# Folkbotanical Knowledge in the Chacao Sub-valley, Caracas-Venezuela.

Ricardo Leizaola

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Goldsmiths College
University of London

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## Abstract

Today, the conservation of biodiversity is a major international goal of policy makers and scientific researchers whose work informs policy. Increasingly, indigenous and folk knowledge of biodiversity is addressed as a significant source of insight into the ways in which ethnobotanical knowledge is not practically useful but constitutes intellectually coherent systems of knowledge. Critical analysis of biodiversity has shown that indigenous and folk ecological knowledge is gendarme to the survival of cultural identity as well as the broader biosystem and, in recent years, much attention has been drawn to the anthropogenic character of what were previously assumed to be natural features of the ecosystem. As the pressures on traditional and indigenous communities mount, the search for effective forms of documentation to support the study, conservation and transmission of indigenous knowledge is becoming increasingly urgent. This thesis explores and documents the folkecological knowledge of the people of Pedregal, an urban neighborhood in Caracas, Venezuela. It examines those domains and aspects of folkecological and folkbotanical knowledge that have persisted throughout the transformation of Pedregal from a rural hamlet to an urban neighbourhood exploring the effects of drastic social changes on the conservation and renewal of nature related systems of knowledge.

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## Declaration

I declare that this thesis is my own research work except where I have given due acknowledgement to the work of others. Copyright in text of this thesis rests with the author.

## Chapter 1

### Introduction

### Introduction

Pedregal is a small urban community in the city of Caracas, capital of Venezuela. It is situated in the municipality of Chacao. Chacao is the richest and most modern municipality in Venezuela. Located in the north center of the Caracas valley, at the edge of the Avila National Park, Chacao is now the financial center of the country and the site of luxurious neighborhoods, but fifty years ago it was a small town surrounded by coffee and sugar cane plantations. Pedregal is a working class community created by peasants and small landowners from the area. Relatively isolated amongst modern, richer neighborhoods, Pedregal retained a strongly rural character until the middle of 1960s.

People from Pedregal view themselves as the urban bearers of traditional rural practices and knowledge. They are, for example, the keepers of the main religious celebration, Los Palmeros de Chacao, an annual pilgrimage to the forest of El Avila National Park, to harvest palm leaves for the celebration of Palm Sunday. The pilgrimage is also used to collect decorative seeds and medicinal plants in an area formerly used as a hunting ground by the peasants. Medicinal plants are still cultivated in home gardens, sold at markets and collected in public areas in and around the community. Today, markets supply very much the same plant products that were once cultivated around El Pedregal. There are several healers operating in the community. This thesis is an ethnographic account of contemporary plant use among an urban population. It explores and documents the folkecological knowledge of the people of Pedregal. The basic objective is to examine those domains and aspects of ethnoecological knowledge that have persisted throughout the transformation of Pedregal from a rural hamlet to an urban neighborhood.

### 1. **Context of research**

I became involved with the community of Pedregal while working in the production of a photo documentary book of Los Palmeros de Chacao (DalMaso 1994). The Palmeros refers to a pilgrimage of men to the mountain range of the Avila National Park, where they collect the palms for the Palm Sunday celebrations that are held in the church of Chacao. At the time, I was working as an assistant to Gianni DalMaso, a commercial photographer, while finishing my undergraduate degree in anthropology at the Universidad Central de Venezuela, Caracas.

In 1991 I worked with DalMaso following the pilgrims during their stay in the forest, collecting palms and sleeping in camps for several days. The following year we returned with the Palmeros to complete the photo reportage. That year I wrote a monograph on the pilgrimage that was later published as part of a book on the subject by Luis Enrique Reyes Farfan, himself a Palmeros and a local historian (Reyes 2001). Since that time I have been involved with the community of Pedregal in one way or another. During my fieldwork Luis Enrique was my main collaborator and assistant. He also supplied me with his photographic and maps collection.

In 1993 I began working with Alejandro Farfan, another resident of Pedregal and a Palmero. Alejandro was a local filmmaker who has been recording his community and its transformations since the mid 1950s. I become interested in Farfan's films after assisting to several projections of his films on the streets of El Pedregal during the meetings that preceded the Palmero pilgrimage and during other community gathers. At the time, Alejandro had already stopped filming because of the lack of availability of Super8 films. Nevertheless, he continued showing his films with his old projector using bare walls as screens. That year we began to transfer Alejandro's films to video and to catalogue the material (a total of 10 hours). I also began to train him in the use of video and advised him about acquiring a video8 camera. Video copies of his films began to circulate in El Pedregal and video projections began to replace the projection of the old and somewhat damaged films.

Alejandro was born in 1927 in the Hacienda Blandin, which at the time was a coffee plantation and today is the site of the Caracas Country Club. He is now a retired car mechanic. He began filming around 1956. He lives next to the last mud house left in Pedregal where his sister Abilia, the only recognized herbalist in El Pedregal, was born. Apart from some old trees and a very few boulders predating the contemporary urban neighborhood, this house built around 1930 is the last material evidence of El Pedregal's rural past.

The courtyard of the Farfan property is covered with overgrown secondary vegetation at the front and around the edges of the property. Several tall fruit trees separate the old abandoned mud house from the three level modernist style house that Alejandro built in the second half of 1950s. At the entrance of the modern house there is a massive pile of plants drying, collected in the streets by Abilia. There are also numerous metal and plastic containers used to cultivate plants. In addition to the untidy vegetation and the old crumbling house there is also an old 1950s car parked at the side of it. In this house I observed Abilia and her sister Margarita using plants as medicines.

The issue of plants was one of the most frequent subjects in disputes between Alejandro and his sisters. Alejandro accused his sisters of nurturing and using illegal, poisonous and hallucinogenic plants such as the Datura tree *–campanita-* (*Brugmansia candida*), *almorronera* (*Nicotiana glauca*), of allowing weeds to flourish everywhere, and of keeping large piles of dried plants, occupying all the space around the front entrance. He complained of having to face several police visits when they would come to the house enquiring about the presence of the Datura tree, widely used as an illegal recreational drug. Alejandro was also very dismissive of his sister's competence as herbalist and expressed doubts about the validity of such traditional practice in the context of their modern and urbanized existence. Yet his views were somewhat ambivalent. On the one hand he rejected such traditional practices as engaged in by his sister as backward, while at other times he might proudly show me his collection of bitters and rubbing lotions that he prepared following the teachings of his father, mother and grandmother. He was also a very skillful *maracas* maker, using the fruits of the gourd tree (*Crescentia cujete*) as container and the seeds of the *capacho* (*Canna generalis*). He also made lamp shades with the gourd tree fruits.

While working on the transfer of the films to video I got to know Alejandro and his circle of friends well. We generally worked during the evenings after Alejandro returned from work. His friends visited us and viewed the films as they were transferred. Our conversations were recorded in synch with the showing of the film, providing a commentary to the silent images. Both the films and the conversations introduced me to a range of local perspectives and representations regarding the transformations undergone by this community and in particular the process of urbanization. The images produced by the films elicited nostalgic stories as the adults in the audience commented on the scenes before them. The task of transferring and cataloging the film somehow justified my presence in the neighborhood and helped me to build personal relationships with many inhabitants. With Mr. Farfan I also began to participate and to document on video religious festivals such as the Easter celebrations, Christmas, the feasts of San Jose and Cruz de Mayo. I used these events as opportunities to train Alejandro in the use of video. These festivals are completely organized and performed without the interference of local authorities or of other funding bodies promoting institutionalized folklore. The festivals are occasions in which many people born in the neighborhood but currently living somewhere else return to pay a visit to family and friends. But apart from these performances there was nothing traditional about the neighborhood of El Pedregal. It is during these festivals that the inhabitants of this neighborhood present themselves –to themselves and to outsiders- as a unified and coherent community. As an undergraduate student of anthropology I was attracted by what seemed to be these traditional features. And alongside this interest in tradition, I also became also interested in the history of the community.

At the end of 1993, I began an MA in Visual Anthropology in the Granada Centre, University of Manchester. My final work, which included the production of a film, was dedicated to Alejandro's visual documentation of the community. In order to make the film I sought approval and help from Matias Reyes, Alejandro's cousin, and at the time the president of the neighborhood association. While he agreed to help me with the making of the film, he also made clear that he did not consider the topic of the film relevant to the current problems of the neighborhood, such as drug use, unemployment, poor services and lack of sports facilities. In Matias' view a written account of Pedregal's history, documenting their long term occupation as proprietors of the land and their transition from peasants to urban residents would be more suitable to the community's needs. For that purpose Matias introduced me to his uncle, Benito Reyes.

The film produced for my Masters and my general approach to all these issues were somehow nostalgic, echoing the views of older residents and their concerns that the community was dying out in the face of modernization and their 'traditional culture' was in danger of extinction. Two years after making my film, "Cinema Pedregal", I returned to Pedregal and showed the film in a public presentation. It was very successful. A year later, I was coordinating a community video project along with Alejandro and twelve other young people, funded by a local NGO.

At the same time, I began recording Benito Reyes' life history. We recorded the interviews while sitting in Matias' roof garden, almost every morning during the course of 1996. Benito always included many references to plants during our conversations. The main focus of his memories and anecdotes related to experiences in rural El Pedregal, prior to the urbanization of the area, rather than drawing from more recent experiences based in rural Pedregal.

As mentioned, Benito always included many references to plants, their uses and related practices during our interviews-conversations. He also maintained a small garden of wild plants in his front courtyard. At that time I chose the subject of plants as a way to relate to Benito outside of the interview context. I was trying to get to know him in a more informal and more comfortable situation than that of a rather formal interview situation. Plants were a topic of interest that we both shared. In addition, there was no apparent interest among inhabitants of El Pedregal in this aspect of their culture, in contrast to their concerns about community history, or their interest in Farfan's films and in rituals such as the Palmeros' pilgrimage, in which several local people such as Luis Enrique have invested considerable time and effort. In fact, under the banner of "rescuing traditions" many local people are involved in, and sometimes compete for, revitalizing cultural institutions as well as documenting and representing them through books, exhibitions, documentaries, etc. So Benito took upon himself the job of teaching me about plants. He took the task very seriously as he saw himself, along with a few other senior residents, as the only people interested in this issue. At the beginning he welcomed me in the mornings with a pile of plants he had collected during his morning walks, in order to give the lesson. As we got to know each other, he accepted my invitation to walk together in parks and avenues outside his neighborhood talking about plants. In addition to recording his life history I began to document information on plants and ideas relating to plants and their uses. Benito was also a faith healer. Matias considered all this irrelevant to our project of writing a definitive account of El Pedregal's history. He was also disappointed when I expressed an interest in learning about medicinal plants. It was his view that healing and plants were both irrelevant to the current conditions in the area. He was even more disappointed when I decided to publish a life history –a collection of personal stories- instead of an objective and definitive account of the community's history. The book on Benito's life story was published in 2000 with the title of "Tio Veneno" (Leizaola 2000).

In 1998, as an associate research fellow at the Granada Centre for Visual Anthropology, I returned to El Pedregal for two months to film a documentary about Benito's faith healing activities in the context of El Pedregal's Easter celebrations. The film, "Uncle Poison" (Leizaola 1999), was shown at the community at the beginning of my fieldwork. It has also participated in several ethnographic film festivals. The film contains several sections related to ideas and practices related to plants such as the harvesting of medicinal plants, protective plants and their healing actions.

