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Landscape architecture in El Salvador: a case study of the Cerro Verde National Park

Stephen Price Wilson

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**LANDSCAPE ARCHITECTURE IN EL SALVADOR: A CASE STUDY OF THE
CERRO VERDE NATIONAL PARK**

A Thesis

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Master of Landscape Architecture

in

The School of Landscape Architecture

by
Stephen Price Wilson
B.S., Clemson University, 1994
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ABSTRACT

In recent years, the published objectives of international aid organizations have called for the expertise of landscape architects. Projects with attention to sustainability, environment, and land use have become a major emphasis for many organizations. Landscape architecture, a profession which involves physical science, social science, humanities, art and land, is an appropriate profession to participate in aid projects. As a result of their unique training and experience, landscape architects have an unusual opportunity to make a substantial contribution in the planning, design and development of places for people in developing countries.

This case study documents the activities and explains a process of involvement by which the author, through the School of Landscape Architecture at Louisiana State University, became involved in the Cerro Verde National Park, El Salvador. Sponsored by the Louisiana Partners of the Americas, the author uses his research and observations as a participant in the project to examine the potential role of the profession of landscape architecture in the improvement of land stewardship developing countries. In order to understand our process of involvement, the author gives background in the following areas: aid organizations, Latin America, El Salvador, traditional park planning, and the Cerro Verde National Park, El Salvador.

CHAPTER 1 INTRODUCTION

Since the initiation of John F. Kennedy's *Alliance for Progress* in 1961, U.S. sponsored aid to Latin America has taken on a new spirit towards human development. The Partners of the Americas (POA) and the U.S. Peace Corps, components of Kennedy's program, have established an exemplary basis for grass-roots participatory development. Linked to U.S. and international aid, the group of institutions collectively known as non-governmental organizations (NGOs), have proliferated and become a major component of international aid. The amount of money administered by NGOs is in the billions of dollars per year and indicates the importance of the role that these organizations have undertaken. Frequently mentioned in aid objectives, projects with attention to sustainability, environment, and conservation have become a major part of such endeavors.

Landscape architecture, a profession which involves physical science, social science, humanities, art and land, is an appropriate profession to participate in aid projects. As a result of their unique training and experience, landscape architects have an unusual opportunity to make a substantial contribution in developing countries. For example a landscape architect could help a town to design and build a park with a safe play structure for children, or help a country with its national parks system. Through my experience as a Peace Corps Volunteer in Paraguay, as a past employee of Cooperative for Assistance and Relief Everywhere (CARE), and through my studies at Louisiana State University (LSU), I have discovered how the profession of landscape architecture may contribute to the proper stewardship of land in a greater portion of the world.

In 1999, The School of Landscape Architecture at Louisiana State University was contacted by the Louisiana Partners of the Americas (Louisiana POA) about providing research, design and training services for the enhancement of an existing national park in El Salvador. The Louisiana POA is a non profit organization with the goal of improving life in El Salvador through the development of professional relationships. The Louisiana POA contacted the School of Landscape Architecture because a local member, Mila Berhane, knew there was an interest in Latin America and National Parks within the school. As a result, Anne Spafford, LSU professor and the author Stephen Wilson, LSU graduate student, visited the Cerro Verde National Park, El Salvador in January 2000 and the author visited the park a second time in May 2001. Both trips were sponsored by the Louisiana POA.

The objective of the first visit to the Cerro Verde was to conduct a site inventory in order to provide a basis for a landscape architectural study and future park guard training. As a result, I elected to use the Cerro Verde as a case study from which to examine the broader potential of the profession of the profession in Latin America.

Problem Statement

The profession of landscape architecture is underdeveloped or does not exist in many Latin American countries. As Latin America grows and becomes modernized in the 21st century, all professions will have new opportunities and potential. The problem lies with how the profession of landscape architecture will identify projects and seek to improve those projects through the participation of a landscape architect.

Through my experience with Cerro Verde National Park in El Salvador, I will attempt to answer the following questions: First, is there a need for the professional

expertise of a landscape architect in the future development and design of the Cerro Verde National Park? Second, is it possible for a North American landscape architect to work effectively in El Salvador or other developing countries? Third, is traditional park planning and design appropriate for the Cerro Verde? Fourth, does the design process differ when working in a developing country? And last, what is the role of landscape architecture in developing countries?

Methodology and Hypothesis

This thesis is a case study which presents a landscape architectural study of the Cerro Verde National Park. The study includes an inventory, analysis, a preliminary conceptual master plan and recommendations. From the case study, I will examine the process of my involvement which will have applicability to the questions mentioned above.

Assumptions

Landscape architects, due to their unique training and professional practice, can offer knowledge, skills, and abilities which are not currently available in developing countries. Presently in Latin America, the work of landscape architecture is being done by other disciplines like architecture and engineering. Although the work is getting done, or partially done, further development and elaboration could be realized by persons specifically trained to do so: landscape architects.

Landscape architects should become involved in developing countries because additional knowledge, skills and abilities could make a difference in the quality of life for many people. There is a relationship which exists between density, quality of life and design. I have observed that people in developing countries who have their own piece of

land and live on subsistence farming have a relatively good quality of life. As density increases and land availability does not allow subsistence farming, quality of life can drastically decrease. As a result of higher human density, the planning, design, engineering and construction of places for people become increasingly important. Site design, which is arguably best done by a landscape architect, is a lacking component of the development of places for people in developing countries.

This case study will document my activities and explain a process of involvement by which other landscape architects may become involved in international projects. In addition, it is the intent of this thesis to create an argument that there should be a relationship between the profession of landscape architecture and NGOs in future international development projects. I will use my research and observations as a participant in the project to address more general topics in landscape architecture. In order to understand our process of involvement, I will be giving background in the following areas: aid organizations, Latin America, El Salvador, traditional park planning, and the Cerro Verde National Park, El Salvador.

CHAPTER 2

AID ORGANIZATIONS, THE SCHOOL OF LANDSCAPE ARCHITECTURE AND THE CERRO VERDE

The term *aid* refers to the flow of resources from developed countries to developing countries. The aid resources may be in the form of finance, goods and/or technical services. Non-governmental organizations (NGOs) are private entities which carry out aid and development projects in foreign countries. NGOs may have humanitarian, religious and/or environmental objectives; however, if they meet the requirements of the funding agency, they may receive public or private funding. USAID, for example, is a major source of funding for NGOs. Examples of NGOs include Care, Community Aid Abroad, Oxfam and World Vision. In addition, NGO projects, due to their restrictions in funding and scope, deliver aid on a grass-roots level and are unlikely to be purely objects of national policy (Cho 71).

Aid organizations, through their published objectives, are indirectly calling for the expertise of landscape architecture. In an article published by the *US Department of State Dispatch*, Susan Holly wrote:

Latin America and the Caribbean. USAID resources in this region will be focused on the conservation of tropical forests and other critical habitats, sustainable agriculture, and improved management and protection of water and coastal resources. Attention also will be given to the promotion of environmentally sound energy production and the use and reduction of urban and industrial pollution. (872)

The objectives mentioned above are broad and involve an array of different issues; however, due to the involvement of conservation, land and people, landscape architecture is an appropriate profession to be involved. Another example can be found in the

Programs section of the Ford Foundation's website. Under the Environment and Development heading the objective reads:

The program for environment and development has concentrated on bridging the perceived divide between development and environmental conservation; creating and strengthening the conceptual, informational and institutional bases for environmentally sustainable development; and promoting participation of stakeholders, particularly the poor and marginalized, at all levels in the debate and decision-making on relevant policy issues. (Ford 1)

Again, these published objectives appear to be calling for the participation of landscape architecture. Specifically, the idea of finding a balance between development and environmental conservation can certainly be improved through site planning, the work of landscape architects. In this citation, it is important to point out that the Ford Foundation is not considered a development organization, but as a foundation which provides funding for NGOs and other groups who conduct projects.

An example of a landscape architect who is involved in international work through an NGO is Karla Christensen. In the April 1999 issue of *landscape architecture*, Paul Bennett wrote:

This winter Christensen returned from war-torn Bosnia-Herzegovina, where she had been working on a project jointly sponsored by the American Refugee Committee and USAID, the agency that administers foreign-aid money. In just fourteen months, Christensen - overseeing a staff of sixteen Bosnian engineers - constructed a bewildering 280 playgrounds and sports fields for just over \$3 million (about \$11,000 per landscape, for anyone who's counting). (12)

After an interview with Christensen in September 1999, it was clear that her work in Bosnia demonstrated a clear alignment between the objectives set fourth by the development organization and some of the ideals held by the profession of landscape architecture. Christensen's work demonstrated careful and thoughtful site planning,

community participation, attention to sociological factors, attention to safety standards, the participation of local professionals, the participation of local craftspeople, and the use of local materials. Christensen's project is an example of how landscape architecture and international development are an appropriate combination.

United States Agency for International Development

The United States Agency for International Development (USAID) is an independent federal government agency that works to support long-term equitable economic growth and advance U.S. foreign policy objectives by supporting agricultural development, global health, and conflict prevention and developmental relief (USAID 1). The history of USAID goes back to the Marshall Plan after World War II and the Point Four Program from the Truman Administration. Signed into law by President John F. Kennedy, the Foreign Assistance Act created the USAID which spends less than one-half of 1 percent of the annual federal budget (USAID 1). The USAID is a major source of funding for NGOs who are conducting projects in developing countries. For a list of USAID recognized NGOs who are doing work in El Salvador, see appendix A.

The U.S. Peace Corps

In 1961 President Kennedy signed an executive order establishing the U.S. Peace Corps. Later in 1961, Congress approved legislation giving authorization and mandating the Peace Corps to "promote world peace and friendship" through three goals: first, to help the people of interested countries and areas in meeting their needs for trained workers; second, to help promote a better understanding of Americans on the part of the peoples served; and third, to help promote a better understanding of other peoples on the part of Americans (Peace Corps 2). The U.S. Peace Corps is not considered a

development organization but does have some relationship to U.S. sponsored aid. The Peace Corps volunteers are not involved in elections, political parties, anti-drug efforts or law enforcement. The Peace Corps volunteers are involved in the following sectors: Education, Business, Environment, Agriculture, Health, Community Development and Focus Areas.

Like the Peace Corps volunteer Amy Zimmerling, a professional ecologist who was assigned specifically to the Cerro Verde National Park, there are opportunities for professionals to become involved in international projects. Even if a person does not wish to become a full time Peace Corps Volunteer, he or she may become involved through volunteers who request assistance from additional professions.

Partners of the Americas

The Partners of the Americas (POA) was initiated in 1963 by the U.S. Agency for International Development (USAID) as part of President Kennedy's Alliance for Progress. The mission of the program was to create an alliance of friendship between the citizens of the United States and citizens of Latin America. The alliance was to be made up of farmers, teachers, doctors, engineers, students, scientists, homemakers and business people - not of diplomats or government employees. Its intent was to be a grass roots, people-to-people program.

On March 19, 1964, the alliance became officially established. It was originally called the Partners of the Alliance program and was headed by William Rodgers, an employee of USAID. From 1964-1969, the Partners of the Alliance program made tremendous progress in creating partnerships with countries in Latin America. As part of the original conception of the program, the intent was to create a private citizen-to-citizen

program, and in 1970, the original intent was realized when the Partners of the Alliance made its final separation from USAID. As part of the separation, the Partners of the Alliance became the Partners of the Americas. Now, the Partners of the Americas has sixty partnerships in Latin America which link a specific state or region in the U.S. to a specific country or region in Latin America. Louisiana, for example, is matched with El Salvador.

Partners of the Americas carries out a wide range of activities. The main thrust is to “...improve food supplies, deliver health services, provide job training to young people, protect the region’s natural resources, and safeguard the rights of women and children” (Partners 1). And all of Partners’ activities seek to promote citizen participation, mobilize hemispheric collaboration, address economic and social development issues, train community leaders, and strengthen local non governmental organizations.

The Louisiana-El Salvador partnership is like most of the sixty partnerships which exist today; it is a non-profit, independent and local organization. Formed in 1967, the Louisiana-El Salvador partnership is one of forty four partnerships having national headquarters in Washington, D.C.. The national Partners office serves as an advisory and administrative service for all the partnerships.

The funding for Partners’ projects comes from private donations and from the government. The funding for the Cerro Verde project came from the Farmer to Farmer program which is a program within the Louisiana-El Salvador partnership.

School of Landscape Architecture

I became involved in the Cerro Verde project through an indirect process. The original idea was conceived by Amy Zimmerling, the Peace Corps Volunteer who worked with the park from 1997-1999. She identified the need for park guard training, and she also identified the potential link with the Farmer to Farmer program with the Louisiana POA. With the need and resource identified, she filed the appropriate paperwork with the Peace Corps and Partners.

The request was delivered to El Salvador's U.S. counterpart, Louisiana POA, and to the Agriculture and Environment Director Mila Berhane. Understanding the typical involvement that landscape architects have with national parks, Berhane requested the assistance of Professor Sadik Artunc, Louisiana State University Professor of landscape architecture.

Upon reviewing the request, Professor Artunc realized the park's need for a master plan. This realization was based on the question, "How can the park guards receive effective training if the park does not have some overall organized objectives?" It was impossible to determine, as an independent third party, the specific needs of the park without looking at the whole picture. It was apparent that broader issues needed to be addressed before specific plans could be made. Professor Artunc responded to the request by offering his expertise in national park design and planning.

Adapting the original proposal to include an emphasis on a landscape architectural study, the Peace Corps, Partners and the Cerro Verde National Park agreed that the project could proceed. It is important to point out that, at this point, it was still unclear what activities would be conducted during the first visit. Members of the Peace

Corps, Partners, and the Cerro Verde National Park were still unaware of what contributions landscape architecture could make to the project.

Requesting the additional assistance of Professor Anne Spafford, Artunc planned a trip to El Salvador in the summer of 1999. Due to unforeseeable circumstances, the trip did not occur. At the end of the summer, Artunc suggested that I become involved, and I agreed.

Although I became involved in the project through an indirect process, there are pathways which are repeatable. First, there is a POA chapter in every state. If a person wishes to become involved in an international project, a local POA chapter would be a good place to start. Second, the US Peace Corps exists in many countries around the world and can be contacted via the internet. And third, many universities have programs abroad and some of them are funded by USAID.

CHAPTER 3

LATIN AMERICA

Working in Latin America has similarities and dissimilarities to working in the U.S. For anyone who is considering work in Latin America, a general understanding of social conditions and history is essential. As an introduction only, I will mention the concepts of land distribution, dependency, an externally-oriented economy, communism, the *alliance for peace*, "war on drugs" and the North America Free Trade Agreement (NAFTA).

Land Distribution, Dependency and Externally-Oriented Economy

The first Spanish penetration in 1522 was the beginning of an entirely new world for Latin America. Prior to the Conquest, the Native American populations were large, relatively healthy, relatively well fed, and possessed riches. As a result of the conquest, the Native Americans were enslaved, infected with disease, dispossessed of their riches, and murdered. In Nicaragua for example, it is estimated that "...a population of over one million natives was reduced to a few tens of thousands by the end of the conquest" (Booth 18). Prior to the conquest, the region of northern Central America was typified by labor intensive agriculture. Common people were consigned a piece of land and on it they grew corn, beans, peppers, and squash. As payment for the land, part of the harvest would be given to the chief. By the end of the conquest, this region which had once supplied food for hundreds of thousands had reverted back to jungle. In place of the agriculture based system, the Conquistadores manipulated the regions human and natural resources to provide articles for trade among the colonies. Land which was previously used for a self sufficient subsistence based economy was altered and used to produce

articles for trade (Booth 18). Even today, due to the fact that small portions of the population own large portions of the land, the distribution of land and its relationship to subsistence farming is still a major issue in many Latin American countries.

The lack of subsistence farming is a contributing factor to a system known as “dependency.” Most people who write about the subject agree that

...dependency is a complex political, economic, and social phenomenon that serves to block the human development of the majority in certain privilege-dominated Third World countries where the economies are heavily externally oriented. (Booth 13)

The main characteristics of dependency are a lack of land ownership by the majority, extremely labor intensive temporary employment, a lack of subsistence farming, a system which favors local elite, and strong economic disincentives for the elite to attempt to improve conditions.

Dependency, with all its negative human consequences, wouldn’t exist without both an externally oriented economy and a socially irresponsible elite. An externally oriented economy has its main emphasis on income generation through exports. In El Salvador for example, coffee exportation has been the basis of the economy for the past century. In contrast, in United States

...over 80 percent of industrial production is absorbed by domestic consumers. Therefore, even if we were to accept the argument that there is a “ruling class” in the United States, we would say that it would not be in that group’s interest to exploit common citizens to the extent that they could no longer consume. (Booth 13)

In this perspective, the common citizen of an externally oriented economy is not important as a consumer, but is instead a cheap and vulnerable source of labor.

United States Foreign Policy and the Alliance for Peace

Prior to the end of the Cold War, U.S. foreign policy in Latin America dealt principally with the spread of communism. Although not the only issue influencing U.S. foreign policy, “the fear of Soviet involvement was probably the single most important cause of U.S. interventionism during the Cold War” (Pastor 230). Due to the threat of communism, the U.S. has supported dictators, has helped quash revolutions and has affected the lives of many Latinos. Since 1911 there have been overt U.S. military interventions in Honduras, Nicaragua, Haiti, Dominican Republic, Panama, Colombia, and Cuba (Martin 5). In addition to the overt interventions, the number of covert operations includes involvement in additional countries.

Amidst the threat of communism, President Kennedy sought a new direction in attitude and actions in Latin America with the launch of the Alliance for Progress (AFP). In a speech given by Kennedy on March 13, 1961, the ten points of the Alliance for Progress were summarized as follows:

1. The objective is to create in ten years a Latin America in which “basic education would be available to all, hunger will be a forgotten expectancy” and growth in the future will be self-sustaining with no need for massive aid, but “only the most determined effort of the American nations themselves can bring success to this effort.” If they make it, the U.S. “should help to provide resources of a scope and magnitude sufficient to make the bold development plan a success.” However, at the end of the decade, he added “though there will be still much to do, every American Republic will be the master of its own revolution and of its own hope and progress.”
2. A request will be made for a first meeting of the new ministerial Inter-American Economic and Social Council (IAECOSOC) to begin the “massive planning effort” necessary as “the heart of the AFP.” To help to do this and to review progress, the IAECOSOC, the IDB [International Development Bank] and ELCLA [Economic Commission for Latin America] should recruit expert staffs.
3. The request to Congress that it appropriate \$500 million to fulfill our commitment to the Act of Bogota had just been signed. It would be used

to combat illiteracy, improve agricultural productivity, “wipe out disease, attack archaic tax and land tenure structures, provide educational opportunities.”

4. We must support economic integration as in the project for a “Central American common market and free trade areas in South America” as the “fragmentation of Latin American economies is a serious barrier to economic growth.”
5. The U.S. is ready to seek “practical methods” of dealing with the “violent changes in commodity prices.”
6. The U.S. will immediately step up its emergency Food for Peace program, including reserves in drought areas and expanded school lunch programs.
7. All the people of the hemisphere should share in the “wonders of science.” Latin American scientists will be invited to work with ours on new projects in various fields and plans made for regional research laboratories on important subjects. New steps will be taken to improve education in the sciences in Latin America.
8. It is also necessary to expand and improve the training of the professionals required to manage the economies of the Latin American countries, including a regional university effort in Central America.
9. The U.S. would defend any nation “whose independence is endangered.” We want the OAS [Organization of American States] “collective security system” strengthened. As this is done, steps to limit expenditures on arms will make available resources for “constructive use.” New military leaders are aware they can help development as well as defend their countries as our Corps of Engineers has done.
10. We want an expanded opportunity to learn more about Latin American culture, better access for “our young people...to your music, your art, and thought of your great philosophers.” (Martin 53-54)

Kennedy’s ten points of the Alliance for Progress demonstrate the significant shift in attitudes and policies from previous administrations. As a result, “Antonio Ortiz Mena, who was Mexico’s minister of finance and subsequently president of the IDB, has written that ‘the changes that have taken place in Latin America since 1961 are nothing short of revolutionary,’ and that they could not have occurred without the Alliance for Progress” (Pastor 184).

The Drug War

By the end of the Cold War and the collapse of the Soviet Union, anticommunism was no longer a basis for U.S. policy toward Latin America. It was quickly recognized

that narcotics were an immediate threat, and the "war on communism" was quickly substituted with the "war on drugs" (Coerver 219). Although drug smuggling in the hemisphere had existed since colonial times, the problem escalated from the 1960s to the 1990s. By the time Ronald Regan became president, the drug problem was an important political issue. In 1986, Regan issued a National Security Decision Directive which put both drug interdiction and control at the source within the responsibilities of the U.S. military. Operation Blast Furnace in 1986 is the best known U.S. military involvement in drug eradication efforts. As described by Coerver,

Lasting four months, the 150 man mission, complete with helicopters, provided air transportation and communications support for Bolivian narcotics police and DEA personnel in the search and destruction of cocaine laboratories. Although the operation was successful in disrupting coca purchases and processing, temporarily bringing the price peasants received for coca below the break-even point, the supply of cocaine in the United States did not seem to have diminished. Once the Americans returned to the United States, moreover, coca leaf prices quickly recovered their former level. (232)

Despite military interventions and the expenditure of \$100 billion on drug enforcement programs from 1981-1992, drug traffickers had been harmed little and the supplies continued to be plentiful (Coerver 235). The effort to fight the "war on drugs" at the supply side had limited success and the Clinton administration was willing to address the problem from the demand side. The future of the "war on drugs" will likely continue in the new direction of more bilateral or multilateral action, aid with substitution programs, commodity price stabilization and addiction treatment.

