the relatively successful attempts of the wealthy to maintain their land, this was the most productive period of land reform in the history of Honduras.

Honduras after Agrarian Reform

Eventually the Agrarian Reform Law slowed and ultimately ceased with mounting pressure from the oligarchy on the military government in the mid to late 1970s and with the country's recession in the early 1980s (Arriaga 1986:158). It is generally accepted that agrarian reform came to a halt in 1982. Many of the *campesinos* were still landless following the reform, and they began to organize and participate in land seizures on the property of wealthy land owners; one instance in 1989 even resulted in the seizure of 50,000 acres (Norsworthy and Barry 1994:76). Normally, these protests were met controlled by the Honduran military, and "many peasants participating in such actions have been jailed, tortured, or killed either by the military or by the landowners' private guards" (Norsworthy and Barry 1994:76). The Honduran government greatly changed their stance concerning agrarian reform after 1982, as individuals participating in land seizures and public protests were prosecuted under harsh antiterrorist laws.

In 1991, after nearly 30 years of reform, there were still 180,000 landless families—three times more than families who had actually been granted land (Norsworthy and Barry 1994). Additionally, most *campesinos* that profited from the reform were given land that was only marginally suited for agricultural pursuits; the best land remained underused and in the hands of the wealthy minority (Norsworthy and Barry 1994:78). The decisive strike to agrarian reform arrived with the passage of the Agricultural Modernization Law in 1992. In effect, this law eliminated all previous laws regarding agrarian reform and proposed three new goals: 1) eliminate all state intervention in the agrarian section, 2) bolster guarantees for private land ownership, and 3) promote new domestic and foreign investment in agriculture (Norsworthy and Barry 1994). Thus, agrarian reform had given way to the simple capitalistic mechanics of global supply and demand. Despite marginal successes, the history of agrarian reform in Honduras is a history of broken promises, and the country has gone full-circle in terms of governmental attitudes towards land reform leaving many Hondurans in a desperate state.

Of the newly available plots from the Agrarian Reform Law, many were located in northwestern Honduras, including the Palmarejo Valley. From this period into the present, the Palmarejo Valley has gone from being sparsely inhabited to experiencing the largest population since prehispanic times. Due to progressive land reform and the ability for landless people to claim newly opened plots, Honduras experienced massive internal migrations and population displacements. Many of the people currently living in the Palmarejo Valley are originally from highland regions to the south—largely Lenca populations—and have been accustomed to completely different agricultural and

economic processes than those appropriate to lowland regions such as Palmarejo (Davis-Salazar and Wells 2006).

Following the agrarian reform, environmental destruction ensued. In Honduras, wealthy landowners have lived alongside poor farmers since the explosion of the banana industry in the early twentieth century (Lapper and Painter 1985; Phillips 1997). As such, “Honduran landowners who could afford to expand production of profitable export crops did so by expanding their own landholdings, often annexing the land of peasants,” (Phillips 1997:173) and continued the practice as soon as the migrants took control of their land from the government. Unfortunately, the process was accelerated during the 1970s and 1980s as the global market increased demands for Honduran export products such as beef, fruit, wood, coffee, tobacco, and cotton (Ponce 1986). This process has been witnessed during the previous decades in the Palmarejo Valley.

It is widely recognized that in some cases both Honduran and international businesses are contributing not only to extreme poverty in the country but also environmental destruction, especially in the case of cattle ranching (e.g., Edelman 1995; Mendez 1986; Phillips 1997; Ponce 1986). The same fertile plains that are ideal for agriculture are being purchased by wealthy cattle owners, further expanding the gap between the wealthy and the poor (Stonich 1995) (Figure 2.2). Since 87 percent of Honduras’ terrain is classified as being inappropriate for intensive agriculture and better suited for forestry, the land crisis intensifies (Nygren 2005:641). The trend of a wealthy few holding the majority of the country’s best land limits the possibilities for the average farmer and has restricted access to natural resources for rural Hondurans (Phillips 1997).

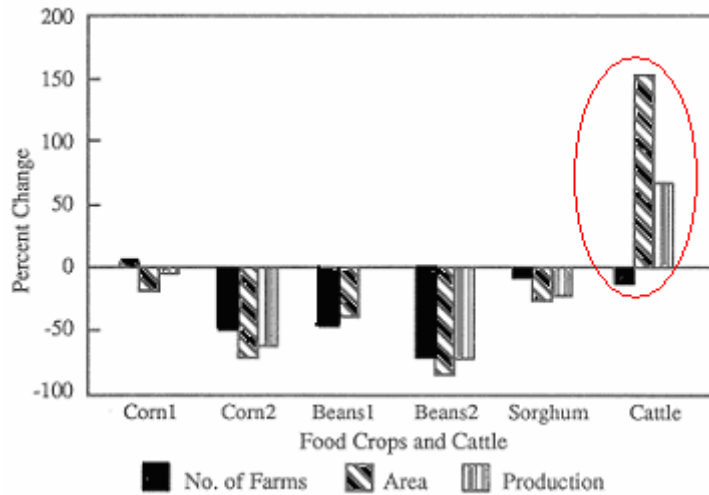


Figure 2.2. Percent change from 1952 to 1974 in land use. Modified from Stonich 1993:93.

The remaining possibilities for the majority of Honduran farmers are few. Generally, agrarian development is limited to: 1) the least fertile soil in the country, 2) steep slopes, and 3) regions limited to “traditional” farming techniques (i.e., no fertilizers or machinery) (Mendez 1986). Currently, this is the case in the neighboring Naco Valley as little natural vegetation remains due to massive cattle pastures and agriculture (Urban 1986). This is common practice in Honduras, as the period from the early 1960s to the late 1980s resulted in a 51 percent decrease in forested land in the country (Stonich 1993). In the Palmarejo Valley, the situation is more severe. Since the valley lacks the adequate transportation for the people to maintain construction or factory jobs (which are largely owned by international corporations), the residents are left to the decisions noted previously by Mendez. In the Naco Valley, however, the local presence of factories and decent transportation results in a shift from agricultural pursuits to wage labor, from which the resulting problems can also be tremendous (see Stonich 1991).

In many cases, farmers in the Palmarejo Valley have taken to the steep slopes in order to fulfill their basic subsistence needs (in fact, it has been my observation that this is the case in nearly every location that I have visited in northwestern Honduras) (Figure 2.3). This practice leads to the intensification of one of the most extreme and threatening environmental problems in the country today, deforestation. Excessive deforestation leads to soil erosion, water contamination, drought, and eventually desertification, as was experienced by the prehispanic Maya in some areas (e.g., Dunning and Beach 1994). In 1989, 10 hectares of forest were destroyed every hour in Honduras (Phillips 1997), and the figures have likely increased over the past 18 years. Since erosion exposes the bedrock, it is a virtually irreversible process that requires immediate attention.

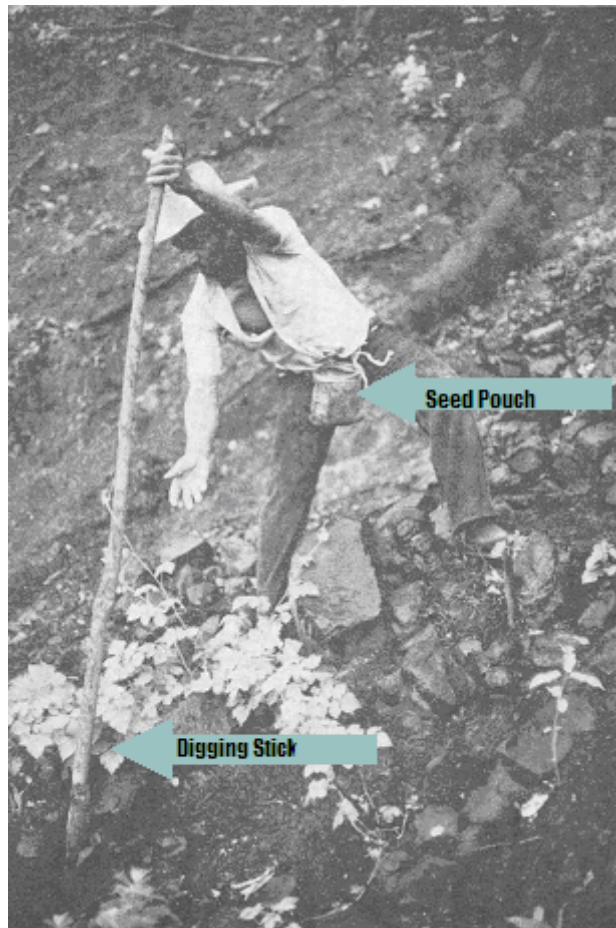


Figure 2.3. Farmer planting a steep slope. Modified from Stonich 1993:114.

According to Redman (1999:82), “soil is one of the thinnest and most vulnerable of natural resources, and it is the one upon which, both deliberately and inadvertently, humans have had major and often irreversible impacts.” Once the steep slope is farmed for a year or two, the soil necessitates a fallow period in which the nutrients may be replenished—which is extremely unlikely in this environment as erosion and soil loss are likely results. Whereas the valley floors allow for fertilizers or machinery to extend soil fertility, the inaccessibility of slopes makes these measures impossible. If traditional farming techniques are continued, more forest on the slope must be removed every planting season in order to provide new, fertile soils. Even with a small proportion of the population engaging in these practices, the permanent effects will quickly become a reality. Since farmers are unable to grow sufficient amounts of basic foods, many are forced to farm the least fertile soils in the country, migrate to an urban area, or immigrate to the United States in order to survive. Accompanied with these relocations are increased stress, alienation, and crime (Loker 1996).

The average Honduran has suffered greatly due to the cattle and cash crop industries, which have kept the prime land from the agrarian majority. According to Loker (1996:70), 80 percent of the country is below the poverty line and 70 percent are considered “absolute poor”—defined as people with “incomes inadequate to supply daily nutritional needs even if other basic needs are forgone.” Additionally, 38 percent of the children under five years old in Honduras suffer from malnutrition, with the figures reaching 76 percent in some regions (Stonich 1995).

Future Steps to Social and Environmental Stability

“The means must be provided for people to produce, earn viable incomes, engage in environmentally sound production practices, and to have access to the basics of development mentioned above: food, health, education, participation, and security of person” (Loker 1996:81). There are two major problems that may be addressed in order to improve the current situation: 1) skewed distribution of wealth and 2) skewed governmental priorities; both of which will continue to be accelerated with rapid population growth (Loker 1996). Some (e.g., Mendez 1986; Ponce 1986) have proposed that reforming and renewing the Agrarian Reform Law would alleviate the skewed distribution of wealth. The main goal of revising reformation is to reach a balance between wealthy cattle ranchers and subsistence farmers. Although private lands are well in place and it is easier to logistically deal with “resource-rich farmers who are fewer in number, easier to reach, more educated, wealthy, and influential” (Loker 1996:75), a program to retrieve some of the under- or unused lands from the wealthy few may prove fruitful. A similar project was implemented at Lepaterique, Honduras (near the capital, Tegucigalpa) and met great success (Nygren 2005). Arguably, this type of reform would not only address the skewed distribution of wealth but would also address the arena of current governmental policy.

With a strong industrial bias, the Honduran government often ignores producers of basic subsistence products—especially at the local level. The real challenge to improve the current system is to have the government address issues in rural areas before they further accelerate the worsening problems of the exponentially growing Honduran cities (Loker 1996). Some believe an increasing ecotourism industry will ameliorate

widespread deforestation, yet this will only be limited to specific tourist-accessible regions, while the rest of the country will continue to suffer. The ultimate goal for improving the quality of life in Honduras is to set a permanent program that is not only possible, but also practical. The most plausible solution will likely include the effective redistribution of land to “transfer incomes, goods, and services between distinct groups of the population” (Díaz Arrivillaga 1985:263) so that all are given the means to succeed.

Chapter 3

New People, Old Problems

“In the future, the interaction between environmental and political forces will mediate Third-World development in unprecedented ways” (Bryant 1992:12), especially as the degrading environment becomes a matter of not only political survival, but also human survival. After seeing the processes that have affected the average Honduran in recent history, it becomes quite clear that Honduras is in a similar place that it was 40 years ago—in need of reform. The structural issues did not change in the second half of the twentieth century and, in fact, may have intensified. The prime agricultural soils are in the hands of the small, wealthy minority who often reserve the land for cattle pastures. This, along with local urbanization, “is forcing rural agrarian communities composed of smallholders to make unsustainable land management decisions” (Davis-Salazar and Wells 2006:3), which are having increasingly negative effects on the local environment. It is proposed here that similar conditions were present in the Palmarejo Valley in prehispanic times. Increased population in the Naco (Urban 1986) and Palmarejo (Wells et al. 2004) valleys presumably would have increased political centralization leading to increased production and stress on the landscape. “Since the beginning of organized society, people have been drawing on the past to provide insights and models for contemporary behavior” (Redman 1999:195), when knowledge of the past is possible. Using a political ecology framework, I investigate the social causes of environmental

destruction and attempt to bridge the gap between ancient and modern Palmarejo.

Political Ecology and Sustainable Development

Political ecology focuses on how ecological changes and environmental decisions are affected by social, political, and economic forces and how the individuals and/or institutions that maintain control of resources are likely to be the same that maintain social, political, and economic power (Bryant 1992; Greenberg and Park 1994; Steinberg 1998; Stonich 1993). Both the ancient and modern Palmarejo Valley provide an instructive example of how these forces can come together to influence the formation and modification of the social and natural landscapes. Despite the fact that political ecology has been applied mainly to modern populations and environments, I will attempt to show how this theoretical framework is equally valuable for understanding past relations not only between humans, but also between humans and the landscape.

Before discussing my archaeological research questions and their modern implications, it is important to understand the formation of political ecology. Following the development of political economy, influenced by thinkers such as Marx and Weber, several new approaches have evolved in archaeology. One reaction to processual archaeology and political economy was postprocessualism, with its postmodern approaches that give more weight to meaning than materialism (see Hodder 1986). With an equal attempt to understand meaning and thoughts of past people, cognitive archaeology boasted similar goals as part of postprocessual archaeology while still involving testable hypotheses (see Renfrew and Zubrow 1994). More recently, agency approaches (see Gillespie 2001) have been popular in archaeology for investigating the role of individual cultural actors in the past. While all of these approaches have

contributed to the field as a whole, they seem to have little potential for applying archaeological data to modern problems.

Also deriving a heavy influence from political economy, political ecology is a relatively new theory for understanding societies and provides a complimentary blend of environmental, social, and economic issues. Eric Wolf (1972) was the first to use the term “political ecology,” yet he “did not elaborate on political ecology as a concept, a theoretical perspective, or as a methodological approach” (Stonich 1993:25). Blaikie and Brookfield (1987:17) were the first to advance political ecology as a theoretical framework in *Land Degradation and Society*, describing the new approach as combining “the concerns of ecology and a broadly defined political economy” encompassing issues of “society and land-based resources, and also within classes and groups within society itself.” With these goals, no single academic field was sufficient in conducting projects of this nature. The physical and social sciences were immediately involved, resulting in successful interdisciplinary discussions and collaborations. The first to adopt the theoretical framework were geographers, who were quickly followed by anthropologists, sociologists, historians, and others (Escobar 1999). Within a short period of time, academics who adopted political ecology were exposing the structural causes of poverty, environmental degradation, and their interrelatedness (e.g., Escobar 1999; Greenberg and Park 1994; Langton et al. 2005; Little 1999; Steinberg 1998; Stonich 1989, 1993, 1998).

Political ecology in anthropology, at the most basic level, is a cross between cultural ecology and political economy (e.g., Earle 2002). The theory differs from political economy as it includes, instead of disregards, all aspects of society that are not human (i.e., the natural landscape) with attempts to understand the relationship between

political and environmental forces and how they mediate environmental and social change (Bryant 1992; Greenberg and Park 1994; Stonich 1993, 1995). Moreover, political ecology refutes the idea that nature inevitably achieves a harmonious balance (Greenberg and Park 1994), while giving special attention to all classes, interest groups, and all relevant exterior factors that result in destructive consequences (Stonich 1993).

Applicable to archaeology, political ecology examines the political struggles for control over natural resources and how the outcomes are determined by those who maintain differential access. The intersection between political and social power and access to resources has been noted in political ecology research, generally when dealing with state policies (e.g., Nyerges 1992), internationally funded power and development projects (e.g., Cummings 1990; Loker 1998), and logging industries (e.g., Langton et al. 2005). As a result of the conflict over access to resources, commoners are pitted against economic elites who essentially have control over the land including flora, fauna, water, soil conditions, and other essential natural resources (Bryant 1992:22). If the situation is left unregulated, all sectors of society are affected, as seen with the fall of the dynasties at Copán, Honduras, as both “commoners and elites had to adapt to rapid changes in population size, distribution, and agricultural productivity” (Webster 2005:36). Using a political ecology framework, prehispanic and modern communities can be examined and compared from an environmental and economic perspective to expose the roots of economic, social, and environmental conditions.

Research Questions and Objectives

According to previous geoarchaeological work in the Naco Valley, Anderson (1992) contends that a rapidly growing population during the Late Classic period (ca.

A.D. 600-950) resulted in extensive soil exhaustion and, consequently, deforestation. Accompanying expansive farming in the foothills, was soil erosion—a largely irreversible process. This was not unique to northwestern Honduras, however, as studies have shown the same processes occurring across the Maya area (Olson 1981). Based on the patterns seen in the Palmarejo Valley, it is quite possible that similar trends took place there as well (Davis-Salazar and Wells 2006). The question then becomes, how did environmental degradation get to this point? The likely answer is that, with the increasing population and expanding settlement size, the landscape could not manage to support the agricultural needs of the people. The population surge during the Late Classic was probably accompanied by a large labor pool including administrators and artisans who also needed to be fed, intensifying agricultural production (Davis-Salazar and Wells 2006). Coinciding with the population increase, labor, in general, begins acting as a method for creating and sustaining inequalities (Urban and Schortman 2000:6). In the Naco Valley, this population increase occurred mainly at one site, La Sierra. In the Palmarejo Valley, however, there were five large sites that apparently all flourished throughout the Late Classic.

Why did this occur in the Palmarejo Valley, but not the Naco Valley? A possibility is that “jealousy and competition among farming households over increasingly differentiated productive landscapes and redistribution of their products” (Webster 2005:36) was occurring in the Palmarejo Valley. If this was the case, then one might expect to find that diverse and plentiful resources were available in different locations in the valley. Of course, intensified competition could result in overexploitation of the local resources resulting in extensive environmental degradation (Nyerges 1992). In order to

test these ideas, settlement pattern studies accompanied by quantitative analysis are employed to evaluate the power structures in the Palmarejo Valley and to what extent Palmarejo—the largest site and possible capital of the valley—controlled the available natural resources. Once the ancient Palmarejo Valley has been examined within a political ecology framework, it is important to apply the data that have been gathered with concern to the modern population.

The valley is presently experiencing its largest population since the Late Classic, and based on geoarchaeological work, is apparently suffering from the same kinds of problems seen in prehispanic times. In fact, Stonich (1989:269) contends that, overall in Central America, “the rates of depletion of forests, soils, fisheries, and other critical resources far surpass rates of renewal.” As a result, farmers will be forced to search for new methods of subsistence and resource management (Altieri 2002). Presently, household survival strategies have resulted in: 1) diversifying earning strategies, 2) increasing the participation of women in the workforce, and 3) intensifying and altering agricultural strategies (Stonich 1993:152). Obviously, all of these strategies result in drastic shifts in the lifestyles of those affected, as seen in the Palmarejo Valley. Largely to blame are global economic factors that are extremely attractive to a poor government, such as that of Honduras (e.g., Steinberg 1998).

The alternatives for small farmers are diminishing every day as resources are lost. If the archaeological data are going to be applied to the present people in the Palmarejo Valley, they will have the potential to empower the people with knowledge. Unlike most people across the world who migrate along kin networks (Nyerges 1992), many of the people in the Palmarejo Valley arrived from highland regions into environmentally very

different lowland regions where they lacked extensive familial ties. Sustainable development will mostly likely be possible if it operates along the lines of a ‘bottom-up’ approach that uses and builds upon the readily available resources (Altieri 2002:2). Currently, this seems relatively impossible with the wealthy few maintaining the majority of the land. Perhaps if decision makers are informed by farmers who are knowledgeable about the current destruction and can present scientific evidence, a change could be understood as essential to the survival of many people in the country. Including local people in archaeological work is vital to their ability to become informed about the local past and to have an active voice for the future, since participatory research can directly help local communities through scholarly inquiry (Whiteford and Whiteford 2005:6).

In the previous chapter, I discussed how modern Honduras is in a critical situation similar to that seen during prehispanic times. Prehispanic people were able to disperse over the landscape (or “collapse,” as the term is commonly applied to the Maya) when local environmental practices became unsustainable, but in modern times the land is simply not available. Put succinctly, “the past and present relationship between policy, politics or political economy in general and the environment needs to be explicitly addressed” (Greenberg and Park 1994:8), and the following chapters examine the Palmarejo Valley data with this intention.