These experiences informed my decision to pursue further studies and led me to conceive of my PhD research and my fieldwork with a sense of urgency with regards to the documentation of threatened local knowledge and related practices. The original premise of my work also reflected an important trend in contemporary debates within ethnobotany – that is to say, the issue of the conservation of bio-cultural diversity and the focus on the erosion of knowledge (Maffi 2001). There was also the convergence with local views such as those expressed by Benito who, due to his age and personal trajectory, considered himself to be one of the last informers with both an interest and a degree of competence in the general area of plants in an urban neighborhood. It was too late to carry such a salvage operation through many members of the community, as they had long been exposed to formal education, health services and urban lifestyles. Moreover, many people warned me that as the area was already documented there was nothing new there to be discovered. They associated such knowledge with the rural lifestyles and livelihoods of their parents and grandparents. Even Benito, who previously liked to be considered as a competent informer and good teacher of plants, downplayed his expertise, and instead emphasized his long urban existence in order to dismiss my research. As I persisted with my aims Benito introduced me to the older medicinal plant vendor of the Chacao market, Sra. Virginia, whom he considered to be a real expert and plant specialist.

Interestingly, during fieldwork many of the people who had dismissed my research turned out to be very good informants. Nevertheless, while I was interested in traditional knowledge, most people were not interested in making distinctions and discriminating between kinds of knowledge on the basis of its origin. Local plants were used to deal with new problems related to their contemporary existence such as diabetes and hypertension, like *huevo abajo (Phyllanthus niruri)*, or recently introduced plants were used to deal with very old diseases, as in the case of the use of *chaya* (*Cnidoscolus aconitifolius*), used to deal with certain kinds of diarrhea. It was not uncommon when visiting homes while researching house plants that the residents would begin to talk about their recent plant acquisitions. These new plants represented status symbols for their owners. By centering discussion on them they also served to dispel any suspicions of backwardness. In many cases it was only after I made specific requests that the more common local plants were added to the inventory.

During these visits I was frequently shown books and other publications on plants, mainly relating to uses linked to medicinal applications, luck, health and beauty. My hosts frequently pointed out that there many radio programs and television magazines programs dealing with plants as food, medicine, beauty, luck and fortune. I was surprised, for example, to find out that Luis Enrique and his wife keep a collection of book, magazines and newspaper cuttings and photocopies with information on plants. In addition they have a significant collection of audio and video tapes with recordings of radio and television programs on the subject. At first, the presence of such external sources of information, the priority given to newly introduced plants, and the general dismissal of my research among El Pedregal inhabitants puzzled and disappointed me. My informants were not interested in protecting and keeping an uncontaminated, unchanged local tradition. Instead they emphasized their interest in, and right to, borrow plants and knowledge and to experiment. Nevertheless this initial discouragement was overcome as a result of the interest shown by people of all ages, but especially women, in contributing to my research, giving generously of their time. This showed that interest and knowledge of plants was very much of contemporary relevance of the population of El Pedregal. In addition to knowledge about plants, I also documented information on ethnoecology as it was almost frequently elicited along with ethnobotanical information. Moreover, any discussion of plants and the natural environment always elicited stories about people.

Towards the end of my fieldwork with Luis Enrique I organized an open exhibition at the Casa de la Cultura de Chacao, the Chacao cultural centre. There we displayed all the herbarium collection and the ancillary collection we had gathered in and around El Pedregal All samples were displayed without labels in order to continue eliciting information from the exhibition visitors and we did not arrange the exhibition samples on the basis of their origin. Viewing the displays, most visitors, the majority of whom were from El Pedregal, were very surprised by the amount of material exhibited and by the extent of their own knowledge. Some of those who had first dismissed my research mocked me again - this time on account of the chances I now had to profit from such knowledge, given how widely shared it was.

Many of the visitors to the exhibition had no difficulty in recalling the names and uses of the samples displayed. Others took notes on the information provided by their friends, family and neighbors and myself. We also displayed some of the books and manuals on plants that we found on some of our house visits. Later, revising the bibliography on economic botany and medicinal plants for the area of the Caracas valley –both scientific and popular literature- I noticed that while most of the authors' rationale was to salvage a system of knowledge that was under threat, all these works also contained a lot of information about newly introduced plants and related knowledge (Ernst 1867; 1865; Pittier 1970; Pompa 1974). Nevertheless, this information was also presented as local and threatened and awarded familiarity to what was in fact exotic. The idea of salvaging threatened culture is related to an imagined pristine stage not longer in place. Venezuela and the area of Caracas in particular, as part of the Caribbean Basin, has been a reconstituted society for almost half a millennium (Mintz 1985). Change and exchange have been intrinsic aspects of their system of ethnobiological and ethnoecological knowledge as much as of their socio-cultural and environmental makeup (Crosby 1986).

I left Luis Enrique Ryes a copy of the herbarium and the ancillary collections, the labels and all our notes and display props. He still uses them to organize exhibitions in schools and museums, along with his displays relating to the pilgrimage of Los Palmeros. In compliance with the conditions of my research permit, another copy of the collections was deposited at the Herbarium Ovalles, at the Universidad Central de Venezuela where identifications were carried out.

On returning from the field to London, I encountered a further ironic twist. While in the field most collaborators assured me that there were neither plants nor related knowledge worth documenting in their urban setting. During the process of writing up I was warned continuously by colleagues about the need to clarify - and justify my research - that I was not stealing or giving away for free 'their' knowledge, the exclusive knowledge of the people of El Pedregal. Ethnobotany studies appeared to immediately elicit strong concerns about intellectual property rights among other anthropologists who were not working within this field. They viewed the process of documentation involved in ethnobotany as highly problematic, as part of a one way appropriation from the periphery by the centre. Though understandable, these concerns seemed far removed from my fieldwork experience, which suggested the opposite; a deliberate commitment to a two way exchange and flow of information and plants.

In fact, my initial idea or the reason of choosing the topic of folk-botany to continue my research in Pedregal at a PhD level was among all the fact that both most plants and knowledge are in the public domain. Plants are sold in markets, plants nurseries, street stalls, and supermarkets. They also grow intentionally and unintentionally in public areas and private gardens and parks. Knowledge has been documented since the beginning of Spanish colonization. The Caracas valley and its adjacent mountains have attracted more attention that any other region of Venezuela both in term of its natural biodiversity and crop diversity. And there are also records of urban botany since the 1860s (Ernst 1867). In addition to economic botany publications, local knowledge of plants has being documented in the form of popular literature in the fields of agriculture and traditional medicine (not just herbal).

The puzzle and the ethical dangers raised around property rights my interest encouraged me to shift my focus towards less controversial topics such as ethnoecology, ethnoclimatology and local understandings of the landscape. Later, I returned to aspects of ethnobotany. This may explain in part the lack of organic articulation between the chapters of the present thesis.

## 2. **Defining and refining the research question: Theoretical background**

As mentioned, I commenced my research guided by the concern that emerged from my experience in El Pedregal and from my engagement with the literature, about the conservation of traditional knowledge. More broadly, the conservation of biodiversity is a major goal of international policy makers and scientific researchers. Increasingly, indigenous and folk knowledge of biodiversity are addressed to clarify the ways in which ethnobotanical knowledge is not only practically useful but also constitutes intellectually coherent systems of knowledge (Ellen 1996). Critical analyses of biodiversity have shown that indigenous and folk ecological knowledge is gendarme to the survival of cultural identity as well as the broader biosystem and, in recent years, much attention has been drawn to the anthropogenic character of what were previously assumed to be natural features of the ecosystem (Balée 1998; 1996; 1995). As the pressures on traditional and indigenous communities mount, the search for effective forms of documentation to support the study, conservation and transmission of indigenous knowledge is becoming increasingly urgent (Parker 1998:250). These concerns and debates informed my research, one of the principal aims being to explore and document the folkecological knowledge of the people of Pedregal. The main objective here is to examine those domains and aspects of ethnoecological knowledge that have persisted throughout the transformation of Pedregal from a rural hamlet to an urban neighborhood.

In designing my research project I drew on three principal areas of theory and methodology, namely ethnoecology, ethnobiology, and within this area ethnobotany. Rigorous approaches to the study of biodiversity through an examination of indigenous knowledge systems are relatively novel. Following on the work of Conklin (1954) and other associated with the so-called 'new ethnography', Rosch (1975), Berlin and Kay (1969) and others with links to cognitive psychology, two strong tendencies have emerged: the intellectualist and the utilitarian (see Medin and Atran 1999). This work is associated not only with the development of a robust cognitive anthropology, but also contributed to an increasing sophistication in the way anthropological and ecological research are related (Ellen 1993, 1995; Atran 1999).

Etnoecology was a useful reference in that it is largely concerned with studying folk-environmental knowledge and cognition along with related subsistence practices. This approach rests on an explicit distinction between the native's and the researcher's point of views of the environment. Ethnoecology operates primarily within a cultural-linguistic paradigm. It is concerned with indigenous rules and categories (Ellen 1996:457). The principal means of deriving the native environmental model is through the study of language. This includes more than just the formal analysis of taxonomic and paradigmatic lexical sets describing semantic domains. It also includes discursive knowledge of environmental phenomena and the local theories and technical practices associated with them, cosmological beliefs related to human-nature relationships and the rules informing ecological actions and related social practices (Ellen 1982: 216, 225, 234).

The folk model of the environment may be defined as the information about environmental units and relations between units held by a local (non-scientific) human population. Such information is frequently encoded in language, and may include highly structured lexical sets of specific semantic domains (ethnobotany, ethnozoology, ethnopedology, ethnohabitats, ethnoclimatology, etc.) or may involve more discursive related knowledge such as strings of words and sentences expressing a complex thought, as for example instructions on 'how to build a house' (cf. Ellen 1982:204-235; Hunn 1982). The folk model of environment has been considered an important data piece for interpreting ecological behaviour patterns of the study population (Conklin 1954, 1962; Frake 1962; Ellen 1978). Recent work in this field of research has emphasized another critical aspect: folk populations frequently possess a more fine-grained knowledge of their local environments than scientists do, and therefore folk information can add to and enhance scientific information (Possey 1983; Posey et al. 1984; Plotkin 1985).

It is my intention to, first, describe and analyse systems of ethnoecological knowledge of El Pedregal people, such as climate periodicity and vegetation types, in their own terms in order to, secondly, compare them with scientific knowledge describing the same ecological phenomena. In doing so, the aim of this research is to highlight some potential contributions to science resulting from the study of folk-environmental knowledge.

Ethnobiology provided significant insights. As an interdisciplinary field dedicated to the study of the complex set of relationships between people and plants and animals in present and past cultures its core interests coincided with my own. Its traditional task of cataloguing the uses of plants and animals has been criticised as lacking theoretical content (Davis 1988). However, it has been argued that on one level ethnobiology remains a 'science of discovery' and its contribution to human welfare has not been trivial (Davis 1988:285).

Cognitive anthropology is responsible for initially mapping out folkbiology as a field of study. Anthropological studies reveal the richness of folkbiology knowledge as they consider context and provide detailed analysis of entire systems of folkbiological categories (Coley et al. 1999). The major impetus for cognitively oriented ethnobiological research can be traced to the work of Conklin (1954). He produced the first sophisticated description of an entire ethnobiological system of classification of a non-literary society- The Hanunóo- from both an ethnographic and botanical perspective. His work put emphasis on discovering native categories for plants and the self-contained system that integrates these categories together (Berlin 1992:4).