The North American Free Trade Agreement

The North American Free Trade Agreement (NAFTA) was designed to eliminate all trade barriers and impediments to investment in the three countries in North America.

With the combined nations of North America, "NAFTA alone is a sizeable trading bloc with a market of 360 million people and a total economic product of US\$6 trillion" (Cho 132). The result is that Canada, the U.S. and Mexico have a new relationship which will create opportunities for all three countries.

CHAPTER 4 EL SALVADOR

Surrounded by Guatemala, Honduras and Nicaragua, El Salvador is the smallest country in Central America (Fig. 4.1). Similar to the size of Massachusetts, El Salvador is 260 kilometers long from east to west, and 100 kilometers wide from north to south. El Salvador is divided into three geographic regions which are the interior highlands, the central region and the coastal plain. The Sierra Madre Mountain chain runs through the interior highlands, and valleys, mountains and volcanoes characterize the central region.



Fig. 4.1. Map of Central America. Map adapted from Brauer, Smith and Wiles 1.

El Salvador has a population of approximately 5 million people, and due to the small land area, there is an incredibly high population density of 250 people per square kilometer. In addition, it is expected that the population will double by the year 2025.

El Salvador has fertile volcanic soils which help to support the country's main cash crops of coffee, sugar cane and cotton. Agriculture employs approximately 35 percent of the workforce, and half of all landowners in El Salvador own less than 2.5 acres of land each. In addition, half of all land owners combined own only 5% of the country's total area (Brauer 45).

The Cerro Verde is an extinct volcano located on the western side of the country. Near the Cerro Verde are the Santa Ana volcano, the Izalco volcano, the Coatepeque lake, and the department capital of Santa Ana (Fig. 4.2).

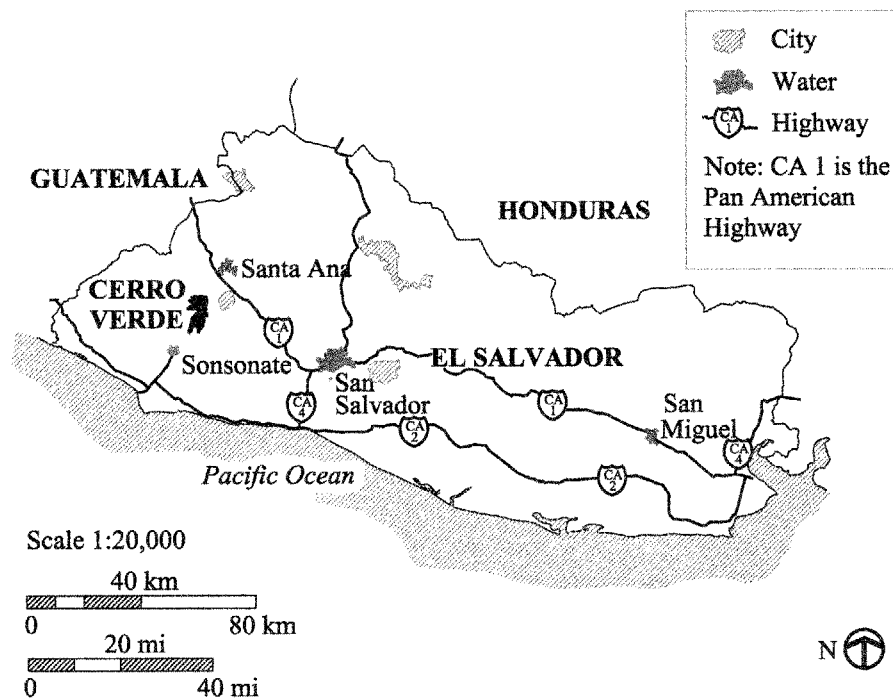


Fig. 4.2. Map of El Salvador. Adapted from Brauer, Smith, Wiles 1.

Socio-Economic Conditions

El Salvador's history since the 1970s is astonishing. To the credit of the Salvadoran people, it is easy to forget that the country had a bloody civil war until 1992. During my two visits, El Salvador was bustling with people and appeared to be a successful and sustainable place. Also, I spoke with people who were positive and enthusiastic about the future. To better understand the current socio-economic conditions, it is helpful to have some background of what has happened in El Salvador since the 1970s.

There are differing theories about how and why national revolts begin; however, few would argue that the revolt in El Salvador was based on the drastic change in the basic economic condition of the majority of Salvador's people between the 1960s and 1980s.

The economy of El Salvador grew rapidly in the 1960s and 1970s. The Gross Domestic Product (GDP) grew an average of 2.1 percent per year from 1962-1971 and 2.3% from 1972-1978 (Booth and Walker 91). Consumer prices inflated an average of about 1.5% from 1963-1972 and then 12.8% from 1973-1979 (Booth and Walker 91). The result was that the Salvadoran workers lost at least one-fifth of the real purchasing power of their income between 1973 and 1980. Although there was rapid industrialization and productivity growth during that time, the unemployment rate rose from 16 percent in 1970 to 21% in 1978. And finally, wealth and land ownership was concentrated into fewer hands. As summarized by Booth and Walker:

In summary, the development model followed by the Salvadoran state under the Central American Common Market increased overall production as well as the share of national wealth controlled by the national capitalist class. Employment and real wage changes reveal that not only did the

Salvadoran working classes become relatively poorer during the 1970s, they became absolutely poorer, and markedly so. The purchasing power of working-class wage earners in El Salvador dropped sharply, beginning in 1973. Joblessness and underemployment rose steadily during much of the 1970s and accelerated late in the decade. When one considers the miserable earning power of the average poor Salvadoran, these facts compellingly demonstrate how severely the standard of living of most Salvadorans deteriorated during the period. Such declines in living conditions, measured for most people by such fundamentals as how much food they could put on the table each day, constituted powerful sources of political grievances among large numbers of Salvadorans. (91)

As a result of the social conditions, a number of parties and organizations were formed to help working class people change their lives. Specifically, five guerrilla organizations were formed between 1970 and 1979 to challenge the national military regime, the National Conciliation Party (PCN).

The PCN responded with increasingly repressive actions including violence, torture, and assassinations. The data record shows that there was a change from 14 political murders per year between 1972 and 1977 to 299 per year for 1977-1978 and to 1,030 by 1979. Then, the number shot up to 8,024 for 1980, and 13,353 for 1981 (Booth and Walker 96). By 1980 the crisis was so great that opposition parties formed large coalitions and the country was truly in the middle of a civil war.

Opposition forces gained strength and momentum until U.S. military assistance to El Salvador was increased from \$5.9 million in 1980 to \$533 million in 1985 under the Reagan administration. In the twelve years of the Salvadoran civil war, the total U.S. military assistance was \$6 billion (Booth and Walker 101). There were many reasons for the U.S. to support the Salvadorian government during their civil war but the principal threat was that of communism.

Not until 1992 was there any concession to make an agreement between the warring factions. In October 1992, the Chapultepec Peace Accord was reached under massive and intensive U.N. supervision. As a result, the government was required to depoliticize and drastically reduce the size of its army, abolish the U.S. trained “rapid deployment” forces, phase out the National Police and establish a new civil police that would draw no more than 50 percent of its recruits from veterans. And finally, the opposition party, which in the end was called the Farabundo Martí National Liberation Front (FMLN), was to demobilize.

As a result of the Chapultepec Peace Accord, El Salvador is a different country than it was eight years ago. Salvadorans are able to live relatively violence free lives and pursue health and happiness.

CHAPTER 5

OVERVIEW OF NATIONAL PARK PLANNING AND DESIGN

A major component of landscape architecture, the planning and design of national parks determines the use of a significant piece of land with the intent of maintaining its integrity over a period of time. Although every planning and design project is different, there are characteristics which are similar.

Before any specific decisions are made about a particular site, for example, the location of a building, it is common to develop a broader context which can be achieved through planning. Planning can be divided into four parts (Muther 4):

1. To determine ahead of time what you should or intend to do
2. To think about and decide upon a proposed course of action.
3. To convert goals, objectives, demands, or problems into schemes, decisions, stated intentions, or solutions.
4. To condition one's mind with future opportunities, obstacles, possibilities and alternative courses of procedure so the mind will be open and quicker to respond to new circumstances or more creative solutions in subsequent, more-definitive planning.

Planning is an exercise with a purpose and has intended benefits. The benefits of planning can be described as follows (Muther 6):

Planning is not only deciding to do the appropriate thing at the appropriate time and place with the appropriate people. It is also avoiding what is inappropriate or disadvantageous or wrong. Planning helps avoid excessive cost, lost time, wasted effort, and the need to do something over again. In this way, planning is *productive*.

Planning can be considered in different levels. From broad scale to specific scale, planning establishes an overall context. It is important to point out that this discussion is focused on site planning and not policy planning. Although some professional landscape architects are involved in policy planning, site planning is a principal activity of

landscape architects. It is also important to mention that park planning is considered a process and not a role.

Site planning considers the broader arrangement of people, places, things and activities. By considering the broader context, individual elements within that context can seem related, interdependent and cohesive. For example when one determines the location of a sidewalk, one can think about its relationship to other site features, its relationship to buildings, its relationship to site circulation, roads and parking lots, and its relationship to areas outside the site, a neighborhood for example. Planning has certain characteristics which can be described as follows (Muther 25):

- **Future** By its very definition, planning always involves things in the future. Planning is now, but the action based on the plan will be then.
- **Action** Planning is directed towards taking action. What action to take and how we intend to take it are the outputs of planning.
- **Thinking** Planning is a mental process, an act of cogitation and cerebration. You are trying to generate a flow of stimulated or associated ideas that aim at creating a plan, way or solution.
- **Deciding** Planning typically involves decision. Based on the thinking and creating, you fix or resolve a proposed course of action.
- **Objective** Before you do something you normally have some need, desire, or purpose for doing it. So the objectives of the action should be foremost in your planning.
- **Assurance** You need confidence that your intended action will have success, will meet your objectives, and is comforting and productive. Planning typically provides this assurance.
- **People** Planning does not just happen. People make plans. The thinking, devising, and deciding of plans can be done by one or more persons.
- **Level** Big actions, small actions: planning takes place at many levels. The sequence: total system, intermediate system, subsystem, and sub-subsystem indicates that most plans are made within the influence of a larger plan or situation.
- **Horizon** Long term, short term, immediate or action plan; these terms describe for how long into the future your plans are being made and probably how far away your action is.
- **Time** While horizon refers to the time ahead, the time required or time available limits the planning itself. The best plan made too late is no

better than no plan. Each planning effort has a target time span or has to meet a deadline date.

- **Change** Present conditions and viewpoints will change. A good plan today may be obsolete tomorrow. Many plans are, therefore, made with a premeditated intent of adjusting or even scrapping them later, as may be appropriate to foreseen or unforeseen changes.
- **Accuracy** Some actions need plans that are only “in the ballpark.” Others require completely reliable specifics. In general, the farther into the future the action is to be taken, the less accurate need be. On the other hand, action plans, certainly immediate plans, should be more specific.
- **Choices** All planning involves choices. There is seldom a single course of action. So the development of alternative plans and selecting the best from these is an expected part of the deciding-and-accepting portion of planning.
- **Management** The effectiveness of your planning varies with your effectiveness at managing your planning. Therefore, know how to plan, and on each assignment clarify what, who, when, and how to do the planning before doing it.
- **Commitment** Plans in themselves are not a promise or a pledge. You don’t have to follow every plan. When a plan is decided on, approved, and its support agreed to, then it becomes a commitment. Even at that point, it should have appropriate flexibility.

By understanding the benefits and characteristics of planning, the people who make decisions about places, the National Parks Service for example, can better influence the result of a project. If planning is incomplete or left out of the design and build process, it is more difficult to predict the outcome.

Predesign Phase

As planners, architects, landscape architects, and engineers have many areas of expertise which overlap, the phases of planning can apply to each discipline. The phases of the planning are defined in the *Park Planning Handbook* as predesign, design, development, and actualization.

In the first phase, predesign, landscape architects often use the terms “inventory” and “analysis” to describe their work. An inventory contains facts about the site. For the

Cerro Verde National Park, I created an inventory check list with over 150 individual inventory elements. *Anatomy of a Park* lists four categories of On-Site inventory factors: constructed elements, natural resources, natural forces and perceptual characteristics (Molnar and Rutledge 94). In addition, the Off-Site inventory factors are: land-use patterns; stream and drainage sources; visuals; smells and sounds; aesthetic character; public utility locations and capacities; and transportation ways and systems (Molnar and Rutledge 95).

The term “analysis”, another term used by landscape architects, is used to describe a process of understanding the interrelationships between inventory elements. As part of site analysis, it is common for landscape architects to create inventory relationship diagrams (Fig. 5.1). It is also common to create site analysis drawings which illustrate the relationships between various inventory elements and how they may affect future projects (Fig. 5.2). In addition, it is common for landscape architects to create analysis drawings in great detail.

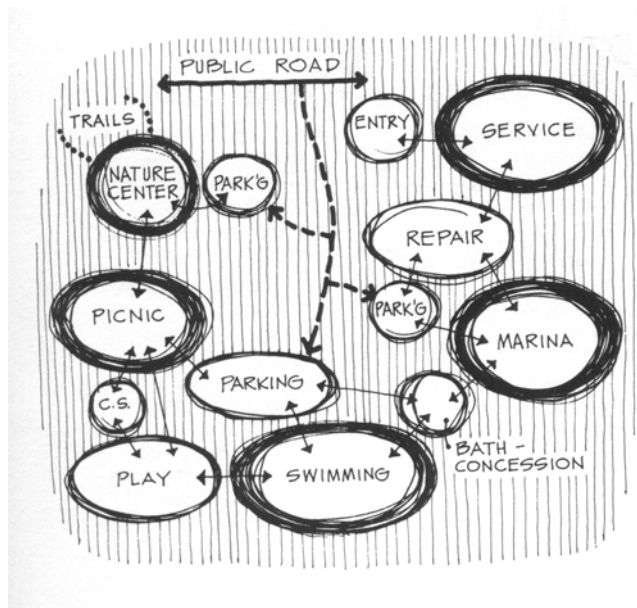


Fig. 5.1. Inventory Relationship Diagram. Source: Molnar and Rutledge 99.

SITE ANALYSIS

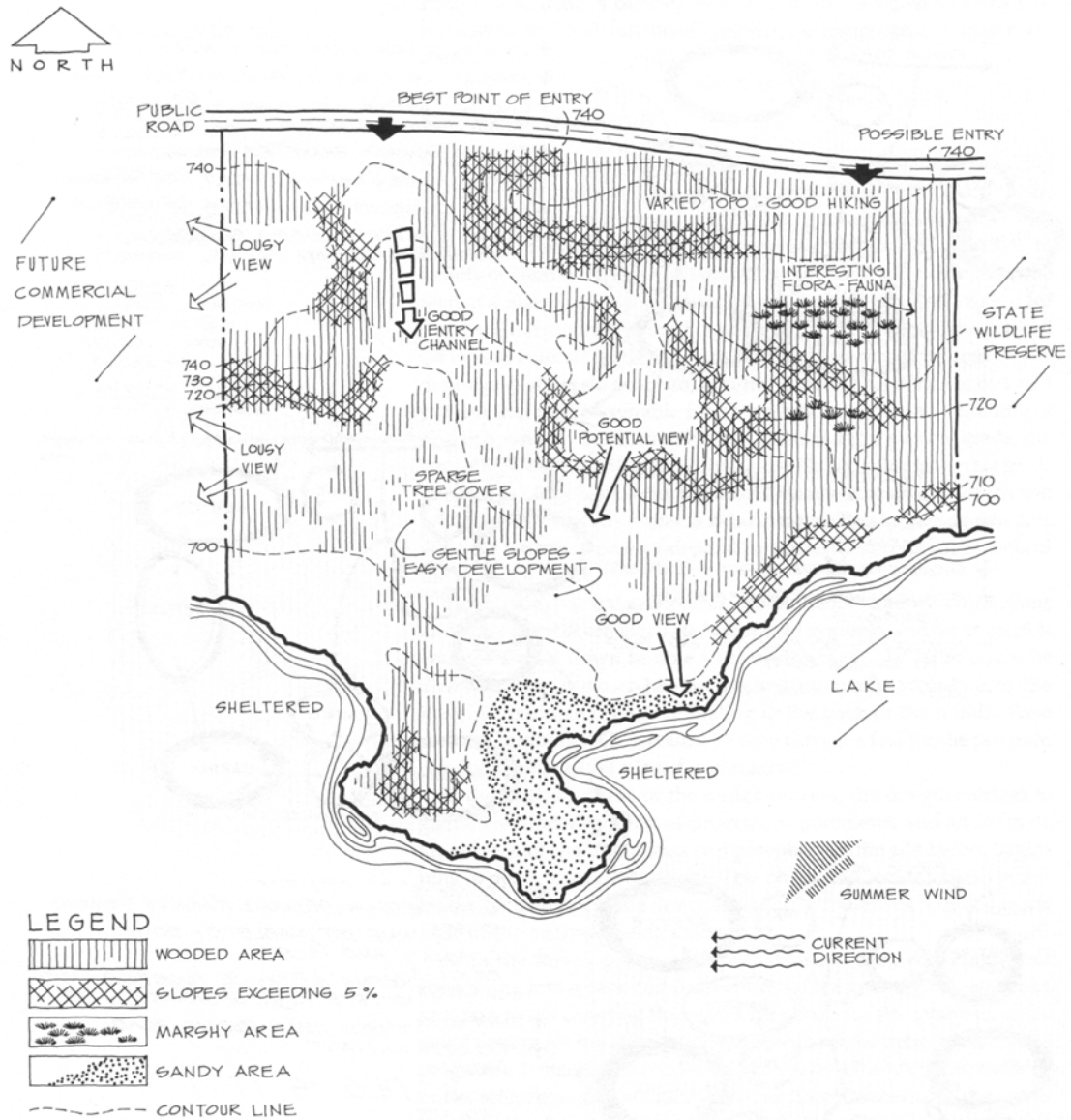


Fig. 5.2. Site Analysis Drawing. Source: Molnar and Rutledge 100.

In his book *Design with Nature*, Ian McHarg went into great detail about the inventory and analysis of natural systems and their relationship to humankind. When he wrote his book in 1967, McHarg's inventory and analysis methodology for natural and human systems was quite different than the methodology used at that time. McHarg challenged the fundamental way we choose to build places. In his book, he used a typical highway project as an example (McHarg 31).

If one seeks a single example of an assertion of simple-minded single purpose, the analytical rather than the synthetic view and indifference to natural process – indeed an anti-ecological view – then the highway and its creators leap to mind. There are other aspirants who vie to deface shrines and desecrate sacred cows, but surely it is the highway commissioner and engineer who most passionately embrace insensitivity and philistinism as way of life and profession.

Although this example may unfairly single out highway engineers, McHarg's point that projects with a single purpose can resolve the identified problem -- providing a place for automobile traffic for example -- but the solution, when examined from other disciplines, may not be acceptable. Because of *Silent Spring* and because of the growing population who were enraged by the environmental degradation at the time, McHarg's arguments were well received. The technique of using inventory and analysis to avoid the simple-minded single purpose approach became a mainstay for his teachings.

McHarg's inventory and analysis drawings usually focus on a single system per drawing. For example, one drawing may inventory soils, another vegetation and another wildlife (Figs. 5.3-5.5). To conduct the site analysis, the drawings, which are drawn on transparent paper, are placed on top of one another to see graphic relationships. Sometimes, quantifiable values are put on each element, like poor, neutral or positive, so the graphic relationship can be expanded to have a measurable value. Then with a

quantified value, drawings can be placed on top of one other so particular sites can be examined for their suitability. And as a final consideration, computers, through programs like ArcView, GIS, and Autocadd, have allowed landscape architects to conduct inventory and analysis with quantities of information which would have been impossible to manage in the past.