Chapter 4

The Naco and Palmarejo Valleys

The Environmental Background

The Naco Valley encompasses 96 km² of relatively flat and fertile land that is clearly outlined by the Sierra de Omoa mountains in northwestern Honduras (Urban 1986) (Figure 4.1). The region is “environmentally transitional between the hot, low, densely vegetated Sula plain and the cooler forests of the hilly zones surrounding Copan” (Henderson et al. 1979:171), and like most of the Maya lowlands, the Naco Valley is underlain by carbonate rock (mainly limestone) and generally has good access to water (Dunning and Beach 2000).



Figure 4.1. Mesoamerica divided into cultural regions. Northwestern Honduras outlined in red. Modified from Carmack et al. 1996:30.

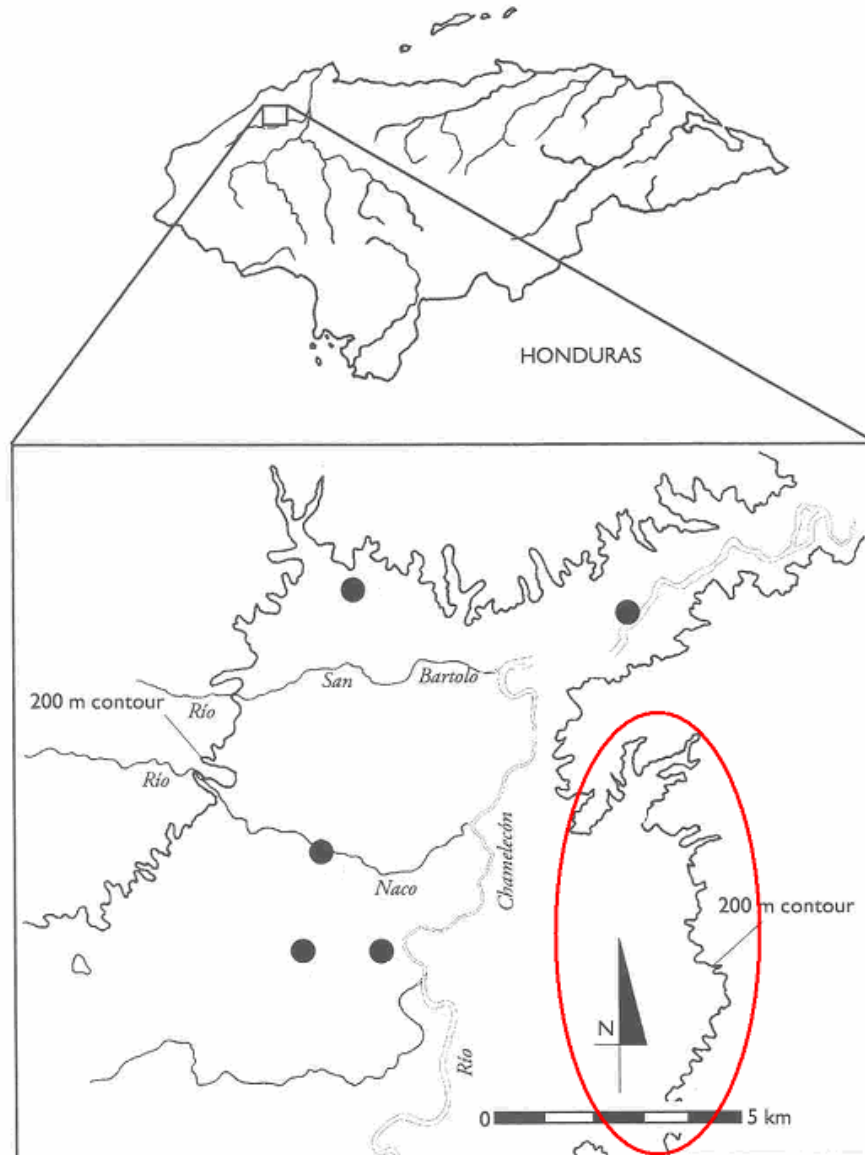


Figure 4.2. Naco Valley with major sites (bulleted) and neighboring Palmarejo Valley (circled). Modified from Urban 1993:30.

The Palmarejo Valley rests 2 km east of the larger Naco Valley (Figure 4.2), with virtually impassible mountains to the east and a low ridge with four passes to the west. The valley covers approximately 15 km² (Figure 4.3) generally sharing the same landforms, climate, and vegetation as the Naco Valley. Both valleys are situated approximately 100-200 m



Figure 4.3. Palmarejo Valley showing all sites. Modified from Wells et al. 2004:9.

above sea level and experience annual precipitation around 1300 mm (Urban 1986; Verdaasdonk and Wells 2006). The Naco Valley has year-round water supplied by three rivers that run through the northern and central regions: the Chamelecón, the Naco, and the Manchagua. The Palmarejo Valley, on the other hand, lacks any rivers and receives

its water through numerous *quebradas* scattered across the landscape. *Quebradas* are streams that are fueled by mountain runoff that cut deeply into the earth before filtering into small alluvial basins, supplying the earth with the necessary minerals for productive soil. Presently, only one of these *quebradas* (Quebrada Grande) consistently carries water year-round. While it is thought that during prehispanic times the majority of the *quebradas* carried water most of the year, in modern times the *quebradas* carry water into the valley only in the event of heavy rain—mainly due to heavy deforestation in the eastern mountains. To collect water, modern communities construct *presas*, or concrete holding structures, either at a spring source or high in the mountains where the *quebrada* flow is strongest.

Prehispanic and Contact Periods

Northwestern Honduras, central Honduras, eastern Guatemala, and El Salvador have widely been referred to as the “southeast Maya periphery” in previous years, or more recently “southeastern Mesoamerica,” a transition zone between Mayan and non-Mayan language groups (Henderson 1977; Schortman et al. 1986). Coinciding with a period of cooler temperatures and increased precipitation compared to the present (Messenger 1991), the prehispanic height of centralized occupation in southeastern Mesoamerica occurred during the Late Classic period (A.D. 600-950) in terms of human population and the intensity of information and commodity flow between the Maya (especially with the site of Copán only 120 km to the southwest) and the ancient inhabitants of the Naco Valley (Schortman et al. 1986; Urban 1986). In fact, Naco served as an intersection for merchants from highland Guatemala to the west, the Yucatán to the north, and traders from Central American ports further to the south (Carmack 1996:100).

In prehispanic times, southeastern Mesoamerica was home to speakers of both Mayan and Lenca language traditions who would have maintained frequent contacts with their Maya neighbors to the north (Douglass 2002; Schortman and Urban 1994; Sheets 2006). As stated, the prehispanic people of the Naco Valley are not necessarily considered to be Maya based on language patterns, yet from archaeological investigations it is clear that they emulated certain belief systems and cultural practices of the Maya, such as the ball game, site planning, and bloodletting (Douglass 2002:13). Wonderley (1985:257), however, states that *conquistador*, Francisco de Montejo, “in a series of judicial proceedings between A.D. 1530 and 1533...successfully established a case that the area...was ‘all of one language,’” likely being of the Cholan-Mayan group (Figure 4.4). Some agree with his contention (Carmack 1996), while others believe that Lenca speakers inhabited the Naco and Palmarejo Valleys (Wells and Davis-Salazar n.d.). This issue is still an area of debate and may not be settled in the near future.

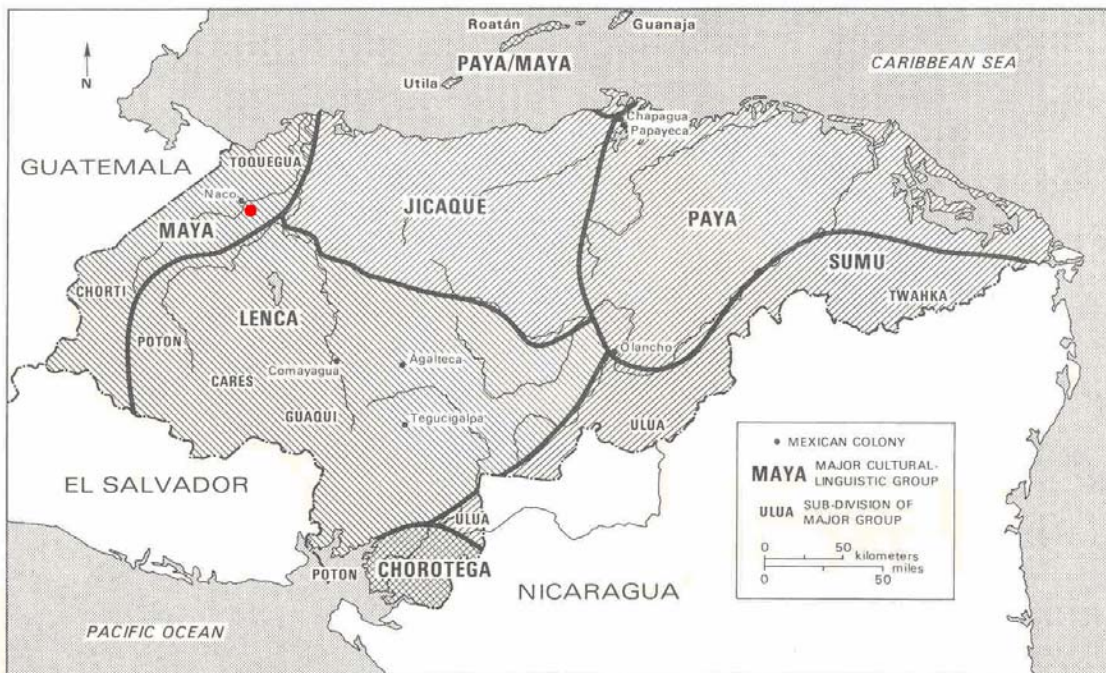


Figure 4.4. Prehispanic language groups in Honduras. Palmarejo Valley shown in red. Modified from Newson 1986:19.

Excavations show a period of occupation in the Naco Valley from ca. 1000 B.C. (Urban and Schortman 2000) well into the Postclassic (A.D. 1250-contact) (Wonderley 1986), with a substantial population presence continuing until Spanish contact (Henderson 1977). Although the Preclassic (1000 B.C. to A.D. 200) is not as archaeologically visible as the later Classic period (A.D. 200-950), ceramic analysis from midden excavations at the site of Santo Domingo in the Naco Valley show clear occupation during this period (Schortman and Urban 1991; Urban 1993). With three years of work completed in the Palmarejo Valley, ceramic analysis and radiocarbon dating have placed occupation from the Early Classic (A.D. 200-600) into the Postclassic. Although early archaeological investigations proposed that the greatest period of occupation in the Naco Valley was the Postclassic (Henderson et al. 1979), later investigations indicate population maximum during the Late Classic, which coincides with the height of power of the region's Maya neighbors. During the Late Classic, the Naco Valley was a major trade center in southeastern Mesoamerica, interacting with Copán and other southeast Maya sites (Schortman and Urban 1994), but more frequently with Ulúa Valley to the east (Henderson and Beaudry-Corbett 1993). Based on the work of the Proyecto Arqueológico Comunidad Palmarejo (PACP or Palmarejo Community Archaeological Project), the same holds true for the Palmarejo Valley (Davis-Salazar et al. 2005; Wells et al. 2004).

During the Late Classic, the Naco Valley contained 135 sites (Urban 1986), and the site of La Sierra—regarded as the political and economic capital of the valley—reached a peak of 468 structures, which is 10 times the size of the next-largest site in the valley (Urban and Schortman 2000). Of these, 37 structures are monumental (more than

1.5 m in height) whereas no other site in the Naco Valley has more than five monumental structures (Urban and Schortman 2000). The data from the Naco Valley are in sharp contrast to the patterns of the Palmarejo Valley. During the survey of the valley, we located 96 sites—most of which appear to date to the Late Classic (Wells et al. 2004). This figure is astounding when comparing the size of the two valleys, as the Naco Valley is roughly six times larger. Furthermore, the largest site in the Palmarejo Valley, Palmarejo, contains 93 structures of which 28 are considered monumental (Davis-Salazar et al. 2005; Wells et al. 2004). Surprisingly, only eight percent of the structures at La Sierra are considered monumental versus 30 percent at Palmarejo. Additionally, the second-largest site (in terms of total structures) in the Palmarejo Valley, Palos Blancos, contains 44 structures. This is virtually half as many as the site of Palmarejo. Lastly, three other sites in the Palmarejo Valley besides Palos Blancos contain at least five monumental structures—the next largest total after La Sierra in the Naco Valley. In the Naco Valley, this pattern indicates a strong political hierarchy at La Sierra, demonstrating the ability of rulers or elites to bring a large number of residences (and corresponding labor) near the administrative center so that the commoners could be more easily managed (e.g., de Montmollin 1989). The question then arises about the strength of Palmarejo's political authority. One has to wonder if the high percentage of monumental structures at Palmarejo is demonstrative of a less hierarchical system than La Sierra, or whether the site of Palmarejo as a whole was able to accumulate more wealth. The aforementioned observations will be discussed in greater detail in Chapter 6 and, while the Late Classic period is the focus of the archaeological data to be presented, it is important to explore the periods following the heights of these centers.

Following the collapse of the Copán dynasty (ca. A.D. 822) (Martin and Grube 2000), some of the elite neighborhoods, such as Las Sepulturas, continued to expand as did much of northwestern Honduras (Fash 2001). Even though the largest site in southeastern Mesoamerica, Copán, had lost its preeminence, the Palmarejo and Naco Valleys continued to grow, along with the majority of sites in northwestern Honduras. According to Wonderley (1986), the population of the Naco Valley continued to expand steadily until A.D. 1100 when the population began to decline slowly, as did the settlement hierarchy. During the Postclassic, the people living near the Caribbean coast of Honduras maintained sea-trade with inhabitants of the Yucatán who had moved towards the coasts following the Classic Maya “collapse” (Chase and Chase 1985). Due to Naco’s relative proximity to the coast, it is likely that they were involved in this network in some way due to their establishment as a major part of Classic and Postclassic period interaction networks (Carmack 1996).

Habitation continued in the Naco Valley until the arrival of the Spanish with Hernán Cortés. Cortés himself traveled through the Naco Valley as it “served as a base of operations for a number of Spanish parties,” even though “it never grew into a major European settlement” (Henderson 1977:366). A major reason for this lack of growth was the fact that the city of San Pedro Sula, to the northeast, was established as the Spaniards’ main regional settlement in 1536 by Pedro de Alvarado, a lieutenant of Cortés. The year 1536 is also thought to be the date when the Spanish destroyed the largest contact-period site in the Naco Valley, the town of Naco (Wonderley 1985). Conflict and disease, brought about with the arrival of the Europeans, caused the population of the Naco Valley to wane as the indigenous inhabitants either fled or died. By 1586, the area was

largely depopulated, with very few Indians remaining in the valley (Henderson 1977). Unfortunately, due to the short period between the Spanish arrival and the abandonment of the Naco Valley very few ethnohistoric accounts are available. The low population continued well into the twentieth century, when the region again offered economic opportunities with export cash crops, agriculture, cattle herding, and eventually, agrarian reform land and textile factories that supported population increase.

Previous Archaeological Investigations

To conclude the presentation of the background information necessary for understanding the Naco and Palmarejo valleys, it is important to recognize the previous archaeological work that has been conducted. The earliest archaeological investigations in this region were the result of a three week Smithsonian-Harvard expedition headed by Strong, Kidder, and Paul (1938) in 1936. The focus of this expedition was to examine the contact-period site of Naco. Test excavations were undertaken and a light reconnaissance ensued, though only five additional sites were located (Henderson et al. 1979).

Archaeologists did not return to the region until 1975 with the Cornell project. The main focus of the project was on the site of Naco with additional goals of surveying the valley (Henderson 1977). Beginning in 1978, Patricia Urban and Edward Schortman completed a full-coverage survey of the valley, the results of which were published in Urban's 1986 dissertation *Systems of Settlement in the Precolumbian Naco Valley, Northwestern Honduras*. Since 1985, Urban and Schortman have led the Kenyon College-Honduras field school conducting archaeological investigations in and around the Naco Valley focusing mainly on interregional interaction (e.g., Schortman and Urban 1992a, 1994, 2004; Schortman et al. 1986) and ceramic production and exchange (e.g., Urban 1993).

The Palmarejo Valley was first visited by archaeologists in the late 1980s when Urban and Schortman conducted a pedestrian survey. At this point, much of the valley was still overgrown and, fewer than 70 sites were located and recorded. Archaeological investigations were resumed in the Palmarejo Valley in 2003 by the PACP co-directed by Christian Wells and Karla Davis-Salazar. Since 2004, we have surveyed the entire valley, conducted test excavations at several of the largest sites, systematically excavated select portions of the site of Palmarejo, and taken surface collections from each of the 96 sites to help establish site chronology and function.

Chapter 5

Archaeological Methods and Previous Results

The 2004 Field Season

For the purposes of gathering as much information as possible about the Palmarejo Valley as a whole, several methods were used to produce a variety of spatial, temporal, and functional data (see Redman 1973). As Patricia Urban (1986) had completed a full-coverage pedestrian survey of the Naco Valley, the goals were to add to the Naco Valley survey and to note similarities and differences between the valleys in the initial PACP investigations in 2004. Archaeological survey has been one of the greatest sources for archaeological knowledge in Mesoamerica and continues to be one of the most cost and time effective techniques used in the field (Blanton 2005). While survey has often been used by archaeologists to establish population estimates (e.g., Ashmore 1981; de Montmollin 1987), it is also a productive means of examining interregional, inter-site, and intra-site variation (Blanton 2005; Levi 1996).

Beginning in late May, 2004, a local Honduran farmer and I accompanied Christian Wells and began a full-coverage pedestrian survey of the 15 km² Palmarejo Valley. The goal was to cover as much land as the vegetation would allow in order to locate all of the sites in the valley to expand further upon the previous work conducted by Urban and Schortman. A site is defined here as “any evidence of human occupation and/or use, taking in resource zones, sherd scatters, and more pronounced remains such

as mound groupings” (Urban 1986:277; see also Ashmore 2004; Willey 1953). Further, a site is a group of dwellings or human features on the landscape between which there is no more than 100 m of empty space (e.g., de Montmollin 1988). During our survey, any group or artifact scatter beyond 100 m qualified as a separate site. According to de Montmollin (1989:77), even without this arbitrary dividing mark it is relatively easy to group mounds into discrete house groups as they normally correspond to an obvious settlement gap (also see Chang 1958).

After making our way through barbed wire, tall grass, ant hills, thorns, cow dung, the blazing hot sun and humidity, wild dogs, and just about anything else the tropics have to offer for six weeks, we had covered the entirety of the valley and had located 96 sites. Once a site was located, its coordinates and elevation were recorded using a hand-held GPS unit that boasts an accuracy of 5 m. We used a meter tape (for each structure’s length, width, and height) and compass to create a map for each individual site. Soil samples were extracted approximately 100 m to the southeast of each site and were stored in sterile plastic bags and labeled according to the site number; sites were numbered in the order that they were located ranging from 1 to 96. The soils were later analyzed for fertility, which will be discussed in greater detail in Chapter 6 (see Verdaasdonk 2007 for the raw data). Finally, special notes were recorded concerning the site’s condition, relation to other sites or natural features, and agricultural or other economic endeavors that were undertaken in the region. Karla Davis-Salazar, José Moreno-Cortés, and Jolien Verdaasdonk mapped the site of Palmarejo with a total-station during this period, establishing a map for the largest site in the valley. Over one thousand topographic points were also included in the mapping process to allow for the

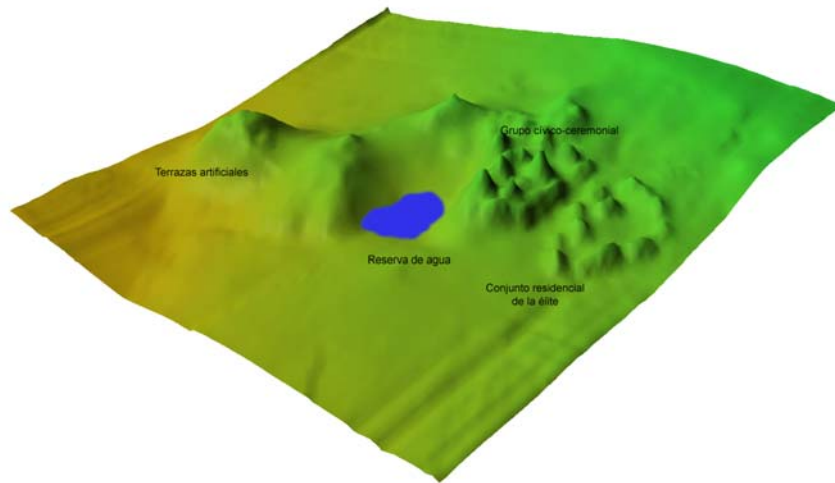


Figure 5.1. Surface map of Palmarejo. Adapted from Wells et al. 2004:6.

creation of a three-dimensional computer generated representation of the site (Figure 5.1). Near the conclusion of the field season, José Moreno-Cortés and I traveled with our local guide to visit each of the modern villages in the Palmarejo Valley (Campo Nuevo, Palmarejo, Mango, Palos Blancos, Las Contreras, El Morro, and Suyapa) (Figure 5.2) and inquired about local agricultural crops, water sources and quality, and general health in the community.