Ethnobotany is the subdiscipline of ethnobiology dedicated to the study of people and plants relationships. The aim of ethnobotany is to study how and why people use and conceptualise plants in their local environments. The two most frequently asked questions are: 1) how and in what ways people use plants and 2) how and in what ways people view plants (Berlin 1992:4).

By investigating disparate cultures in many part of the world, ethnobiological research has also revealed universal principles underlying folkbiological category organisation (Berlin 1992; Atran 1999; Coley et al. 1999). Traditionally anthropologists have stressed the differences between folk taxonomies and the scientific taxonomy by emphasising the utilitarian and social aspects of the former in contrast with the realism of the latter. However, recent work indicate that irrespective of culture, people classify living kinds in the same way using a hierarchical structure that crudely approximates the hierarchy of the scientific biological classification (Berlin 1992; Atran 1999).

The field of ethnobiology is divided into supporters of cultural universals versus cultural relativism (discussed also as "intellectualism" versus "utilitarianism"). Supporters of universalism highlight folk taxonomic principles that are only marginally influenced by people's needs and uses to which taxonomies are put. Their focus of research is comparative folk taxonomy, which describes the hierarchical structure, organic content, and cultural function of folk biological classifications (Atran 1990; 1999). Relativists highlight the structures and contents of folkbiological categories that are shaped by culture and experience (Ellen 1993). Their research approach is that of the direct investigation of the relations between plants and people, "placing plants in their total cultural context" (Ellen 1996:458). This research is informed by developments on both sides of the debate. It draws selectively in ways that enhance the research approach.

The Pedregal system of classifying living things, animals and plants, appears to conform in principle with the taxonomic model described by Berlin et al. (1973) and Berlin (1992). According to this universalistic model, people in any culture classify animals and plants into species-like groupings. These groupings are the primary loci for thinking about biological causes and relations. These privileged groupings are classed in a stable hierarchy of inclusive levels or ranks. This general-purpose taxonomy is composed of five distinct levels or ranks: folk-kingdom, life-form, generic species (folk-generic), folk-specific and folk-varietal (Berlin 1992). 'At each level the taxa, which are mutually exclusive, partition the locally perceived biota in a virtually exhaustive manner' (Atran 1999:121). This cross-culturally universal general-purpose taxonomy- a default taxonomy- supports the widest possible range of inductions about animal and plants acting as a 'compedium of biological information' (Atran 1999:121).

As primary loci for thinking about biological relations this default taxonomy, which reflects in great part the order of nature, sets the framework or grid for any special-purpose folkbiological classifications (beneficial/noxious, domestic/wild, edible/inedible, etc.) (Atran 1999:120). Due to the fact that the general-purpose taxonomy reflects the order of nature, it is possible to use scientific classification as a standard framework for the analysis and comparison in folkbiology. By doing so, the cultural content of ethnobiological classifications is amenable to systematic comparison (Hunn 1999).

While taking the universalism side of the debate regarding the universal basis of folktaxonomy and its pre-eminence over other aspects of ethnobiology, attention is also focused on placing specific knowledge of plants and plant classifications within more general cultural contexts, linking ecological know-how to subsistence and social practices (Ellen 1996:458). There is concern that much of the work conducted on ethnobiology and ethnoecology has reduced the field to the study of folk classifications and formulations of methodology and techniques in order to discover and describe cognitive structure (Ellen 1996). Much work has concentrated on the morphological classification of plants, reducing ethnobotany to the study of the universal character of folkbiology (Berlin 1992; Atran 1999). Yet, as Ellen (1996) has pointed out, ethnobotany cannot be based on local classification models alone, for these are intricately interrelated with more discursive knowledge of environmental phenomena and the technical theories and practices associated with them.

### 2.1. **The issue of change and loss**

Until recently social change has generally been seen as a crucial factor in the erosion of both natural resources as well as related traditional knowledge. Indeed, research in traditional societies does suggest that, in many cases, ethnobotanical knowledge is eroding at a faster rate than biodiversity (Lizarralde 2001). In view of this the emphasis has been placed on research in what are seen as threatened societies who, ever more precariously, still maintain traditional lifestyles and are dependant on the exploitation of natural environments. This is also the reason for the paucity of work on ethnobiological knowledge in societies 'already' affected by urbanization and modernization. Nevertheless, there is a more recent expression of interest in ethnobiological knowledge as a dynamic set of ideas and practices created and transformed under conditions of drastic social and ecological change, rather than a fixed and finite resource (Ellen et al. 1998).

My own research is located within this emerging trend, and looks at how ethnobotanical knowledge is transformed in situations of drastic socio-ecological change. It deals with the folkbotanical knowledge of an urban population in the city of Caracas. Chacao peasants created the community of El Pedregal as this area became urbanised by the expansion of the city of Caracas between the 1930s and 1960s. Today Chacao is Venezuela's financial and commercial centre. It is also home to some of the most luxurious neighborhoods of Caracas. Pedregal people could be defined as an urban working-class population with an impressive countryside (rural) expertise of nature. The key to my research was the realization during fieldwork that, with the advent of urbanization, the severe decline in local biodiversity has not been accompanied (matched) by a drastic decline in their folkbotanical knowledge. This realization led me to reflect on the relationship between knowledge, practice and environment. Indeed, since the people of El Pedregal live in an urban environment, their knowledge about and their familiarity with nature cannot be solely attributed to direct exposure to the natural world. Instead, we need to consider issues of transmission of knowledge as cultural systems, not a simple or direct reflection of the natural world.

I would argue that such familiarity with nature as found among people in El Pedregal, can be attributed, in part to what Wolff and Mendin refer to as "cultural support":

> "The effects of this reduced exposure [to the natural world] may be offset by sufficient amounts of indirect experience with the natural world, through a culture's media, talk and values. We will refer to this kind of exposure as *cultural support*. The idea of cultural support has to do with the degree to which a society promotes a particular area of knowledge. It has to do less with whether there are specialists who know or care about particular kinds of things than with the level to which people focus on a domain of knowledge in their everyday interactions." (2001; 213)

A further and significant point is the dynamic character of systems of knowledge. Although it is unhelpful and unwise to ignore the evidence about thee erosion of folkbotanical knowledge as a result of the shift from rural to urban, it is important to also recognize that there is evidence that many aspects of such knowledge appear to have been transformed and adapted to new social and environmental conditions imposed by modernization. This would suggest that folkbotanical knowledge cannot be seen as a remnant from the past – a sort of disused knowledge that occasionally features in old people tales. There is no simple and mechanical transmission of fixed sets of knowledge – instead people's thoughts, understandings and practices are dynamically constituted as contemporary (cognitive, practical and symbolic) relevant: an area of knowledge still promoted by society.

It is therefore important to explore cognitive and utilitarian aspects of folk-knowledge by showing the ways in which an urban population classifies as well as utilizes its botanical resources. In the case of El Pedregal, not only is it important to examine those domains and aspects of ethnobotanical knowledge that have persisted throughout the transformation of El Pedregal from a rural hamlet to an urban neighborhood and provide an ethnographic account of contemporary plant use framed in terms of historical ecology. It also important to recognize the ways in which folkbotanical knowledge itself provides clues for the analysis and understanding of the transformation of the local (bio-cultural) landscape.

A further concern emerges from the above discussion: the importance of taking account of the factors affecting the cultural transmission of folkbotanical knowledge. If, as I have argued above, folkbotanical knowledge is not a fixed corpus of knowledge but an open and dynamic system of knowledge generation, a process rather than a product, capable of adapting as well as of providing local answers to new social and ecological challenges, including environmental degradation and modernization, the issue of transmission becomes not only more central but certainly, also more complex.

## 2.2. **From folkbiology to naïve biology?**

"For scientific systematics, folkbiology may represent a ladder to be discarded after it has been climbed, or at least set aside while scientists surf the cosmos. But for those who lack traditional folk-knowledge, or implicit appreciation of it, may be left in the crack between science and common sense. For an increasingly urbanised and formally educated people, who are often unwittingly ruinous of the environment, no amount of cosmically valid scientific reasoning skill may be able to compensate the loss of ecological awareness" (Atran 1999:187).

Data for urban, industrialised societies have been until recently excluded from the theoretical formulations on ethnobiology. As members of traditional cultures are folkbiological experts relative to members of urbanised cultures, they are also non familiar with Western notions of science and in particular biology. Ethnobiological research has tended to focus on small-scale subsistence traditional cultures to the neglect of larger, urban cultures (Atran et al. 2005; Mendin and Atran 1999). However, it is only in the past three decades that folkbotanical knowledge in urban and industrialised societies has received attention as subject of research.

Earlier interest in ethnobotanical knowledge and cognition on industrialised societies can be traced to the experimental research of Rosch, Mervin and their associates for testing Berlin's proposition of a privileged rank at the folkgeneric level (Rosch et al. 1976). Recent studies on folkbiology by cognitive psychologists have focused on the comparison of small-scale and industrialised societies regarding the specific ways in which the understandings of living kinds vary with culture, experience, or expertise (Lopez et al. 1997; Coley et al.1997; Atran 1999; Coley et al. 1999). Naïve biology is defined as the psychological study of folkbiology in industrialised societies. It research focus is how people learn about and reason from biological categories.

Contrary to most ethnobiological research conducted in small scale societies, research on urban subjects have been conducted using rigorous models and experimental methods from cognitive psychology, such as sorting test and inductive reasoning, for the elicitation of folktaxonomies and testing reasoning with such taxonomies. Special attention has been given to study the relationship between privileged rank and inductive inference, as taxonomies are mainly used for inductive reasoning. Research shows that in traditional societies there is a convergence of personal knowledge of the natural world with expectations derived from societal systems of nomenclature and cognitive expectations about the properties of named categories (Lopez et al. 1997; Coley et al. 1999).

In sharp contrast to evidence from traditional cultures, recent studies based on the comparison of small-scale and industrialised societies suggest that the folkbiological knowledge of people from industrialised societies "may represent a 'devolved' or degenerated state of folkbiological knowledge based on the poor environmental conditions of urbanised societies" (Coley et al. 1999:215). As urbanisation is a major worldwide social trend, extensive and intensive ethnobiological research on urban societies is needed to broaden the scope of the discipline.

### 2.3. **Historical Ecology**

Dissatisfaction with traditional human ecological analysis, in which biosystems and social systems are depicted in terms of mechanical, adaptationist relations, has led to an emphasis on anthropogenicism- the way in which biosystems are actively manipulated in order to reach desired socio-cultural outcomes (Balée 1994; Whitehead 1998). Moreover, ethno-ecological information, including ethnobiological research, has been a major source of evidence for reconstructing environmental changes, human migration and history among peoples for whom documentation is not typically available (Ellen 1982; Balée 1998, 1999).

The emergent historical ecological perspective is based on the premise that natural environments subjected to human management are landscapes (culturally and historically determined environments) within which the interactions of biosystems and social systems may be understood as total phenomena (Balée 1998). Historical ecology incorporates folk-knowledge as a guide to understanding the formation and development of landscapes, while at the same time it maintains scientific standards of method and evidence (Balée 1998).