A successful predesign phase will likely accomplish the following: to define the “product”; identify its objective; rough out main aspects/features; analyze the user group; search for information and data; establish a working arrangement (who, what, when, how), rough preliminary plan and schedule (Muther 25). In addition, the predesign phase

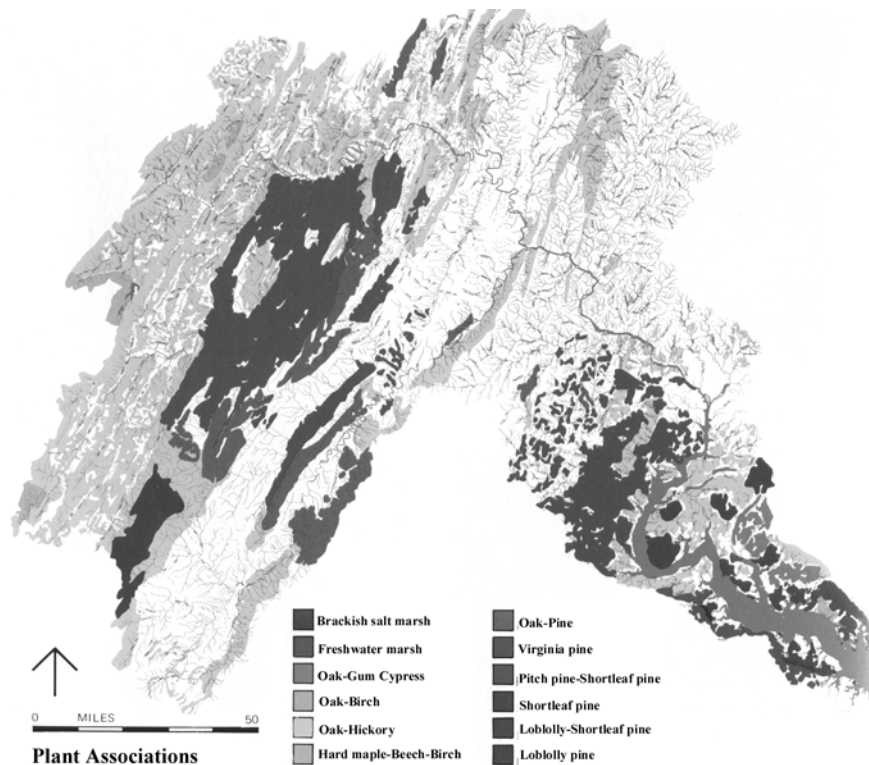


Fig. 5.3. Plant Association Map. Source: McHarg 134.

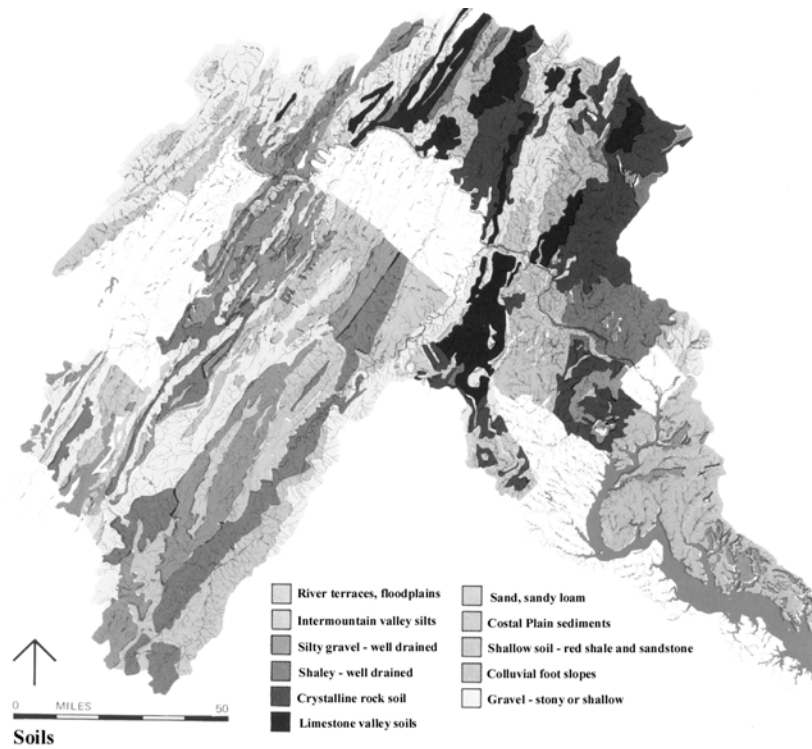
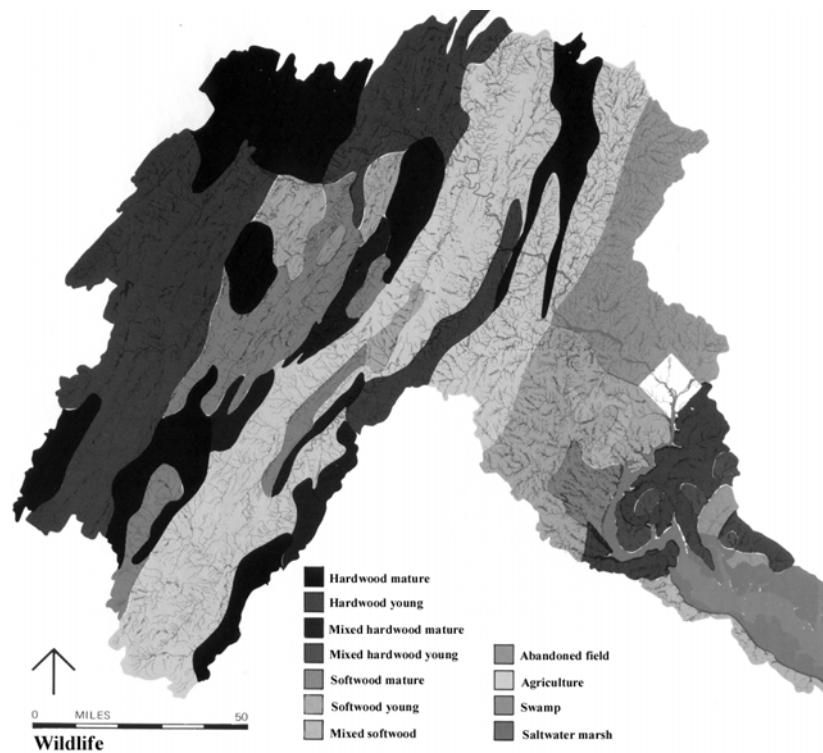


Fig. 5.4. Soils Association Map. Source McHarg 133



Figs. 5.5. Wildlife Association Map. Source: McHarg 135.

is critical for landscape architects because it is the opportunity to understand, in detail, the natural site features -- the landscape.

Design Phase

The Design Phase takes into account all the available information and creates a design of what is to be built of the site. The design of a site is rarely a linear process, and it is necessary to develop a *program*.

A *program* can developed by the owner or by the designer. A site *program* is the determination of what elements and activities will occur on the site and is usually presented in the form of a list. For example a *program* might include a nature center, trails, swimming area, parking, bathrooms, and a concession.

From the site inventory, site analysis and program, a designer usually developes a conceptual plan (Fig. 5.6). A conceptual plan has less refinement than a finalized plan and illustrates the conceptual basis used by the designer. Generally a conceptual plan will clarify major site features, select or establish key characteristics, develop a general concept or idea, and/or modify area characteristics (Muther 25). The benefit of creating a conceptual plan is that the owner, client or user group can give input to the designer at an appropriate point in time. If the designer was to skip the conceptual design, he or she could potentially do detailed design in a direction that is not accepted by the client and have to go back and re-do work.

The next stage is a refined plan. A refined plan often includes revisions and addresses comments from the conceptual design (Fig. 5.7). Generally a refined plan will reclarify the planning tasks, solidify the schedule, establish detailed design, establish

specifications, develop main illustrations, finalize the plan, and provide a presentation for approval (Muther 25).

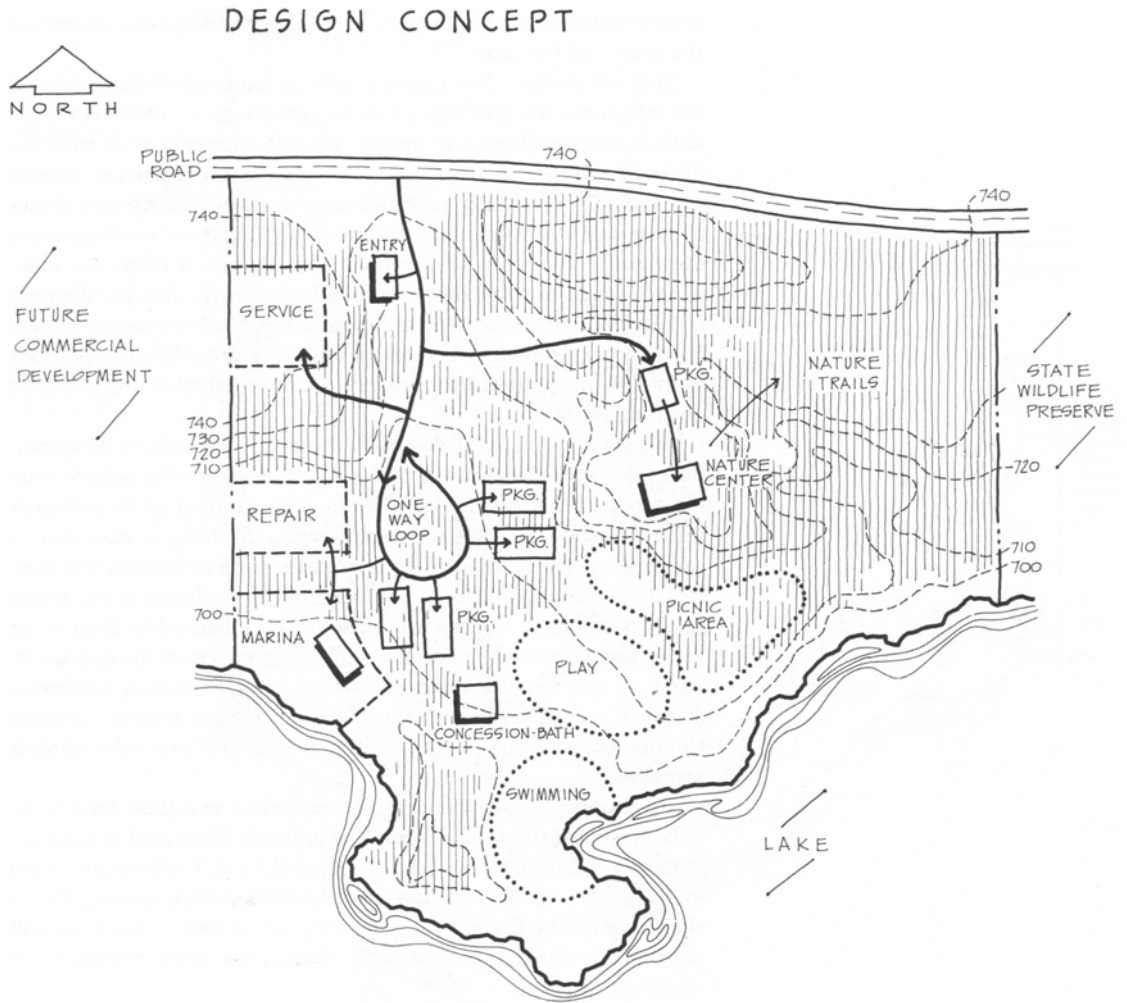
Both the Pre-design and the Design phases are appropriate tools for planning parks around the world. In particular, the site inventory, site analysis and conceptual design processes can be objectively applied to any site. The program and the refined plan involve additional cultural factors and will require serious involvement from local people.

Development

The development stage of park planning involves the construction documentation (CDs), construction bidding, construction contracting and project construction.

The construction documentation is a set of plans which have been elaborated to a level of detail so that a construction crew can build the project. There are different levels of construction documentation, but a typical CD package involves the determination of all materials, material finishes, layout plans, grading plans, drainage plans, site preparation plans, and technical specifications.

Construction bidding and construction contracting have a wide range of possibilities and options. In the U.S. the competitive bid process has five steps; preparation and publication of notice to bidders, the instructions to bidders, submission of the proposal by bidding contractors, public opening of the bid proposals, and acceptance or award to the selected bidder (Christensen 65). Then after the acceptance of the bid, the contractor and the owner (or owners representative) sign a legal contract which usually includes the CDs and the technical specifications in the contract by reference. There are many standard contracts available through the American Society of Architects, the American Society of Landscape Architects and the American Society of Civil Engineers.



Fig, 5.6. Design Concept Drawing. Source: Molnar and Rutledge 101.

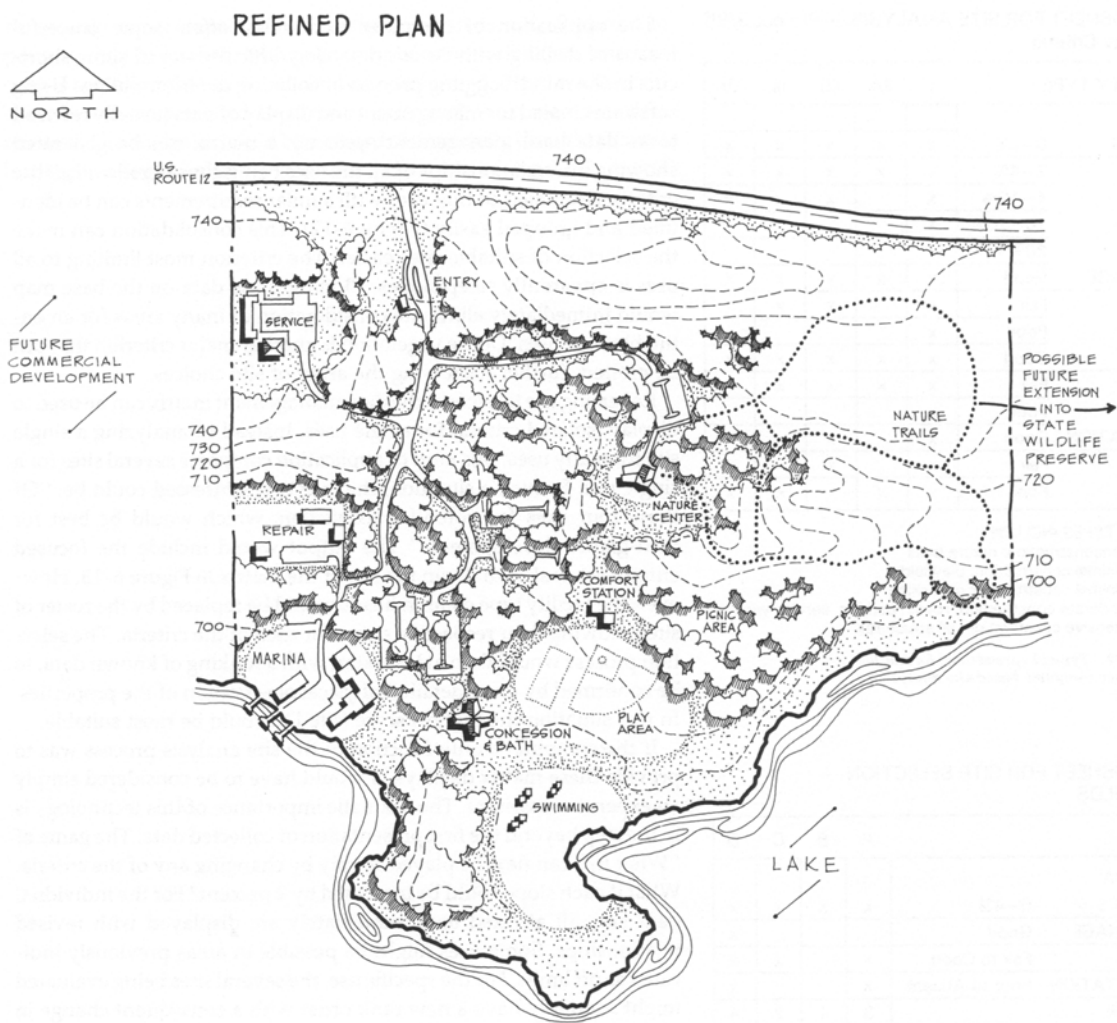


Fig. 5.7. Refined Design Plan. Source: Molnar and Rutledge 103.

The project construction involves the general contractor, the general contractor's sub contractors, the owner, and often an owners representative (a landscape architect for example). In general terms, the project is insured, constructed, reviewed, completed, approved and then the contractor receives final compensation.

The construction bidding, construction contracting and project construction likely have the lowest level of direct applicability for national parks outside the U.S. because the process is based on the U.S. legal system, cultural norms, local building techniques and available materials. However, the construction documentation may have a higher level of applicability because through the CDs, one can provide additional information to the contractor about national and international safety standards.

Actualization

As explained by Christensen, the actualization makes sure that all experience determinants, nonphysical as well as physical, are appropriate for the proposed recreation activity (83). Or that the actualization is the end product of all the efforts needed to achieve a particular recreation experience (Fig. 5.8).

Park Management Plans and Master Plans

National parks typically have a management plan and a master plan. A master plan is similar to a detailed site plan, but a master plan may or may not have the same level of detail. Often a management plan will contain a master plan, but a management plan has its focus on how the park will be operated. In a study titled *An Approach to the Preparation of Park Management Plans*, author Robert Speirs determined a list of information types which may or may not appear in park management/planning documents. In Speirs' study, he created a chart with a description of the information and

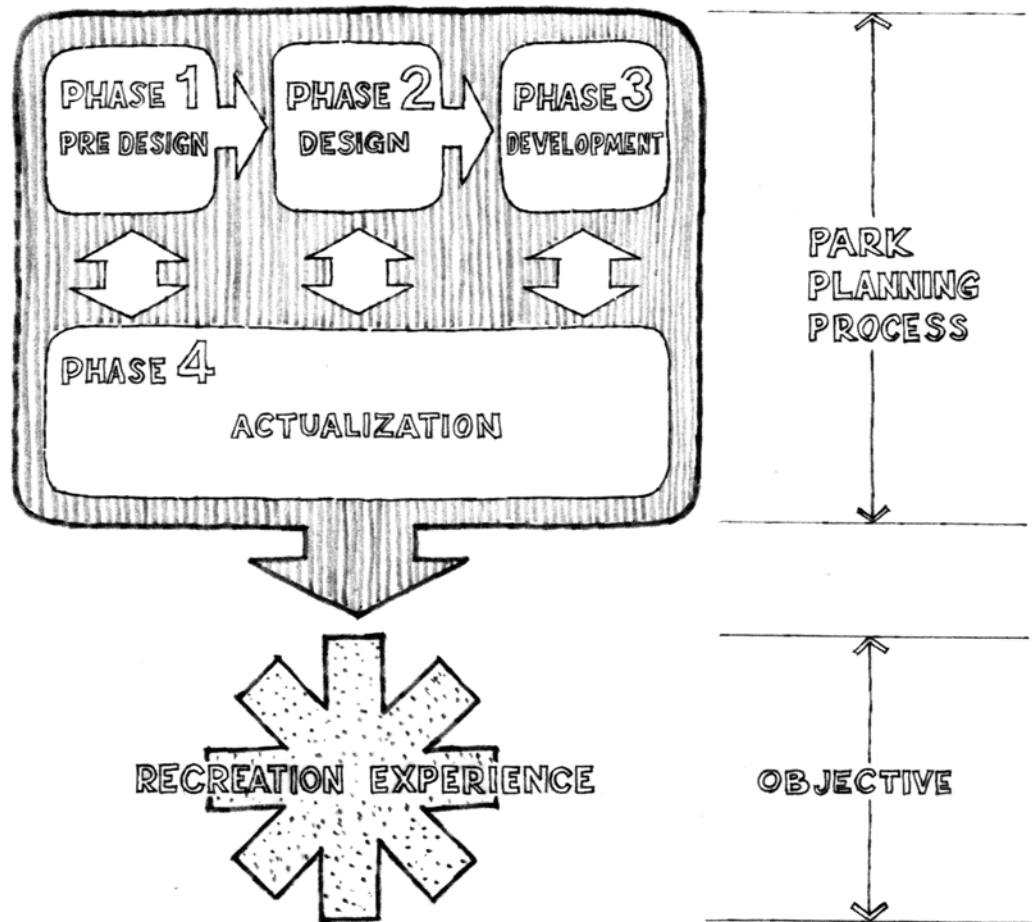


Fig 5.8. Actualization Diagram. Source: Christiansen 84

how it appeared in each of the seventeen documents (Table 5.1). Speirs' list of information types is useful in describing what is typically included in a management plan. In addition to a management plan, a master plan "shows the essential organization of the park including commitments regarding circulation and major relationships: park to surroundings, use areas to site, use areas to use areas, and major structures to use areas" (Molnar 83). In addition, a master plan contributes to the success of a park by providing the park planners with a well defined vision, equipping the park planners with a tool for promotion, determining the optimal allocation of resources, organizing a broad range of

Table 5.1 Tally of Occurrence of Each Information Type. Source: Speirs 17.

INFORMATION TYPE	LEAVE OUT	BRIEF	DETAILED	GRAPHIC
Location	0	15	1	14
History	1	5	11	10
Non-living Nat. Resources	0	8	9	14
Living Natural Resources	0	6	11	13
Land Systems	13	2	2	4
Land Use Capability	15	2	3	0
Park Values	4	10	3	0
Existing Use	1	8	8	10
Current Management	3	7	7	10
Regional Considerations	3	7	6	7
Legal Obligations	3	12	2	0
Policy Obligations	8	9	0	0
Financial Obligations	16	1	0	0
Constraints	13	3	1	0
Implications	9	2	6	0
Issues	11	5	1	0
Goals	3	13	1	0
Purposes	8	9	0	0
Objectives	1	10	6	0
Options	16	1	0	0
Prescriptions	0	5	12	7
Actions Statements	1	8	8	3
Implementations	7	6	4	6
Zoning	6	9	2	9
Staff	10	5	2	0
Equipment	15	1	1	0
Infrastructure	9	6	2	0
Management Planning Process	6	10	1	0
Role of Management Plan	7	10	0	0
Park Management Principals	12	3	2	0
Park Planning Principals	17	0	0	0

individual parts into a comprehensible whole, establishing a framework for physical design and separating implementation into manageable phases.