Following the conclusion of the 2004 field season, the data were examined and patterns began to emerge. As is often the case with survey studies, we noticed a hierarchy among the sites that was somewhat clear from the surface, and made much clearer when the data were examined as a whole. According to de Montmollin (1988:156), “in spite of the expected lack of ‘fit’, idealized hierarchical-scale models still have a place in guiding the analytical classification and study of actual settlement distributions.” When analyzing the settlement data collected from the Palmarejo Valley, there were surprisingly few

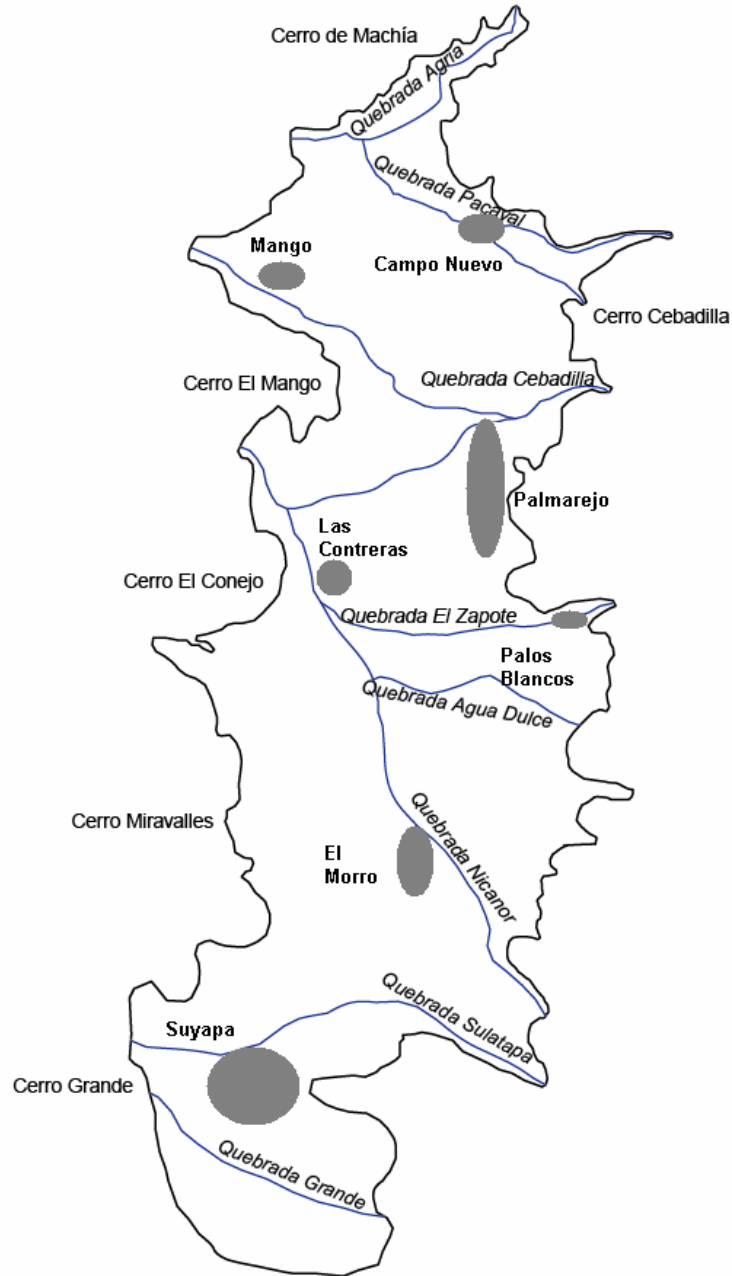


Figure 5.2. Palmarejo Valley showing modern residential areas (in gray). Modified from Wells et al. 2004:9.

cases where it was difficult to ‘fit’ a site into our hierarchical scale. The hierarchical system created for the Palmarejo was based on a number of variables that essentially examined the monumentality of a site. The system begins with artifact scatters and moves to the basic unit of settlement, the household, and then moves to the larger civic and

ceremonial structures which might indicate greater organizational complexity (Ashmore 1981:47). The result was the following five-class system (see Figure 4.3):

Class I: The only Class I site in the Palmarejo Valley is the largest site in the valley, Palmarejo (Figure 5.3). The site of Palmarejo contains 93 structures, more than twice as many as the next largest site. Of the total structures at Palmarejo, 28 are considered monumental (1.5 m or taller in height), mainly composing the civic-ceremonial center and adjacent elite residential compounds near the center of the site. In addition to large elite residences, administrative structures, and religious structures, Palmarejo housed a ball court and has possible evidence for water management (Wells et al. 2004).

Class II: There are four Class II sites in the Palmarejo Valley. These sites are generally one-half or one-third the size of Palmarejo, thus, containing over 20 total structures, some of which are monumental. The Class II sites vary greatly in their arrangement, with some being composed mainly of monumental structures and others appearing largely residential; however, despite the site's composition, sites in this class are generally the largest within 1 km in any direction. Starting at the northern region of the valley and moving south, the four sites are Pacayal (Figure 5.4), Palos Blancos (Figure 5.5), El Morro (Figure 5.6), and Suyapa (Figure 5.7). Along with Palmarejo, these sites are considered "community capitals," due to the fact that they are spaced relatively evenly throughout the valley, and tend to have a high concentration of Class IV and V settlements in their vicinity and.

Class III: With five sites in the valley, Class III sites are slightly more frequent than Class II sites. Class III sites are often similar in total structures to Class II sites, but are composed of large, residential structures and do not contain monumental architecture.

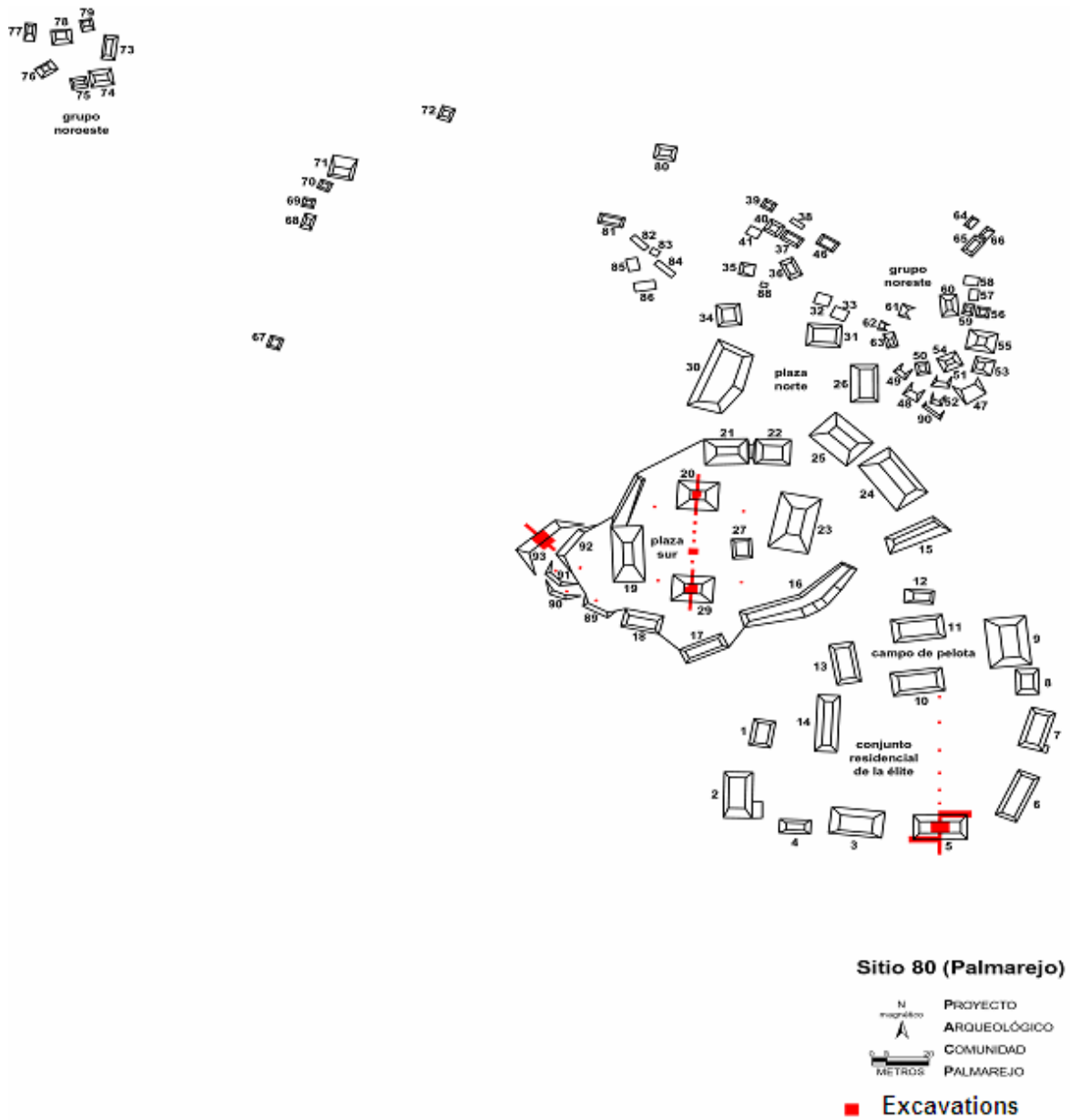


Figure 5.3. Palmarejo site map showing location of excavations (in red). Modified from Wells et al. 2005:22.

Generally, Class III sites resemble elite residential groups forming a central plaza, yet lack any special administrative or religious structures. Three of the Class III sites rest in close vicinity to Class I and II sites (two near Palmarejo and one near Palos Blancos), and may have maintained connections with the community capitals in the vicinity. The remaining two Class III sites rest on two of the four passes into the Naco Valley.

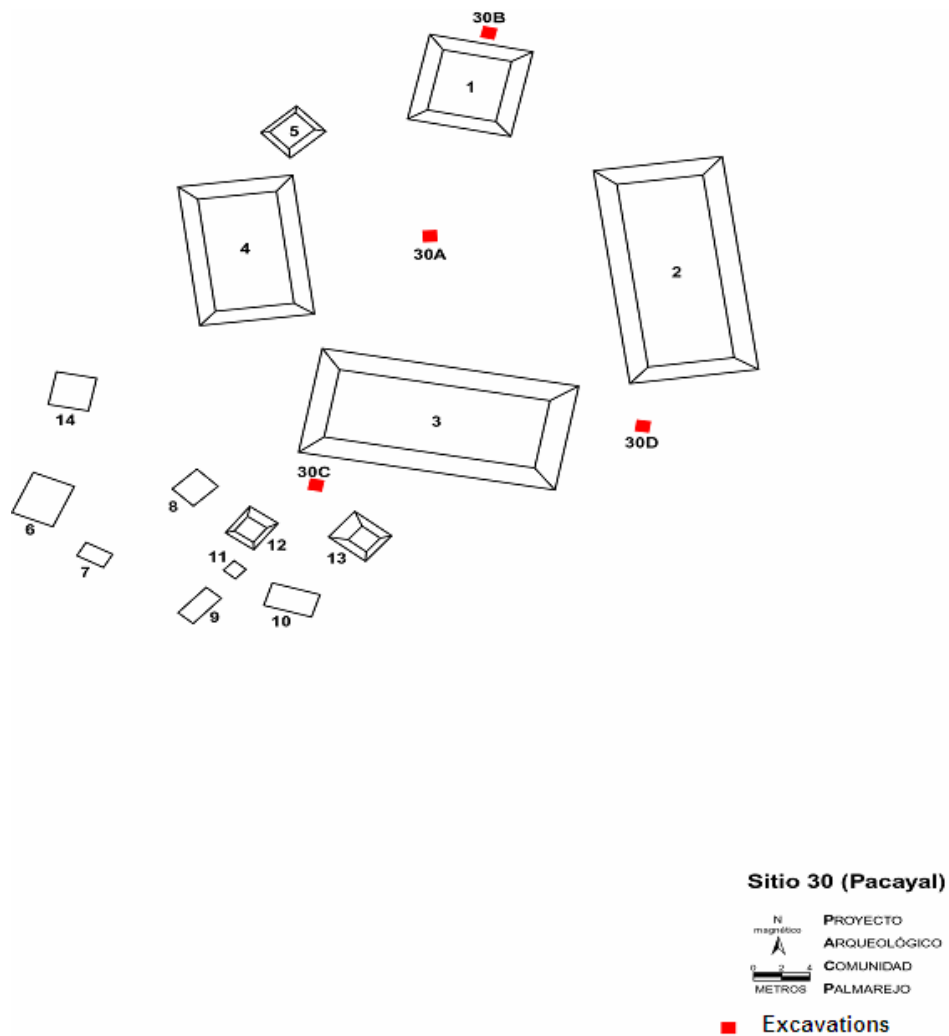


Figure 5.4. Pacayal site map showing location of excavations (in red). Modified from Davis-Salazar et al. 2005:11.

Class IV: There are 56 Class IV sites in the Palmarejo Valley, making them the most common in the valley totaling slightly over 58 percent of the total sites. Class IV sites may be regarded as the residential compounds for the common agrarian residents of the valley (Figure 5.8). Ranging from two to 24 structures, Class IV sites are quite diverse. The sites with only two structures are still regarded as households, and not field houses, based on the size of their platforms. At the other end of the range, the high figure of 24 is somewhat misleading. Generally a site with 24 structures would either be a Class II or III site; however, in the cases of Class IV sites with high structure totals the structures remain average in size and normally reach such high totals based on the presence of several common residential groups all within 100 m of one another. Generally speaking, the typical Class IV site is composed of three to six structures (usually no more than 8 m in length) that encircle a small, central patio.

Class V: The second most common site-type found in the Palmarejo Valley at approximately 31 percent (30 sites) are Class V sites (Figure 5.9). The majority (approximately 93 percent) of Class V sites are a lone mound or an artifact scatter that lacks structures. Unlike the other classes, Class V sites are the only site-type that does not commonly rest near the banks of the valley's *quebradas*. This is probably because they were agricultural features, such as field houses, that were used by the prehispanic farmers while tending to their fields.

At the end of the 2004 season, the basic foundation was laid for examining the Palmarejo Valley. We had completed a map of the largest settlement (Palmarejo), a full-coverage survey resulting in a system for organizing the different site types located, and

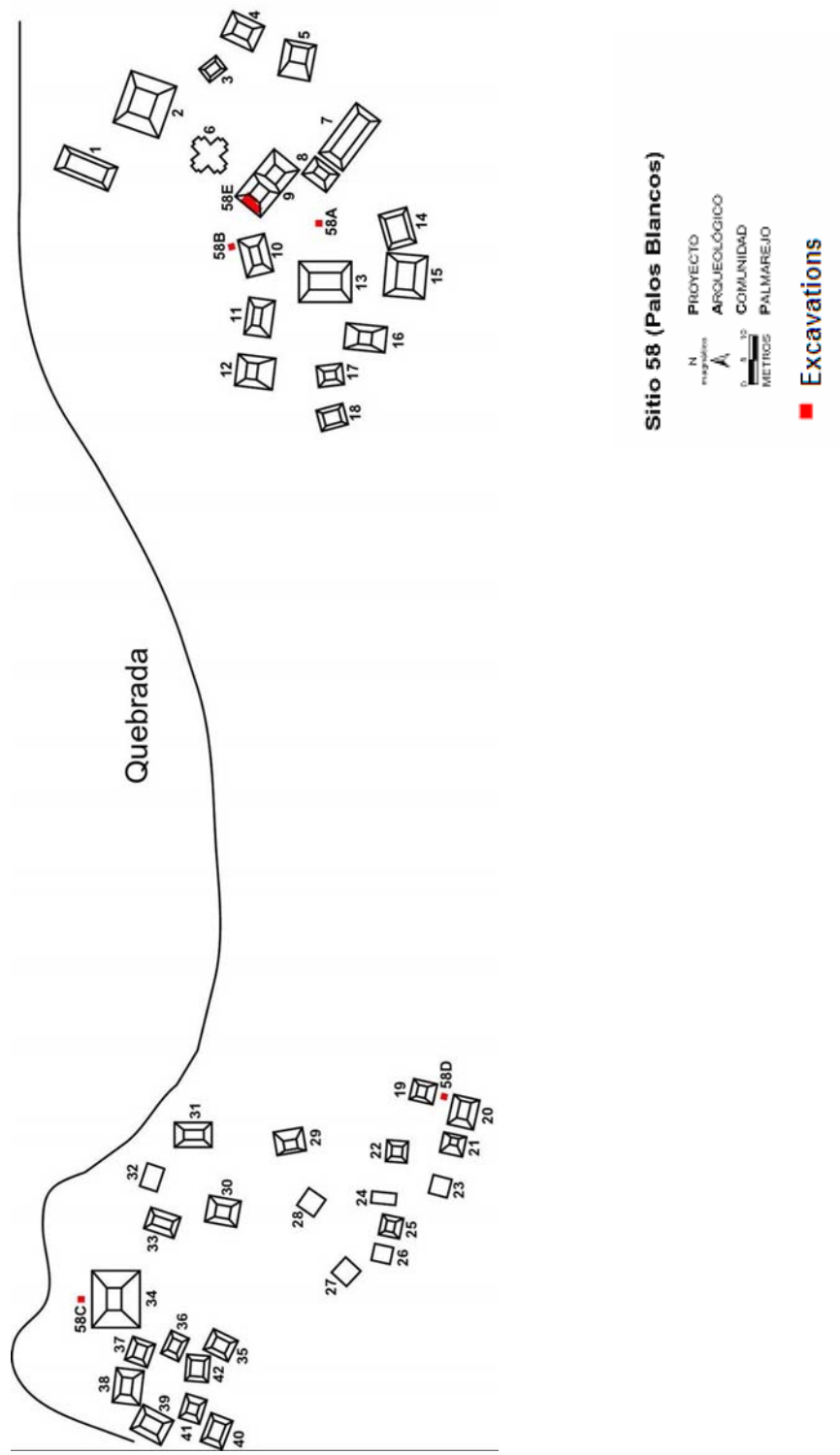


Figure 5.5. Palos Blancos site map showing location of excavations (in red). Modified from Davis-Salazar 2005:12.

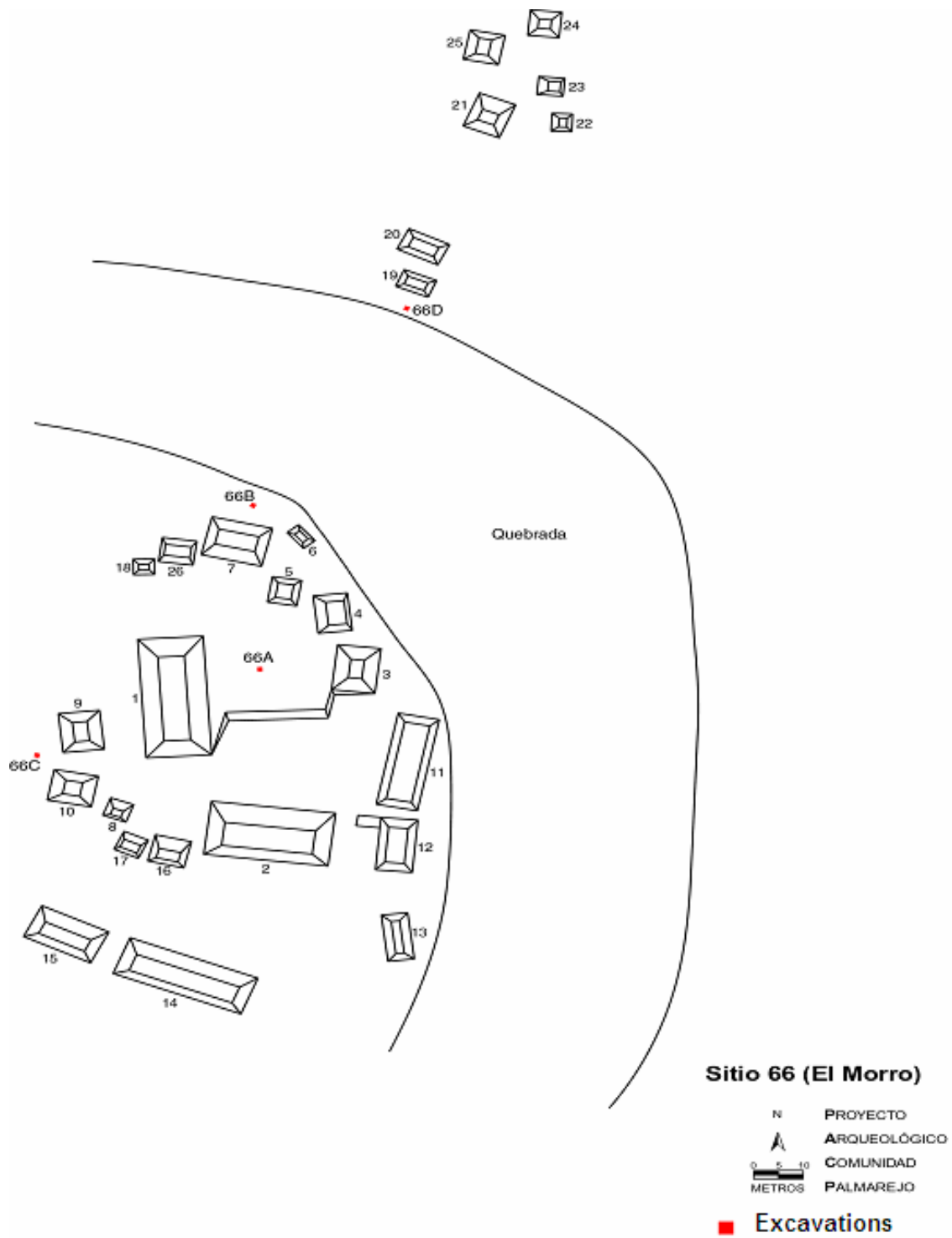
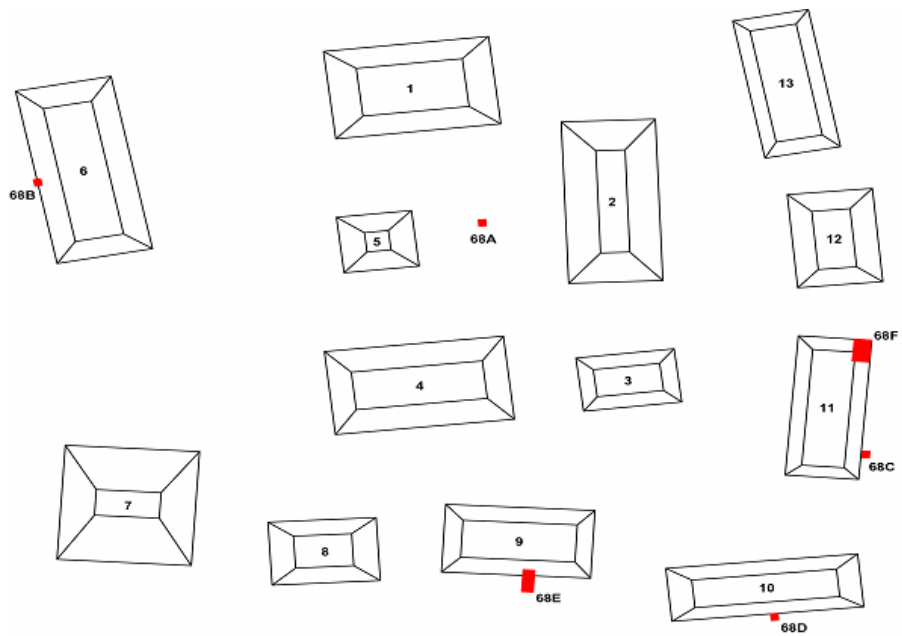


Figure 5.6. El Morro site map showing location of excavations (in red). Modified from Davis-Salazar et al. 2005:18.