By addressing social and historical dimensions as well as the systems of organising botanical knowledge, the aim is to examine the way in which ethnobotanical knowledge is actually inscribed in the face of substantial alterations to the material conditions of existence of the community of Pedregal (e.g. urbanisation, reduced access to natural resources, new livelihood strategies).

In view of the growing attention paid to macro-level effects of germ-plasm transfers during the colonial period (Juma 1989; Crosby 1972), local level anthropological investigation of the ways in which folkethnobotanical knowledge has survived and/or being transformed by the processes of modernisation and urbanisation can provide insight into the dynamics of biodiversity and sociodiversity (Hall 2000).

## 3. **Methods**

The methods utilised during the course of this research both for data collection and analysis were those commonly used in standard ethnographic and ethnobotany research. Participant observation and unstructured data collection of information related to plants and the environment via conversations and semi-structured interviews during the course of daily activities related and unrelated to the subject of ethnobiology were conducted during the course of the fieldwork. In the earlier stages of the fieldwork these informal interactions served primarily to introduce myself as researcher and to explain the aims of the research. The also served to identify members of the neighbourhood with competence in the topic of ethnobotany and interest in collaborating with the research. Later in the fieldwork these informal interactions and observations provided considerable data for analysis and, importantly, for comparison with the data collected using more structured methods. These interactions took place on the streets of El Pedregal, in homes and markets and during religious festivals, including the pilgrimage of Los Palmeros.

After an introductory period I began to conduct surveys of plants on streets, houses and places where demolition work was being carried out, accompanied by collaborators. During these surveys we mapped out the layouts of gardens and street vegetation and collected information on plant names, categories, uses, ecological behaviour, reproduction, related ideas, etc. We also documented some of these surveys using digital photography. Additional surveys of fresh plant produce were conducted in the Chacao Municipal Market, including a stall of medicinal plants. Surveys of this market were carried throughout the year in order to detect seasonality patters in plant produce. Regular contact with stall vendors was also a source of information on plants.

The surveys were also an opportunity to collect some of the plants to make a herbarium collection. The purpose of the herbarium was to provide the material for the scientific identification of the plants studied. In view of the fact that the area studied has been exhaustively documented for its biodiversity, we restricted our herbarium collection mainly to uncultivated plants with medicinal uses. Other more familiar plants were identified using books and illustrated guides (Hoyos 1994; Schnee 1984). Voucher samples were collected following standard ethnobotany procedures including related ethnobotanical and location information (Cook 1995). The samples were dried, processed and stored at the Herbarium Ovalles, Universidad Central de Venezuela (Herbarium code). Scientific determinations were carried out by Dr. Stephen Tillett, an experienced taxonomist. A collection permit was obtained from the Ministerio del Ambiente and Recursos Renovables (Marr). Other plants collected were used to conduct informal and formal interviews with informants at their houses.

Some fresh samples were donated to or exchanged for other plants at the medicinal plant garden of the Herbarium Ovalles. During fieldwork I prepared a small plant nursery. I was encouraged to propagate some of the plants studied by the medicinal stall vendor of the Chacao Market. She carefully explained the different propagation mechanisms of some of the plants –cultivated and uncultivated- that were in short supply. Many other collaborators also explained propagation techniques and provided me with tips. The plant nursery was useful as it allowed me to reproduce rare plants that later were used as gifts, token of gratitude to my collaborators, or exchanged for other plants destined to my herbarium collection. Working in the nursery with my collaborators also raised many discussions that provided important insights into ideas and practices related to plants. For example, the fact that I was trying to cultivate uncultivated plants elicited many revealing reactions and explanations from my collaborators.

On two opportunities we set up an experimental stall of medicinal plant at the Saturday morning market in the main road of El Pedregal. The stall displayed numerous plants used for medicinal purposes, most of them uncultivated plants from secondary vegetation. We invited neighbours doing their shopping to identify and talk about the plants on display. Our aim had been to conduct a series of individual, structured interviews using the plants display as formal stimuli. But instead of the individual interviews I found that our stall attracted a lot of attention and large, informal groups initiated discussions and conversations on the displays. These group interactions touched upon the medicinal uses of the plants, as the display suggested but, interestingly, the main topic of discussion related to social relationships and memories, including those directly related with the medicinal uses of the plants. Furthermore, some returned to the stall bringing samples of other plants that were not displayed in it and provided information on the new plants, their uses and related practices and ideas.

The experimental stall also served to publicise our research and allowed us to identify more informants and to identify new plants. Many of the people who showed an interest and participated in the stall were later interviewed on an individual basis on their own houses. These visits provided opportunities to conduct more garden surveys. It was in the context of the homes that we conducted individual formal testing using dried voucher specimens. A series of 50 voucher specimens were selected from the herbarium collection. They were protected with plastic covers and compiled in two hard folders. These folders were used to interview 40 individuals. Each individual was shown the specimens in the same order and asked the same set of basic questions: 1) *¿Cómo se llama esa mata?* (What is the name of this plant?); 2) *¿Pare qué sirve esa mata?* (What is this plant used for?)

In addition to the herbarium collection we made an ancillary collection composed of dried fruits, barks, roots, resins, leaves and flowers. Some of these items were collected in and around El Pedregal. Others items were bough at markets, including packaged and labelled dried herbs. In addition we created a collection of bitters and tinctures based on plants following the instructions of our collaborators. This spirit collection-bar displayed on several occasions, including tasting sessions attracted a lot of interest from people that otherwise expressed little interest in the research.

As well as conducting informal and semi-structured interviews, free naming techniques were used to elicit nomenclature related not only to plants but also for eliciting ethnoecological knowledge and place names. For this purpose maps and photographs, in addition to in-situ interviewing, were used for mapping out these sort of information.

## 4. **Thesis structure**

The thesis is divided into eight parts. The second chapter introduces the community of El Pedregal as urban neighborhood of Caracas. The third chapter charts the transformation of vernacular conceptualizations of the local climate among the people of Pedregal, particularly seasonal periodicity as a result of the expansion of the city. It deals with the impact of urbanization in the double construction of the environment: the perception/knowledge of the environment and the environment itself from the perspective of the historical ecology.

In the absence of scientific data available it argues for the use of the traditional climate model to "reconstruct" past rural climate from the local people's perspective in order to illustrate the drastic socio-ecological transformation of the Caracas valley. At the same time, it is my intention to explore cognitive effects of urbanization on knowledge of the environment by charting the transformation and simplification of the local model of climate periodicity from rural to urban.

The fourth chapter reviews the transformation of the Palmeros traditional ecological knowledge in the context of its political mobilization. It deals with the Palmeros pilgrimage, the main cultural institution of Pedregal. Palmeros relates to an annual pilgrimage to the mountain forests of El Avila National Park, to harvest holy palm for Palm Sunday. This traditional pilgrimage has successfully survived the effects of both modernization and urbanization, brought to the Chacao area by the expansion of Caracas city thanks to the active mobilization of its participants against public opinion. This chapter analyses Palmeros strategies to conciliate their claims of historical rights to harvest palms in the Avila Mountain with the conservationist goals of the El Avila National Park. It also examines the unintended impacts of these strategies on local knowledge erosion. It argues that the survival of traditional ecological knowledge cannot be based exclusively on its political mobilization. It shows how cultural and biological conservation initiatives involve a great deal of bio-cultural renewal too.

The fifth chapter describes in some detail aspects of Pedregal ethnoecological knowledge, such a topography and vegetation types. It shows that despite the extinction of local agriculture, the continuous exposure to formal education and their current urban(ised) life styles, Pedregal people conceptualize their natural environment (physical environment) in much the same way as their peasant forebears did. Moreover, contrary to other people of Caracas, even those who actively visit the Avila national park, they do not see mountains as separated, detached landscapes, independent from their own social existence.

The sixth chapter deals with some aspects of Chacao biodiversity focusing on Pedregal vegetation. In an urban setting plant diversity is confined to public areas such as plazas, streets and avenues, as well as private gardens. As there are very few plants in the public areas of Pedregal, the focus here is on houseplants and homegardens. Here the emphasis is on the apparent disparity between ethnoecological knowledge, including folkbotany, and biodiversity.

Chapter seven focuses on the use of plants as remedies. It presents a description and analysis of herbalist practices in Pedregal along with an inventory of some of the plants used as medicine collected during fieldwork. It is an attempt to present some generalizations based on interviews and observations on the use of plants as medicine by non-specialist domestic practitioners. It aims to complement the plant inventory. Rather than a dying or adulterated specialised tradition in need of urgent documentation, the practice of herbalism is described here as a reconstituted open and dynamic domestic practice of contemporary relevance for people of Pedregal.

Finally, in the conclusion, I discuss some implications of the relationship between the conservation of biodiversity and cultural conservation, today lumped as bio-cultural conservation. Conservation, cultural and biological, may be properly understood as the other side of the coin of renewal. Efforts for conservation require a large component of reinvention and renewal.

## Chapter 2

### Pedregal and Caracas

### Introduction

As we have seen in Chapter 1, there is an interesting contradiction in El Pedregal in terms of affirmations of a loss of community and erosion of knowledge concerning the natural environment on the one hand, and, on the other, the vitality of El Pedregal as a community as well as a site for practices related to ethnobotanical knowledge that my research uncovered.

Far from being a 'typical' or representative community within the Venezuelan social landscape, El Pedregal can be described in terms of exceptionality, from several perspectives: its location, system of land tenancy, size, social heterogeneity, at the same time as promoting a sense of cohesion as a community, are all aspects that fit uneasily within the dichotomy favoured by Caraqueños to describe urban neighbourhoods. El Pedregal is not a *barrio* (a term that is commonly used to describe a slum or an informal neighbourhood or settlement) nor is it an *urbanización* (which suggests a formal, consolidated and planned neighbourhood). The terminology is significant, since in Venezuela, the term *barrio* is used in a derogatory sense to describe poor and marginal areas, unlike other parts of Spanish speaking Latin America. But neither can El Pedregal claim the more positive label of *urbanización.* Instead, it stands somewhere in between these two categories.

This chapter provides the background information that is relevant to the ethnobotanical research I conducted in the region. I would argue that in El Pedregal ethnobotanical knowledge, or for that matter any aspect of the people of Pedregal's lives and culture, must be approached in terms of a broad socio-economic context and take into account the historical trajectory that has affected the region. The chapter therefore contributes to framing the research, while outlining some of the central characteristics of El Pedregal and its place within the region.

In the first section of the chapter, the discussion aims to present the neighbourhood of El Pedregal and introduce the main contradictions that underpin this community. In addition to the contradiction mentioned above, that is to say, that El Pedregal is neither a *barrio* nor an *urbanización*, there is the contradiction between the characteristics of this community and the country as a whole. In the first place, the area presents an inversion of the typical class and wealth distribution in the country, where a small minority of the wealthy inhabit a space that is mainly defined in terms of working class and poor populations. In El Pedregal the opposite is the case. Here a poor, working class community is located in the municipality of Chacao, today the country's financial and commercial centre.

So El Pedregal, predominantly working class and constituted by humble households of modest means, lies in the heart of the nation's wealth, a contradiction that, as we will see, is traceable over time and space and made evident on the contours of the maps of the area. It is with this in mind that the discussion moves on to the issue of classifications of neighbourhoods and of urban topography in current use in Caracas, which introduces a more detailed discussion of the complexities of Pedregal in terms of these typologies. While lacking many of the resources that benefit residents of the *urbanizaciones,* Pedregal does not suffer from many of the problems that are characteristic of the *barrios.* Importantly, the residents of El Pedregal will classify their neighbourhood as a *barrio* or a *urbanización* according to context.