The planning and design of a park is an essential process for determining, ahead of time, what activities, experiences and facilities will be provided in a park. Without park planning, the allocation of resources, protection of natural resources and the actualization of the experience are compromised.

CHAPTER 6

EL SALVADOR'S NATIONAL PARKS

In March of 1981, El Salvador's National Parks and Wildlife Management Service (*Parques Nacionales y Vida Silvestre* (PANAVIS)) was established under the natural resource division (*Dirección General de Recursos Naturales*) of the agriculture ministry (*Ministerio de Agricultura y Ganadería*). And PANAVIS was re-recognized in the wildlife conservation law (*Ley de Conservación de Vida Silvestre*) of March 1994. In 1987, after 11 years of conservation efforts, the area known as Montecristo was recognized as a national park (Fig. 6.1). In 1989 the area of Cerro Verde was recognized as the El Imposible National Park. And until recently, the Cerro Verde National Park was recognized as the El Imposible National Park. Although the available information only discusses the Cerro Verde and El Imposible, there is a third area called Deninger which will soon be a national park.



Fig. 6.1. Entry of Monte Cristo National Park. Photo by author.

El Salvador's National System of Protected Areas, by law, is charged with establishing, protecting and restoring Protected Areas (*Areas Protegidas*) throughout the country. After studies which began in 1976, the PANAVIS identified 125 protected areas and 58 cultural areas to be protected (Hinojosa 7). To realize the protection of these areas, six categories of management were determined: Strict Natural Preserves, National Parks, Natural Monuments, Wildlife refuges, Marine or Forested Multiple use areas, and Managed Resource Areas. From the information I was able to gather, the best descriptor of the locations of the protected areas is a graphic from *La Prensa* newspaper. In the graphic, the national parks, tourism centers and the historical monuments are marked with symbols, and each of these symbols represents a management area but the category is not known (Fig. 6.2).

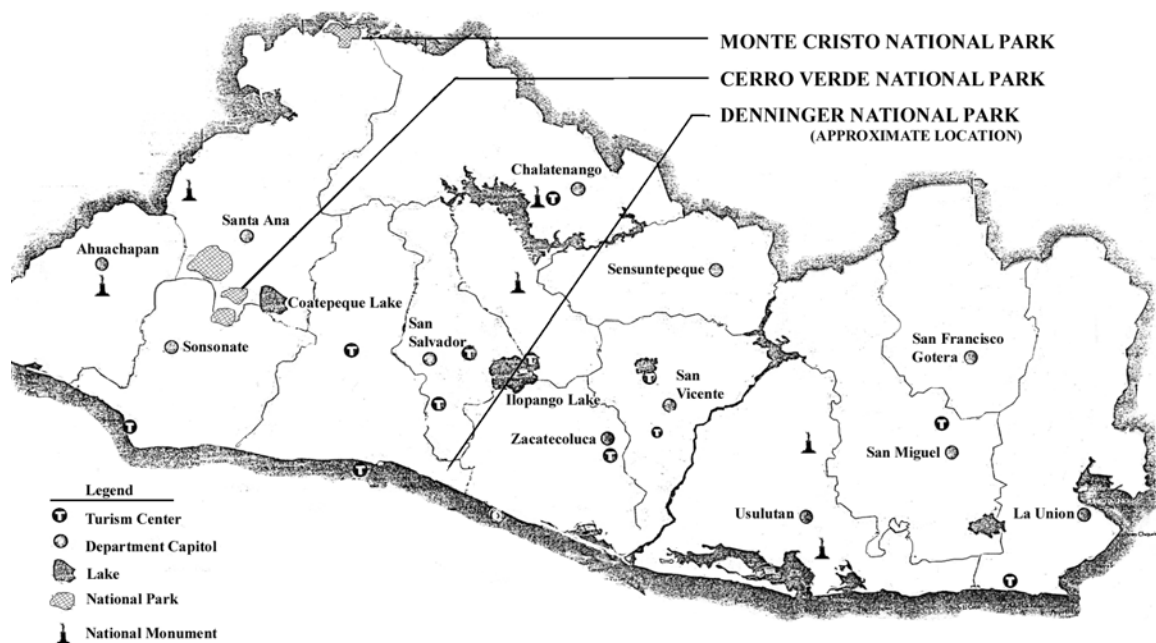


Fig. 6.2. Tourism Centers and National Monuments Map. Source: Adapted from *La Prensa*.

El Salvador's PANAVIS has an increasingly difficult task of creating, protecting and maintaining National Parks due to population density. As the population continues to grow, there will be increasing pressure to use every square meter of land for housing, agriculture and industry. Conversely, the same need for land increases the value of natural and recreation spaces for the people of that area. Already an important amenity for Salvadorans, El Salvador's National Parks have the potential to play an important role in the quality of life for Salvadorans.

Tourism

El Salvador has some international tourism and the ISTU has reported that they would like to increase tourism in the future. The international airport in El Salvador is just outside of San Salvador and flights to the U.S. run daily. There are approximately 1500 hotel rooms in El Salvador and the average cost is \$US10 (Jaffe 84). In the report by the *Organizacion Mundial del Turismo* (1992), the following statistics were reported: from 1986-1989 the average number of foreign tourists was 130,000 per year, the average in 1990 was 194,268 and the average in 1991 was 200,000.

CHAPTER 7

THE CERRO VERDE NATIONAL PARK

Introduction

One of the few national parks in El Salvador, the Cerro Verde National Park is beloved and highly visited by both national and international tourists. The park opened in 1956 and was owned and managed by the Salvadoran government. In 1974 the Hotel de la Montaña was built and coincidentally, the Izalco volcano ceased to belch steam and smoke which was to be the hotel's main attraction (Fig. 7.1).

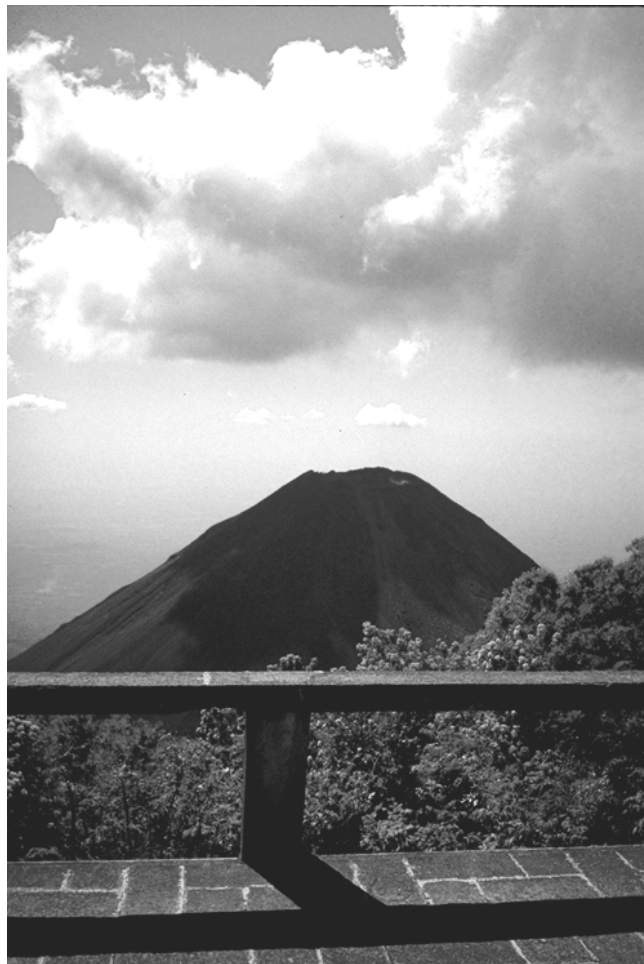


Fig. 7.1. View from the Hotel de la Montaña. Photo by author.

In 1997, the hotel was given to CORSATUR (“Corporación Salvadoreño de Turismo”), a private organization, and the remainder of the park is still managed and owned by ISTU (“*Instituto Salvadoreño de Turismo*”), the Salvadoran government tourism agency which is part of PANAVIS. The land area managed by ISTU is approximately 96 acres and is characterized as a cloud forest on a volcano. Dense with vegetation, the main hiking trail winds around the top of the mountain revealing a crater overgrown with vegetation, an unusual ecology, and spectacular views of adjacent land formations. To the north of the Cerro Verde is the Santa Ana volcano and to the south-west is the Izalco volcano. The top of the Santa Ana volcano is the highest point in El Salvador with an elevation of 2,365 meters above sea level (Fig. 7.2).



Fig. 7.2. Pan American Highway. Photo by author.

Originally the land for the park was donated to the Salvadoran government who developed the area as a tourist attraction. In its earlier years the park had county fair-like

atmosphere with rides and playful activities. In 1989 the park was recognized as a National Park and the type of activities offered by the park were changed in the direction of nature based tourism.

Although the Santa Ana and Izalco volcanoes are not part of the national park, they are frequently climbed by tourists as part of a visit to the park (Fig. 7.3 & 7.4). The majority of the visitors to the park are “day trippers” from San Salvador and other urban areas. Seventy miles north west from the city of San Salvador, the park is a popular place to visit due to the relief provided by the cool fresh air and the beautiful scenery. Typically the busiest day of the week is Sunday with an estimated average number of 200 visitors (citation of personal communication with park administrator Hector Galdamez). During the Easter week, the summer vacation week and Christmas the park receives its highest number of visitors which reaches into the thousands.

A sense of the character of the park can be understood from an aerial photograph (Fig. 7.5). From the combined aerial photographs, one can see the Izalco volcano and the extent of the lava, the Cerro Verde volcano and the dense vegetation and the Santa Ana volcano with its huge crater. The Santa Ana, Cerro Verde and Izalco volcanoes are part of the Apaneca mountain range.

The main tourist area, which is at the top of the Cerro Verde volcano, has the site features which can accommodate tourism. The tourist area includes entry gates, a parking area, a play area, a cantina, picnic areas, an administration office, cabanas, the Hotel de la Montaña and other site amenities (Fig. 7.6). The main tourist area is separated by fencing from the Hotel de la Montaña; however, tourists can enter the hotel by paying an additional fee.

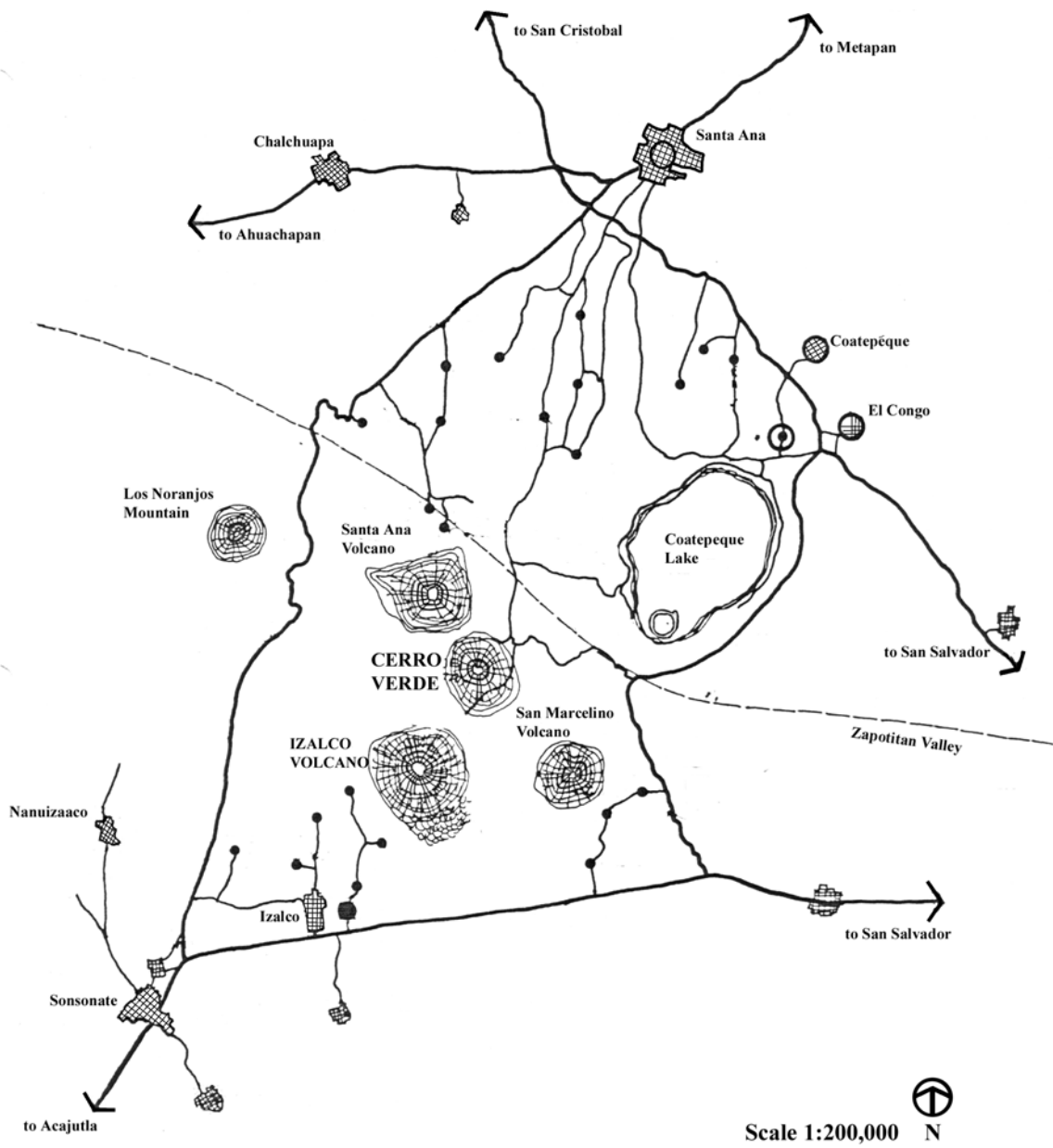


Fig. 7.3. Cerro Verde Area Context. Adapted from Hinojosa 32.

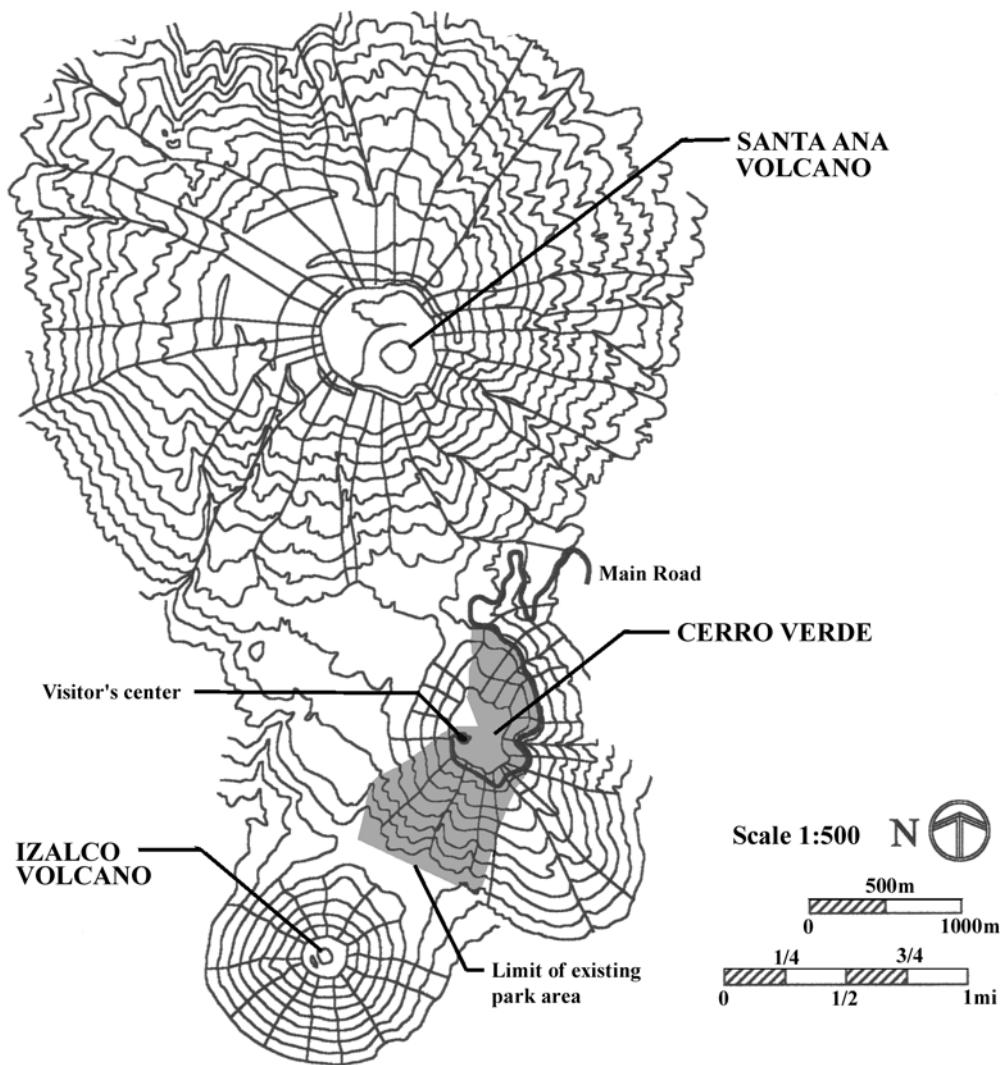


Fig. 7.4. Cerro Verde Location Context. Map by author.

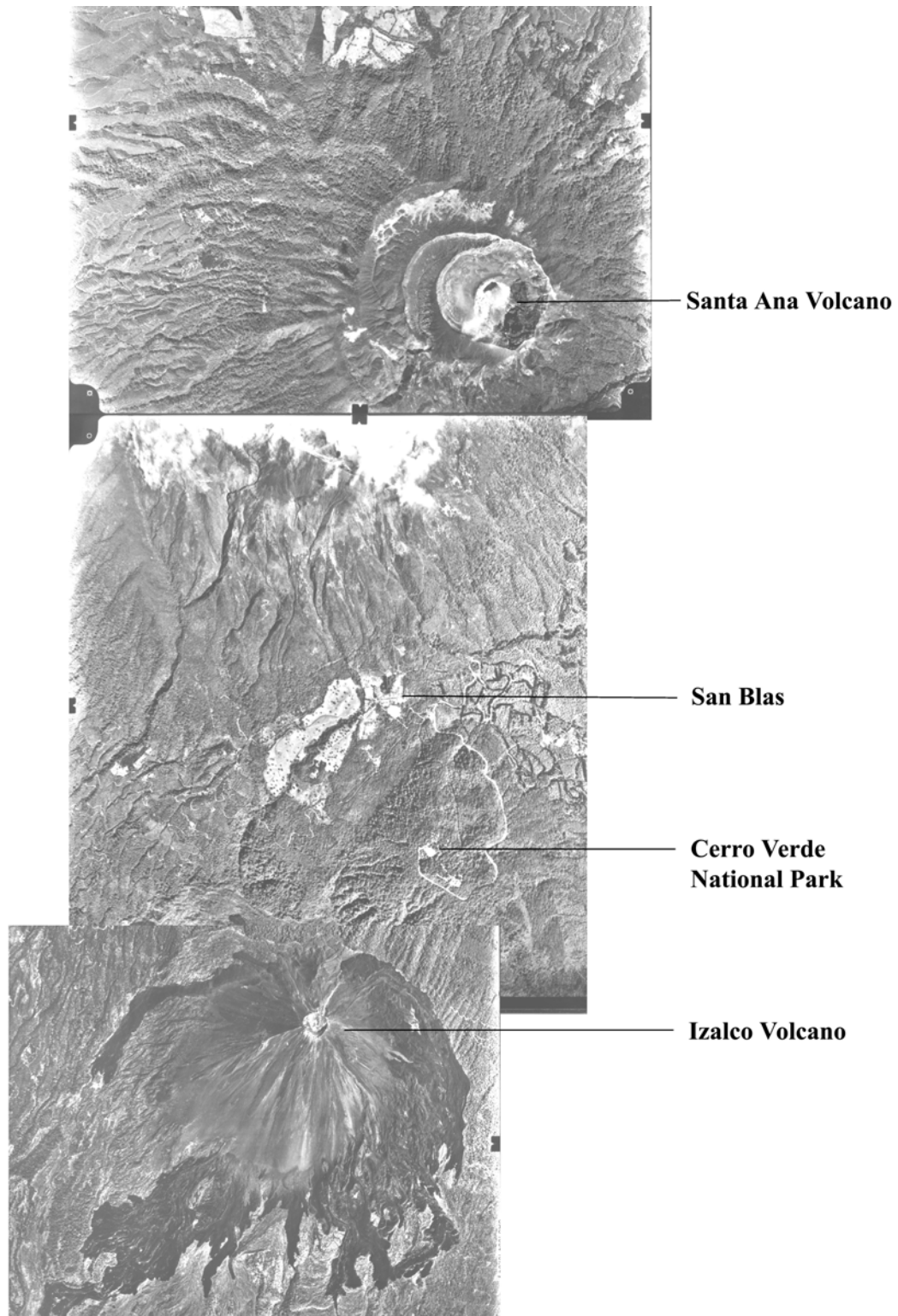


Fig. 7.5. Aerial photograph. Source: Instituto Geografico Nacional.