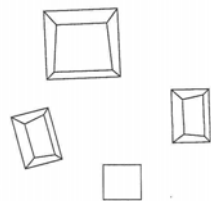


Sitio 68 (Suyapa)

N PROYECTO
 A ARQUEOLÓGICO
 COMUNIDAD
 METROS PALMAREJO

■ Excavations

Figure 5.7. Suyapa site map showing location of excavations (in red). Modified from Davis-Salazar et al. 2005:20.



Sitio 64

N PROYECTO
 A ARQUEOLÓGICO
 COMUNIDAD
 METROS PALMAREJO

Figure 5.8. Site 64. Typical Class IV site. Adapted from Wells et al. 2004:122.

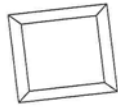


Figure 5.9. Site 2. Typical Class V site. Adapted from Wells et al. 2004:17.

information concerning the modern population in valley. Although investigations of centralization and hierarchy, as presented above, often assume a relationship between size and power (Rice 2004), many hypotheses were generated from the first field season of the PACP. Several were tested the following season.

The 2005 Field Season

With a spatial knowledge of the prehispanic settlements in the Palmarejo Valley, it became necessary to establish a temporal sequence. As with Urban's (1986) work in the adjacent Naco Valley, a greater emphasis was placed on the larger sites to collect data that could lead to a solid chronology. Typically, the larger sites will have a wider variety of ceramics that can be used to establish dates; smaller residential groups have a greater proportion of plain wares lacking stylistic markers. Knowing this, the decision was made

to excavate test units at each of the community capitals (Class II sites—Pacayal, Palos Blancos, El Morro, and Suyapa).

Four 1 m x 1 m test units were placed at each of the four sites. At least two test units were placed off the back side (away from the central plaza) of two separate structures, normally with assumed different functions (i.e., an elite residence and an administrative structure). Based on the previous systematic excavations in the Naco Valley and other regions in northwestern Honduras, it was known that the prehispanic inhabitants would generally dispose of their garbage in this location. The central plazas would remain relatively clean and the region behind the structures, out of regular view, served as the disposal location. An additional test unit was placed in the center of the central plaza, and the final test unit was placed opportunistically based on the arrangement of the particular site. The placement of these test units not only allowed us to gain chronological data on the sites, but also provided insight into structure and site function as well. Figures 12, 13, 14, and 15 show the specific locations for the test units for each site.

From this work, we were able to gather sufficient carbon (charcoal) samples that were transported back to the United States for radiocarbon dating. Additionally, vast quantities of ceramics were recovered and analyzed by Urban, Schortman, and Wells to determine function, approximate date (based on style), and the geographic origin of the ceramic pieces recovered from excavations. The results of these analyses revealed a good deal about each of the sites in the valley and about the valley as a whole, as most ceramics appear to have been manufactured within the valley. Also, we used a Trimble total-station to create the site maps seen throughout this thesis at all of the Class II sites.

Finally, systematic excavation was conducted at the site of Palmarejo. Excavations of elite residences, presumed religious structures, and terraces revealed much about the site's history, which is examined in Chapter 6.

The 2006 Field Season

With the conclusion of two years of archaeological survey I contributed to in the Palmarejo Valley, there was still a critical gap in the data. Although we had visited all of the sites in the valley in 2004, we did not have permission from the IHAH (Instituto Hondureño de Antropología e Historia) to collect artifacts until the 2005 field season. Taking surface collections from all of the sites would help to identify the chronology of the sites (based on ceramic analysis), further expanding our temporal knowledge of the valley, and might also reveal possible site functions (e.g., Redman 1973; Redman and Watson 1970). With proper permission in 2006, it was deemed necessary to revisit each of the sites to conduct surface collections. Three field school students, two local Honduran guides, and I set off to revisit each of the 96 sites. Surface collections were conducted using two different sampling strategies, the first being systematic collection. Systematic surface collection was done simply by establishing a point where surface artifacts were visible and collecting all of the artifacts within a 1 m radius using a metal stake and a 1 m rope. This so-called “dog leash” method accounted for the majority of the surface collections. The second method, opportunistic collection, entailed collecting anything “special” (beyond average ceramic sherds or lithic flakes) that we happened to find at the sites, and sometimes during hikes between sites. Overall, we had relatively few opportunistic finds except for those at recently bulldozed sites. Besides the survey

work, extensive systematic excavations at both Palos Blancos and Palmarejo were conducted (Wells et al. 2006).

In both the 2004 and 2005 field seasons, the PACP had noticed a great deal of damage done to sites in agricultural fields and in residential areas. Normally, the smaller structures would be bulldozed to make way for more crops to be planted in *milpas*, or agricultural fields. In residential settings, structures of all sizes would be looted for the large stones in the mounds, which were commonly used to construct modern houses. In some cases, large structures in residential zones appeared to have been looted for artifacts. During the visits to each of the sites in 2006, we conducted a “damage report” noting the number of structures that were damaged at the site and roughly what percent each individual structure was damaged. This was done by examining each site and comparing it to the site maps and notes that were compiled in 2004 (this will be discussed further in Chapter 6).

The survey conducted in 2006 also served two other important purposes. First, GPS points were recorded from the center of each site. Although this was accomplished in 2004, recording the sites’ coordinates a second time would allow us to average the figures from the two years to reduce the error inherent in hand-held GPS units. The second purpose was to investigate the subsistence practices in each region, as well as natural resources that may have been utilized in prehispanic times. During the 2005 field season and the ensuing analysis, a pattern of unique resource catchments began to appear. Each of the community capitals appeared to have its own distinct catchment that would have provided a possible economic base.

With the conclusion of three field seasons, a great deal of data had been compiled from survey methods regarding site formation, valley settlement, resource location, and modern land use. Further, systematic excavations and test units have given a functional and temporal insight into the settlement of the prehispanic population, strengthening knowledge of the Palmarejo Valley settlement system. The following chapters will use these data to investigate the ancient and modern settlement patterns with regards to power structures, interaction, and resource use in the Palmarejo Valley.

Chapter 6

Settlement Patterns and the Palmarejo Valley

Settlement Patterns: Contributions to Archaeology

Settlement pattern studies have proven to be one of the most efficient and rewarding methods in archaeology. “Because settlement patterns are, to a large extent, directly shaped by widely held cultural needs, they offer a strategic starting point for the functional interpretation of archaeological cultures” (Willey 1953:1). Although most credit Gordon R. Willey’s (1953) *Prehistoric Settlement Patterns in the Viru Valley, Peru* as the first contribution to contemporary settlement pattern studies, Julian H. Steward (1937) was one of the first to argue that analyzing settlement patterns would be an effective strategy for archaeological investigations.

After Willey’s work in the 1950s, settlement pattern studies were incorporated by cultural ecologists in the 1960s and 1970s (see Sanders 1962), and continue to be heavily utilized into the present day by archaeologists around the world. Before continuing, it is important to define both community and landscape. Archaeologically, I view a community as a group of people related spatially on the landscape who display a common artifact assemblage. Obviously, there are many more components that constitute a community, however, survey methods limit the dataset in this case. I define landscape following Ashmore (2004:171) as “embracing the environment and the human activities and settlement supported there,” while also including “a mosaic of smaller landscape

elements” (Fedick 1996b:335) in a heterogeneous land area. Settlement pattern studies are helpful in recognizing communities that may be created by geographic boundaries, while excavation can prove useful for identifying artifacts that were used to define communities in the past.

Settlement patterns “reveal how multiple households are organized in communities and larger social, economic, and political groups” (Ashmore 2004:171). This is done by examining individual structures, site layout, and settlement distribution across the landscape (Voorhies 1972). Structure and settlement size are often equated with economic status (i.e., more labor is needed to construct more and larger structures) and hierarchical relations in a given region. Agricultural practices and settlement patterns are clearly interrelated subjects (Willey 1989:167), as people often arranged their farmsteads to maximize their production on the landscape—the Late Classic inhabitants of the Naco and Palmarejo Valleys are no exception. Because of this organization, agriculture and economics become intertwined as agricultural surplus acts as the base of social differentiation. In the Palmarejo Valley, we have established a relative hierarchy with the previously described class system and have been able to do so based on data collected from our survey. Obtaining survey data and conducting settlement pattern studies is not an end in itself for archaeological research. Instead, survey data should be used to create testable hypotheses that may support or reject the patterns that are conceived from settlement studies.

Studies in settlement patterns are not without faults. While “settlement investigation also takes into consideration other archaeological data, such as artifacts and monuments, insofar as these are useful in identifying, dating, or otherwise explicating

settlement features” (Ashmore and Willey 1981:3-4), it may often be difficult to account for temporal aspects of long periods of settlement. Settlement shifts over time are due to demographic changes and political influence, and later settlements are frequently constructed above older ones (Ford and Fedick 1992:44). From surface collections, general time spans for the last phase of settlement may be obtained (Ashmore 1981), though “it is through the combination of survey with excavation of selected sites that the most significant insights and consequently the most refined methods are to be achieved (Hendon 1992:23). Following this logic, our initial season of survey work was followed by test excavations of the Class II sites and further surface collections of all sites to expand and fine-tune the timeline of settlement in the Palmarejo Valley.

According to Ashmore and Willey (1981), settlement pattern studies have been directed at two main problems, 1) ecological issues, or people in relation to their environment and 2) social and political issues, or relationships between people on the landscape. Implementing the methods previously described, some inferences can be made concerning social and political organization in the past. With the aid of geoarchaeological studies, the data collected during archaeological survey can help link the role of the environment to socio-political settlement decisions. That said, merging knowledge of ancient and modern human and environmental interaction, with a political ecology framework can bridge the gap between the past and present, ultimately allowing for the application of archaeological data.

Defining and Differentiating Structure Types

Previous archaeological excavations in northwestern Honduras have enabled archaeologists working in the region to infer structure function based on the size and

shape of the surviving mound (e.g., Douglass 2002; Urban 1986). For an additional analogical tool, I have chosen to use the Ceren site example due to the site's excellent preservation. Like the Palmarejo Valley, the Ceren site is also in the region referred to as southeastern Mesoamerica. While the site is in present day El Salvador, the area appears to have been a boundary zone between Maya and Lenca speaking groups (Sheets 2006), much like northwestern Honduras. With these previous archaeological investigations, I will describe and differentiate the structures that have been recorded in the Palmarejo Valley.

By examining the architecture of the Palmarejo Valley from the construction phases to the final product, it is possible to learn much about social organization, lifestyle, and even worldview of the ancient inhabitants (Inomata and Triadan 2003). Across the Palmarejo Valley, households vary greatly in terms of composition, wealth, and economic activities as they did in the Naco Valley (Douglass 2002), which might coincide with the available local resources (mainly water and fertile soil) and the value that those resources held within the community (Abrams 1995). While most of the structures recorded in the Palmarejo Valley are part of a domestic group, it is important to remember that not all structures were for sleeping—socializing and activity structures must have also been present (Sanders and Webster 1988; Webster and Gonlin 1988). Whether the sites were composed of large, elite residences or small, commoner structures, most households probably had gardens and/or fruit-bearing trees in close vicinity to their residences (Killion 1992; Reina and Hill 1980).

The building process of virtually any structure found in the Palmarejo Valley would begin by creating a platform. A core of stones would be set and filled with a

mixture of rocks and earth with water often added to pack the fill and create a solid foundation (Abrams 1994). On top of the platform would rest the superstructure. The superstructure is constructed several different ways in southeastern Mesoamerica ranging from cut-stone, as seen at Copán (Fash 2001), to packed adobe at some structures at Ceren (Sheets 2006), or wattle and daub frequently utilized across Mesoamerica (Abrams 1994; Willey 1989). Based on the discovery of *bajareque* (burned clay and stick) at all of the community capitals, wattle and daub was probably the method regularly used to create superstructures in the Palmarejo Valley (Davis-Salazar et al. 2005). The superstructure was then covered with a thatched roof, which was larger than the superstructure, allowing for additional covered space used for storage and other activities outside of the structures' walls (Sheets 2006). The thatched roofs were so large, in fact, that structures less than 2 m apart would have overlapping covered space (Sheets 2006). This likely accounts for the fact that, on average, structures are 2-3 m apart in domestic groups in the Palmarejo Valley.

Regardless of a household's size in southeastern Mesoamerica, it would typically contain sleeping quarters, storehouses, kitchens, workshops, social areas, gardens, and *milpas* (Sanders and Webster 1988); some of the larger sites may also include ritual/religious and civic/administrative structures. Agrarian groups with smaller structures (mainly Class IV sites) often produce limited types of products at a greater intensity (Douglass 2002:67) with a greater frequency of utilitarian vessels for everyday use (Robin 2004). These products can be quite diverse based on the locally available resources, yet these domestic sites are often both agrarian and craft-oriented (Sheets 2006). Small, agrarian households normally sit on platforms less than 1 m in height and

have artifact assemblages that include ceramics, lithic fragments, bone, censer fragments, and *jute* (a conical-shaped land snail). In middens, *jute* is normally found with the point of the shell broken off; the shell would then be boiled in order to extract the snail for consumption.

Large dwellings in elite residential compounds are very similar to the smaller domiciles in commoner households, except they would be set on a higher platform and would be slightly larger and more diverse in form, thus, displaying the elite's ability to pool labor (Carmean 1991). The people living in elite residential groups also participated in a wider variety of activities (i.e., figurine manufacture) and their structures contained more diverse objects (i.e. imported and more elaborately designed ceramics) than those of their agrarian neighbors (Douglass 2002). Overall, the division between commoners and elites is seen through settlement hierarchy, variability in labor investment among domestic structures, and the presence of luxury items (de Montmollin 1989). While elite residences "provide critical data concerning the nature of social stratification, administrative mechanisms, and dominant ideologies" (Inomata and Triadan 2003:154), it is important to remember that not all large structures represent a continuum of power and, also, that not all elites necessarily lived in large residences.

At both elite and common agrarian residential groups, there would be several other structures present, for example, roofed but open-walled workshops for ceramic, lithic, and/or agricultural production (Sheets 2006). Storehouses containing a variety of perishables, such as cotton seeds, cacao, maize, beans, chiles, and squash (Gerstle and Sheets 2002), and kitchens with thatch roofs and walls with hearths, ceramics, lithic tools, and a variety of subsistence goods are also common (Beaudry-Corbett et al. 2002).

Additionally, ancestor shrines—lone mounds housing the deceased founder of a residential group—may be present at both elite and commoner locations. These shrines may serve to establish “first occupancy,” claiming kin ties to the land, while another method to maintain familial claim is to bury ancestors under or around the family residence (McAnany 1995:105).

At centers in Mesoamerica, including Palmarejo, civic and ceremonial structures would be erected as a monumental display of either important people or a culturally important activity (de Montmollin 1989). At Ceren, an excavated civic structure was 8 m x 5 m and 1.3 m high and was largely absent of artifacts (Gerstle 2002). In the Palmarejo Valley, civic or administrative structures are also thought to be rectangular in shape, relatively devoid of artifacts, and over 1.5 m in height. Many of the civic structures located at the community capitals in the Palmarejo Valley are much larger than 8 m x 5 m, with some having lengths over 15 m at Palmarejo, El Morro, and Suyapa. Ritual or religious structures, on the other hand, are normally recognized as square-shaped mounds that are quite tall and steep compared to other structures. At Ceren, marine shells were excavated in a religious structure as were ceramics and groundstone (Simmons and Sheets 2002). Surface collections (Wells et al. 2004) and systematic excavations (Davis-Salazar et al. 2005) have shown that religious structures at Palmarejo have yielded ceramics as well as five *Spondylus* shells (Novotny 2007). *Spondylus* shells hold great ritual importance in the Maya area as they are found in ritual caches (e.g., Freidel and Schele 1988) and are believed to have been used to catch blood during bloodletting ceremonies, yet the frequently associated stingray spines (e.g., Ashmore 1991) have not been found at Palmarejo. A cache of *Spondylus* shells was found within a large ritual

deposit at La Sierra (Schortman and Urban 1994), and over the course of two years (2004-2005) four whole shells and one smashed shell, ceramics, and censer fragments were found among the religious structures at Palmarejo (Novotny 2007), yet not in large quantities as seen at La Sierra (Wells et al. 2004). Amazingly, one of these shells contained a piece of jade on the inside (Figure 6.1).

Settlement Patterns of the Palmarejo Valley

Even though the Palmarejo Valley lacks a constantly running water supply, there is a high frequency of *quebradas* for such a small valley. As mentioned before, geoarchaeological studies have suggested that *quebradas* in the region ran much more frequently in prehispanic times than they do presently. The *quebradas* are spaced somewhat evenly (north to south) as they travel east to west across the valley, resulting in dispersed site location (see Figure 4.3) and differing greatly from the highly nucleated pattern in the Naco Valley. All of the community capitals (Class I and II sites) rest in the



Figure 6.1. *Spondylus* shell containing jade piece found at Palmarejo. Adapted from Davis-Salazar et al. 2005:28.

eastern foothills of the valley alongside one of these *quebradas*. Establishing the largest sites along the eastern foothills of the valley (the highest elevation) was a strategic move for several reasons. First, the water flow from the *quebradas* would have been strongest at the points where they entered the valley, best supplying a large group of people. Second, placing the largest settlements in the rocky foothills opened the more fertile soil in the floodplains to be used exclusively for agriculture and small farmstead communities. Finally, establishing settlements in the eastern portion of the valley could have been a defensive decision. The mountains to the east of the Palmarejo Valley are extremely steep and difficult to pass, thus, making it unlikely that unexpected visitors would approach from this direction. The likely passes were primarily from the west, and somewhat to the south. Establishing communities in the eastern foothills would have allowed for preparation in the case of conflict, as it would take a rival at least 20 minutes by foot to cross from the western passes to the eastern edge of the valley. Defensively, resting at a higher elevation in the eastern portion of the valley would have allowed for lookout points for those approaching the community capitals or even entering the valley.

Based on the clustering of sites around community capitals, the valley has been divided into five sections. Interestingly, near each of the community capitals is a large modern settlement. In all of the cases besides Pacayal and El Morro, the modern village

Table 6.1. Prehispanic and modern regional structure totals for the Palmarejo Valley.

	Pacayal	Palmarejo	Palos Blancos	El Morro	Suyapa	Total
Late Classic	57	249	174	115	99	694
Modern	89	149	40	68	199	545

is built on top of and/or around the prehispanic settlements. There are only two communities that are not associated with a Class I or II site (Mango and Las Contreras—the smallest modern settlements in the valley); however, these two villages are built around two of the larger Class III settlements. This pattern indicates that the areas that were attractive in the past are still the most desirable today. While access to water is likely the primary reason, it is likely other variables were involved as well. Additionally, the total number of Late Classic structures is very similar to the total number of modern structures in the valley (Table 6.1), possibly indicating a similar population in the valley for the two periods. Below, each of these sections will be described in more detail in relation to regional soil fertility, other important resources, archaeological discoveries, and contemporary settlements (Figure 6.2).