In the second section, the emphasis is on the historical trajectory of the area, reviewing the important socio-ecological transformations that have variously shaped the country, the valley of Caracas and this particular community. Given its centrality to the process of transformation, particular attention is paid to the role of germplasm and platation economy within the economic system and the ways in which these transformations have affected the relationship of residents with their natural environment, and in particular with plants. The discussion tracks changes in the area of the valley of Caracas from the establishment of the town of Chacao to its incorporation into the city of Caracas. Although change has been a feature of the Chacao area from before its incorporation into the expanding city of Caracas, changes in the area are linked to the processes affecting the city. More broadly, the section illustrates the important point that El Pedregal has not been an isolated community which was recently brought into mainstream society, with consequent loss of its own, unique characteristics. Rather, Pedregal has itself been the product of the historical processes that have shaped the area, a direct result of the dynamics of Venezuelan society and its place within the global context.

In order to track these shifts and transformations and to illustrate the topographic continuities and discontinuities discussed, the chapter relies heavily on the use of maps, satellite photographs, archive photographs and my own photographic records. These are intended to complement and enhance the points made regarding the physical environment and its historical transformations as well as the crucial point of the changing relationship of the area to the wider context and of the place and space which its inhabitants have occupied through these changes.

1. **Pedregal as an integrated urban community**

As has been argued above, the history and characteristic features of El Pedregal can only be understood within the context of the transformations undergone by the Venezuelan polity and economy. Crucially, the development and characteristics of the city of Caracas, has played an important role in the constitution of El Pedregal as an urbanized community. This is illustrated through the sequence of maps, which have been ordered adopting a 'zoom in' strategy, from macro to micro level representations of space.

Figure 2.1 presents a map Miranda State. The most significant point to note in this map is the extensive coastline of the region and the distribution of population settlements along it. The density of settlements is particularly marked around the eastern coastline from where the population extends from La Guaira (the international airport for the city of Caracas) into the hinterland. It is worth noting that Venezuela is a highly urbanized country, with more than 91 per cent of its population of 24 million living in cities. There are about 4,5 million people living in Greater Caracas. It is also important that Venezuela's economy is markedly export orientated, a feature that has been exacerbated during the 80 year long reliance on the production and export of crude oil (Coronil 1997).


**Figure 2.1** - Map of the Miranda State, Venezuela. (Source: Biblioteca Nacional de Venezuela, Sección Cartografía)

Currently, Venezuela is the 8th largest provider of fossil fuel. It has one of the largest oil reserves outside the Middle East. While oil and gas exports account for about 60% of the State income and 80 per cent of its foreign currency, less than 1 per cent of the country's workforce is directly employed in the oil sector. With a surface area of 912,050 sq.km., about four times the size of the United Kingdom, it employs less than 10 per cent of its workforce in agriculture and ranching, a sector that contributes a mere 4.7 per cent of the GDP (Ferguson 1994). The southern hinterland is scarcely populated, a fact that is exacerbated as we move further south: while almost half of the country's surface area lies south of the Orinoco river, the region contains only 5 per cent of the national population.

The country's condition as an important oil producer has placed Venezuela in a strategically significant position, both as a regional power in Latin America and the Caribbean, and within the world context. More importantly for our purposes, is the claim that this position and the wealth generated by the industry have determined (and to an extent distorted) every aspect of its society and its relationship with – and perceptions of – the natural environment (Coronil 1997). The urbanized character of Venezuelan society, largely a consequence of its economic dependence on oil exports rather than a more diversified industrial and agricultural base, implies, amongst other things, a divorce between ecology and economy. For the majority of Venezuelans, knowledge about and understandings of nature (biodiversity related knowledge – both folk and scientific) are not directly linked to their contemporary practices in relation to production and/or subsistence.

This north eastern area, where the city of Caracas is located, is represented in greater detail in figure 2.2. Within the shaded area representing the city of Caracas, the centre of Chacao is marked. This map makes clear the extent to which Chacao is integrated within the city of Caracas, both in terms of its location and in terms of communication links, served as it is by important highways and by an airport. It is clear from the map that the city of Caracas has expanded to include, if not entirely incorporate, neighbouring urban centres, such as San Antonio, Los Teques and Carrizal. Consequently, Chacao is now one of the five councils that constitute the area of 'Gran Caracas', distinct from the Federal District both in terms of administration and status.

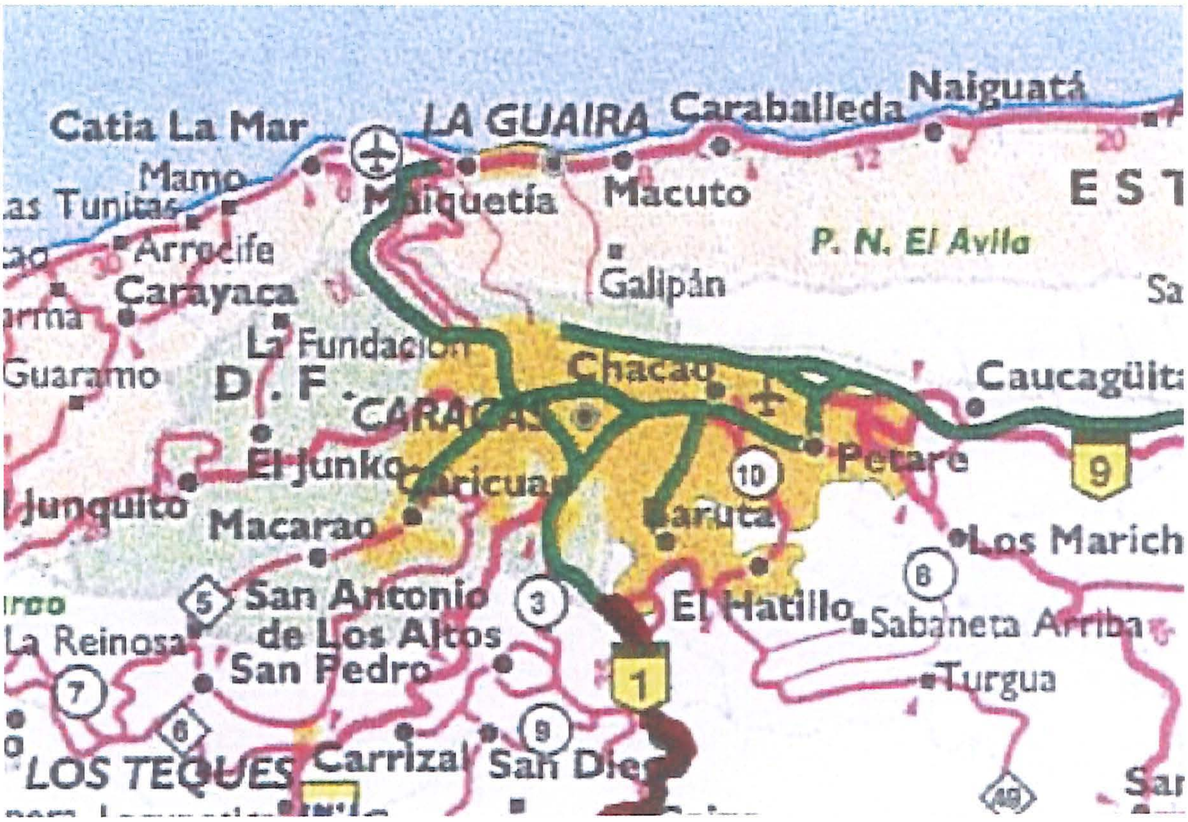


**Figure 2.2** - Detail of the map of the Miranda State showing the city of Caracas
(Source: Biblioteca Nacional de Venezuela, Sección Cartografía)

The process of expansion and consequent urbanization of the hinterland areas is particularly significant if we take into account the age distribution of the country. Venezuela is what we might call a 'young' country, with 53 per cent of the population under 21 years of age. Only 3.1 per cent of the population are over 65 (Ferguson 1994). Hence, as changes from rural to urban environments have taken place mainly between the 1940s and 1970s, we find that the majority of the population, including those resident in El Pedregal, is relatively young and has been living exclusively within urban environments and what we might describe as urban lifestyles.

In figure 2.3 we focus on El Pedregal as part of the Chacao district. As mentioned, Chacao is currently the country's commercial and financial centre and is home to some of its most luxurious and wealthy neighbourhoods. El Pedregal is one of Chacao's 17 officially recognized neighbourhoods, situated at the north-west of the Chacao council/district. Unlike its adjacent wealthy neighbourhoods, El Pedregal is a working class community, in fact, according to the official map, it is the only working class neighbourhood that is officially recognized by the Council. It is also interesting to note that this poorer working class neighbourhood is situated on prime real estate.

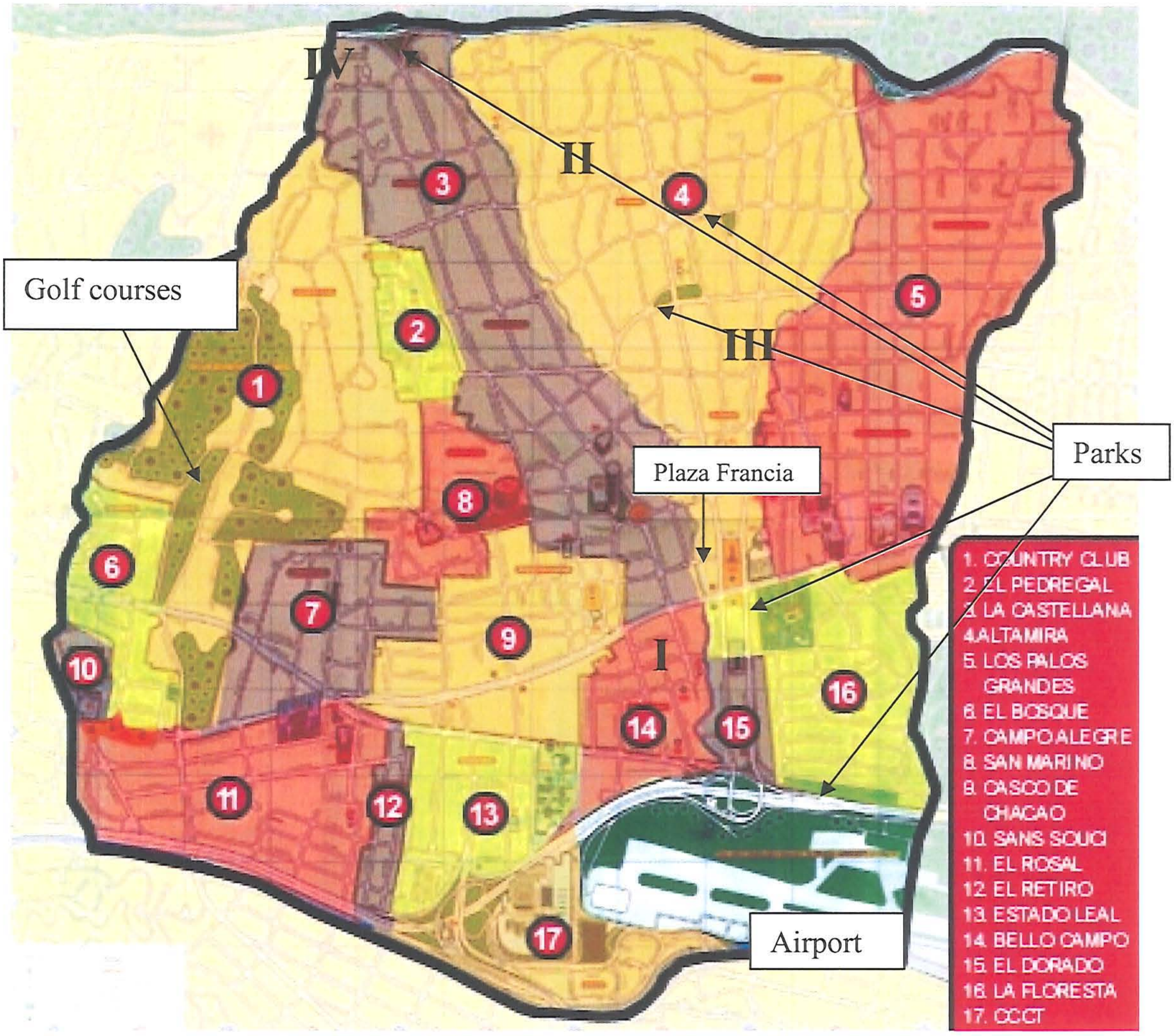


**Figure 2.3 -** Map of the Chacao Municipality, Caracas.
(Roman numerals indicate informal settlements: I. La Cruz, II Bucaral, III Pajaritos, IV Barrio Nuevo)
(Source: Alcaldia de Chacao, Dirección de Catastro Municipal)