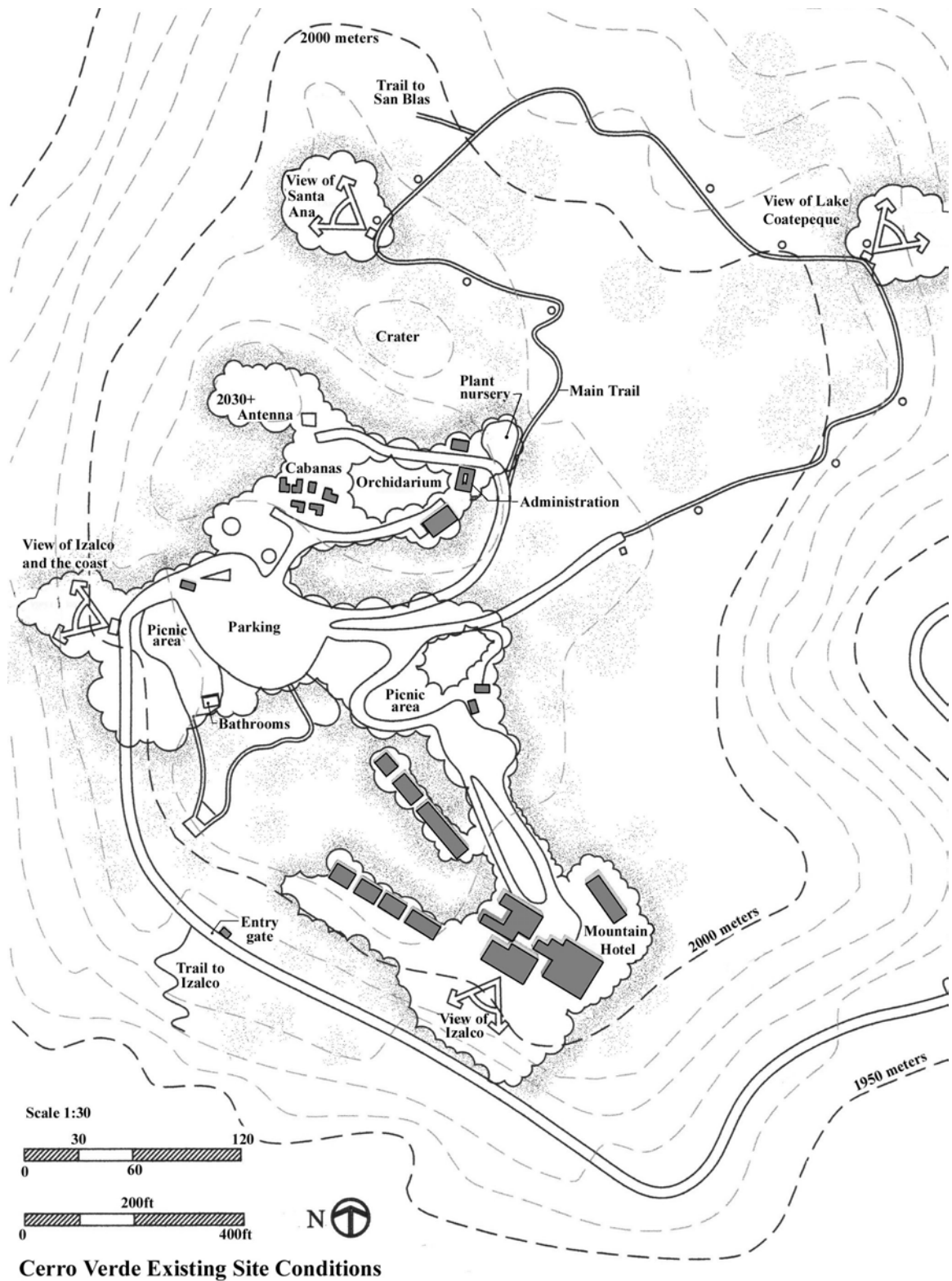


Fig.7.6. Cerro Verde Existing Site Conditions Diagram. Drawing by author.

As of May 1999, ISTU did not have any immediate plans for the park with the exception of maintenance and expanding the tree planting program. There was discussion about a visitors center and improving existing structures but the exact source of funding was still to be determined.

CHAPTER 8

CERRO VERDE INVENTORY AND ANALYSIS

The intent of the inventory and analysis for this case study was to gather as much information as possible about the Cerro Verde, and then from the available information, draw as many conclusions as possible about the park. The inventory list for the site included the following categories: site context, natural features, sensory considerations and human made and cultural features. Due to the fact that my visits to the park were limited by time and resources, this inventory and analysis should be considered only a preview of what could be accomplished if it became a funded project for a landscape architect.

Like all natural sites, the Cerro Verde has features and characteristics which give it its identity and individuality. In order to utilize, preserve or restore these characteristics, it is necessary to have an inventory and analysis. The Cerro Verde is typically known for its wonderful views, cool climate and unusual ecology. What is not typically considered is how park use and resource preservation are often opposing forces.

Background

Due to the Cerro Verde's high volume of visitors, the park management has the difficult assignment of protecting its natural resources. The essence of the problem is that people are capable of destroying the natural resource they are visiting if proper design and management are not established. Directly linked with park design is park management. For example, if a park has not been designed properly, it will be increasingly difficult for park managers to protect the resource while allowing visitors. Considering this relationship between design and management, the Cerro Verde National

Park is difficult to maintain due to the high number of visitors, limited staff and lack of design. A few examples of problems due to a lack of good design are as follows: increased trail maintenance due to the use of materials which do not hold up to high traffic; higher potential for forest fires due to randomly placed barbecue stoves; missed opportunities for views due to the placement of facilities; and the use of exotic plants which require daily care. Although the above mentioned examples are very specific, these problems illustrate the need for a greater organization of the park. The park is lacking a master plan.

Site Visit

In January 1999, Professor Spafford and I traveled the Cerro Verde on a site inventory and fact finding mission. Gathering relevant information took us on hikes of the surrounding landscapes, other national parks in El Salvador and to San Salvador. We were able to gather topographic maps, aerial photographs, rough sight drawings, a preliminary park management plan, interviews with park guards, and various literature.

In addition to gathering quantifiable information, we were able to meet many of the people who are responsible for the planning, management and operations of the park. We met Hector Galdamez, Technical Advisor (ISTU); Oscar Rivera Perez, Park Administrator; Fernando Rojas Rosales, Chief Manager; Alonso Rosa Valdez, Personnel Manager; Miguel Angel Solórzano, Equipment Manager/Park Guard; Marcos Arturo Peralta, Park Guard; Aurelio Quintanilla Perez, Park Guard; Fernando Rosa Rosales, Maintenance/Park Guard; Walter Alfredo Hernandez, Park Guard and Amy Zimmerling, Peace Corps volunteer.

Limit of Study

The existing area of the Cerro Verde National Park is limited to the 96 acres at the top of the Cerro Verde Volcano. Upon visiting the Cerro Verde, I learned that the area boundary for the landscape architectural study should include more than the existing area. Figure 7.1 illustrates the existing limits of the park and the boundary of the larger study area. The limits of the study were determined by existing roads, existing property lines, and natural features like contour lines.

Existing Management Plan

The existing park management plan, which is titled *Plan Preliminar de Manejo Para El Parque Nacional Cerro Verde* (“Preliminary Management Plan for the Cerro Verde National Park”), was created in 1993 as the result of a consultation from the *Organización de Estados Americanos* (“American States Organization”) which was part of the Department of Regional Development. The plan was part of a larger investigation of El Salvador’s protected areas which included Cerro Verde, Montecristo, Deninger, El Imposible and other sites with potential for nature based tourism (Hinojosa 1). The study of Cerro Verde was done in conjunction with ISTU (Instituto Salvadoreño de Turismo), the PANAIS, and private land owners. The plan is a 68 page document which contains chapters discussing protected areas in El Salvador, a diagnostic of natural resources, a diagnostic of the tourism sector, an impact and capacity study, the Cerro Verde National Park, Cerro Verde’s management, zoning, management programs, and inversion projects. I adapted and utilized a chart to consider the management plan written for the Cerro Verde (Fig. 8.2).

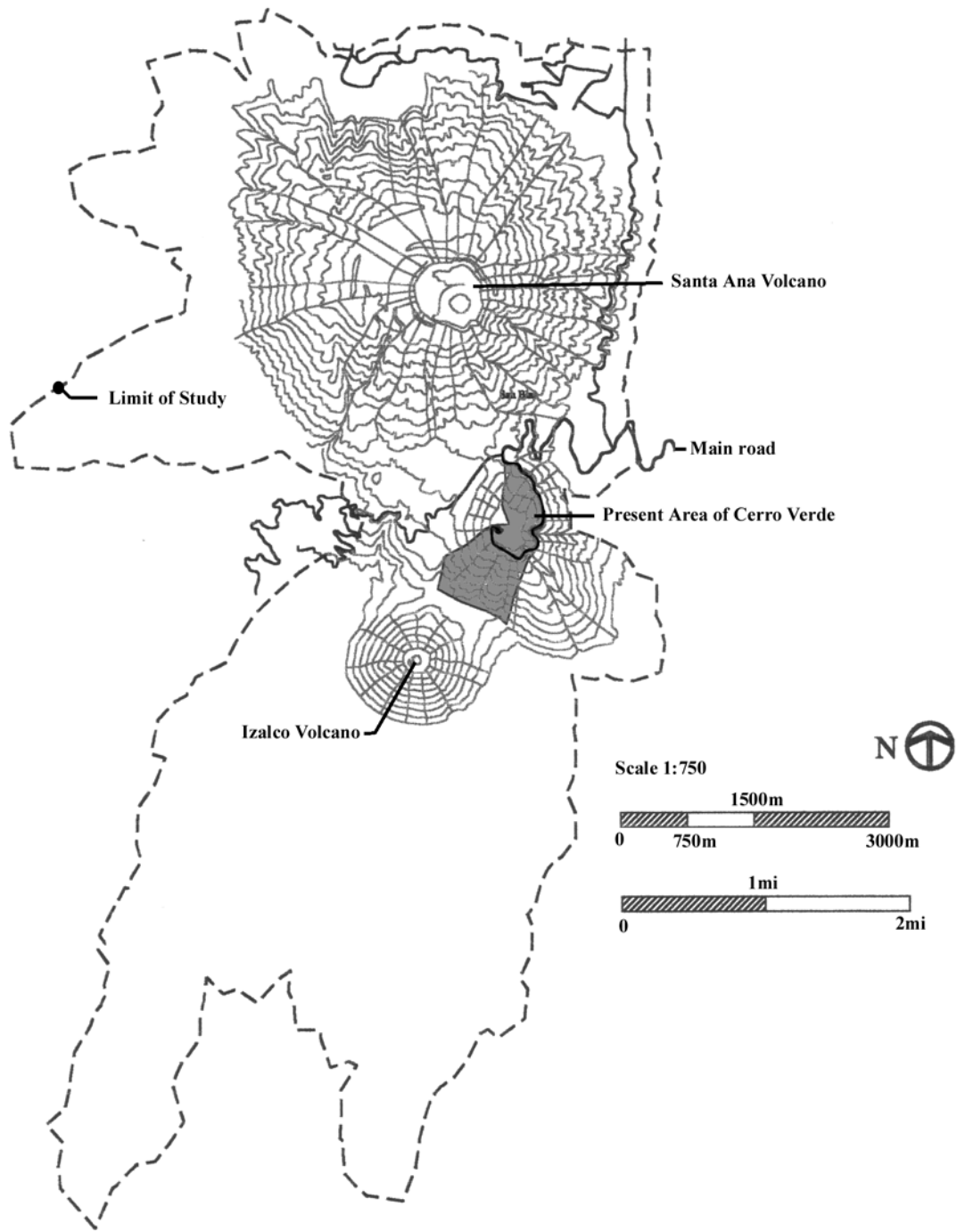


Fig. 8.1. Limit of Study Diagram. Drawing by author.

As shown by the chart in Table 8.1, there is a great deal of information included in the Cerro Verde Management Plan. I wish to develop further discussion on four general ideas: the general objectives for the nation and for the Cerro Verde; the identification of the park as a natural site/monument; the management objectives in relation to zoning; and relations with international organizations.

The first part of the Cerro Verde Management Plan briefly discusses the legislation and natural resource laws which allow the country to establish protected areas. Although the legal mechanism for creating protected areas is not clear, the national conservation objectives are listed item by item.

The National Conservation Objectives are as follows:

1. Conserve representative samples of the native ecosystems in its natural state.
 2. Conserve the ecological diversity and the regulation processes of the natural environment.
 3. Conserve the genetic resources for future use in diversification and productivity.
 4. Conserve sites and objects with cultural, historical and archeological value.
 5. Conserve the geological and palientological resources.
 6. Protect the beautiful scenery.
 7. Provide options for scientific studies to monitor the natural environment, to provide facilities for environmental interpretation and education.
 8. Provide recreational activities, amusement, and tourism.
 9. Provide opportunities for recreation, amusement and tourism.
 10. Conserve the sources and supply of water.
 11. Contribute to the control of erosion and sediment control in river basins.
 12. Protect and manage wildlife and fishery resources.
 13. Promote the sustainable use of natural resources.
 14. Promote natural resources restoration and recuperation.
-
1. Conservar muestras representativas de los ecosistemas autóctonos en su estado natural.
 2. Conservar la diversidad ecológica y los procesos de regulación del medio ambiente.
 3. Conservar los recursos genéticos como opciones para usos futuros de diversificación y productividad.

Table 8.1. Inventory of the Contents of the Cerro Verde Management Plan. Adapted from Speirs 17.

INFORMATION TYPE	LEAVE OUT	BRIEF	DETAILED	GRAPHIC
Location			X	X
History		X		
Non-living Nat. Resources		X		
Living Natural Resources		X		
Land Systems		X		
Land Use Capability	X			
Park Values	X			
Existing Use		X		
Current Management		X		
Regional Considerations		X		X
Legal Obligations	X			
Policy Obligations	X			
Financial Obligations		X		
Constraints	X			
Implications	X			
Issues		X		
Goals		X		
Purposes		X		
Objectives		X		
Options	X			
Prescriptions	X			
Actions Statements		X		
Implementations	X			
Zoning		X		
Staff			X	X
Equipment		X		
Infrastructure		X		
Management Planning Process		X		
Role of Management Plan	X			
Park Management Principals		X		
Park Planning Principals	X			

4. Conservar sitios y objetos de valor cultural, histórico y arqueológico.
5. Conservar los recursos geológicos y paleontológicos.
6. Proteger la belleza escénica.
7. Proporcionar opciones para la realización de estudios y ensayos técnicos, científicos y de monitoreo respecto a fenómenos del medio ambiente y de los recursos naturales.
8. Proporcionar facilidades para la interpretación y la educación ambiental.
9. Proporcionar oportunidades para recreación, el esparcimiento y el turismo.
10. Conservar las Fuentes de producción y aprovisionamiento de agua.
11. Contribuir al control de la erosión y sedimentación de las cuencas.
12. Proteger y manejar los recursos de vida silvestre y pesqueros.
13. Fomentar el uso integral y sostenido de los recursos naturales.
14. Promover la recuperación y restauración de los recursos naturales (Hinojosa 5-6).

As the Cerro Verde plays an important role in El Salvador's national conservation objectives, the park's principal objectives are conservation, recreation, education, and scientific investigation (Hinojosa 19). To help the Cerro Verde realize its objectives within the national context, Hinojosa's plan proposes a much larger area of 6500 hectares to be included as the land area of the Cerro Verde National Park.

The second idea which appears in the management plan is the determination of the Cerro Verde as a *Monumento Natural/Sitio Natural* ("Natural Monument/Site") (Hinojosa 20). This determination appears to be a departure from the recognition of a national park; however, the determination of a Natural Monument/Site provides a legal means of protecting the site. Also, within this determination there is a definition of a National Park:

An extensive natural area, that is within the state property regime, which contains one or more unaltered natural systems or features with outstanding national interest, managed by the state in a manner which maximizes the guarantee of perpetual preservation of natural resources while allowing controlled use with a base as a zone of recreation, education, tourism and scientific investigation

Area natural relativamente estensa, bajo un régimen de propiedad estatal que contiene uno o más sistemas inalterados y rasgos naturales

sobresalientes de interés nacional, delimitada y manejada por el estado, de modo que proporcione máxima garantía condiciones permitan su utilización controlada, en base a una zonificación, para fines recreativos, educativos, de turismo e investigación científica. (Hinojosa 21)

The third idea which is emphasized in the management plan is zoning. The plan calls for the determination of use zones. The park would be divided into five zones: a *Protección Absoluta o Primitiva* (“Absolute Protection or Primitive”), *Uso Extensivo* (“Extensive Use”), *Uso Intensivo* (“Intensive Use”), *Zona de Recuperación* (“Recuperative Zone”) and a *Zona de Amortiguamiento* (“Buffer Zone”) (Hinojosa 33-36). The primitive area zone would have absolute protection and would include the cloud forests of Cerro Verde and Santa Ana volcano, the lake in the crater of Santa Ana volcano, the lava of the Izalco volcano, and the pioneer vegetation of the Izalco volcano. The activities in the primitive areas would be limited by permit. The extensive use zones would be the sites with the highest density of visitors and would include the San Blas community and the main trails to and around Cerro Verde, Santa Ana volcano, and the Izalco volcano. The activities permitted within the extensive use zones would be similar to that of U.S. national parks, for example taking pictures and leaving only footprints. The intensive use zones would include areas with greater human intervention. The intensive use areas would include the Hotel de la Montaña, deforested areas and vehicular areas. Again the activities permitted in these areas would be similar to that of U.S. national parks; for example, cars must stay on marked roads. The recuperation zones would include areas where the natural systems have been disrupted and need time to recover. The activities permitted in the recuperation zones would be limited to the

efforts related to the control and protection of that area. And last, the buffer zones would be a 500 meter zone around the park which would include the activities of agroforestry.

The third major idea mentioned in the management plan was that a program of public relations and extension should be created to assist the local community and to find assistance. The program objective is to establish contact with national and international institutions to find financial assistance for the implementation of the park's programs. This is a significant objective because if the park managers are willing to go out of El Salvador, there is a higher potential for finding financial resources.

Park Users

The use of the Cerro Verde National Park can presently be characterized as a day use park for country nationals. While there are international visitors, the majority of the visitors are from El Salvador, Santa Ana and other cities. As explained in an informal interview with a park guard, the visitors come to the park for a break from the heat and pollution of the urban areas. The park provides a needed break from every day life.

As of May 2000, the entrance fee to the park is 7 colones per car, about 1 U.S. dollar. The guards told me that the general perception of the people who visit the park is that 7 colones is expensive. About 10% of the people who are told they have to pay are unfriendly (interview park guard with Marcos). The main entry and fee station are located approximately one quarter mile from the parking area. The entry station is in a suitable location because the park guards can call ahead to the PNC (Policia Nacional Civil), located adjacent to the parking area, if a question or problem arises with a visitor. The guards work at the main entry and fee station from 8am-5pm, seven days a week.

The busiest day of the year for the park is Christmas. Other high volume days are the Samana Santa (Easter week), Fiesta de Agosto (August Fiesta), and a few other days of the year. During those times the parking lot and road are filled with parked cars. At times there are so many people in the park that guards have a very difficult time protecting natural resources. As a result of the problem of occasional overuse, Hinojosa's management suggests that the number of people allowed into the park should be limited.

Visitor behavior has similarities and dissimilarities to visitor behavior in national parks in the U.S. The main difference is that the U.S. population has had more years of experience with particular behaviors than the population of El Salvador. For example, our anti-littering program has existed for approximately thirty years. For El Salvador, the basics of waste management are still a major issue. Because many communities, like the communities surrounding the Cerro Verde National Park, still do not have trash collection.

Climate

Due to its elevation, the Cerro Verde has a unique cool tropical mountain climate. The dry season is from November to April and the rainy season is from May to October. Due to the changes in elevation, orientation and wind, there are a wide variety of micro climates. At the upper part of Cerro Verde, the average temperature in January is 10 degrees Celsius, and at the lower part of the park the average temperature in April is 23.4 degrees Celsius. The average relative humidity is 92% in September and higher in the rainy season (Hinojosa 18). There are two seasons: winter and summer. Most plants

begin to flower with the first rains in April--May. Compared to the national climate data, the Cerro Verde is cooler and receives more rain than the rest of the country.

Vegetation

The Cerro Verde is described as a cloud forest; however, there are different types of ecosystems which exist around the park. Including the Izalco and Santa Ana volcanoes, I observed six different vegetation groupings (Fig. 8.2).