Pacayal

The northernmost of the community capitals, Pacayal, rests only about 1 km north of Palmarejo; however, it is nearly a 30 minute walk due to the rugged terrain. Overall, the region contains less floodplain than the rest of the valley being composed mainly of foothills and alluvial fans (Kuehn 2006). Pacayal (see Figure 5.4) and its neighboring sites rest alongside Quebrada Pacayal. Within the site boundaries, Pacayal has fewer structures than the other Class II sites, but rests among a diverse array of resources. Most prominently, pine trees are abundant in this region, providing an excellent supply of building material that would have been more desirable than the trees of the *selva* (jungle). Additionally, the Pacayal region contains large deposits of building stones, such as schist, that may have been a valuable resource used for flooring special purpose buildings

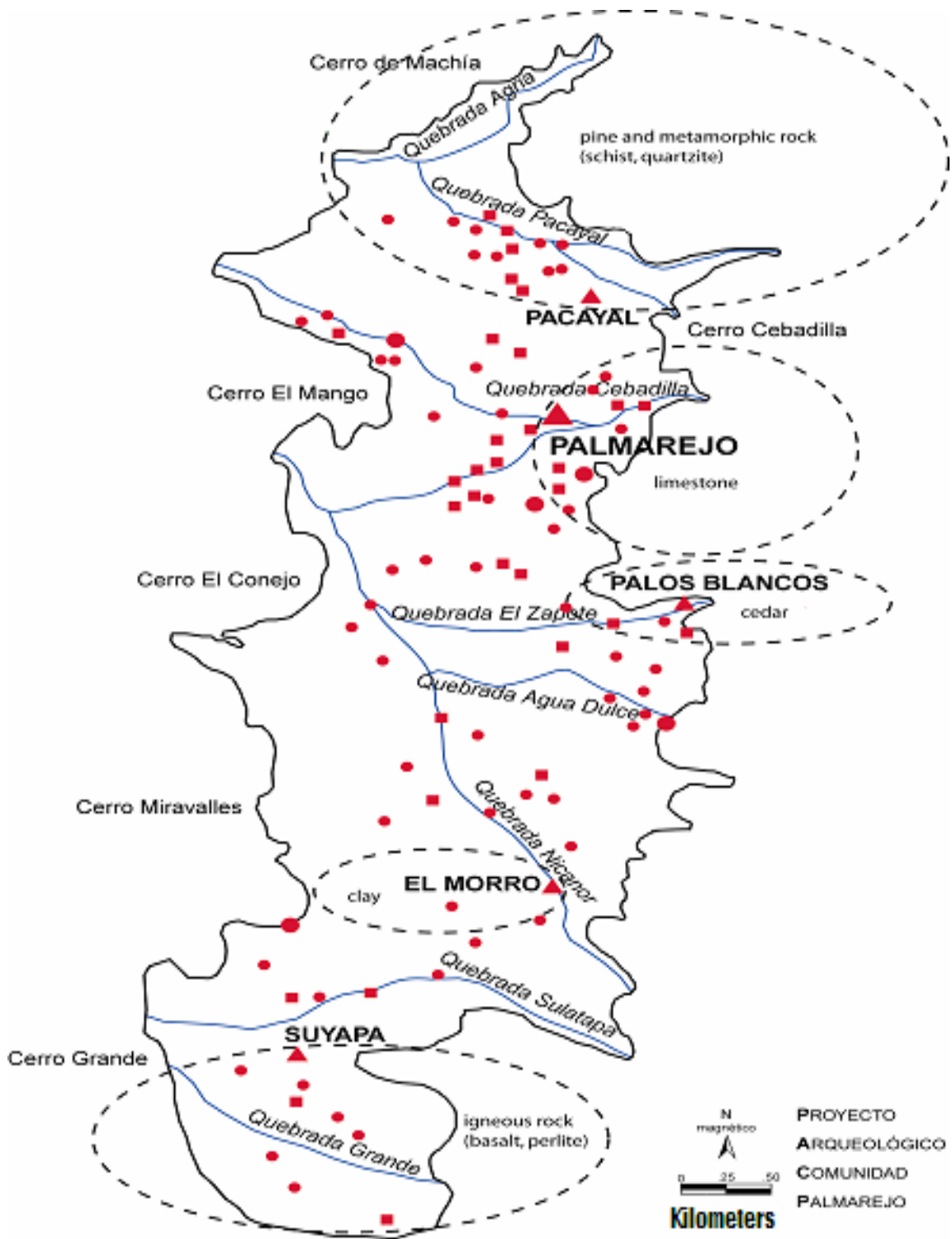


Figure 6.2. Palmarejo Valley showing all sites with resource zones. Modified from Wells et al. 2004:9.

(Schortman and Urban 1995). Also, the deeply cut Quebrada Pacayal holds a vast quantity of rounded river cobbles that are extremely common in prehispanic and modern architecture in the valley. Since Pacayal possessed a great quantity of these necessary building materials, their access to such resources may have played an important role in the internal and external relations of the site.

Another important resource common in the Pacayal region is the metamorphic rock, quartzite. Based on ceramic analysis, this material is found to have often been used in pottery manufacture in the adjacent Naco Valley at the site of La Sierra (Urban 1993). La Sierra is known as a center of extensive pottery production during the Late Classic, with a strong local ceramic tradition (Urban et al. 1997). There are no known natural quartzite sources in the Naco Valley, so this resource could have been an extremely important commodity deriving from the Pacayal area.

Archaeological excavations at Pacayal recovered typical quantities of pottery sherds in relations to the rest of the Palmarejo Valley, though other interesting finds were present as well. A carbon sample taken from the site puts the date range from A.D. 995 to 1155. This date seems relatively late, however, the sample was taken from only 0.5 to 0.6 m below the surface, and artifacts were found at the site well beneath this depth suggesting earlier occupation. Intriguingly, less than 30 cm below the soil, a jade piece carved into a bird figure was recovered in the test unit placed in the central plaza. Jade finds are rare in the valley, and no other intricately carved jade pieces have been found. Since the bird figure was relatively shallow, perhaps it was lost or left as an offering in the plaza as the site was abandoned. The best hope for understanding this artifact's

placement in this location will likely come from similar finds at other sites or ethnohistoric documents.

The modern village, resting slightly to the northwest of Pacayal, is known as Campo Nuevo. With 89 total structures, Campo Nuevo contains the median number of modern structures among the five major community areas (see Table 6.1). The region has a relatively good water supply (second only to Suyapa) as the local *quebrada* typically runs continuously with the exception of droughts. The community has also constructed a water tank on the outskirts of the residential area that is fed by a pipe carrying water from the mountains. All in all, modern Campo Nuevo has some of the best water security in the valley. Campo Nuevo is also the only region in the Palmarejo Valley that does not participate in large-scale cattle herding. Instead, corn agriculture is the dominant subsistence activity. Small-scale banana, watermelon, hot and sweet pepper, and tomato agriculture also occur in the area. While agriculture is a more environmentally and socially friendly pursuit than cattle raising in Honduras for the reasons mentioned earlier, it may coincide with greater site destruction (Table 6.2). The Campo Nuevo region has a

Table 6.2. Site Destruction in the Palmarejo Valley.

	Pacayal	Palmarejo	Palos Blancos	El Morro	Suyapa	Total
Sites w/ damage	9	22	9	6	6	52
Total Sites	14	35	16	10	11	86
Percent w/damage	64	63	56	60	55	60
Inaccessible	0	1	0	6	3	10

valley-high 64 percent partial or complete site destruction rate. Based on the interview conducted in 2004, a local *pulperia* (small general store) proprietor stated that the fields in the region did not need rest since people used tractors to till the land. While this practice leads to short-term agricultural sustainability, it also contributes to the adverse effects on the archaeological remains and eventual soil exhaustion.

Palmarejo

The next site to the south, holding a relatively central position in the valley, is the site of Palmarejo (see Figure 5.3). Palmarejo is the largest site in the valley, encompassing 93 structures and containing elite residences, a ball court that may have served many sacred and social functions for community ritual (Fox 1996), and a civic-ceremonial center containing administrative and religious structures. The location of this site is characteristic of a desire to have excellent access to potable water. The *quebrada* that flows from the mountain in this region cuts through the site of Palmarejo, and the waterway forks into two segments just before arriving at the settlement and forms a “V” shape roughly around the site center. One of these branches passes along the south side of the civic-ceremonial center, while the other borders the southern edge of the elite residential compound. Whether the *quebrada* cut was the result of natural flow or whether it was altered by humans remains to be determined with future geoarchaeological work. The possible *quebrada* alteration could display how the community altered the natural landscape and used it to engender unequal relations in terms of differential access to water.

Due to ideal pH, clay values, and high nutrient content, the site of Palmarejo and its surrounding region has the best soil in the valley for maize agriculture (Verdaasdonk

2007). A major reason for the fertile soils in the Palmarejo region is the high concentration of alluvial fans and floodplains just west of the site center. Further, Palmarejo is the closest of any community capital to La Sierra, which is directly to the west. Another resource that exists in the Palmarejo region is limestone deposits located in the foothills at the lower elevations in the mountains. Limestone could have been used as a building material or as a component for creating plaster. Based on the excavations at the site in 2005, it appears as if the plaza floors located within the civic-ceremonial center experienced at least one episode of plastering (Davis-Salazar et al. 2005). The elite residential plaza, however, does not exhibit any evidence for plastering; in fact, the only other location in the valley that displays the use of plaster is a very thin plaster in the main plaza at the southernmost site of Suyapa (Davis-Salazar et al. 2005). Due to the assumed ritual and social importance of the main plaza at Palmarejo, it may be inferred that limestone (for creating plaster) was a highly valued commodity in the region. It was likely a combination of all the factors mentioned above that allowed Palmarejo to grow to a greater degree than the other sites, but it may have also been with some assistance from the ruling elites at La Sierra. Given the earliest radiocarbon dates for the site (A.D. 396-555), it appears as though Palmarejo operated independently—at least initially.

Although Palmarejo contained the greatest number of structures in the valley 1000 years ago, currently the region is second to Suyapa with 149 structures (see Table 6.1). The modern community of Palmarejo is not arranged with any central gathering area, but consists of residences lining the east and west sides of the main road that runs north-south through the valley (see Figure 5.2). Presently, Palmarejo receives its water from the same mountain supply that supplies Campo Nuevo. Generally the modern-day

residents are satisfied with the quality of their water and contend that they generally have a constant supply. Unlike Campo Nuevo, Palmarejo's *quebrada* is very shallow and requires substantial rainfall to receive running water. A smaller *quebrada* descends from the mountain in the southern portion of the village and is collected in a small *presa* about 200 m east into the foothills; however, this water supply is privately owned and maintained.

Agriculture is widely undertaken in Palmarejo, even though the land remains in the hands of a wealthy few (as is the case for the entire valley). To the west and northwest of Palmarejo, maize agriculture accounts for the majority of the land use. Some fields are left fallow while others grow *zacate* (grass) for cattle in seasons when maize is not planted. On the steep slopes to the east, several subsistence farmers attempt to sustain *milpas*, and the smoke from the burning fields is seen regularly—the result of slash-and-burn agriculture. Surveying the region in 2006, I was somewhat surprised to see a fair amount of yucca growing in the *milpas*. Apparently, since our survey in 2004, people had begun to plant this new crop, as it is slightly more financially profitable to sell than corn. Also to the west and northwest of the modern community, beans, chiles, tomatoes, and coffee are grown in small quantities, and there is also a large facility for collecting chicken eggs. In between the Palmarejo and Palos Blancos regions, to the south and southwest of the Palmarejo site, cattle herding is the major industry. A great deal of the land in this area is owned by an American rancher who controls vast pastures that are occasionally used for grazing. While this land probably has better uses for the sustainability of the local farmer, site destruction is lower in this region than to the north where the sites tend to be bulldozed or tilled and destroyed.

Palos Blancos

Palos Blancos (see Figure 5.5) rests slightly to the south of Palmarejo and is notably different than the other four sites. Unlike the other settlement centers, Palos Blancos appears to contain far fewer administrative or ritual structures than the other Class II sites. Despite the large number of structures in the region, they almost all appear to be residential. Similar to the other major sites, however, Palos Blancos rests next to one of the valley's largest *quebradas*. "Palos Blancos" translated means "white sticks," and the "white sticks," or cedar, in the region may very well have been an important building material for the prehispanic residents of the community. Good access to water and fertile soil appear to be the most attractive features of this site, yet these are widely available in the valley. This is not to say that the site was any less important than the other community capitals. During the salvage archaeology project at the site in 2005, Moreno-Cortés discovered an Ulúa-style marble vase *in situ* with a burial (Davis-Salazar et al. 2005; Moreno Cortés and Davis-Salazar 2006). These artifacts are remarkably rare in Central America and must demonstrate some sort of prestige or importance that either Palos Blancos as a site or a specific individual held within the region (Moreno-Cortés and Davis-Salazar 2006).

Based on test excavations conducted in 2005, Palos Blancos appears to be one of the oldest sites in the Palmarejo Valley. Unfortunately, the selected radiocarbon sample was apparently contaminated and returned from the laboratory with a date of post-1950. Based on ceramic analysis, though, there is some evidence to suggest that Palos Blancos was inhabited by about A.D. 400 (Wells, personal communication, 2006). Additionally, a test unit excavated between the tallest structure at the site and the *quebrada* yielded

ceramics and obsidian flakes beyond 3 m below ground surface. Even though the ceramics were plain wares and not stylistically datable, artifacts at this depth probably suggest an early date. Due to the antiquity of the site and its central location in the valley, it is possible that Palos Blancos maintained exclusive access to all of the region's resources before the influx of people into the valley during the Late Classic. Palos Blancos' political role will be revisited later when discussing interaction in the Palmarejo Valley in Chapter 8.

The modern village of Palos Blancos is the smallest in the Palmarejo Valley almost by a factor of two. The community is built around the archaeological site with residences, pastures, and a group of coffee trees bordering the prehispanic structures. The people of Palos Blancos indicate the water they receive from their mountain source is somewhat steady, although the quality is often poor. As far as agriculture is concerned, the fields within approximately a 0.5 km radius to the west and south (the north and east are steep foothills and mountain) are used to grow corn and beans. In 2004 there was much more agriculture taking place than in 2006, when most of the fields were fallow. One of the families living in Palos Blancos has a small herd of cattle that are used mainly for local consumption (mostly milk, with the occasional sale of a calf) and feed in the pasture to the west of the site. About 1-1.5 km to the south of Palos Blancos (roughly equidistant between Palos Blancos and El Morro) is the largest cattle ranch in the valley. The vast majority of the land surrounding the ranch is used for pasture, but the ranch appears to support a fair amount of employment.

It should be noted that site damage in the Palos Blancos region is typically the result of scavenging stones for construction of new homes; bulldozers and tractors have not made their way into this region yet.

El Morro

Continuing south in the valley, the next community capital is El Morro (see Figure 5.6). This site sits in the foothills on the eastern portion of the region and rests alongside Quebrada Nicanor, the longest *quebrada* in the valley. Based on ceramic analysis and midden depths, the earliest construction phases at El Morro appear to be later than all of the other Class I and II sites in the region; radiocarbon dating places occupation at A.D. 685-883, and the vast majority of the ceramic assemblage was undecorated plain ware. Besides the artifacts recovered from our test units, it is important to note that El Morro contains several monumental structures including some with the greatest overall lengths in the valley. Oddly, however, this site lacks the vast Class IV and V sites that surround the other community capitals' immediate vicinities.

What separates El Morro from the other sites is its shared proximity (with Suyapa) to the largest known clay deposit in the Palmarejo Valley. Exclusive access is arguable, as Suyapa is also close to the source. Based on personal communication with Schortman, Urban, and Wells (2005), it appears as if the majority of the pottery was produced within the Palmarejo Valley and was not imported. The pottery created in the Palmarejo Valley was generally imitations of other local styles, and it is quite surprising that the region did not import many ceramics considering the fact that La Sierra was such a high quantity producer (Urban 1993). This could mean that this specific clay source was extremely important to ceramic production in the region, and whoever controlled it

maintained a great deal of power in laying claim to this resource. Overall, however, the evidence implies that El Morro's greatest resource was its solid water supply and access to fertile alluvial fans and terraces (Kuehn 2006).

The modern village of El Morro rests approximately 500 m to the west of the archaeological site just south of Quebrada Nicanor. Although the *quebrada* occasionally runs with water following heavy rains, many of the residents of El Morro use the natural trench to dispose of human waste. Obviously, because of this disposal method, the *quebrada* is useless to even wash clothes, dishes, to bathe, and so on, contrary to other parts of the valley. Overall, El Morro suffers with its water supply. There are two supplies that feed the village—a well and a mountain *presa*. The water from the *presa* is not regarded as healthy drinking water, but is more widely available for other uses. The well, on the other hand, is used exclusively for consumption. The well water does not have pipes to reach individual houses and people must walk to the well in order to retrieve their drinking water. The well was built with governmental support and, in 2004, it was noted that the people of El Morro were petitioning the government for a deeper well that included plumbing to their houses since water supply was constantly running low. When I stopped there while on survey in 2006, both the well and *presa* source were dry. As a result, the village was virtually sold out of water bags that people had been purchasing at the local *pulperias* to survive during this dry period.

To the west of El Morro, only *zacate* is grown among the pastures used by the wealthy cattle herders who are especially plentiful in the southern region of the valley. To the east, a wealthy landowner controls a large estate on which the site of El Morro rests. Small-scale goat and cattle herding occur here as well as *zacate* fields and a papaya

orchard. To the north and northwest of El Morro, corn and yucca are grown. Often we would pass people hired to work or watch over the fields in this region, thus indicating that these crops are likely being grown for sale instead of immediate local subsistence.

Suyapa

The final and southernmost site is Suyapa (see Figure 5.7), which is close to a wide range of resources including a number of *quebradas* in the southern portion of the Palmarejo Valley. One of these *quebradas*, Quebrada Grande, runs year-round and is the source for several important resources. Among these resources are igneous rocks (basalt and rhyolite), mainly groundstone, that is worked into *manos* and *metates* for use in maize grinding across Mesoamerica. An individual or group that was able to claim these resources could have controlled a major trade item, not only for intra- but also inter-valley exchange as well. Along with the groundstone available in this region, there is a large quantity of perlite, a hydrated volcanic glass, like obsidian, that could be modified to create blades, scrapers, projectile points, and so on. While perlite is not of the same quality or size as obsidian, it is available locally, whereas the closest known source of obsidian to this region is over 100 km away near La Entrada, Honduras; however, the majority of the obsidian excavated in the region is imported from Guatemala, specifically the Ixtepeque and El Chayal sources (Douglass 2002). Perlite is also available in the Naco Valley where it has been recorded for its use in creating microtools (Douglass 2002). Perlite has been found at each of the community capitals during the test excavations, and with no other known source in the Palmarejo Valley, it likely originated from Suyapa—one Class IV site near Suyapa was documented on survey as covered in perlite and as a possible workshop location—or from the sources in the Naco Valley.

To add to the impressive list of resources in the Suyapa region, the largest clay source in the valley, as mentioned earlier, is in close proximity to the site. Originally, we had posited that since El Morro was slightly closer to the source, it may have capitalized on the situation; however, recent evidence points to the contrary. Douglass (2002:27) has noted in the Naco Valley that even if clay were available locally to sites, they would often travel some distance to collect the more desirable material. As part of an IHAH salvage archaeology project at Suyapa following a reported looting incident, Durón et al. (2004) located molds for ceramic production. Generally, on the household level, pottery vessels would be completely hand-crafted. The presence of molds, on the other hand, suggests larger-scale pottery production (Wells, personal communication, 2007). By positioning the site in close proximity to this source, transportation costs would have been reduced and the location could have been monitored more easily.

While Suyapa had the second fewest structures (of Class II sites) in its region during the Late Classic, it had some of the largest, most impressive architecture in both the Naco and Palmarejo Valleys, including the tallest structure in the Palmarejo Valley. Quite possibly, the abundance of valuable resources financed the construction of such monumental architecture. The modern town of Suyapa (the only town in the valley, as the other communities are villages) has literally grown around the monumental center of the site. Undoubtedly, the densely packed residences in Suyapa have swallowed up many of the prehispanic structures that must have surrounded the site core. Because of this pattern of modern residential growth, the true number total of structures in Suyapa during the Late Classic is probably much higher than what has survived in the present day. This is not to say, however, that the overall site count around Suyapa would increase. Suyapa sits

in the pinched southern portion of the valley composed mostly of foothills. The region around the site would not be the most preferable for agriculture, yet, what the area gave up in soils, it made up for with other resources.