This map, available via the Chacao Council website, shows the different grid systems that characterise the constituent neighbourhoods, with evidence of some discontinuities between them. It also shows that neighbourhood are well connected via a coherent road network. The map also shows the presence of a golf course, an airport and a large *plaza.* There is also evidence of a large commercial malls and high-rise office buildings. The map therefore represents the area as a well integrated and modern district.

What the map does not show is the slums that are dotted around Chacao. Although the slums constitute a minority of the territory, there are four slums: Barrio Nuevo, El Bucaral, Pajaritos and La Cruz., rendered invisible in this map. This is partly a matter of scale: these are small settlements, mostly located along ravines and the interstitial areas between the other neighbourhoods. They are characterized by high population densities, inadequate provisions of basic services, lack of legal tenure of the land. I have indicated them on the map by adding roman numerals to the approximate locations.

Chacao occupies 1,300 hectares and encompasses part of the plain of the Valley of Caracas as well as the slopes of the Coastal Cordillera (The slopes of the Coastal Cordillera are not included in figure 2.3). Despite its location at the north centre of the valley, Chacao is at the edge of the capital city or the Federal District. Almost two-thirds of Chacao is within the El Avila National Park. As such, this part of the council is neither urbanised nor populated, as a protected area designated for conservation and recreation. Overall, in contrast with the rest of Caracas, Chacao has a very low population size. Out of the total of 4,5 million residents of the city of Caracas and Gran Caracas, 65,000 are officially resident in Chacao. Also contrasting with the other areas of the city, the neighbourhoods of Chacao are largely middle and upper class. The area also benefits from sound infrastructures and services. In a city where 55 per cent of the population are living in poverty and residing in squatter settlements, Chacao is an island of wealth and urban development. But what is also clear from this map is the distinctive character of El Pedregal as a small area surrounded by the Country Club area on the east, the Casco de Chacao to the south and La Castellana to the west (Alcaldia de Chacao 2003).

Figure 2.4 shows the layout and boundaries of the neighbourhood of El Pedregal. It shows El Pedregal as a small and integrated urban neighbourhood of Chacao, where the patterns of roads, streets and alleys and of properties and constructions are clearly seen. The map shows in greater detail the characteristics of El Pedregal in relation to those of its neighbours to the east and west, the Caracas Country Club and La Castellana. One of the most striking differences relates to housing and in particular the size of properties, where Pedregal houses are much smaller than those in the neighbouring areas. Another striking difference is the absence of gardens in El Pedregal, in contrast with the houses in the other areas, and particularly in the Country Club *urbanización*. This suggests not only smaller properties and higher population density in Pedregal but also a marked discontinuity in the incomes and typical 'urban lifestyles' in these different neighbourhoods.

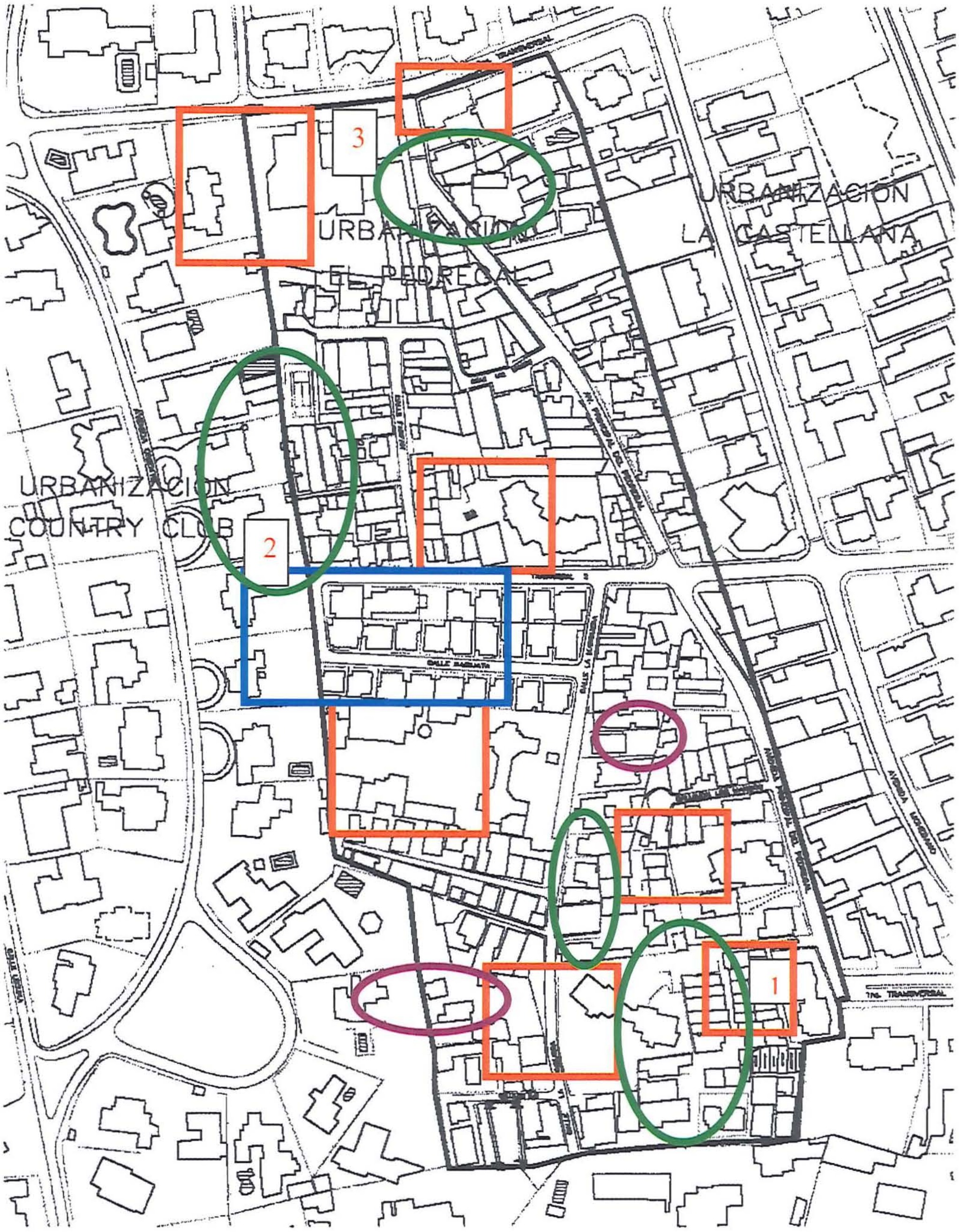


**Figure 2.4** - Plan of the neighbourhood of Pedregal.
(Source: Alcaldia de Chacao, Dirección de Catastro Municipal)

While occupying less than one third of the area of the adjacent Country Club, official records suggest that the populations of these two neighbourhoods are the same. According to data posted on the Chacao official website Pedregal has a population of 2,894 inhabitants and the Caracas Country Club has a population of 2,851. La Castellana, on the other hand, has a population of 5,068 but it occupies a larger territory and is characterized by a different pattern of residence vis a vis the Country Club, with a greater emphasis on middle-class apartment blocks in La Castellana. But while El Pedregal has a higher population density than its neighbours, it is still a long way off from the densities of the slums of Chacao. According to official records, the barrio La Cruz- indicated with the Roman numeral I, figure 2.3-, one of Chacao's larger slums, has a population of 1,150, amounting to nearly one third of the total population of El Pedregal while occupying an area equivalent to one eighth of the total area of El Pedregal (Alcaldia de Chacao 2003).

The socio-economic discontinuities are reflected in the road system, which does not connect El Pedregal with the Country Club. Furthermore, roads coming across from La Castellana from the east end abruptly in El Pedregal, either shortly passed the boundary at the Primera Transversal de Castellana (indicated on the map by number 1) or at the Segunda Transversal (indicated by number 2). At the north end, the only connection between these two neighbourhoods is through El Pedregal main road which is a one-way road acting as an exit from El Pedregal (indicated by number 3).

Focusing on El Pedregal, we note the absence of a coherent road grid. Instead, the layout of the roads appears maze-like. The Segunda Transversal of La Castellana divides the neighbourhood on an east-west axis. The southern half of the neighbourhood, known as La Manguera, is itself cut in half by a diagonal road along the north-south axis, ending in a dead end at the southernmost limit of the neighbourhood. The density of housing is criss-crossed by a number of narrow streets, alleys and foot paths. There are areas, such as in the southeast corner of the area, within La Manguera, and in the northeast corner in Callejón Poleo which can only be reached by foot. In this respect, El Pedregal has more in common with a slum or squatter settlement than with its neighbours.

While the housing patterns of El Pedregal are clearly distinct vis a vis those of its neighbours in the Country Club and La Castellana, it is difficult to identify any clear regularities in the pattern of properties and buildings within El Pedregal itself. There is a striking diversity of housing both in terms of size and orientation. For example, there are seven middle-class apartment buildings, with large gardens and facilities that are scattered around El Pedregal and are clearly visible in the map because of their larger size indicated with red rectangles in figure 2.4. The construction of apartment buildings began in the mid 1970s.These constructions share many features with the buildings characteristic of the neighbourhood of La Castellana. Such buildings in the middle of El Pedregal are a testimony to the high value of the land in this neighbourhood.

Clustered around the Segunda Transversal de la Castellana and the Naiguata street is a group of medium-sized houses indicated with a blue rectangle. The ordered arrangement of these houses and their relationship to the street grid contrast with the rest of El Pedregal and, in many respects, is similar to the patterns we see in the neighbouring areas. These houses were built on mid 1970s for school teachers on a plot of land bought by local authorities. The houses were built following formal planning methods. Nevertheless, in contrast with the houses in the adjacent neighbourhoods, particularly in the Country Club neighbourhood, here the entire plot has been built up – in other words there is no provision for gardens.