The Cloud Forest has the predominant tree species of *Alnus* and *Quercus*, and in the undisturbed areas, the cloud forest has bromeliads and orchids growing on the large trees, and the ground is lush with herbaceous plants like Peace Lilies (Figs 8.3 & 8.4).

The area described as Agroforestry is a small area on the North side of the Santa Ana volcano. The trees used for agroforestry are predominantly evergreen and exotic species. The two evergreen species I observed were *Pinus* and *Cupressus*.

In the zone around the volcanoes, coffee, pasture, grains and sugarcane are all cultivated, and a great deal of the forest was destroyed for the coffee plantations. At the elevation of 1800 meters, the temperature is no longer suitable for the coffee and thus the cloud forests still remain. Coffee Plantations abut most of the forests around the volcanoes (Fig. 8.5)

Low scrub like vegetation can be found on the North side on the top of the Santa Ana volcano (Fig. 8.6). The species I observed in the low scrub area were *Agave* and low growing shrub that appeared to be a type of *Vaccinium*.

Native Grass can be found on the South side of Santa Ana. Mixed with *Agave*, the native grass has grown where a fire disturbed the previous vegetation (Fig. 8.7). Pasture can be found at some of the lower levels and exists due to the grazing of

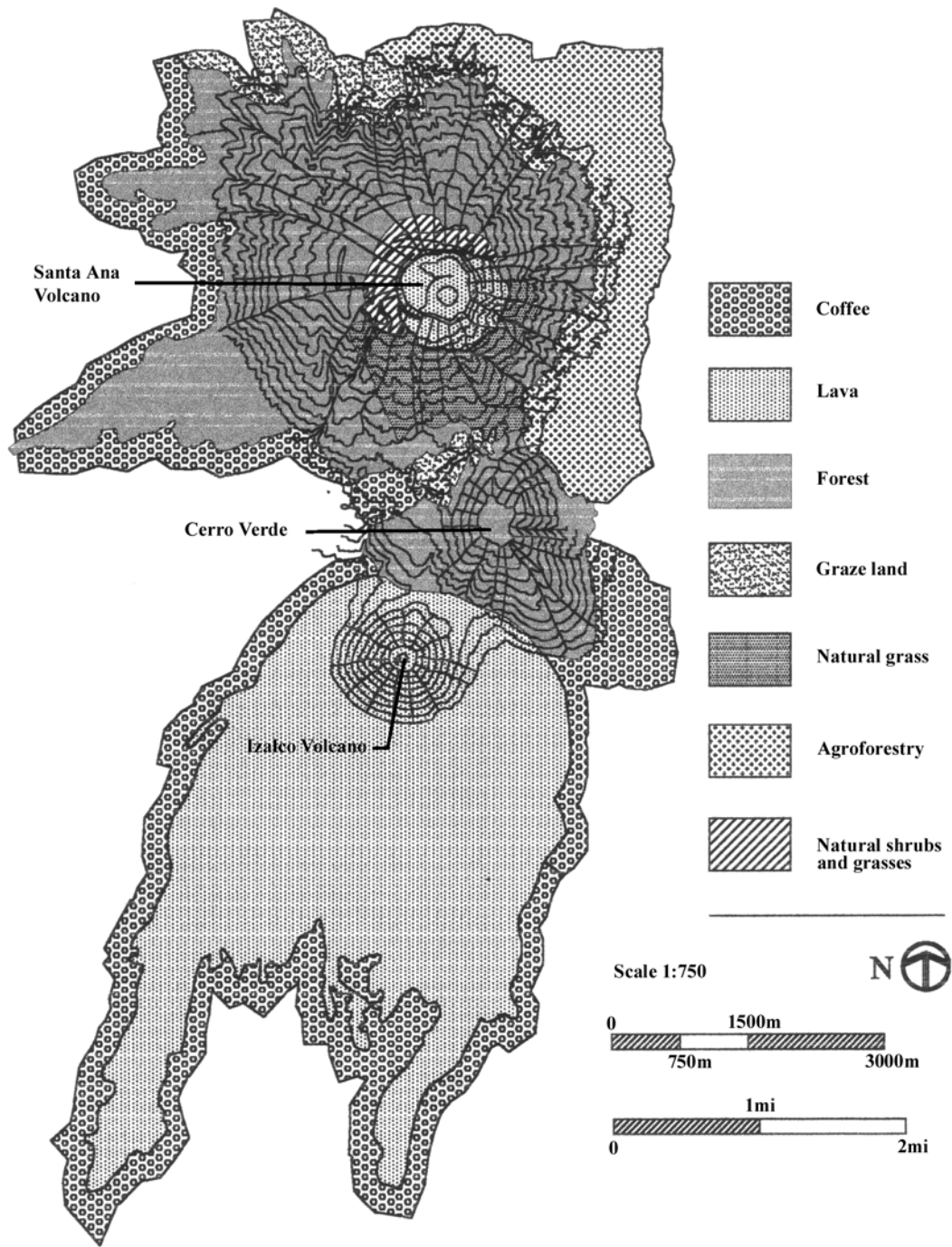


Fig. 8.2. Vegetation Diagram. Map by author.



Fig. 8.3. The Main road Leading to the Cerro Verde. Photo by author.



Fig. 8.4. Peace lilies on the North side of the Santa Ana volcano. Photo by author.



Fig. 8.5. Coffee Plantation Surrounded by Evergreens. Photo by author.



Fig. 8.6. Low Scrub Vegetation on the Top of the Santa Ana Volcano. Photo by author



Fig. 8.7. Native Grass and Agave Plant on the South Side of the Santa Ana Volcano.
Photo by author.

livestock. Pioneer Vegetation exists on the volcanic rock which is still too new to have pockets of soil which would support larger plants. The plant species Professor Spafford and I were able to identify on a walk down the main road leading to the Cerro Verde visitor's area are as follows:

1. *Perymenium grande* ("Perymenium")
2. *Styrax argenteus* ("Estiracaceas")
3. *Quercus peduncularis* var. *sublanosa* ("Roble")
4. *Quercus sapoteifolia* ("Encino Roble")
5. *Ficus goldmanii* ("Amate")
6. *Inga rodrigueziana* ("Pepeto")
7. *Inga spuria* ("Cujín")
8. *Croton reflexifolius* ("Copalchi")

Soils, Drainage and Slope

The soils in the entire region are relatively young with primarily shrub and pioneer vegetation growing where there has been recent lava (bromeliads, orchids, forests, grasses) (Hinojosa 21). The soils for nearly all of Cerro Verde, Santa Ana volcano and Izalco volcano can be classified as indosols which are described as very porous, low in organic content, and marginal for building (Fig. 8.8).

Due to the porosity of the soil, drainage occurs very quickly. Creeks and rivulets occur during rain storms but soon disappear when the rain has stopped. Slope adds to the rapid drainage but more importantly, slope adds limitations for building. Currently, the majority of the structures in the Cerro Verde and surrounding area are built on slopes within 5-15%. Slopes exceeding 15% exist on most of Santa Ana volcano, Izalco volcano, and Cerro Verde (Fig. 8.9). The top of the Cerro Verde has a slope in the range of 5-15% and the area of San Blas has a slope in the same range.

Trails and Views

There are three trails which are most frequently used by visitors. The trails are the trail to the Santa Ana volcano, the trail to the Izalco volcano and the Cerro Verde Overlook Trail (Fig.8.10).

The trail to the Santa Ana volcano begins on the Overlook Trail and branches off on the West side. After a steep decline, the trail passes through San Blas and proceeds directly up the Santa Ana volcano. From the trail leading to the top of the Santa Ana volcano, there are views of the Cerro Verde and Izalco volcano (Fig. 8.11). The trail does not have any switch-backs and is steep (Fig. 8.12). At the top, there is a loop around the crater of the volcano and many people return to the Cerro Verde on the same trail

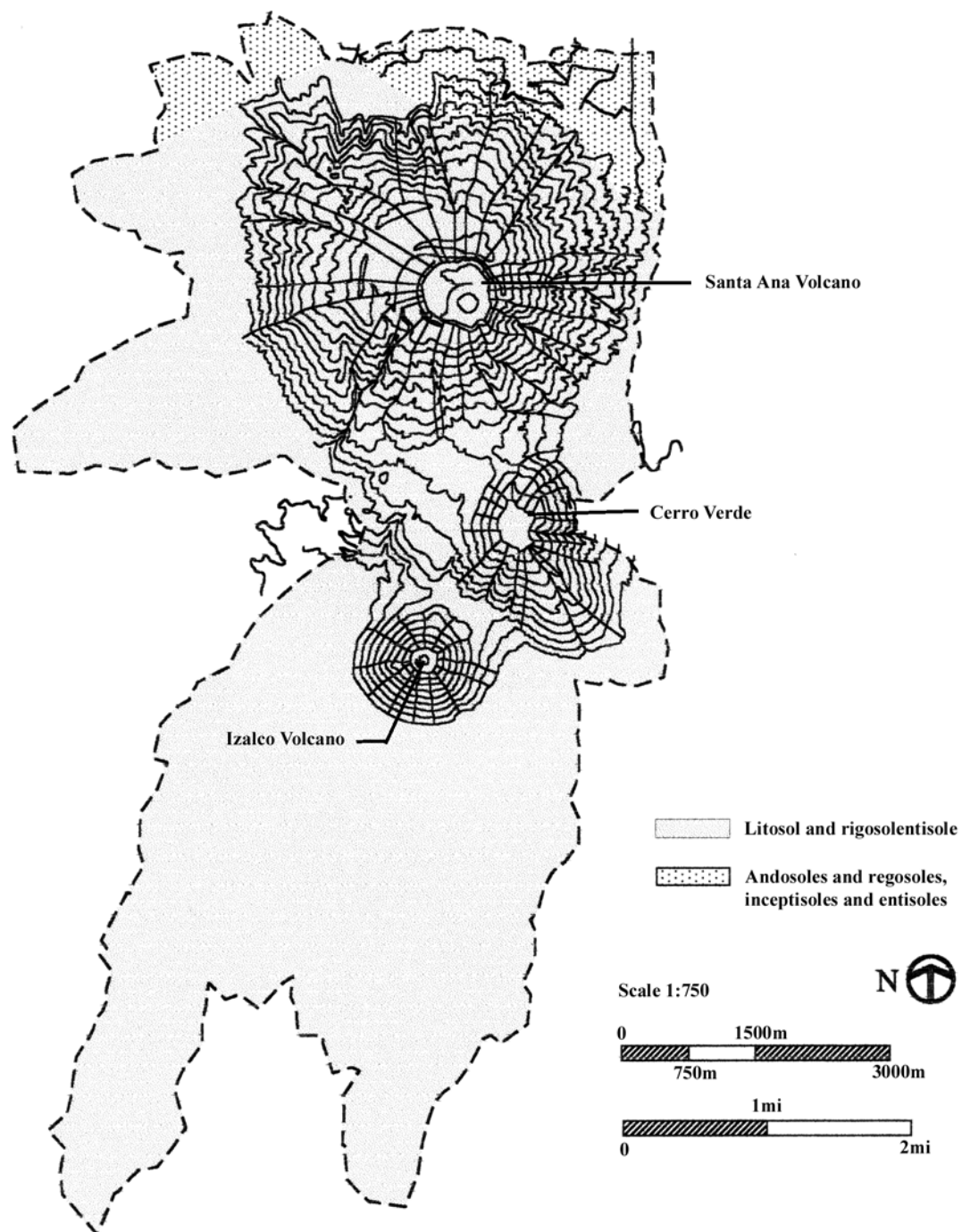


Fig. 8.8. Soils Diagram. Map adapted from Ministerio de Agricultura y Ganaderia.

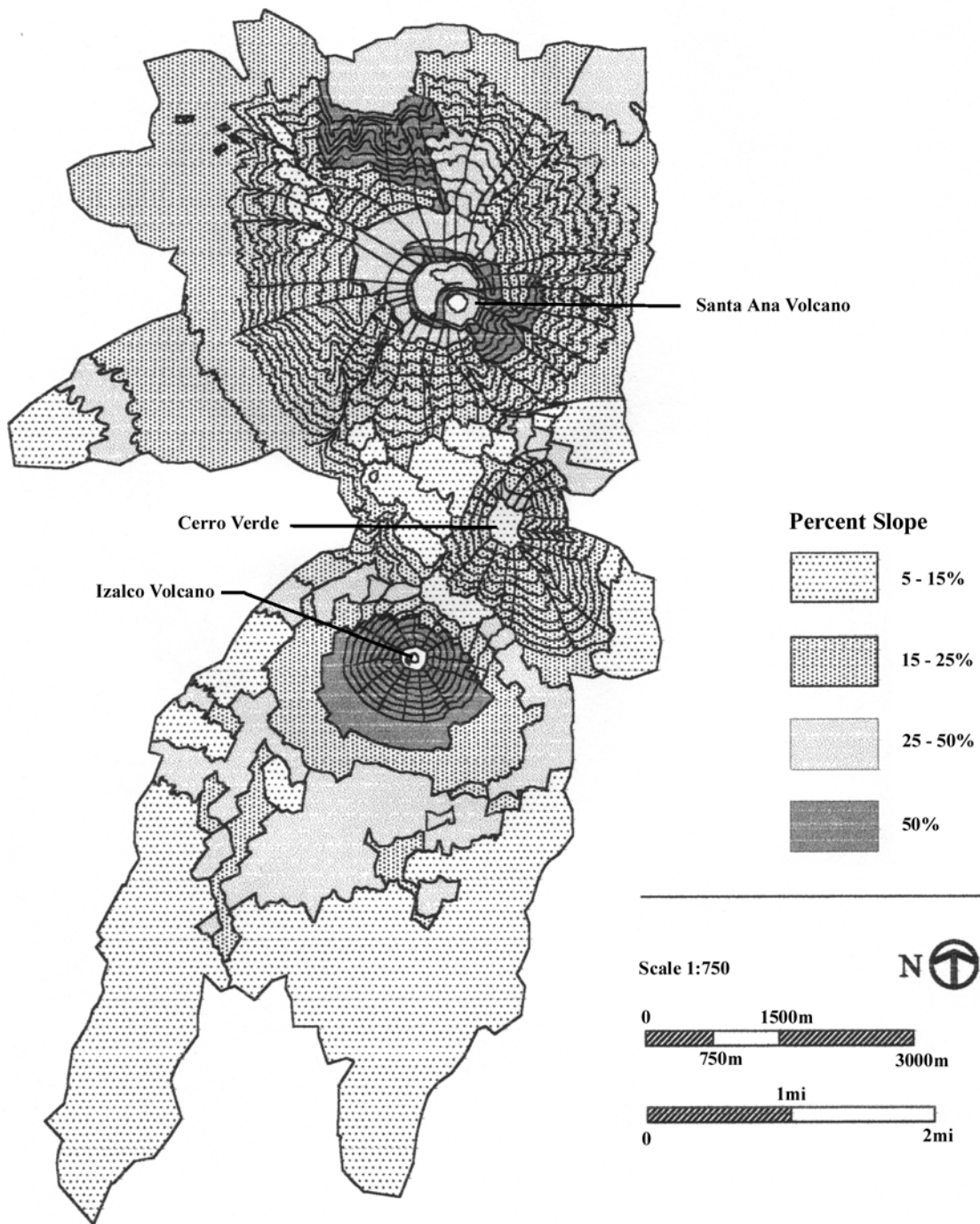


Fig. 8.9. Slope Diagram. Map by author.

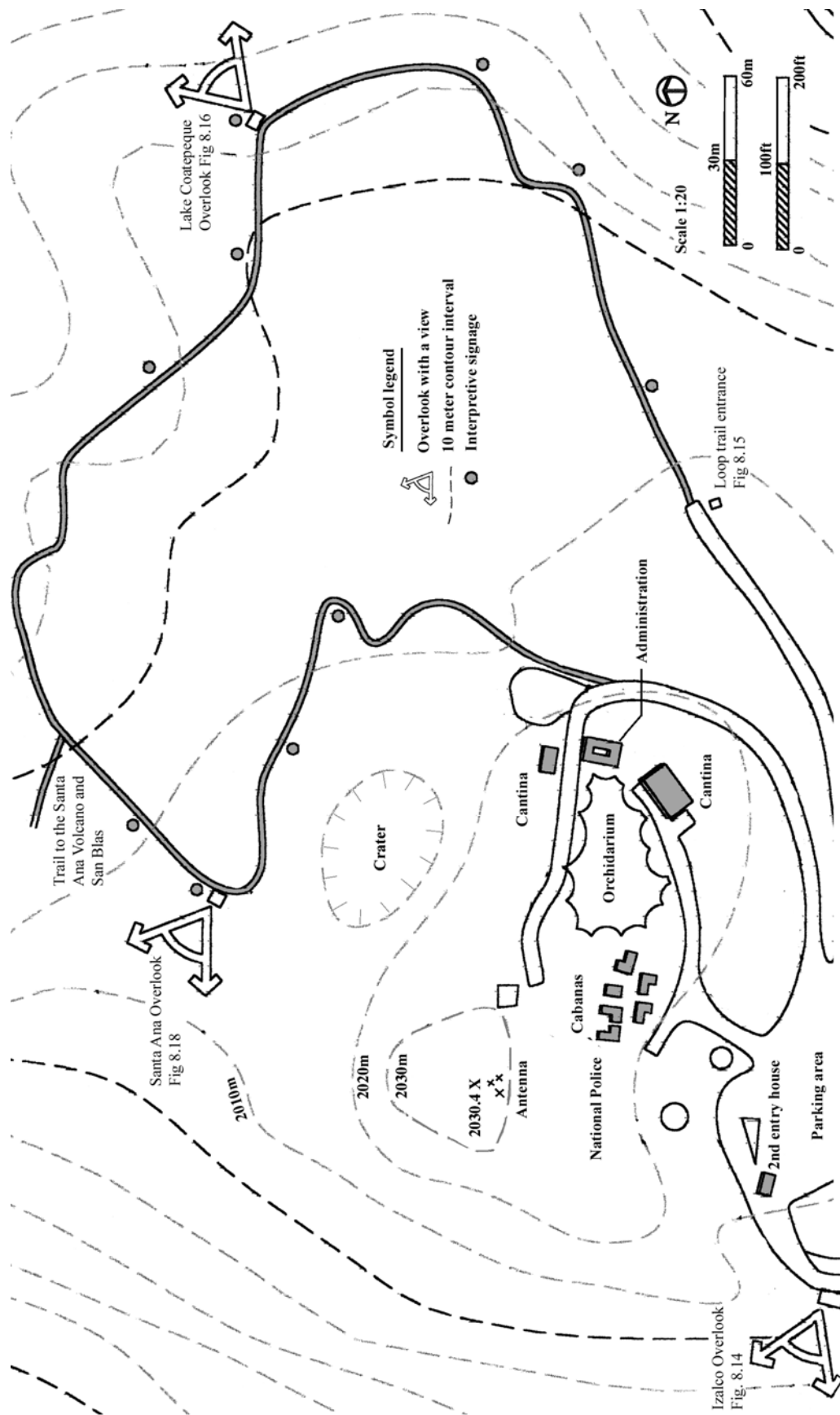


Fig. 8.10 Plan Drawing of the Main Loop Trail. Map by author.

(Fig. 8.13). For a longer hike, there is a trail on the North side of the Santa Ana volcano that will take a hiker to the *Los Andes* reserve.

The trail to the Izalco volcano begins at the Izalco overlook (Fig. 8.14). Hiking down the road to the first entry gate/fee station, the trail leaves the road on a steep decent to the base of the Izalco volcano. From the base of the Izalco volcano, the trail goes straight up to the top.

The Overlook Trail, which is called the *Sendero al Mirador*, begins North-east of the parking area and is marked with an entry sign (Fig. 8.15). There are interpretive signs along the trail which describe the surrounding landscape, trees for, and there are a series of overlooks. The first view area is the Lake Coatepeque Overlook which provides views of the lake and views of distant San Salvador (Fig. 8.16). The overlooks are made of timbers and provide a vantage point for views which would otherwise be blocked by the thick vegetation (Fig. 8.17). The second view area is the Santa Ana Overlook where one has a view of the south side of the Santa Ana volcano (Fig. 8.18).

Due to the volcanic soils and good drainage, trail maintenance is relatively problem free in the various seasons. However, the trail has a series of wooden steps and railings which are all difficult to maintain due to high usage.

The existing parking area can accommodate over 200 cars. On a Sunday we counted 48 cars at 2:00pm and 34 cars at 4:00pm. The guards told me that it was a slow Sunday. On average there are about 4-5 people per car. On Christmas a few years ago there were cars parked down the main road for 1km (interview with park guard Fernando).



Fig. 8.11. View of Izalco and Cerro Verde from the Santa Ana Volcano. Photo by author.



Fig. 8.12. The Trail to the Santa Ana Volcano. Photo by author.



Fig. 8.13. The Santa Ana Crater. Photo by author.