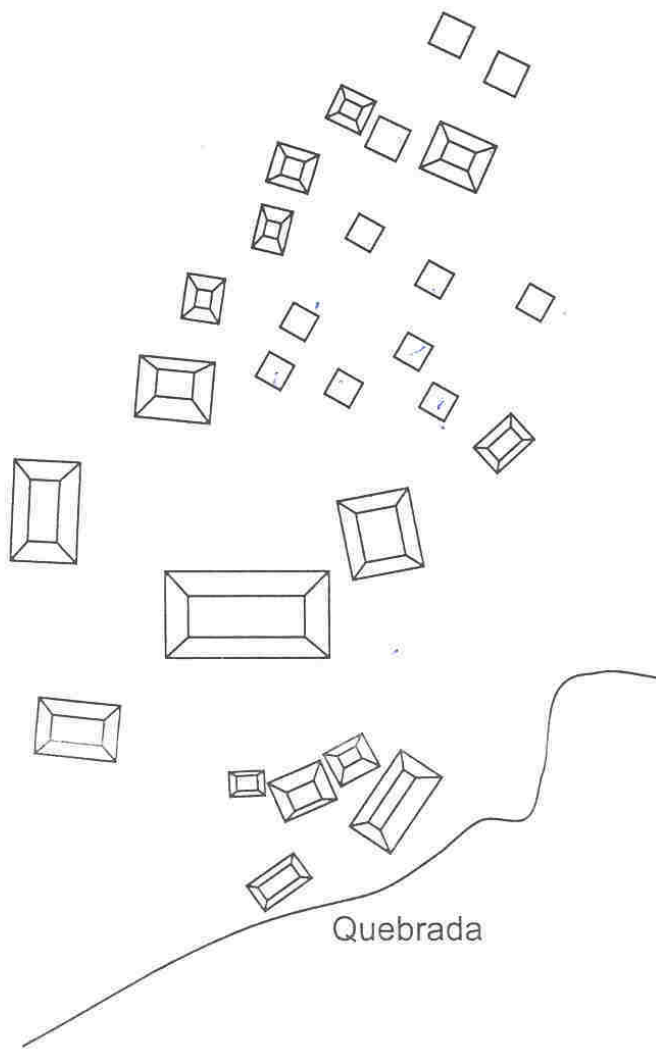
As stated, Suyapa is presently the largest settlement in the valley. There are several schools, a variety of shops (beyond the everyday *pulperia*), and enough roads that I have even been lost on occasion! The community's water originates in the mountains from a *presa* called Calichal, a source noted for its constant availability and clarity. An additional water source available for drinking is located near the center of town. The water at this source, a project of the San Pedro Sula Rotary Club, is chemically treated for safe consumption. Although this treated water is available, there is no plumbing running from the source and it has to be carried back and forth. Because of this, most residents of Suyapa use the water that is delivered to their house via the *presa* (Davis-Salazar, personal communication, 2005).

Due to the landscape, very little subsistence farming is possible, as there is less available land than in most of the community capital regions. To the west and south of Suyapa, some commercial maize farming occurs. To the northwest, some watermelon is grown along with maize, *zacate*, and, since 2004, yucca. While on survey in 2006, a large, new ranch was under construction just to the north of Suyapa. With the vast pastures north of Suyapa, it appears as if another large herd of cattle will be entering the Palmarejo Valley.

Class III Sites

As previously mentioned, there are five Class III sites in the Palmarejo Valley. Two of these sites are in close proximity to the site of Palmarejo. Choosing this location

may indicate wealthy households' strong desire to be located near a civic-ceremonial center (Douglass 2002), in this case, Palmarejo. Since centers would be the heart of population, power, trade, and administration (Chase and Chase 1996), a greater amount of wealth would be present resulting in a wider range of architecture and more social stratification (Fox 1977). Site 19—also referred to as Palmarito, the closest large site to Palmarejo—rests just south of Palmarejo. The site consists of two sections (Figure 6.3), the first is a domestic group composed of very large structures alongside a *quebrada*. Based on the overall size of these structures, they would assumedly be considered “elite.” The second section of the site rests just to the south of the residential groups and is composed of 15 small platforms mostly smaller than 2 m x 2 m. This pattern suggests an activity area; the small square area may have only been covered by a thatched roof with no walls with the possible exception of temporary thatched walls (i.e., Beaudry-Corbett et al. 2002; Sheets 2006). Due to the proximity of the site to the largest site in the valley, Site 19 may have been commissioned to manufacture items for Palmarejo's economy or to process agricultural products that resulted from tribute relations (e.g., Carmean 1991; Schortman and Urban 1992a, 1994). The other Class III site in Palmarejo's immediate surrounding area is Site 6. Site 6 (Figure 6.4) is a typical elite residential group with large structures (some over 10 m in length) forming a plaza adjacent to the *quebrada*. As mentioned, a great deal of wealth likely derived from Palmarejo based on its differential size compared to other sites in the valley. From excavations, it is clear that some elites stayed in the site core (Davis-Salazar et al. 2005) as might be expected; while others would have ventured farther away—possibly establishing residential compounds in local areas—resulting in sites such as Site 6.



Sitio 19



Figure 6.3. Site 19. Adapted from Wells et al. 2004:42.

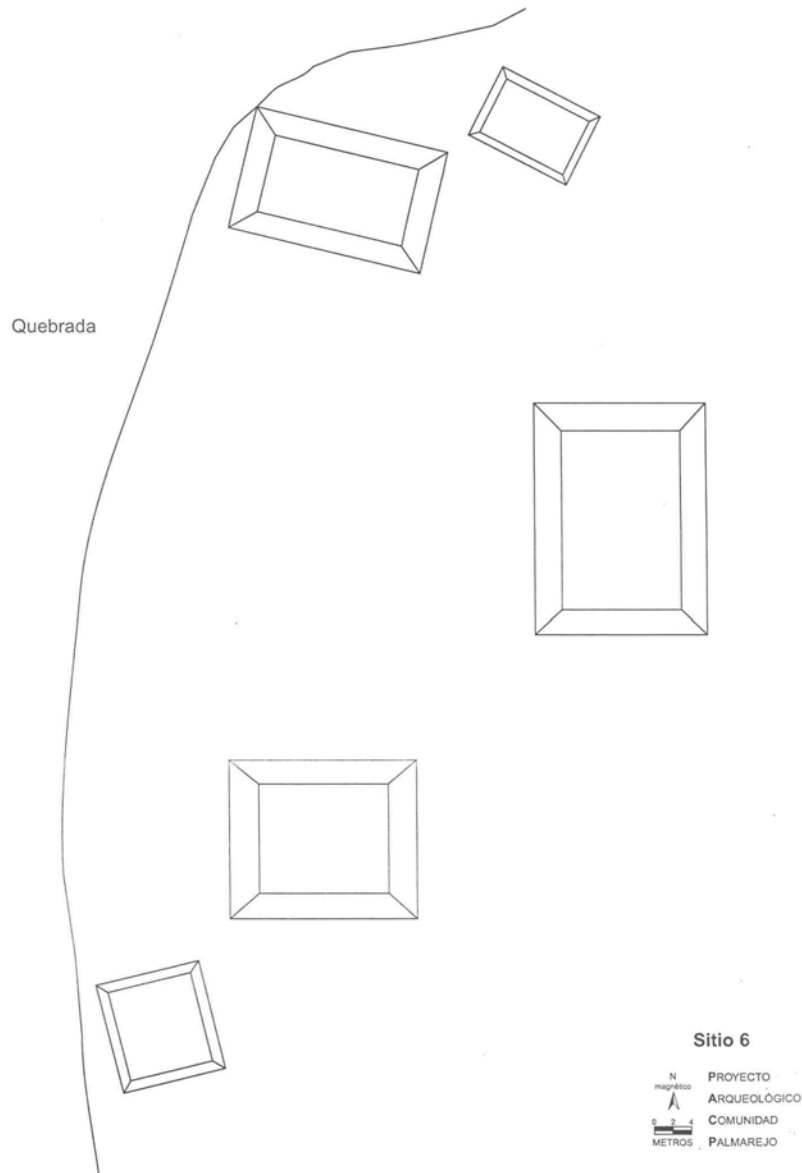
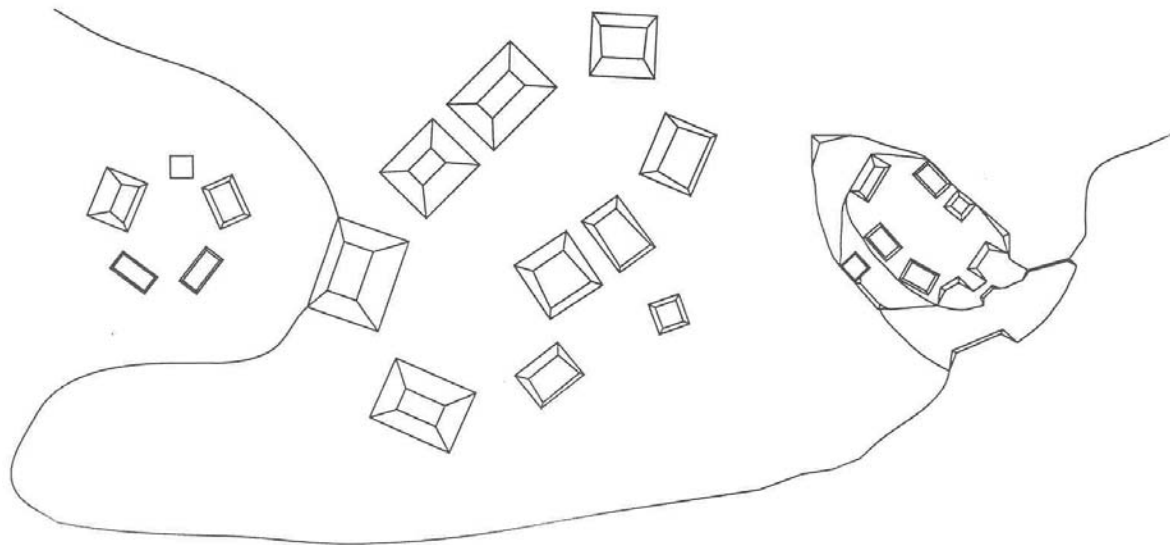


Figure 6.4. Site 6. Adapted from Wells et al. 2004:25.

Outside of the Palmarejo zone, only one other Class III site rests on the eastern foothills with the Class I and II sites. Site 56 is between Palos Blancos and El Morro (slightly closer to Palos Blancos), which is the largest gap between two community capitals. Site 56 is composed of three parts (Figure 6.5), a large residential group and two elevated, smaller groups (either serving residential, production, or multiple purposes).

The large, elite residential group rests on the valley floor forming an oval-shaped central patio. The other two portions of the site are elevated (approximately 10 m above the valley floor) on natural rises in the foothills to the east and west of the main residential portion of the site. Site 56 may have been an extension of elite families from either El Morro or Palos Blancos, or it may have been independently established to capitalize on the local alluvial fans and floodplains for agriculture.



Sitio 56



Figure 6.5. Site 56. Adapted from Wells et al. 2004:106.

The fourth Class III site, Site 81 (Figure 6.6), rests in the southwestern floodplains of the Palmarejo Valley adjacent to the western foothills. Site 81 lies between Cerro Miravalles and Cerro Grande on one of the four passes into the Naco Valley. Of all the Class III sites, Site 81 was the greatest distance from water, at about 150-200 m from the nearest *quebrada*. The site itself is composed of several large structures arranged to form a central plaza within which there are two low-lying mounds. The site appears to be an elite residential complex with a possible workshop area in the northern section, which is not surprising considering the accessibility to the resources in the southern end of the valley. The southern edge of the main group is composed of five structures, all apparently joined, creating a total span of nearly 30 m. While this style is not seen elsewhere in the Palmarejo Valley, it is seen in the Naco Valley. Since the site is resting on a pass into the Naco Valley, perhaps it was established as an exchange or resource extraction point for the elites from Suyapa, or perhaps as an outpost of La Sierra to obtain locally desired resources.

The final Class III site is located slightly east of the Chamelecón River within the boundaries of the modern village of Mango. This site, Site 28 (Figure 6.7), rests on the closest passage into the Naco Valley from Palmarejo and, thus, may have been an important point of interaction. The site is tightly surrounded by several Class IV sites situated on the alluvial fans just north of Cerro El Mango (Kuehn 2006). Unlike the other Class III sites, Site 28 does not form a central plaza, but instead, appears to be a conglomeration of large, elite-style structures, and several smaller structures that may represent kitchen areas, storage units, and workshops (e.g., Beaudry-Corbett 2002; Gerstle and Sheets 2002; Sheets 2006).

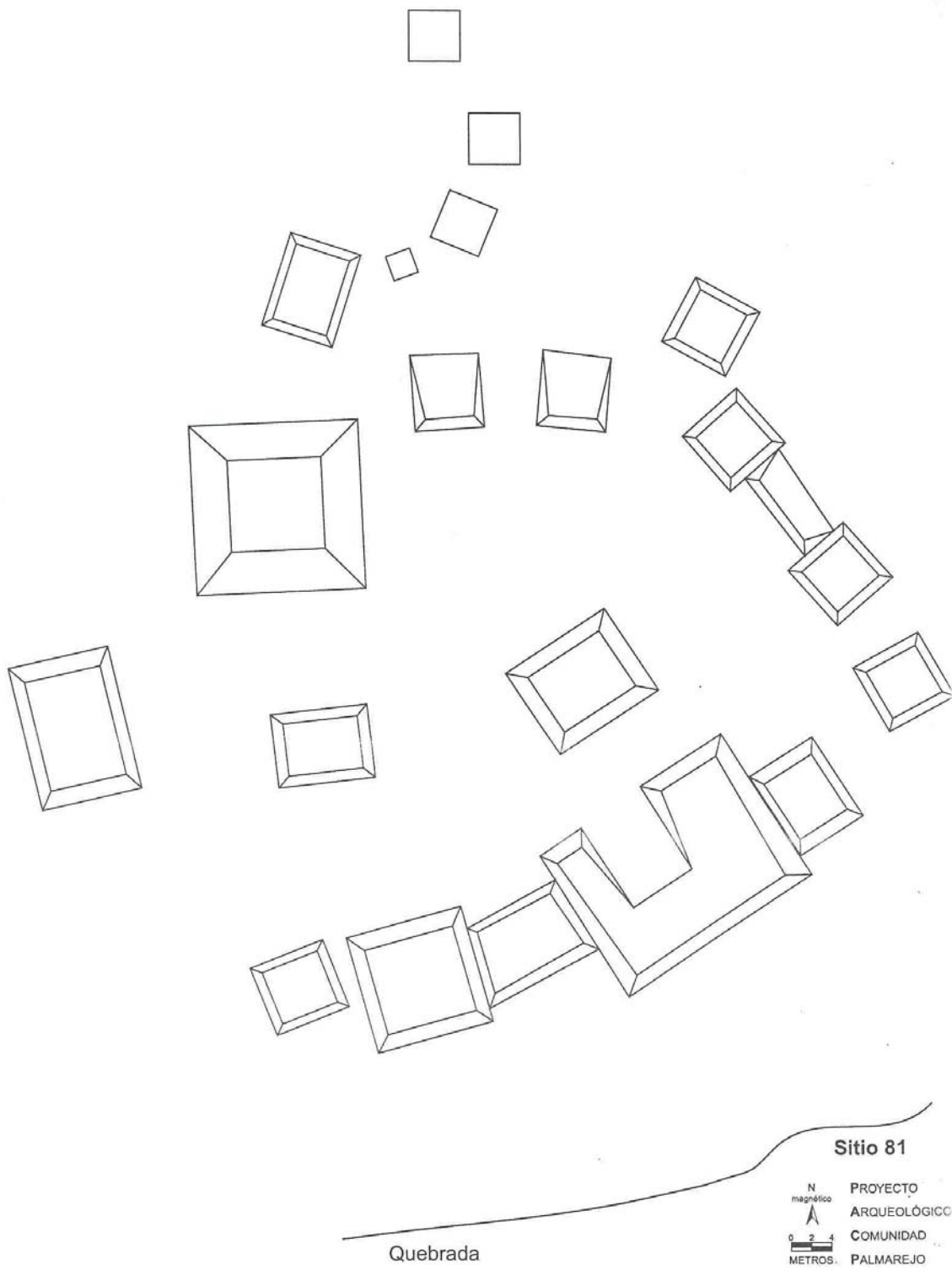
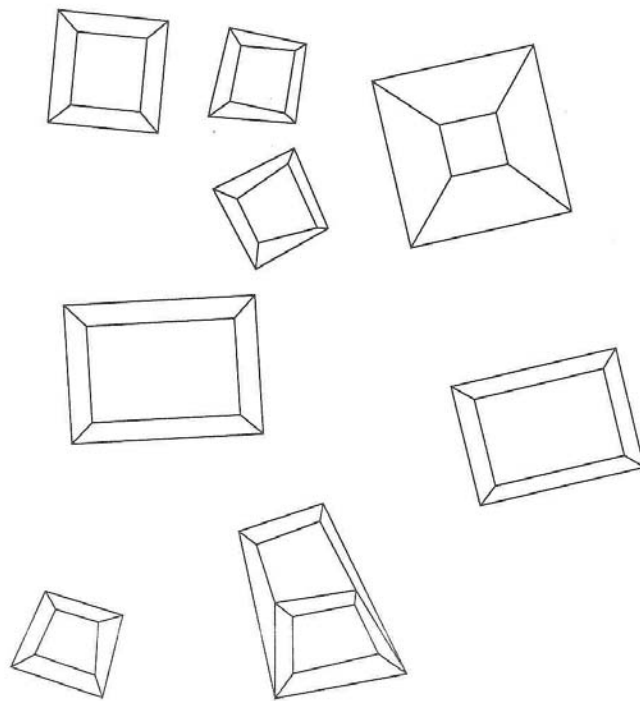


Figure 6.6. Site 81. Adapted from Wells et al. 2004:156.



Sitio 28

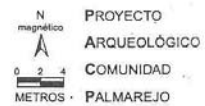


Figure 6.7. Site 28. Adapted from Wells et al. 2004:58.

The modern village of Mango is situated along the road, in a similar fashion to the layout at Palmarejo, which leads from the Naco Valley into the Palmarejo Valley. Like the other modern villages in the Palmarejo Valley, Mango came into existence following the agrarian reform of the 1960s. The water situation in this community has changed somewhat over the past couple of decades. Initially, people used the small *quebrada* that passes through the village for all purposes. Recently, however, local residents noted that

the *quebrada* is becoming dry and, when available, the water is only used for cleaning. The potable water consumed in Mango originates from a spring source on the opposite side of the Chamelecón River and is carried through the community in large plastic tanks by trucks. The water is then distributed as residents bring containers to the road and have them filled for a fee. Previously, a well was built for the village by a Rotary Club, yet funds were not available to purchase a pump to extract the water. Agriculture is the predominant activity in this area producing mainly corn with lesser amounts of beans, watermelon, sweet peppers, tomatoes, and coffee. Large-scale cattle herders are not present in the region, yet some cows are used at the domestic level.

Class IV Sites

Class IV sites are widely dispersed across the landscape, and are the most common site-type in the Palmarejo Valley. As mentioned previously, Class IV sites are agrarian residential groups that normally number between three and six structures arranged to create a small central patio (see Figure 5.8). Ashmore (1981) describes two variations of this pattern, the formal patio group with a well defined patio, and an informal group with a less distinguishable patio; both types are seen in Class IV sites in the Palmarejo Valley. Of these structures, some would be domiciles, while others would serve as kitchens, storage areas, and activity zones (e.g., Beaudry-Corbett 2002; Gerstle and Sheets 2002; Sheets 2006). Class IV sites are found in all regions of the valley to capitalize on all available land for agriculture. According to Douglass (2002:4), this is expected since, in agrarian societies individual households are generally responsible to produce their own subsistence goods. In general, the Class IV sites seem to concentrate in the general regions of the community capitals with small “buffer zones” marking

separation. Thus, it appears as if the Class IV sites were tied to each of the community capitals in some way whether through a tribute relationship, dependency for necessary resources, or a desire to be near the civic-ceremonial centers.

Unlike the farmers presently living in the Palmarejo Valley, it is clear from the settlement patterns that farmers in the Late Classic desired to live near their fields. Although Reina and Hill (1980) contend that subsistence *milpas* were often a fair distance from the household, the settlement dispersal seen in the Palmarejo Valley shows a desire to minimize the commute to the place of work. People living on high quality agricultural land—even if they were at a distance from centers—would have fewer problems delivering tribute and may be able to acquire a more diverse set of items in return (Douglass 2002).

Class V Sites

Class V sites are found in all regions, and are arranged in a similar fashion across the Palmarejo Valley as Class IV sites. The majority of Class V sites contain a lone structure or an artifact scatter which lacks structures altogether. In the case of artifact scatters, Class V sites are areas that were used, either once or repeatedly, for human activity that left an archaeological signature (i.e., land snail extraction, small-scale lithic tool production, water collecting, crop harvesting, and so on). Class V sites with structures, on the other hand, serve a very different function. These sites are always located within the vicinity of Class IV farmsteads and were likely established as field houses in agricultural fields. It is traditionally thought that field houses functioned as locations for tool storage and a place to retreat for shade during a hot day. Webster and Gonlin (1988) found similar structures at Copán, Honduras where field houses, or “field

huts” as they described them, made up approximately 12 percent of the rural structures they investigated; this figure is very similar to what is found in the Palmarejo Valley with approximately 8 percent of the rural structures being field houses (30 total Class V structures and 387 total Class IV structures).

Using ethnographic and ethnohistoric sources supported with recent surface collections, Wells and Davis-Salazar (n.d.) posit that these field houses may have been used for ritual purposes associated with agricultural practices known as *compostura*. *Compostura* is a set of Lenca rituals conducted at the location where the work is initiated when the natural landscape is going to be disturbed (i.e., planting or harvesting crops) (Wells and Davis-Salazar n.d.). Thus, in addition to functional agrarian uses, field houses may have also been small religious structures situated on the landscape to serve as the location for *composturas*, so that the farmers could avoid the severe consequences of neglecting the ritual (see Wells and Davis-Salazar n.d.).