There are several clusters of smaller houses connected by pedestrian paths indicated by green circles. Here the building and the plot coincide. A striking feature of these properties is their small size and irregular shape and orientation. The map also shows three large properties with several constructions (indicated by purple circle). These, now a minority of properties in El Pedregal, are interesting in that they provide clues to the process of urbanization that has taken place in the area.

What these properties show is a discrepancy between the legal division of land and its actual occupation. Here members of a single family live in separate houses but have not gone through the division of land into smaller plots that has taken place elsewhere in El Pedregal. The fragmentation of the land through divisions at the point of inheritance started before the urbanization of the area. It largely accounts for the irregular layout of El Pedregal which has emerged through the active interventions of the community in contrast to the planned urbanization promoted elsewhere. The ongoing interventions of the neighbours of El Pedregal themselves lend a particular character to the area both in terms of the layout and the character of the houses.

The implications of these patterns of urbanization, in particular to the issues of gardens and green areas, become clearer in the following satellite pictures of the area. The first photo in the sequence represents the city of Caracas. The image shows the extent to which the city has expanded beyond the Valley of Caracas. At this macro level there is a clear distinction between natural and urban landscape. The area inside the red square corresponds to the Chacao municipality.

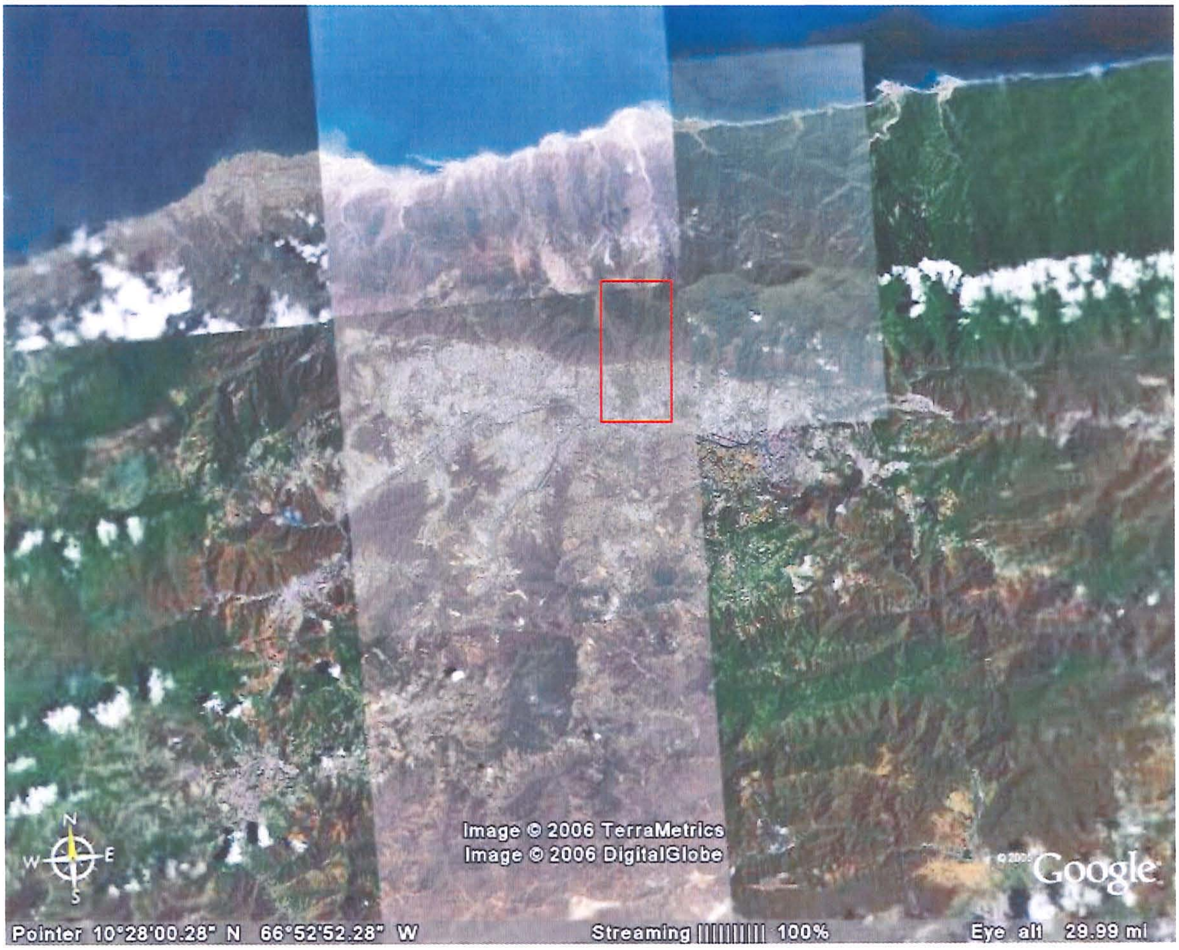


**Figure 2.5** - Satellite picture of the Caracas Valley and surrounding areas. The approximate location of the Chacao Municipality is highlighted in red. (Source: Google Earth, www. **earth.google**.com)

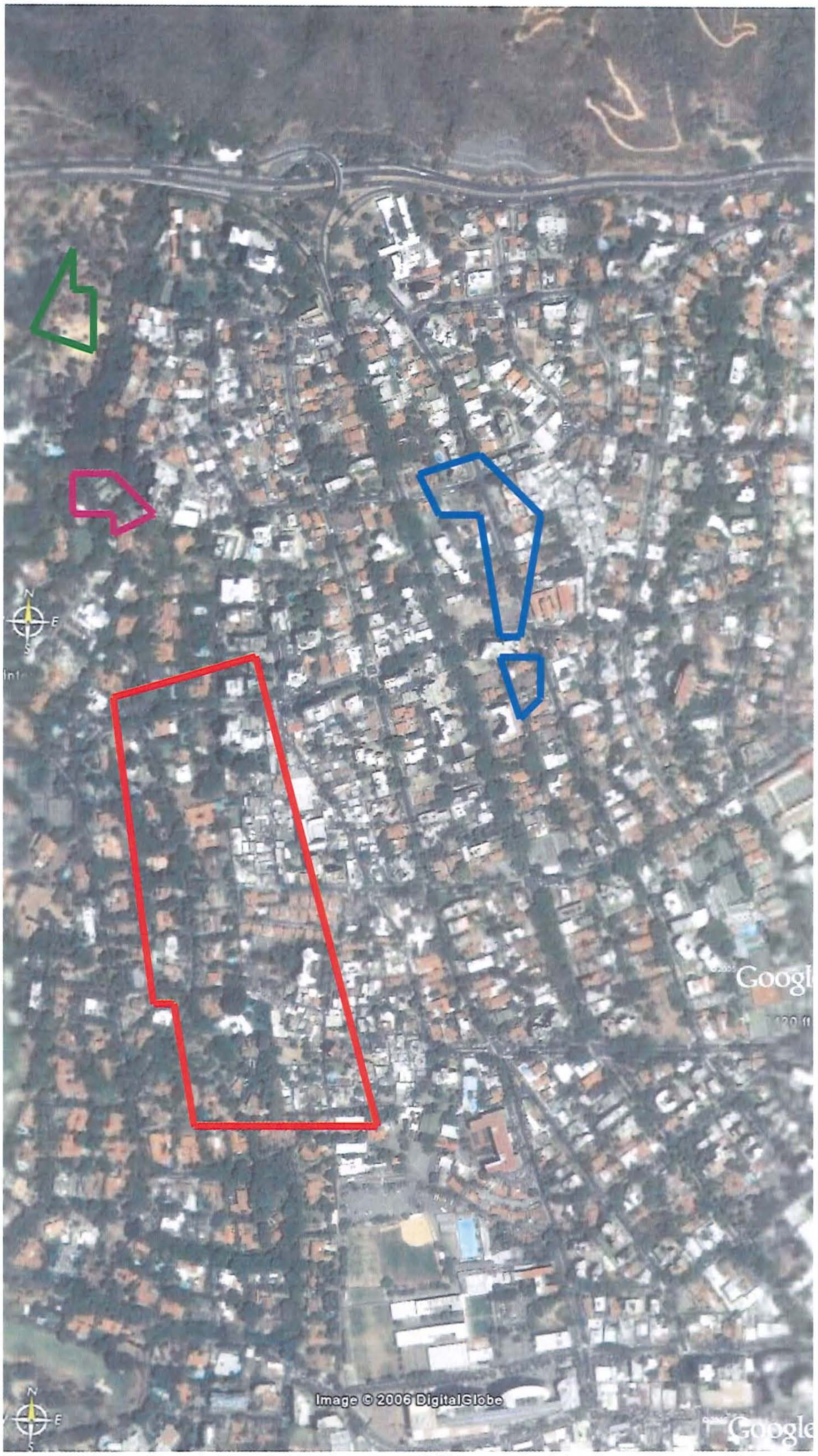


**Figure 2.6** - Detail satellite picture of a partial view of Chacao Municipality indicating El Pedregal (red), El Bucaral (blue), El Tartago (pink) and, Barrio Nuevo (green). (Source: Google Earth, www. **earth.google**.com)

The second image offers a partial view of Chacao, focused particularly on El Pedregal and some of its adjacent informal neighbourhoods. The boundaries of El Pedregal are highlighted in red. Blue is used to mark out the slum of El Bucaral, pink marks out El Tártago, an appendix of El Pedregal localised in what used to be El Pedregal boundary. Green marks out Barrio Nuevo. Despite the lack of resolution of the picture, it is nevertheless possible to discern the differences in layout and the size of the houses and properties across these different neighbourhoods.

More importantly, the satellite pictures enable us to introduce the issue of vegetation within the landscape in a useful way. While the first picture portrays the vegetation surrounding the city of Caracas, the second shows the marked difference in the presence of vegetation between El Pedregal and the adjacent neighbourhoods. In contrast to Country Club *urbanización* and of La Castellana, there is a notable absence of vegetation in El Pedregal, in particular where large trees and gardens are concerned. There is also an absence of vegetation in public areas such as streets.

### 1.1. **Urbanizacion or barrio, legal definitions and local perceptions**

As mentioned earlier far from being a representative community within Caracas, El Pedregal can be described in terms of exceptionality. It fits uneasily within the dichotomy used by Caraqueños to describe urban neighbourhoods. El Pedregal is neither a *barrio* (slum or an informal settlement) nor an *urbanización* (formal neighbourhood). El Pedregal stands somewhere in between these two categories.

The people of Caracas have a nomenclature for the urban topography to distinguish between rich and poor people. The hillsides inhabited by the wealthy are known as *lomas* or *colinas* (hills). They are occupied by *urbanizaciones* (formal neighbourhoods) complete with lawns, tropical gardens and spacious parking areas. These *urbanizaciones* are made up of large houses called *quintas*.