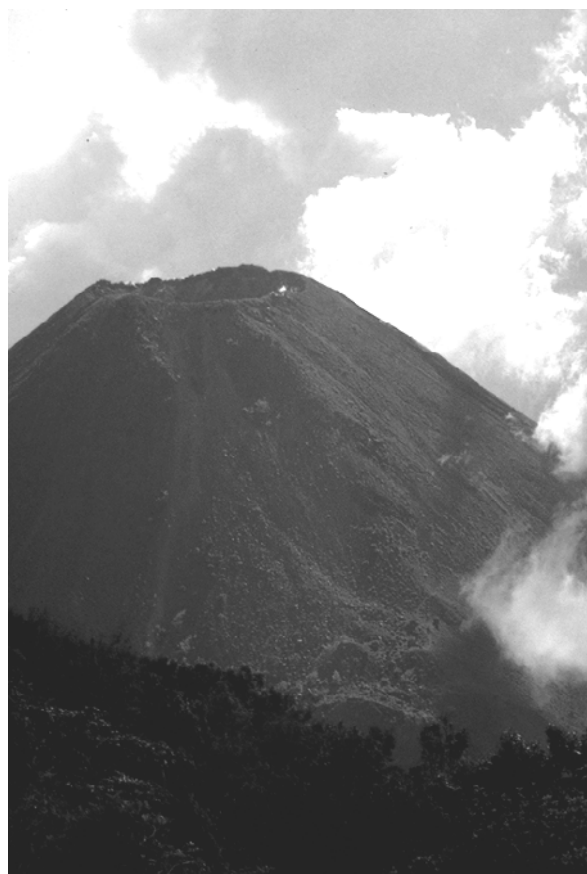


Fig. 8.14. View from the Izalco Overlook. Photo by author.

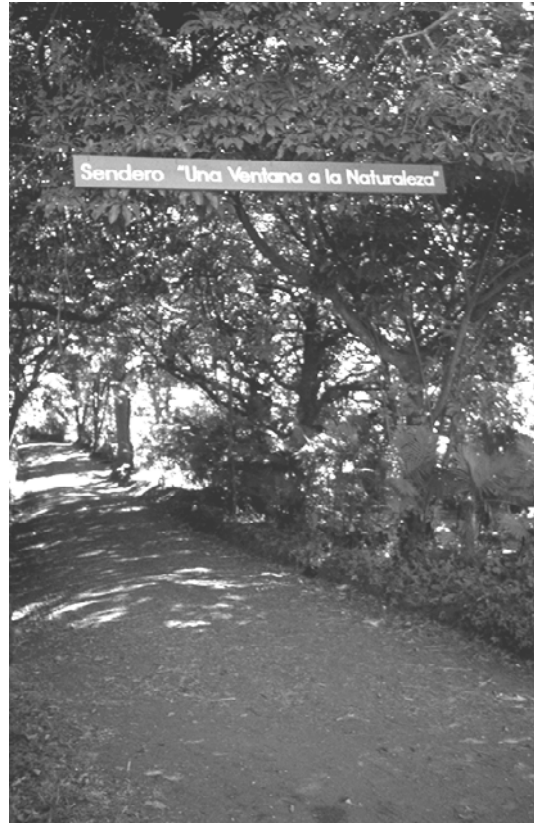


Fig. 8.15. Overlook Trail Entry. Photo by author.



Fig. 8.16. View from the Lake Coatepeque Overlook. Photo by author.



Fig. 8.17. Timber Frame Overlook. Photo by author.



Fig. 8.18. View from the Santa Ana from the Overlook. Photo by author.

Topography and Land Forms

Due to its dramatic topographic features, the Santa Ana volcano was the site of the filming of *You Only Live Twice*, starring James Bond. The summit is the highest peak in El Salvador with an elevation of 2381 meters above sea level (7809 feet) (Figs. 8.19 & 8.20). The Santa Ana volcano last erupted in 1904 and emits steam today. The crater opening of the volcano is 1500m across and 289m deep.

The Izalco volcano become inactive in 1957, and in 1967, Izalco belched a few large clouds of steam. The summit of the Izalco volcano is 1952 meters above sea level (6204 feet), and the distance the Cerro Verde guard house/fee station to the foot of the Izalco volcano is about 1600 meters..

The summit of the Cerro Verde volcano is 2030 meters above sea level (6658 feet), and the highest point is used for various kind of antenna. At elevations above 1800 meters, coffee and conifers will not readily grow, so the natural vegetation has remained relatively undisturbed.

Hydrology

Water is one of the major limiting factors for tourism in the park. Water is not pumped from lower elevations so water must be brought up by truck. There is a drawing with a plan for a system of bringing water from lake Coatepeque through a series of pipes and lift stations; however, the project was not feasible due to cost (interview with park administrator Oscar). The Cerro Verde park has a water tank which holds about eighteen barrels. The barrels hold approximately 1000 gallons of water and the supply usually lasts about eleven days. The delivery of the water is irregular, and the water delivered is not potable. Bottled drinking water is available from the cantinas and for the guests staying

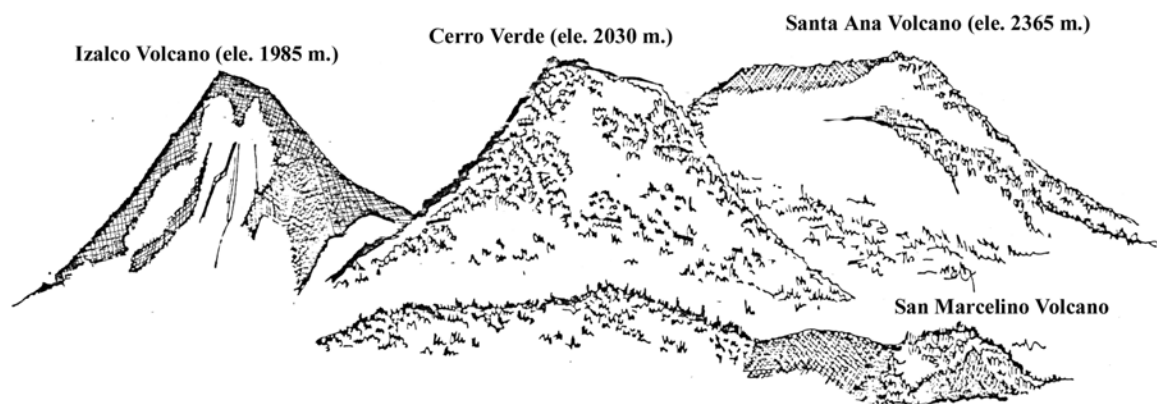


Fig. 8.19. Elevation Diagram. Source: adapted from Hinojosa Map 2.

in the cabana.. The hotel has very large storage tanks and it was suggested that the cost of bringing in water for the hotel was a reason for its financial difficulty (informal interview with park administrator Miguel Angel).

Wildlife

Due to the variation in climate and vegetation, the fauna in the region include 128 different species of birds; 17 species of humming birds; mammals like the white tailed deer; porcupine, fox, rabbit, and squirrel; and reptiles like lizard, iguanas, and snakes (Hinojosa 22).

Surrounding Land Uses

The Coatepeque Lake is a volcano that has caved in. Along the shore of the lake some of the most wealthy people in El Salvador have their vacation houses. Like the Cerro Verde, the Lake Coatepeque is a destination for people who want a break from urban areas.

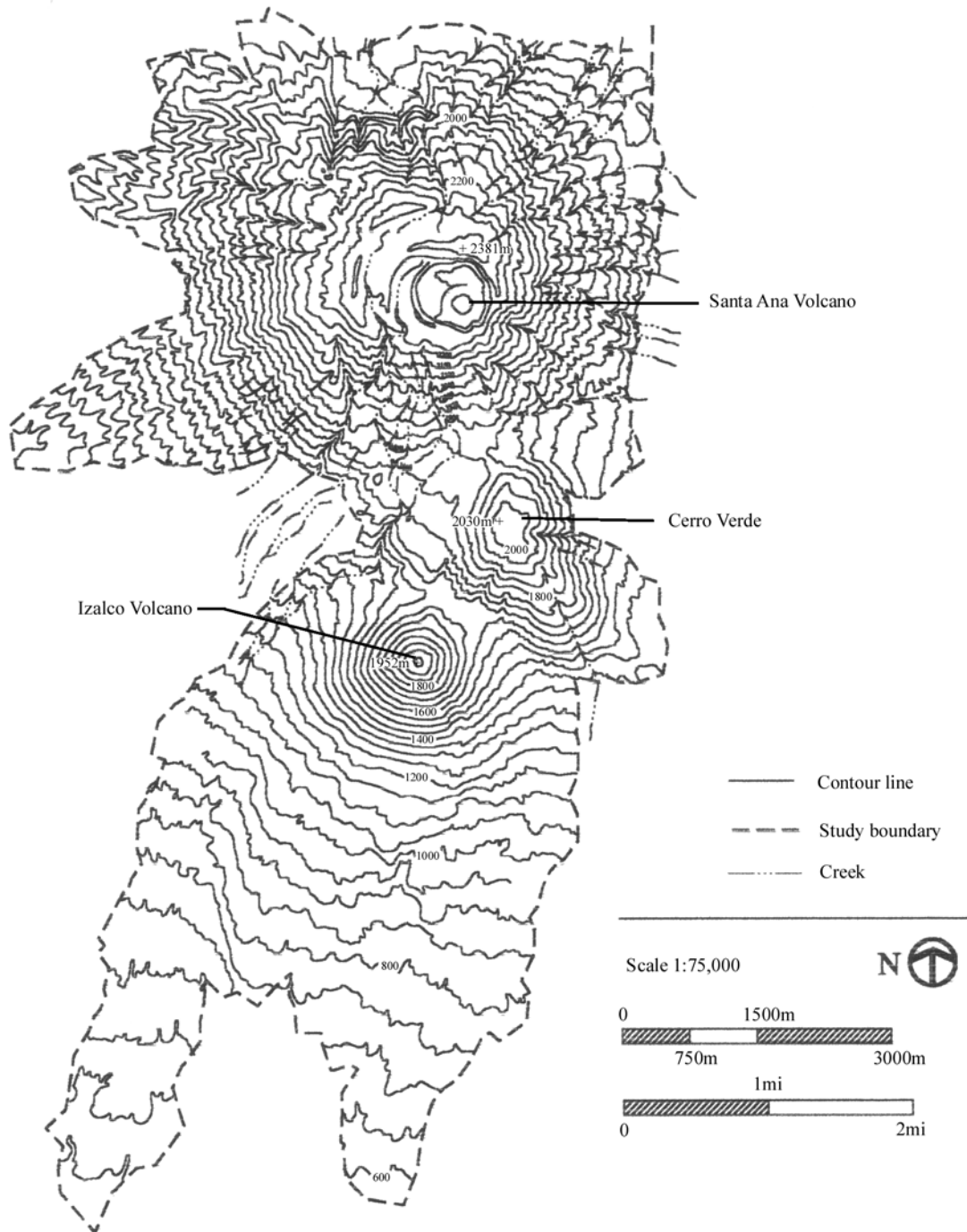


Fig. 8.20. Topographic Diagram. Adapted from Guzman.



Fig. 8.21. View of San Blas. Photo by author.

San Blas is the community that exists between the Cerro Verde and the Santa Ana volcano (Fig. 8.21). The land is owned by the *Cooperativa*, and generally the people who live in the community do not own the land. When we were there, we noticed that there was a school group camping in the open field in San Blas.

Lack of a Master Plan

Although the present management plan for the park is a good beginning, there has been little attention given to the physical planning and design of the park. As a result, I found great differences in opinion as to what should be done in the park and where. For example, the present park administrator believes that the visitors center should be located near the administrative center which is not located near the parking area. Other members of the park staff believe that the visitors center should be located adjacent to the parking area so that visitors can visually locate the visitors center from the moment they arrive. At present, there is not a process by which they can consider and evaluate the physical

planning and design of the park. I observed this from the administrative level in San Salvador to the park guard level in the park.

Firewood, Barbeque Areas, and Forest Fires

Seemingly trivial, the aspect of firewood provides a problem for park management. The issue resides with the visitors who scavenge for wood to use for cooking. Presently the barbeque areas are scattered throughout the park, and it is impossible for park guards to monitor what visitors are doing.

Trail maintenance and design. Fire: there was a fire above the San Blas community in 1996. To extinguish the fire there was an effort by the park guards, the local community, and the government. Fire is a major problem for the park.

Security

Security is a major issue for national and international visitors. The concern is not with the main parking and picnic area of the park; it is with the trails and more remote areas. Within the main parking and picnic area on the top of Cerro Verde, there is a national police (*Policia Nacional Civil*) office which provides the security in the main area. In addition, the national police are available to tourists as escorts on the hiking trails (Fig 8.22). The risk of robbery occurs when tourists wish to hike by themselves or to camp in remote areas. The problems range from simple theft to assault with a deadly weapon.



Fig. 8.22. Park Guard and National Police. Photo by author.

CHAPTER 9 RECOMMENDATIONS

The Cerro Verde National Park is a unique landscape which deserves both access by people and preservation. In a broad perspective, the major questions are how shall the park be established, managed and maintained. After conducting the inventory and analysis, I believe I have a basis for understanding the park. From my studies and from the perspective of a landscape architect, I have recommendations for the following categories: overall design, management, site design and the planning and design process.

Overall Design

Beginning with the *Plan Preliminar de Manejo para el Parque Nacional Cerro Verde* (“Preliminary Management Plan for the Cerro Verde National Park”), create a master plan for the entire park which supports and strengthens the management plan. The master plan would include but not be limited to the following: identification of the park’s area, identification of use zones, identification of special features and a site plan for the main visitors’ area.

A master plan would identify the park’s area. As the existing park area is only about 96 acres, the area should be expanded. If the park is expanded, not only will there be greater habitat for species protection, a larger area would make a difference when applying for grant money because a characteristic that distinguishes national parks is a grand scale. The difference would be that a park with 1000 acres, for example, would be viewed as more important than a park with 100 acres. It appears to be possible to expand the Cerro Verde National Park because in the management plan and from texts, like the *Historia Natural y Ecología de El Salvador* by Salvadoran naturalist Francisco Serrano, I found references to an expanded park area.

From the conceptual idea of a larger park, I created a proposed limit from the information I discovered in the inventory and analysis (Fig. 9.1). The limit around the Santa Ana volcano was determined by the 2000 meter elevation. This elevation was chosen because at elevations higher than 2000 meters, coffee plant production is marginal due to the steep slopes, cool temperatures, and excessive drainage. The limit of the Cerro Verde volcano is to remain the same due to the coffee plantations bordering most of its circumference. And last, the limit of the Izalco volcano was determined by the limit of the lava.

The expanded park, with the proposed name of the Volcanoes National Park, would have an area of 27.29 square kilometers or 6,752 acres. The majority of the tourist activity could still be concentrated at the Cerro Verde. The greatest difference would be the ability of the park managers to claim and protect the Santa Ana and Izalco volcanoes.

The second component of a master plan would include the determination of use zones which are described in the management plan. As discussed in previous chapters, there would be five zones: primitive area zone, an extensive use zone, an intensive use zone, a recuperation zone and a buffer zone. The primitive area zone would include the cloud forests of Cerro Verde and Santa Ana volcano, the lake in the crater of the Santa Ana volcano, the lava of the Izalco volcano, and the pioneer vegetation of the Izalco volcano. The extensive use zones would be the sites with the highest density of visitors including San Blas and the main trails to and around Cerro Verde, Santa Ana, and the Izalco volcanos. The intensive use zones would include areas with greater human intervention like the Hotel de la Montaña, and vehicular areas. The recuperation zones

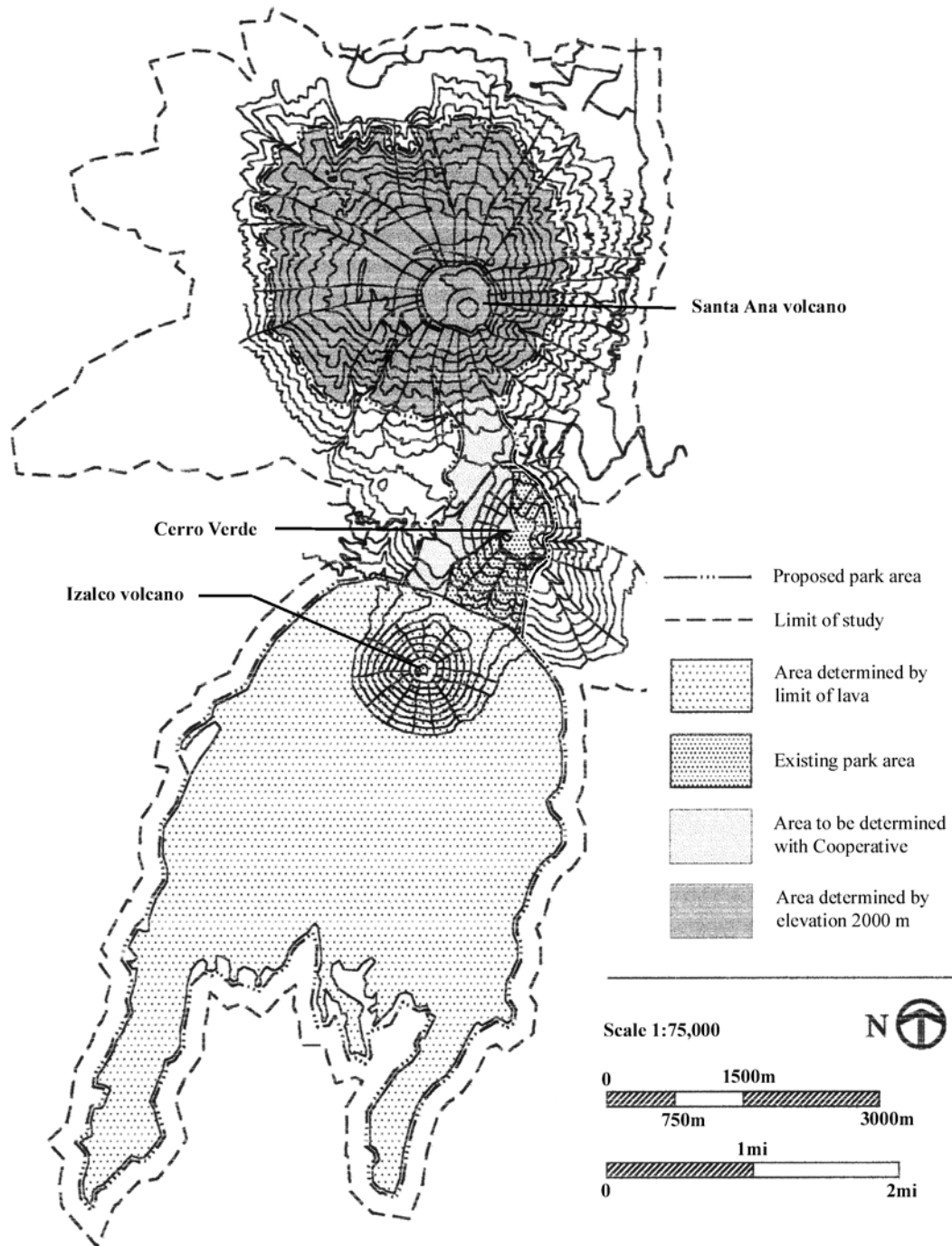


Fig. 9.1. Conceptual Area Plan. Map by author.

would be areas where the natural systems have been disrupted and need time to recover. The recuperation areas have not yet been determined. And last, the buffer zones would be a 500 meter zone around the park (Fig. 9.2).

Management

The current management of the Cerro Verde National Park is done quite well in relation to available resources. The park staff is dedicated and believes that the park is providing a valuable role in the preservation of natural spaces in El Salvador and providing a recreational experience for tourists. As park management involves a greater influence of cultural norms, it is more difficult for a foreigner to make recommendations about management. One aspect of park management which should continue to be supported is that of park guard training. The emphasis of my second visit to the park was to provide a training seminar for the park guards. The guards were receptive to new ideas and were eager to apply new information in an appropriate way.

Site Design

In addition to the Conceptual area plan, a site plan for the tourist area would determine the specific location of built site features. The important issues to be solved with a site plan are vehicular circulation, road alignment, designation of parking, evaluation of existing structures, location of proposed structures, and use zoning (Fig. 9.3).