Field houses are rarely seen today in the valley, but some do exist. In 2004, we recorded two modern field houses that were nothing more than a stick foundation forming a “Λ” shape with thatch walls. In the 2006 field season, one of these two field houses was still standing while the other was removed; an additional modern field house was also recorded. In all modern cases, no “artifacts” were noted within the structure, yet empty bottles of alcohol are often found on the edges of agricultural fields perhaps suggesting modern *compostura* practices (Wells and Davis-Salazar n.d.).

The Land between the Quebradas: Agriculture and the Palmarejo Valley Soils

Regardless of site class, the majority of sites in the Palmarejo Valley engaged in agriculture to some extent. Agricultural production, after potable water, would have been

the most vital aspect of the landscape to the ancient inhabitants. The existing hierarchy in the valley was probably supported by strong agricultural outputs and surplus (e.g., Carmean 1991; Collet and DePenanros 1990; Fedick 1995; Robin 2004; Voorhies 1972). Following this logic, Verdaasdonk (2007) suggests that the fertile soils of the Palmarejo Valley led to the construction of vast monumental architecture and, in particular, the preeminence of the site of Palmarejo site.

Understanding how prehispanic farmers decided where to establish farmsteads is arguably the key to understanding much about previous political structure and economic organization. Previous “top-down” approaches have left many unanswered questions regarding a group’s methods of organization (Fedick 1995). Examining common agrarian settlements (i.e., Class IV and V sites) may reveal individual choice; although it is possible that plots were dictated by local administrators (e.g., Fedick 1996a; Killion 1992). In general, a clear preference is seen for fertile agricultural soils, although the farmed landforms may vary as a means to manage risk (Fedick 1996a). It is possible that risk management strategies were established by a ruling person/group, and the rank size analysis (discussed in Chapter 7) provides evidence for administrative techniques in the Palmarejo Valley that is applicable to investigating such questions.

The Maya lowlands have a variety of environments resulting in a diverse resource base and fluctuating soil quality (Fedick and Ford 1990). Although the soils in the Palmarejo Valley vary in terms of overall fertility, they are generally suitable for maize agriculture throughout (Verdaasdonk 2007; Verdaasdonk and Wells 2006). The most fertile soils have a pH range between 6.0 and 7.5, significant PNK values, and a silt loam soil composition allowing for adequate aeration and retention (Troeh and Thompson

1993). Soil fertility tests were conducted by Verdaasdonk (2007) with the soil cores that were collected from each of the sites during the 2004 survey. She tested for pH, nitrogen, potassium, phosphorus, and soil composition (texture). When the analysis was completed, she found that pH and sand content were responsible for the greatest amount of variation in soil quality throughout the valley. The overall conclusion was that soils across the valley were generally fertile and able to support maize agriculture (Verdaasdonk 2007). The soils around Palmarejo, however, were considered to be the best (that is, the most fertile) in the valley and, consequently, could have supported the largest population and labor force (see Verdaasdonk 2007 and Verdaasdonk and Wells 2006 for a more thorough description of the process and statistical results). I agree that the soils best suited for agriculture likely gave rise to the largest site in the valley, yet the soil is productive across all regions. Additionally, water is available at all sites with the community capitals all resting on *quebradas*. Due to these two factors, I propose that the other locally available natural resources, discussed above, also played an important role in the founding and growth of the Class II sites.

Chapter 7

Political Organization and the Natural Landscape

Understanding and reconstructing ancient social organization is an important goal for archaeological research and becomes of the utmost importance when attempting to use the past to inform modern decision makers. Before examining the interaction occurring in the Palmarejo Valley, it is important to define some terms. Following Michael Mann (1986:6), I define power as “the ability to pursue and attain goals through the mastery of one’s environment.” Control can be defined—with similar bases of power—as “the ability to restrain access to the resources that are the media from which power can be fashioned” (Earle 1997:4). Both definitions presented here seem environmentally deterministic but appropriate based on the data available from settlement studies. Power and control may also be determined by religious purposes (e.g., McAnany 1995), economic processes (e.g., Earle 1997), or military might (e.g., Mann 1986). It is important to remember, however, that access to resources and successful control of them are likely based on a combination of the above mentioned avenues to best solidify the local claims to power.

In archaeology, the “emphasis has often been placed on identifying the evolution of political organization rather than reconstructing the economic relationships that underscore them” (Hirth 1996:203). Using a political ecology framework, the economic relationships are considered the physical base of political power, thereby informing the

organization of a given group. In general, groups/elites/rulers attempt to maintain control of resources by reducing competition. This may be done by expanding influence to create a monopoly that secures the economic foundations of power. One way to accomplish a monopoly is to remove merchants from the exchange of prestige goods in place of face to face meetings of “chiefs” (Kipp and Schortman 1989). Control of labor is cited in virtually every archaeological investigation as one of the most important components for achieving hierarchical social groups or “complex societies.” In Mesoamerica, agricultural surplus is thought to have been achieved by the creation of tribute relations by the elites (Carman 1991). When people were in need of food, mainly corn, they would be able to receive such provisions in return for labor; the labor could then be used for craft production, monumental structure construction or improvement, and so forth. The following section applies these ideas to the Palmarejo Valley in order to establish suitable models for inter- and intra-societal interaction.

Social, Political, and Economic Networks in the Palmarejo Valley

Urban and Schortman (2000:2) argue that “successful leaders are those who exclusively control a suite of resources essential to the reproduction of all social units.” In the Palmarejo Valley, “strands of palm for roof thatch, salt, water, and clay sources may also have been controlled by the wealthy” (Carman 1991:152), in addition to fertile soil, water, and other available natural resources. If a claim was made to a region by one (or all) of the community capitals, they would have maintained a “suite of resources” forcing the majority of the population into dependent relationships. While power and control may be influenced by religious factors (as seen with monumental architecture in the community capitals), I suggest that the more prevalent mode of control—based on the

settlement patterns—is “structural power,” or “power to deploy and allocate social labor” (Wolf 2001:385). Within this view, the social arena is constructed to allow some activities, while not allowing others less possible or impossible—possibly including accessibility to local resources (Wolf 2001:385).

The first model presented here argues that Palmarejo was the economic, political, and religious center of the Palmarejo Valley, as seen through its extensive site formation. To create a settlement of this magnitude, labor must have been captured from outside of the immediate site core (Hayden 1995). In this model, the presence of the Class II sites in the valley would have been established, expanded, or forcefully taken by the Palmarejo rulers or elites. Knowing the vast array of resources available in the relatively small valley certainly supports the claim: “The wider array of political assets a faction is able to control, the better able its members are to make demands of their followers and to see them carried out” (Schortman and Urban 2004:329). If Palmarejo was able to assume control over most or all of the desirable resources in the valley—possibly by one of the methods mentioned above—they would have garnered an important status in the interaction sphere of northwestern Honduras. The possibility remains that Palmarejo was at some point either established, or more likely governed, by the leaders of La Sierra. The similarity in site layout and presence of a later elite residential compound at Palmarejo support this possibility (Novotny and Wells 2006). Often, the largest centers are generally placed on the outskirts of the most productive soils (Schortman and Urban 2004:329), as we know was the case for the site of Palmarejo. It is possible that the community was initially established without interference from groups at La Sierra, and remained independent for much or all of its existence.

It is a mistake to assume “that intersocietal transactions are always dominated by the most complexly organized interaction partner” (Schortman and Nakamura 1991:312). Any group that maintains control over localized sources of raw materials will be able to acquire greater quantities of imports (Schortman and Urban 1992a). That said, a second model can be presented contending that each of the Class II sites operated autonomously while still participating in inter- and intra-societal interaction in the Palmarejo Valley. Stratification in agrarian societies is based on the control of scarce resources that are controlled by a select few, and proximity to these resources can be a greater strength than controlling production (Smith 1976). Since the Class II sites were all in close proximity to scarce and strategic resources (in addition to ubiquitous water and soil), those in control may have generated power even if production did not occur at that specific site. In the case of the Palmarejo Valley, I believe that the location of the community capitals speaks to the local importance of acquiring raw materials. In order to gain control, people will choose the resources that “will give them the greatest advantage vis à vis other social actors” (Schortman and Nakamura 1991:213).

Rapidly establishing communities suggests that their creation is part of a predetermined plan by elites to establish a place in the group to group interaction, as those who maintain power likely had the most freedom and ability to do so (Schortman and Nakamura 1991:319). The rapid establishment of El Morro provides evidence to support this inference. As shown in Chapter 6, all of the Class I and II sites were established to be near important resources. Choosing a strategic location in an interaction sphere is an important resource itself,” and maintaining local control of resources can be

a means to avoid political, social, and economic domination (Schortman and Urban 1992a:242; Urban and Schortman 2000).

Annabel Ford (1996:297) notes four variables that most substantially contribute to settlement growth: 1) overall resource productivity, 2) local resource control, 3) resource diversity, and 4) critical resource control (those directly related to subsistence). All of these can relate to the resource-rich Palmarejo Valley. Overall, the valley has very fertile soils. Secondly, the establishment of community capitals may show control of the diverse local resources across the span of the valley. Finally, the wide range of locations that the Class IV sites occupy in the Palmarejo Valley indicates the desire to maximize agricultural production. This reflects critical resource control in the valley, because the Class IV sites generally constitute distinctive regions around the community capitals. All four variables could account for either a valley dominated by Palmarejo administrators or local control at the community capital (Class II) level. As Earle (2002) notes, examining the redistribution of raw materials is an excellent tool for understanding past economies. Thus, in order to gain insight into these questions, future excavations are necessary to move beyond considerations of extraction and towards models of redistribution. The following quantitative analysis provides evidence for which the above models can be examined in the absence of such data.

Rank Size Analysis

Developed from central place theory, rank size analysis is a measure of monumentality among settlements that provides graphic representations of hierarchical relations. Originally developed by the German geographer Walter Christaller (1966), central place theory has significantly aided archaeologists in interpreting settlement data

over the past three decades. The basis of the theory rests on the hexagonal distribution of central places that are arranged hierarchically for minimizing labor and maximizing profit. The hierarchies of the central places (in this current study, community capitals) are established based on the sizes of the centers, where it is assumed that larger centers are able to engage in more functions than smaller ones (Blanton 1976; Hodder and Orton 1976). Further, while the term “centers” may not seem applicable to the relatively small sites discussed in the Palmarejo Valley, the theory can still apply where transportation and movement are essential to the local economy (Inomata and Aoyama 1996).

Rank size analysis arranges the ranks of settlements (based on size) graphically in order to explore the socio-economic integration of a system. To execute this analysis, sites are arranged in descending order (by size) with each being assigned a numerical rank from 1 to n (Whalen and Minnis 2001). If the distribution resembles a log-normal line, the region in question is thought to demonstrate a strongly hierarchical system that maintains a high degree of integration and internal organization (Johnson 1977). This distribution displays the tradition on which rank size analysis is founded. Industrialized nations have a long history of urbanization where the second largest city is half the size of the largest city, the third largest city is one-third the size of the largest city, and so on (Falconer and Savage 1995). It is variations (generally concave or convex distributions) from the log-normal line that systems in rank size are analyzed.

One variation in rank size analysis is a concave distribution. If the data display a concave or “primate distribution,” it is assumed that the system was highly centralized with non-competitive economies—possibly politically minimized (McAndrews et al. 1997)—where the ranks immediately after the first (or first few) ranked sites are highly

exploited (Hodder 1979). In other words, a concave distribution is common when a large center grows at the expense of other sites (Whalen and Minnis 2001:328). In the case of Mesoamerica, systems with primate distributions contain a center where several “special activities” were undertaken including “a combination of high order sacred ceremonialism, macroregional elite exchange, foreign diplomacy, and war” (Kowalewski 1982:65). By contrast, convex distributions imply a lower level of central control and generally lesser degrees of hierarchy and organization within the system due to either a greater presence of more intermediate and large settlements, or possibly large settlements that are smaller and small settlements that are larger than expected in accordance with the log-normal rank size rule (Falconer and Savage 1995; Johnson 1977, 1980a). With a convex distribution, settlements are largely economically and politically independent of one another (McAndrews et al. 1997).

Finally, if the rank size distribution displays both concave and convex patterns, the settlement system may be understood as a region containing a dominant center, while the remaining sites operate relatively independently (Johnson 1980b). Typically, this is seen in the distribution with the rank size line dropping drastically from the first ranked site to the second ranked one (Whalen and Minnis 2001:329). Essentially, this pattern referred to as a “primo-convex distribution,” suggests the simultaneous operation of two or more distinct settlement systems in a single region (Falconer and Savage 1995:41). The primo-convex rank size variant is common in pre-state and early state societies where “the distribution suggests a settlement system composed of subsystems that are articulated to a primate center, but interact very little among themselves” (McAndrews et al. 1997:71).

An important aspect of conducting rank size analysis requires that “a single, whole settlement system be under consideration” as “the use of a portion of a system would produce unreliable and uninterpretable results” (Pearson 1980:457). Since the entire Palmarejo Valley was examined during the pedestrian survey, it is a good candidate for this method of analysis. As mentioned previously, the first step in this analysis is to assign ranks to all of the sites that are included. For the Palmarejo Valley data, the ranks were assigned according to the total number of structures at each site divided by the site class (this criteria accounts for the total number of monumental buildings at each site). Palmarejo, having the most structures and most monumental structures, was ranked number one. Palos Blancos had the second most total structures and monumental structures, ranking number two. The ranking continues to the very last site with one structure (Class V sites) which were ranked up to 96. Ranking was done once for the entire valley to observe the distribution for all 96 sites, and rankings were also conducted independently for the sites in each of the community capital regions to observe local distributions around the Class II sites. For all graphs, the ranks—transformed to log (base 10) in order to standardize the data—are listed on the “x” axis. The “y” axis accounts for the site’s size. Once the data were plotted in a scatterplot, an R^2 (coefficient of determination) quadratic line was fit to the data in SPSS to reveal the specific variant of the rank size distribution for each specific region. R^2 is the amount of variation that the data accounted for (i.e., the R^2 quadratic line) in the plot. The R^2 value can then be multiplied by 100 to achieve a percentage amount for the variation accounted for by the model. For the Palmarejo Valley, taken as a whole system with all of the sites included, an R^2 cubic line was fit to the distribution. An R^2 cubic line was chosen as

opposed to an R^2 quadratic line for this plot since the R^2 cubic can account for concave, convex, and primo-convex distribution (which is important when looking at a system as a whole), while the R^2 quadratic only reveals concave or convex distributions (necessary for regional distributions).

Concerning the models presented earlier in this chapter, the first model, with Palmarejo maintaining economic and political control throughout the entire valley, would be represented by a convex distribution. This would indicate that Palmarejo was exerting a great deal of control over the other sites in the valley. In this model, it is suggested that Palmarejo largely managed or controlled the available resources in the valley, and the Class II sites were operating under Palmarejo's supervision. The second model, which asserts that the Class II sites are community capitals operating independently politically and economically, yet maintain interactions with one another, would be depicted by a convex curve in a rank size graph. This model would support the idea that Palmarejo lacked central control over the valley's resources. In this scenario, the Class II (and possibly Class III) sites were involved in local craft production and were self-sufficient in their economic endeavors. This is not to suggest that Palmarejo did not remain an important religious center; however, that is simply beyond the scope of this investigation. The following will first examine the Palmarejo Valley as a whole and then each of the five community capital regions independently to further investigate the settlement patterns of the Palmarejo Valley.

The Pacayal region (Figure 7.1) displays a relatively log-normal distribution indicating that the largest site—the point with the largest “y” value, Pacayal, is well integrated with the other sites (the other points on the figure) in its respective region

(Johnson 1980a). The same pattern is also seen at both Palos Blanco (Figure 7.2) and El Morro (Figure 7.3). Both Pacayal and Palos Blancos show very slight convex distributions, while El Morro a slight concave distribution, yet overall, the variation is minimal. The two sites that greatly vary from the log-normal distribution in the Palmarejo Valley are the two sites with the greatest frequency of monumental architecture, Palmarejo and Suyapa. Palmarejo's rank size distribution (Figure 7.4) is strongly concave. As discussed previously, this suggests that Palmarejo is heavily exploiting the smaller sites in its immediate region, and competition in the economic sector is largely absent. Also, it has been noted that this distribution is common where a large site, such as Palmarejo, is the center for virtually every aspect of life (politics, economics, religion, war, and so on). Strongly contrasting the distribution displayed for Palmarejo, Suyapa's regional distribution (Figure 7.5) is convex. In this settlement subsystem, it appears as if the largest site, Suyapa, is much less integrated with the smaller sites in its domain. Due to the array of natural resources available around Suyapa, many of the sites may have been engaged in their own economic pursuits with little interference from the larger sites. Finally, the complete data from the Palmarejo Valley (Figure 7.6) resemble a primo-convex variant of the rank size distribution. This suggests that Palmarejo maintained some form of central control in the valley, while the community capitals were still able to experience some degree of autonomy—possibly remaining economically independent and managing locally available resources freely.

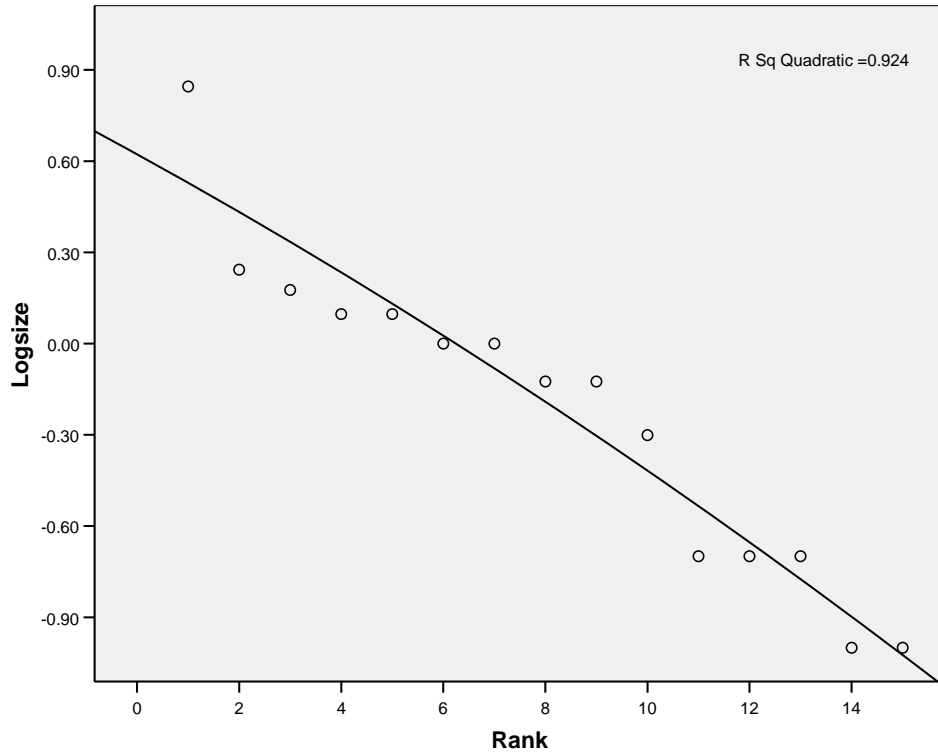


Figure 7.1. Pacayal rank size distribution.

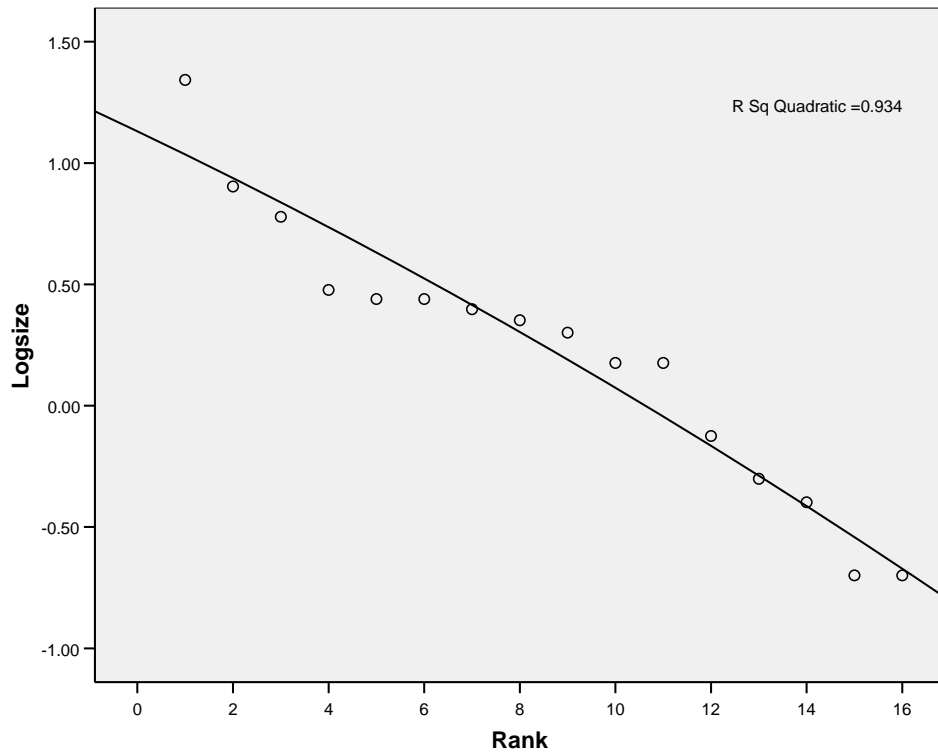


Figure 7.2. Palos Blancos rank size distribution.

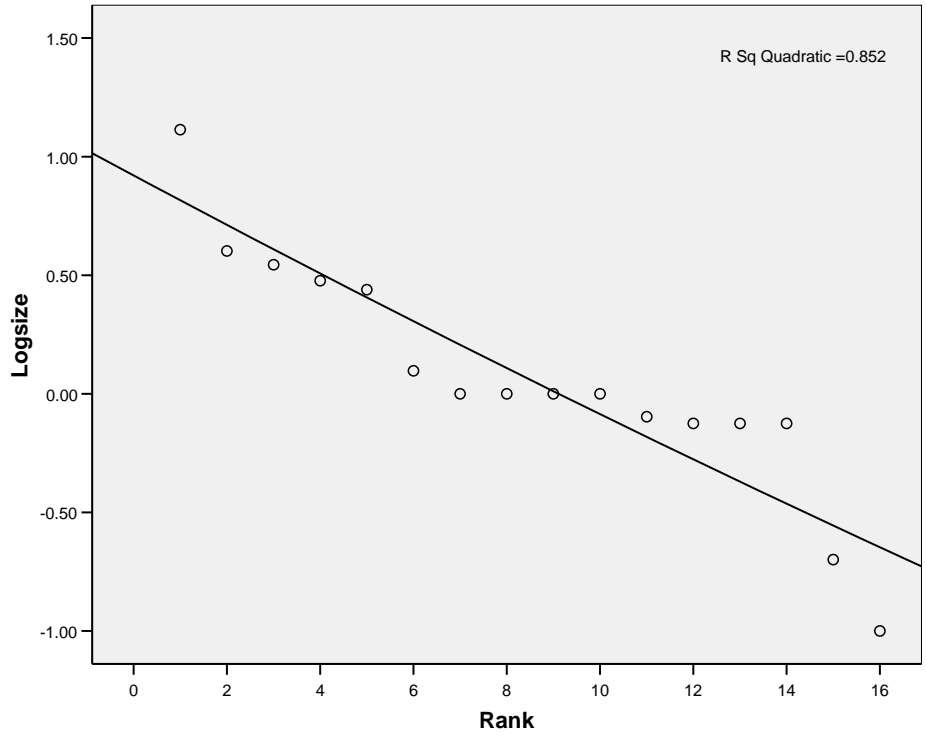


Figure 7.3. El Morro rank size distribution.

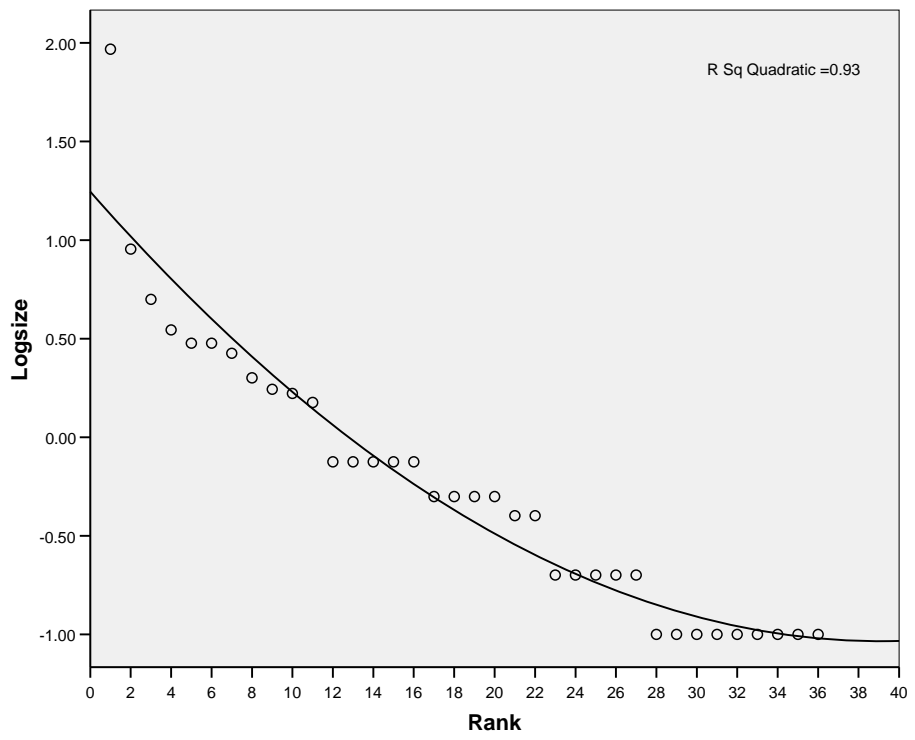


Figure 7.4. Palmarejo rank size distribution.

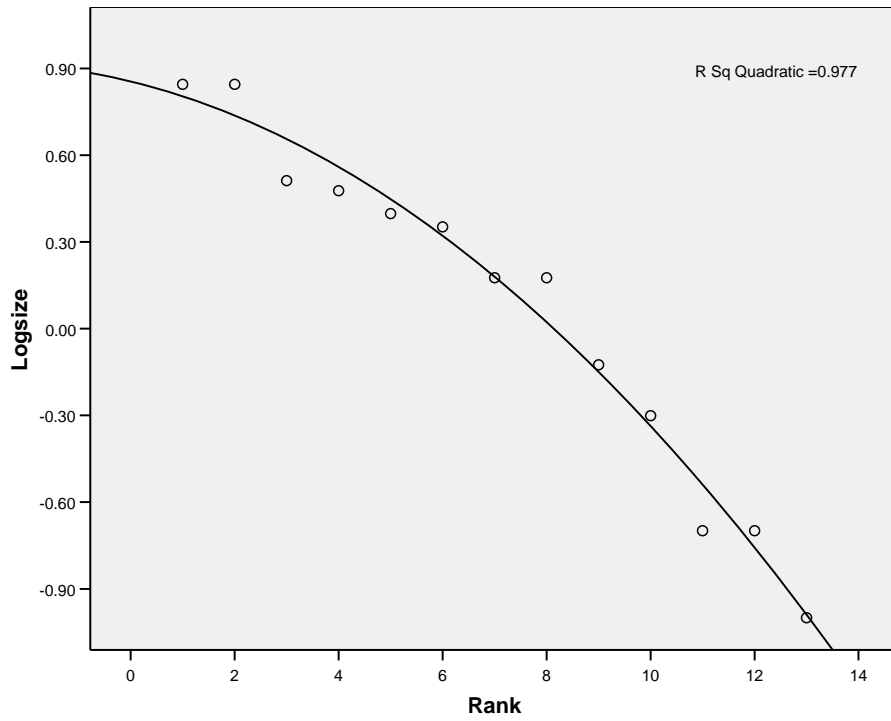


Figure 7.5. Suyapa rank size distribution.

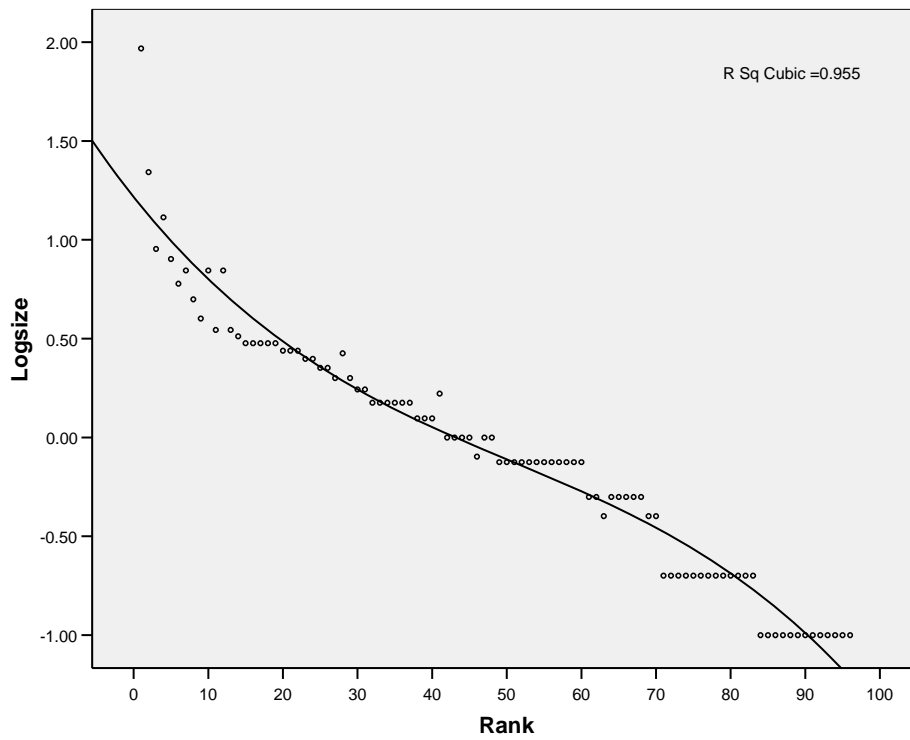


Figure 7.6. Palmarejo Valley rank size distribution.

Chapter 8

Discussion

Returning to the central question that has driven all investigations presented thus far, it is essential to examine the extent to which Palmarejo was in control of the local resources in the Palmarejo Valley and how this control may have structured economic, social, and political interactions. Based on the settlement patterns, it is evident that there were five distinct subsystems (community capitals) in the Palmarejo Valley that maintained access to unique natural resources. The community capitals and their accompanying regions are all relatively evenly spaced throughout the valley, displaying not only the desire to take full advantage of all available agricultural lands, but also a much less nucleated settlement system than is seen in the Naco Valley. In the Naco Valley, the site of La Sierra is unmatched in both total size and monumentality. By contrast, within the Palmarejo Valley, Palmarejo is undoubtedly the largest site containing the greatest quantity and diversity of monumental architecture, but the site is not completely unique. All of the community capitals have all or most of the components that compose Palmarejo, albeit on a smaller scale. The one feature of Palmarejo that is not present at the other sites is a ball court. The ball court, as mentioned earlier, could be a social gathering place that always managed to differentiate Palmarejo from the other sites. Palmarejo is situated on the best agricultural soils, which may account for the greater number of surrounding sites and the overall quantity and monumentality of its

buildings when compared to the other large sites. Besides the land, however, Palmarejo was not outstanding in terms of other natural resources. This may account for the extent of the growth seen at the other community capitals.

Overall, the rank size analysis suggests that the settlement pattern of the Palmarejo Valley was hierarchical in nature, but to varying degrees. The distribution for the valley as a whole is represented by a primo-convex line (see Figure 7.6), suggesting a single, central hierarchy with subsystems that operate relatively independently. In this scenario, the subsystems (community capitals) were articulated with the central hierarchy (Palmarejo) in some manner, yet interacted very little among themselves (McAndrews et al. 1997). Additionally, the community capitals would be relatively independent in their administration of their regional territory. In terms of the community capitals, three sites (Pacayal, Palos Blancos, and El Morro) displayed relatively log-normal lines indicating that, while the region was involved in hierarchical relationships, the sites were integrated into the regional system. The center of economic, political, and possibly religious activity was likely focused at the community capital, and the residents of Class III and IV sites would have been in somewhat frequent contact with the administrators at these sites. Palmarejo, on the other hand, shows a strong concave distribution indicating little to no economic competition and a strong hierarchy. Based on the distribution of the valley as a whole, Palmarejo was probably the center of much activity of varying sorts for all regions. Leaders required more local labor to not only construct, repair, and augment structures in the site core, but also engage in craft activities and amass an agricultural surplus.

Suyapa's convex distribution (see Figure 7.5), shows little integration within its own region and with the valley as a whole, which is often typical of communities established in geographically peripheral regions (McAndrews et al. 1997). Suyapa, resting on the southern margin of the valley, is the most difficult site to understand in relation to the other sites in the Palmarejo Valley, as it has the greatest quantity of valuable and locally available natural resources. However, it contains relatively few total structures and had an apparently weak settlement hierarchy within the region. Perhaps Suyapa was connected with La Sierra, since it is the farthest site from Palmarejo and would have been more difficult to govern. Another possibility is that Suyapa operated independently of Palmarejo and was able to garner a great deal of wealth from these resources, which may account for the high degree of monumental architecture at the site core. Davis-Salazar and Wells (2005) present the possibility that the Palmarejo Valley as a whole was a location for food production for La Sierra and the Naco Valley. Since La Sierra was a major producer of craft goods, the residents of the Palmarejo Valley were possibly involved in a network in which they brought agricultural goods to the site of Palmarejo in exchange for necessary items from La Sierra to which they would otherwise have little access. A similar situation could have existed between Suyapa and Palmarejo, as Suyapa rests in rocky foothills (Kuehn 2006) that are not suitable for commanding a large agricultural surplus. The other natural resources available near Suyapa may have lured large agricultural producers in the Palmarejo Valley into exchange networks, as have been proposed between La Sierra and Palmarejo. By examining the rank size analysis, it appears as if all exchange between Suyapa and the other community capitals

would have occurred via Palmarejo, particularly as the primo-convex pattern suggests the community capitals had little integration among one another.

With an understanding of the valley over 1000 years ago, it is possible to return to the present and note the similarities and differences between the ancient and modern populations. As in the past, the modern Palmarejo Valley is economically controlled by a select few. These select few coincide roughly with the Late Classic community capitals geographically, mainly because they live in or around the modern towns. There appear to have been five major political and economic divisions (the community capitals), and there are less than 10 today. While some people in the valley have small plots (approximately one acre), or more rarely larger plots (approximately five acres), the vast majority of the land is owned by less than 10 wealthy individuals. To some degree, all seem to engage in cattle herding and agricultural pursuits—even if the agriculture is conducted by a local farmer who has rented land (e.g., Stonich 1993)—yet the majority of the land is used for grazing. Control of the land was probably not as exclusive in the Late Classic based on the settlement patterns; however, the end result quite possibly was the same with a select few at the community capitals ending up with the majority of the resources extracted in their regions, thus, forcing the majority of the communities and community members into economically difficult positions.

While the community capitals in the Late Classic were possibly the nucleus of political and economic activity, a division exists in the modern towns. Economics are controlled by the wealthy few as described above, but politics tend to operate in a different arena. Each of the towns have small councils that address local issues with people from the community engaging in discussion about which paths to take when

problems arise (Moreno-Cortés, personal communication, 2005). Since the few that maintain the majority of the land and economic gains in the Palmarejo Valley do not redistribute their goods in times of need, their voice in the local political sphere is minimal; of course, based on their wealth, they have a larger voice in the government, which creates the conditions that all must live by. It has been documented by archaeologists and in ethnographic reports across Mesoamerica that in times of need, elites would redistribute necessary goods for survival. This would further entrench the non-elites in dependency relationships, thus strengthening the elites' political influence.

Socially, the valley seems to be somewhat different than in the past. Presently, all social activity occurs within the seven towns in the Palmarejo Valley since this is where the vast majority of the population lives. In the past, this was probably also the case, as much of the population lived in and around community capitals, although access may have been limited to these centers. In addition, many people inhabited the western portions of the valley, resulting in much of the social activity occurring among the farmsteads. In the modern Palmarejo Valley, social interaction is intertwined between towns with soccer games, dances, and family occasions bringing people from one town to another. Buses and trucks are available for intra-valley transportation for a small fee today, allowing for easier access between communities; the commute would have been much more difficult in the Late Classic, and social interaction between the residents of different regions was possibly less frequent.

Finally, religion must be compared between the modern and ancient Palmarejo Valley. In the Late Classic, the community capitals appear to have been the center for religious activity based on the presence of architecturally determined religious structures.

No sites other than Classes I and II display this type of architecture, suggesting that they were the regional capitals of large-scale religious ceremonies. This is not to say, however, that the community capitals were the only places where religion was practiced.

Household ritual is very likely and, based on surface collections at field houses, it appears that agrarian ritual, or *compostura*, was ubiquitous (Wells and Davis-Salazar n.d.).

Today, the situation appears to be quite similar to the past. All of the churches (Catholic and Evangelical) are located in the major villages in the valley (Las Contreras is the only community without a church). Like the past, people come to the center of these communities for the relatively large-scale ceremonies (Saturday or Sunday sermons), but still practice rituals in their houses by hanging crosses, praying, and so forth.

Additionally, agricultural ritual is still occasionally seen with *compostura* practices during the planting season (Wells and Davis-Salazar n.d.).

Chapter 9

Conclusions

As anthropologists, we “need to take political responsibility for our work and its implications for modern society” (van der Leeuw and Redman 2002:601). This present investigation of the types of economic, political, and social power in the Palmarejo Valley during the Late Classic—a period with many similarities to the modern day—lays the groundwork for applying these data to the contemporary population. Similar patterns are seen today to those that existed over 1000 years ago. A select and wealthy few are controlling the majority of the land and other available resources forcing the average agrarian sector into unsustainable conditions. The causes differ, however, as in the Late Classic deteriorating soil fertility from exhaustive agricultural practices in the Palmarejo Valley (Anderson 1992) must have made much of the valley floor unproductive for agriculture. Today, cattle herding by wealthy Hondurans and foreigners engaged in the global economy have barred the average farmer from the most fertile soils on the valley floor. The result in both cases is farmers moving to the foothills and mountain slopes to grow crops in an attempt to survive. Once the slopes are intensively farmed, irreversible environmental destruction is quick to follow.

This study considers some of the issues presented by William Loker (1996:81) who states, “The means must be provided for people to produce, earn viable incomes, engage in environmentally sound production practices, and to have access to the basics of

development mentioned above: food, health, education, participation, and security of person.” Aspects of education have already been addressed with local participation in the archaeological projects, whereby daily conversations and participation in excavation the local population gains knowledge of the region’s past that they otherwise might not have known (e.g., Whiteford and Whiteford 2005). Education must continue in the future with an explanation of the unsustainable nature of select systems in the past in an effort to address the unsustainable practices of the present. Understanding the nature of the past and present in the Palmarejo Valley may also lead to an increased level of local participation in combating modern issues. Armed with knowledge, local people can petition to the appropriate authorities and logically present their concerns to develop sustainable pathways for the future. It is through these two avenues that food, health, and security of person will follow. Health can be improved with increased wealth, food production, and improved water sources. It will be possible to obtain more food by either opening additional lands that can sustain agricultural practices or by creating other economic opportunities. With overall improved conditions, a greater security of person can result.

Throughout the course of this thesis, it has been made clear that the Palmarejo Valley is a resource-rich environment. The local population need not continue in unsustainable practices when the means to healthy and environmentally sound practices are available in the fertile valley floors. Perhaps the internationally increasing demand for corn (often for ethanol production) will convince the wealthy land owners to reduce the area for cattle grazing and, instead, to increase agricultural fields. Although landholdings

will not be restored for the average agrarian population, it would provide more employment opportunities in the valley.

The first step that must be taken in the Palmarejo Valley is to inform the local population of prehispanic long-term land use. As is often said, people can learn from the past, and demonstrating past unsustainable practices could result in the prevention of repeating similar mistakes in the future. One method to convey this knowledge is to simply engage in conversations with the local population during archaeological excavations. As the time passes during the work day and conversations ensue, the conversation can address pressing local issues and potential problems. Another possibility is to hold a community meeting at local schools or town/village meeting centers. People could come on a voluntary basis and learn not only about the archaeology of the valley, but also of environmental conditions that may threaten the long-term survival of the community. With modern scientific knowledge coupled with archaeological data, local decision makers would have the arguments necessary to confront and inform local officials of problems. This is not an easy process, but sufficient organization and participation are the first steps to amplifying local voices.

Future directions in the archaeology of the Palmarejo Valley must be explored as well. First, geoarchaeological work, such as that conducted in the Naco Valley (i.e., Anderson 1992), can provide strong evidence for prehispanic environmental destruction. Data of this sort can be incorporated into applied archaeological research questions and analysis to investigate the human reaction to environmental degradation in the past. Also, further excavations at Class II and III sites are in order. By conducting excavations at these sites, a greater knowledge of local resources present at each of the locations could

be gained. Knowing the sources of the resources, interaction networks could be inferred based on types and quantities of the objects at each site. With a better understanding of inter- and intra-valley interactions, social and political hierarchies could be better understood, potentially revealing causes of unsustainable practices on the landscape. While it would be difficult to disseminate this thesis as a method of conveying information in Honduras (either in English or Spanish due to its length), the data and future questions presented may help to guide the future work of my colleagues with the ultimate goal of applying the work towards the pressing issues previously mentioned.

It may seem as if it is too late to reverse the adverse effects that humans have had on the environment. It is worth noting, however, that at the time of the Spanish conquest the land in Central America was covered with virtually unbroken forest in the Maya regions, whereas Redman (1999) estimates that up to 75 percent had been cleared during the Classic period. This should provide a bit of hope as the environment has been able to regenerate once; but if action is not taken quickly, will it be able to do so again?

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