The important consideration with vehicular circulation is that the non park vehicles would be limited to the main road and parking area only. Presently visitors are able to pass through the existing parking area and drive up to the top where there are transmission antennas, drive past the parking area to the exit of the main trail, and to park

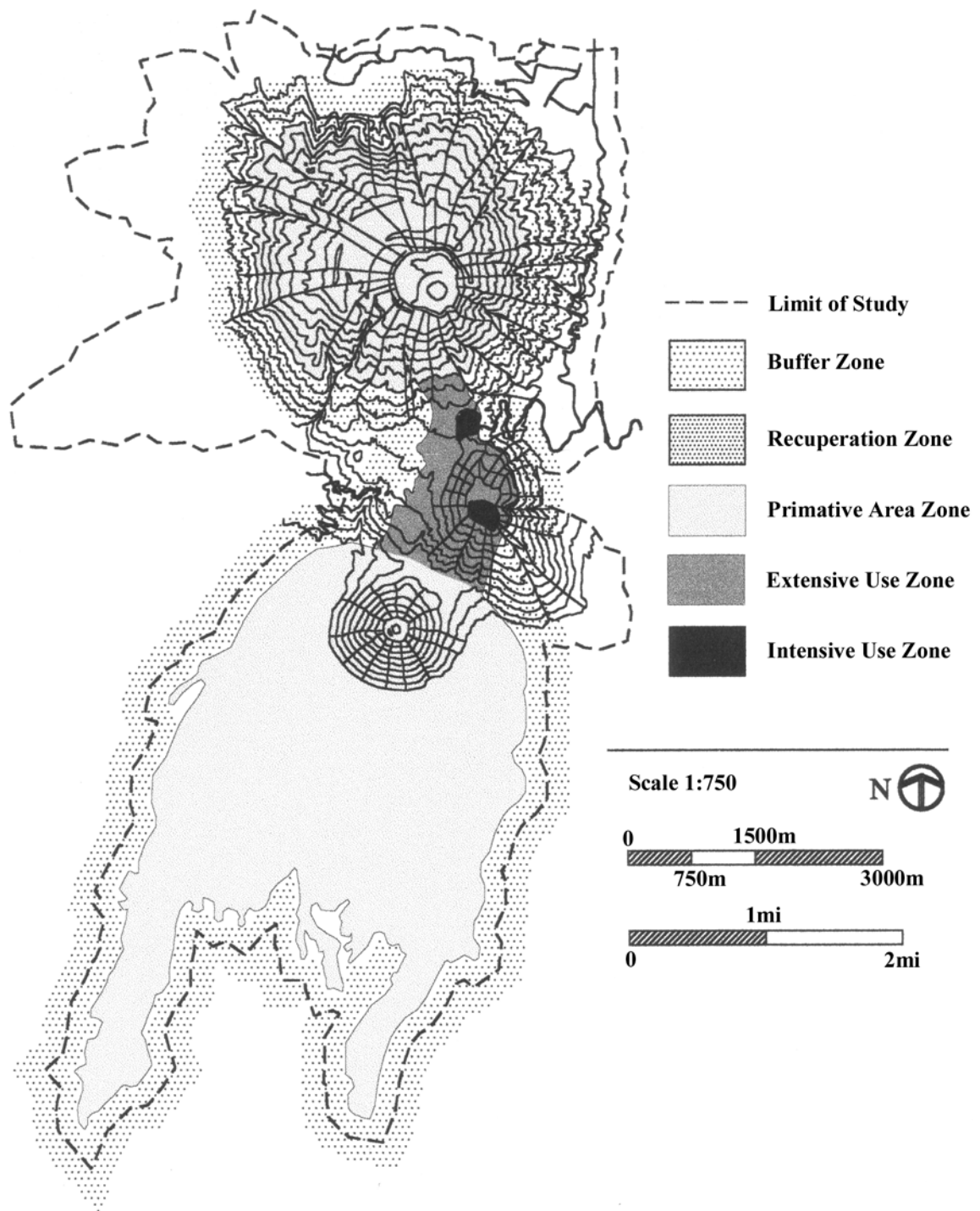


Fig. 9.2. Conceptual Zoning Plan. Drawing by author.

throughout the barbeque area. Limiting the parking to the parking area, has the potential to reduce erosion, reduce theft of plants and to improve aesthetics. In addition, road alignment will add clarity to the path used to arrive at the hotel.

The existing structures in the park have a wide range of architectural styles and conditions and the layout of the facilities are not centralized. For example, bathrooms, visitor information, and restaurants are all in different locations. The conceptual site plan would combine a new visitors center, bathroom facility and restaurant in the same area. By concentrating the user amenities into one area, the park managers will have fewer areas to maintain, the supply vehicles will require access to only one area, tourists will have a clear arrival destination, tourists will have improved facilities, and the park will have an overall improvement in aesthetics.

The site plan also determines use areas. Presently there are barbeque pits scattered throughout the main area of the park making it difficult for the park managers to manage potential forest fires and to limit the collection of fire wood. In the site plan, the barbeque areas are limited to a zone adjacent to the visitors center where proper design will minimize the potential for fire. In addition, zones have been created for reforestation, the orchidarium, and the cabanas.

Planning and Design

Traditional park planning should be considered a model for park planning around the world. The reason that traditional park planning can be used as a model is because of the emphasis on process and site empathy. By emphasizing process and site, designers can adapt plans to accommodate the needs of different people and places. In the case of the Cerro Verde, detailed design and park management are aspects of planning which

need to be appropriately adapted to the site; however, inventory and analysis are more objective and require fewer adaptations.

In relation to aid and the objectives of organizations like USAID, traditional park planning allows for a democratic process. As discussed earlier, when landscape architects create site drawings, it is to communicate with a client(s) what is planned. It is common for landscape architects to take their site drawings to meetings and presentations with people who are affected by the project but are not necessarily the direct client. As site drawings are graphic intensive, they can potentially reach a broader audience and explain conceptual ideas. Due to the potential for communication, traditional park planning has the potential to include the expertise of other professions, the influence of politicians, and the knowledge of those who will be affected by the project.

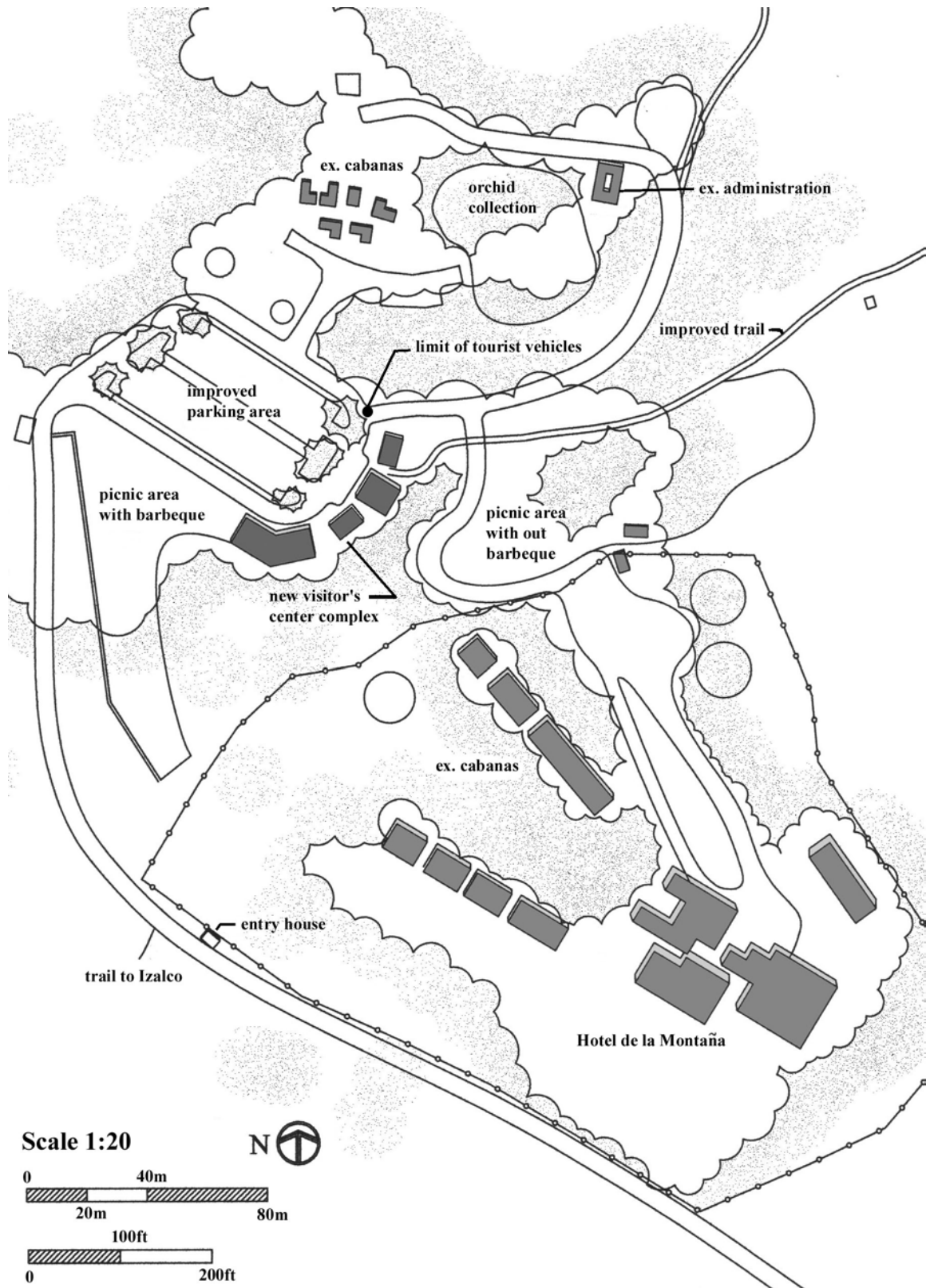


Fig. 9.3. Conceptual Site Plan. Drawing by author.

CHAPTER 10 CONCLUSIONS

The intent of this thesis was to accomplish many things: to encourage landscape architects to become involved in international humanitarian projects, to explain a process of involvement which may be useful to others, and to demonstrate a relationship between the work of aid organizations and the potential contribution from the profession of landscape architecture. I have provided background of aid organizations so the reader would understand who is working in developing countries, background in U.S. foreign policy and Latin America so the reader could develop an empathy and concern for the place, background in traditional park planning and design so the reader would understand the profession of landscape architecture, and I have provided inventory, analysis, and conceptual design to document the current condition and issues of the park.

The conclusion of this thesis will discuss the following; the expectations of the involved parties, the process of involvement and the questions from the introduction.

Involved Parties and Expectations

This project began as an opportunity to travel to Central America and provide assistance to a national park. The project was and still is a dream project because I genuinely feel a need for improving land stewardship, especially in developing countries. Putting idealism and romance aside, the difficult question was “what can I contribute that meets the objectives of the involved parties and will improve the park?” From the inception of the project, there was a lack of information and a lack of overall direction. The Peace Corps Volunteer, Amy Zimmerling, and the managers of the park wanted some effective training to make it easier for the park guards to do their jobs, but it was

difficult to understand what type of training would be useful, effective and appropriate. The Louisiana POA provided funding for the travel expenses and their objectives clearly stressed education with quantifiable results. And my objectives were to provide some service to the park that would not only improve the park but also serve as a topic for this thesis.

Satisfying the objectives of all the parties involved was certainly a challenge. As discussed earlier, I provided a two day training seminar for a group of park guards and the training was successful although not necessarily effective. The distinction between successful and effective is particularly poignant because when working in a developing country, logistics are always an issue. The park guard training was successful because most of the park guards were able to attend, the attendees responded to the presentation by asking good questions, and the material presented in the classroom was supported by material in the field. The training may or may not have been effective because there were no measurements of capacity taken before or after the training to determine efficacy. Assuming that successful park guard training met the requirements of the Cerro Verde, the Peace Corps and the Louisiana POA, I felt obligated to create a deliverable product which gave some explanation of how a landscape architect would examine the park. As a result, I created the inventory, analysis, and conceptual design.

With all of the aforementioned ideas in mind, this thesis is an attempt to synthesize the project into a case study which would have a basis for generalization about the profession of landscape architecture in Latin America. The result of this case study is a collection of documentation and background material which show few proved relationships. In addition, I believe this thesis would have been improved if it had been

approached as a community service project with an emphasis on documenting what the profession of landscape architecture could contribute to the park.

The Process of Involvement

The vague terms of our involvement and the collection of different objectives led to the idea that the first visit would be a fact finding mission. The trip was planned, I prepared the best I could and I really had no idea what to expect. I went to El Salvador, accompanied by professor Spafford, with several research techniques in mind which I intended to use as a basis for my case study. While visiting the park, I attempted to observe traces, to use Visitor Employed Photography, to conduct interviews and to collect written information. Each of the research techniques proved to be only partially successful because of the differences in culture, language and the limitation of time. Then during my second visit, the emphasis was on the park guard training seminar.

Integrated with the park guard training, I explained the concepts of site inventory, analysis, planning, and design. The conceptual site drawings were unlike anything that had been created before, and the ISTU was eager to put them in their file. My main concern was that the effort of gathering information and creating maps would be lost if I did not integrate the information into this thesis. So, although the site inventory, analysis, planning and design information does not precisely parallel the traditional planning process, it has been based on that process and will provide useful in the future for a person interested in the Cerro Verde National Park.

Questions from the Introduction

As a reminder, the questions from the introduction were as follows: first, is there a need for the professional expertise of a landscape architect in the future development and

design of the Cerro Verde National Park; second, is it possible for a North American to work effectively in El Salvador as a landscape architect; third, is traditional park planning and design appropriate for the Cerro Verde; fourth, does the design process differ when working in a developing country; and last, what is the role of landscape architecture in developing countries?

Landscape architecture and Cerro Verde

The professional expertise of a landscape architect would benefit the Cerro Verde National Park due to the unique way site inventory, site analysis, site planning and site design would be conducted. A landscape architect would consider the site in a way that is different than the way an engineer, architect or ecologist would consider the site. In addition, a landscape architect is trained to create maps and drawings which can be valuable in communicating ideas, facts and proposed changes to a particular site. It is my hope that when the park management plan is revised, a landscape architect will be one of the persons who is included on the team. From the research provided, it is clear that a landscape architect could provide a higher level of planning and design than is currently developed.

An important question that should be considered is "wouldn't a local landscape architect be more appropriate than a foreign landscape architect?" It is not my intent to imply that a foreign landscape architect would be superior; however, it is my intent to point out that a foreign landscape architect may be the only person to do the job due to the lack of landscape architects and landscape architectural training in developing countries.

Landscape Architects and El Salvador

NGOs have professionals working in countries around the world and specifically in El Salvador. Although professionals working in any foreign country have difficulties and limitations, there is no reason why landscape architects can not work abroad or specifically in El Salvador.

International projects are abundant through organizations like USAID, Partners of the Americas, the Peace Corps and NGOs. From the information provided in this thesis, the author has attempted to demonstrate how these organizations have been calling for the expertise of a landscape architect. In addition, the author has attempted to demonstrate how the knowledge, skills and abilities of landscape architects would serve these organizations to improve some of their projects.

This case study has shown that organizations like the Louisiana POA are willing to include the profession of landscape architecture in appropriate projects like the Cerro Verde. And, it is reasonable to generalize that additional organizations like NGOs will be willing to include landscape architects in appropriate projects if they wish to be involved.

Traditional Park Planning and Design in El Salvador

Traditional park planning is almost certainly an appropriate direction for the Cerro Verde; however, this case study has not successfully shown a relationship between a traditional planning and design process and the process followed by this project. Based on traditional park planning and design, this thesis has established a base of documentation which, in the future, can be used to supplement a grant proposal for addition funding.

Additional research could be conducted comparing the park planning and design of Costa Rica as compared to the U.S.. The national parks system of Costa Rica is recognized world wide and has an increased potential for generalization due to the fact that it exists in Central America. Also, it would be valuable to document what aspects of the planning and design process are universal so landscape architects who wish to work internationally can be better informed.

Differences in the Design Process

The availability, collection, and presentation of information was the major difference from this project to a similar project in the U.S.. The logistics of collecting information in El Salvador were a major obstacle. For example, to obtain aerial photographs, we had to travel to the photographic laboratory to order the photographs, then travel to a separate location on the other side of town to pay for the photographs, then travel back to the photographic laboratory to receive the photographs the following day. In addition, the availability of information was a major problem. The Peace Corps Volunteer Amy Zimmerling repeatedly asked for site information to no avail.

In addition to the collection of information, the deficiency of information is a major difference in the design process. The existing management plan, existing planning and design drawings and interviews with the ISTU staff have demonstrated how the planning and design for the Cerro Verde is at a nominal level. The existing management plan discusses some site planning and design issues, but the development of those issues does not occur.

The Role of Landscape Architecture in Developing Countries

The information provided in this case study is not sufficient to describe the role of landscape architecture in developing countries; however, there are aspects of this study which may provide some insight and lead to future research. It is possible that site design will continue to play a minimal part in the future of the park if there is not an understanding of what may be gained by conducting the planning and design process. So, if there is no participation from the profession of landscape architecture, it is possible that the need will never be identified.

If the profession of landscape architecture is to be involved and contribute to projects like the Cerro Verde, aid organizations are a likely source of funding. As projects like national parks are generally not privatized, funding is usually very limited and an outside source of funding is often needed. Reconsidering the definition of aid -- the flow of resources from developed countries to developing countries -- the site planning and design process is a resource that should be made available to developing countries.

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APPENDIX
NON GOVERNMENTAL ORGANIZATIONS IN EL SALVADOR

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Minister of Economy and Chief of Reconstruction Efforts
Ministerio de Economía
Centro de Gobierno, Edificio C
San Salvador, El Salvador
Phone (503) 221-3583
Fax (503) 221-4771

FISDL
Miguel Siman, President
10 Avenida Sur y Calle Mexico
Frente a Casa Presidencial
Barrio San Jacinto
San Salvador, El Salvador
Phone (503) 237-0122
Fax (503) 237-0145 or (503) 237-0137

NGOs providing temporary shelters and/or housing reconstruction assistance:

Cooperative Housing Foundation
Brian Holst, Director
65 Avenida Sur, No. 132
San Salvador, El Salvador
Phone (503) 245-4859 or (503) 245-4860
Fax (503) 245-4828
Email bholst.chf@es.com.sv

CARE
Mario Lima, Director
Sonia Silva, Deputy Director
Lomas de San Francisco
Calle 3, Numero 20
San Salvador, El Salvador
Phone (503) 273-4100 or (503) 273-9600
Fax (503) 273-0939
Email: ssilva@care.org.sv

Catholic Relief Services
Juan Aranda
73 Avenida Sur, No. 221
Colonia Escalon
San Salvador, El Salvador

Phone (503) 298-1688 or (503) 298-4220
Fax (503) 224-1739

Project Concern International
John McPhail, Director
Calle Los Castanos, Avenida Bugarvillas
Casa No. 2-24
Colonia San Francisco
San Salvador, El Salvador
Phone (503) 224-6005 or (503) 279-4667
Fax (503) 224-6536
Email: postmaster@projectconcern.org

RTI
Ald Miranda, Director
Boulevard del Hipodromo
Pasaje 10, Casa Numero 110
Colonia San Benito
San Salvador, El Salvador
Phone (503) 243-6177 or (503) 243-6174
Fax (503) 243-3384
Email: RTI@amnetsal.com

World Vision
Nelson Chavez, Director
Avenida Bernal, No. 222
Colonia Miramonte
San Salvador, El Salvador
Phone (503) 260-0565
Fax (503) 260-0477

Salvadoran-American Health Foundation
Carlos Reyes
2050 Coral Way, Suite 600
Miami, Florida 33129
Phone (305) 860-0300 or (800) 992-8858
Fax (305) 860-1415
<http://www.sahf.org>

Samaritan's Purse
P.O. Box 3000
Boone, N.C. 28607
Telephone number: 1-828-262-1980
<http://www.samaritanspurse.org>

Fundacion Salvadoreña de Apoyo Integral

Luis Antonio Castillo, Director
73 y 71 Avenida Sur, sobre Calle Nueva
No. 3733
Colonia Escalon
San Salvador, El Salvador
Phone (503) 298-2964 or (503) 223-8270
Fax (503) 245-2611

Fundacion Salvadoreña de Desarrollo y Vivienda Minima
Edín Martínez, Executive Director
Reperto Santa Alegría Calle L-B, No. 7
Ciudad Delgado
San Salvador, El Salvador
Phone (503) 276-2777
Fax (503) 276-3953
Email: fundasal@sal.gbm.net

Fundacion Habitat
Aq. Carlos Heymans, Director
Calle A, No. 124
Colonia Avila
San Salvador, El Salvador
Phone (503) 245-4939
Fax (503) 245-4940
Email: habitat@citt.cdb.edu.sv
www.fundhabitat.org.sv

Other international and local organizations/agencies involved in housing projects:

United Nations Development Programme (UNDP)
Bruno Moro, Representative
3A. Calle Poniente, No. 4048
Entre 77 y 79 Avenida Norte
Colonia Escaln
San Salvador, El Salvador
Phone (503) 263-0066
Fax (503) 263-3501
www.terremotoelsalvador.org.sv

U.S. Department of Agriculture/FAS
Miguel Herrera, Agricultural Specialist
U.S. Embassy – El Salvador
USAID Building
Boulevard Santa Elena Sur
Antiguo Cuscatlan, La Libertad
El Salvador

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VITA

Stephen Price Wilson was born on December 27, 1969 in Boston, Massachusetts. He lived in Salt Lake City, Utah from 1970 to 1985, and he moved to Columbia, South Carolina in 1985. After receiving his high school diploma from Heathwood Hall in 1988, he entered the B.S. program in horticulture at Clemson University. In 1994, he graduated from Clemson University, and in late 1994, he began his service as a U.S. Peace Corps Volunteer. He served as a volunteer in a town called San Pedro de Ycuamandyyu , Paraguay, and he worked in the Extension Agriculture sector with rural farmers who grew horticultural crops. In December 1997, he completed his service in the U.S. Peace Corps and returned to the U.S. In the fall of 1998, he entered the graduate program in landscape architecture at Louisiana State University. After completing all his coursework in the spring of 2000, he moved to Denver, Colorado and started a full time job with Civitas, Inc. He completed his thesis in October 2001 and received his M.L.A. in December 2001.