The steep and denuded slopes of the hillsides where the poor live are called *cerros* (spurs, slope or mountains). The unplanned and informal settlements located in these *cerros* are called *barrios* (slums). The houses of poor people are called *ranchos* (shacks), even if they are not real shacks. The flat valley is known as *plan* or *planada* and it is inhabited by poor and rich, in urban and suburban neighbourhoods, the majority of people living in blocks of flats. Rich people live in *edificios* (buildings) while the poor live in *bloques* (blocks) (Ferguson 1994)

In the urban context the topographic terminology for natural and manmade features embodies social distinctions. Furthermore, social distinctions sometimes override the original meanings of topographic terms. For example, the terms *colina* and *loma* refer to a hill, normally a foothill. The term *cerro* refers to a mountain, a spur or a slope. They are not contrastive terms but refer to different natural topographic features. In the context of the city, they form a contrastive pair as they refer not so much to the geography as they describe the social topography of inhabited hilly areas. In this context the pair *cerro/colina* could be replaced by the distinction *barrio/urbanización.*

The following figures attempt to map out these distinctions onto two satellite pictures of different locations of the city of Caracas. Figure 2.7 shows the contrasting pair *cerro/colina* over-imposed onto the same hill. The area located at the left side of the picture is referred to as *cerro* as it is occupied by an informal neighbourhood or *barrio*. The right side is called *colina* as it hosts a formal neighbourhood or *urbanización*. Figure 2.8 shows the contrasting pair barrio/urbanización over-imposed onto another picture of the city. Here, while *barrio* is located on a hill, the *urbanización* is situated in the flatland of the city. In both pictures it is possible to distinguish the formal from the informal city, *barrios* from *urbanizaciones.* They are clearly differentiated, separated and built at a different scale following different patterns.


**Figure 2.7** - Mapping urban topographic nomenclature. Distinction *cerro/colina.* (Source: Google Earth, www. **earth.google**.com)

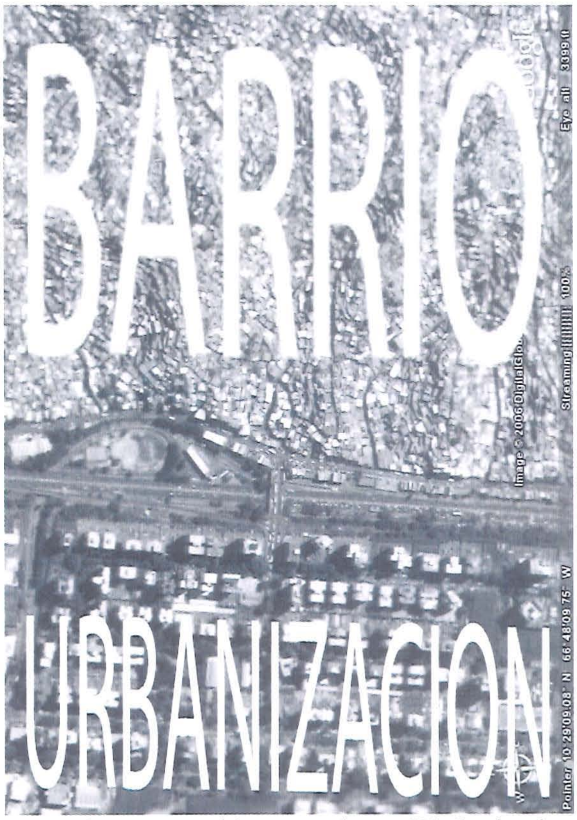


**Figure 2.8** - Mapping urban topographic nomenclature. Distinction *barrio/urbanización.* (Source: Google Earth, www. **earth.google**.com)

The vernacular distinction *barrio/urbanización* is also officially sanctioned. In this context, the distinction is based on issues such as formality of the settlement and legal tenancy of the land. The term urbanisation is used frequently to refer to formal neighbourhoods. The term barrio is not normally used by the authorities. Other terms such as *comunidad popular, barriada, asentamiento informal* are preferred in order to avoid the social stigma associated with the word *barrio*.

El Pedregal, like its adjacent neighbourhoods, is officially classified as *urbanización.* Nevertheless, as we have explored in the previous section, it falls uneasily within this local term. On the other hand the term *barrio* does not fit, according to the local dichotomy, appropriately to describe this exceptional neighbourhood. For reasons such as its size, grid, social heterogeneity, location, official classification, among many others, El Pedregal sits half way between being a *barrio* and an *urbanización.* By the same token, its inhabitants might be said have a foot on each of the two worlds that this distinction represents. In the eyes of their posh neighbours it fits into barrio distinction. In the eyes of the inhabitants of the barrios of Caracas Pedregal people come from a wealthy neighbourhood.

### 1.2. **A collage of the community**

This section contains a collage of scenes of the street life of El Pedregal during fieldwork (Figures 2.9 to 2.14). This sequence is aimed at visually depicting some aspects of this neighbourhood and its character. These pictures show how men dominate the street life of the community. As they sit for long hours exchanging gossip, they also comment on those walking past in an animated and informal atmosphere, often getting drunk as the day wears on, they act as the public conscience of the community, continuously publicly reframing and re-emphasising the values that create a sense of El Pedregal's community.

**Figure 2.9** - Saturday morning, El Pedregal.

**Figure 2.10** - Saturday morning, El Pedregal.


**Figure 2.11** - Saturday morning, El Pedregal.

**Figure 2.12** - Saturday morning, El Pedregal.

**Figure 2.13** - Saturday morning, El Pedregal.

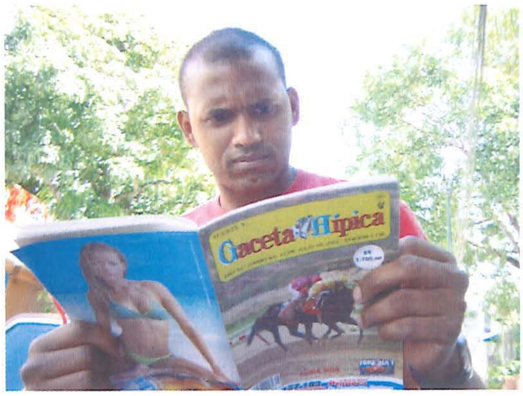


**Figure 2.14** - Saturday morning, El Pedregal.

## 2. **The historical transformation of the Caracas valley: The case of Chacao**

As the earlier discussion has suggested, the contours and characteristics of Chacao and El Pedregal are the outcome of changes in the borders of the city of Caracas. The discontinuities between El Pedregal and its neighbours can be attributed to the differences in class, the emergence of urban patterns in response to different kinds of pressures and criteria, and the different time-frames within which these interventions in the landscape took place. A historical account of the area is therefore extremely useful and will both complement the earlier discussion and provide a number of clues regarding the specific shape and character of contemporary urban life in El Pedregal. Therefore, as well as following a chronological order, the sequence progressively zooms into focus on the Chacao area, from its origins as a settlement close to the coffee plantations to its incorporation as urban space within the orbit of the city of Caracas.

The sequence of historical maps presented below illustrates that striking change and transformation have been features of the landscape of the valley of Caracas, and in particular in the area of Chacao, prior to the expansion of the city of Caracas. The maps begin in the XVIII century, before the foundation of the town of Chacao. They present a chronological account of the area, closely following the town of Chacao from its first settlement to its eventual assimilation into the expanding city of Caracas.

Figure 2.15 depicts part of a map of the Province of Venezuela within the Spanish Real Audiencia de Santo Domingo dating to the first half of the XVIII. It is a detail from the original map produced by Juan Antonio Courten in 1734 and entitled: "*Demoztracion ydeal de una porcion de la provincial de Venezuela o Caracas*". Focusing on the coastline the map identifies the valley and the city of Caracas as well as a number of coastal settlements that are also identifiable in contemporary maps (see figure 2.2) such as La Guayra/La Guaira, Macutto/Macuto, Maicatia/Maiquetia and Catia.


**Figure 2.15** - Detail of a map of the Province of Venezuela, 1734.
(Source: Biblioteca Nacional de Venezuela, Sección Cartografía)

The relatively populated coastline contrasts heavily with the hinterland, which shows an absence of settlements even at short distances from the coast. This could be attributed to the mountainous terrain, and the limited road system linking the interior to the coast and, perhaps in particular, to the economic and political orientation of the region towards the outside, towards the ocean, trade and maritime links with Europe and the Americas. In line with these reflections, it is worth noting that there is no reference to the town of Chacao, which would be founded more than fifty years later. The area indicated with the red rectangle corresponds to the current Chacao district.

While there are no roads or paths indicated on the map showing possible connections between settlements, the display of place-names and the use of signs suggest a well structured social space. The name of the city of Caracas is printed in capital letters and in a larger font than the names of other centres. This indicates the importance of

Caracas as the capital of the Province of Venezuela. The symbol denoting the presence of a cathedral reinforces the suggestion of its importance as a political and religious centre. La Guaira is the only other town indicated in capitals which can be attributed to its importance as Caracas' port, as indicated by the sign of the anchor, as well as the sign, inland of a church.

The names of the other towns are all in lower case and smaller font, reflecting their subaltern position in relation to Caracas. The town of Petare nevertheless also has a sign of a church, indicating some degree of importance. Out of twelve place names, seven are Spanish versions of indigenous local names which suggest that may have been occupied before the arrival of the Spanish. By the time that this map was produced, the indigenous population had been exterminated, dispersed or absorbed by the settler society. The population at this time would therefore have been composed by African slaves, a large mixed population and a minority of Spanish settlers (Baptista 1985).

The distribution of human settlements along the coast reflects, as has been mentioned, the importance of cocoa plantations as the principal export commodity from the mid seventeenth. The centrality of cocoa production was sustained until the early 19th century. This meant that for two hundred years a plantation economy based on slave labour characterised the economic and social organization of the area. And, in spite of the importance of the cocoa trade to the local area, the latter remained a humble backwater, scarcely populated more than 200 years after it was first sighted by Spanish colonizers and more than 150 years since the area was incorporated into the Spanish domain. In fact, this early contact had devastating effects on population densities and overall size, as the effects of conquest, exploitation and disease depleted the local population. This contact also has devastating consequences on the landscape and its biodiversity a process generally referred to as the 'Columbian Exchange' (Crosby 1972).

As far as the Caracas valley is concerned, the fact that it falls outside of the altitude range for cocoa, meant that it was used for the cultivation of other crops such as wheat and corn. Corn was produced largely for local consumption. Wheat and oats were export crops.

The second map in this series (Figure 2.16) is from 1898. More than 70 years have passed since independence from Spain. Venezuela, like other recently independent countries of Latin America, is in vigorous modernizing mode. Independence from Spain opened up opportunities for investment by other countries, notably Great Britain and France. It is not surprising therefore that the landscape has been radically transformed via the introduction of that representative of modernization par excellence: the railway.

Figures 2.16 and 2.17 show the as yet unfinished track between Caracas and Santa Teresa which opened in the last decade of the XIX century. Along the route a number of stations are marked out, one of which is near the settlement of Chacao, clearly indicated on the map. The emergence of Chacao is linked to the economic development of the area based on the production of coffee from 1760s onwards in extensive plantations worked by slaves. The construction of the railway at the end of the XIX century to ship the coffee to the coast for export pays testament to the importance of this trade for Venezuela. Dependence on a single major product for export has characterised the Venezuelan economy since its beginnings (Coronil 1997; Baptista 1985).

The first major export commodity from Venezuela were slaves from 1520s to XVII century. Cacao developed as the main export commodity from the mid 1650s onwards. As coffee grew in commercial value it came to dominate export between 1830 and 1920. Chacao became a place on the map as a result of modernization and capitalist economic expansion fuelled by the plantation system used in the production of coffee. Chacao's population was largely composed of plantation owners and people brought to work in the plantations, often as slaves up until 1854, and then as small-holders and peasants after the abolition of slavery (Gonzalez Antias 1984, Mintz 1989).

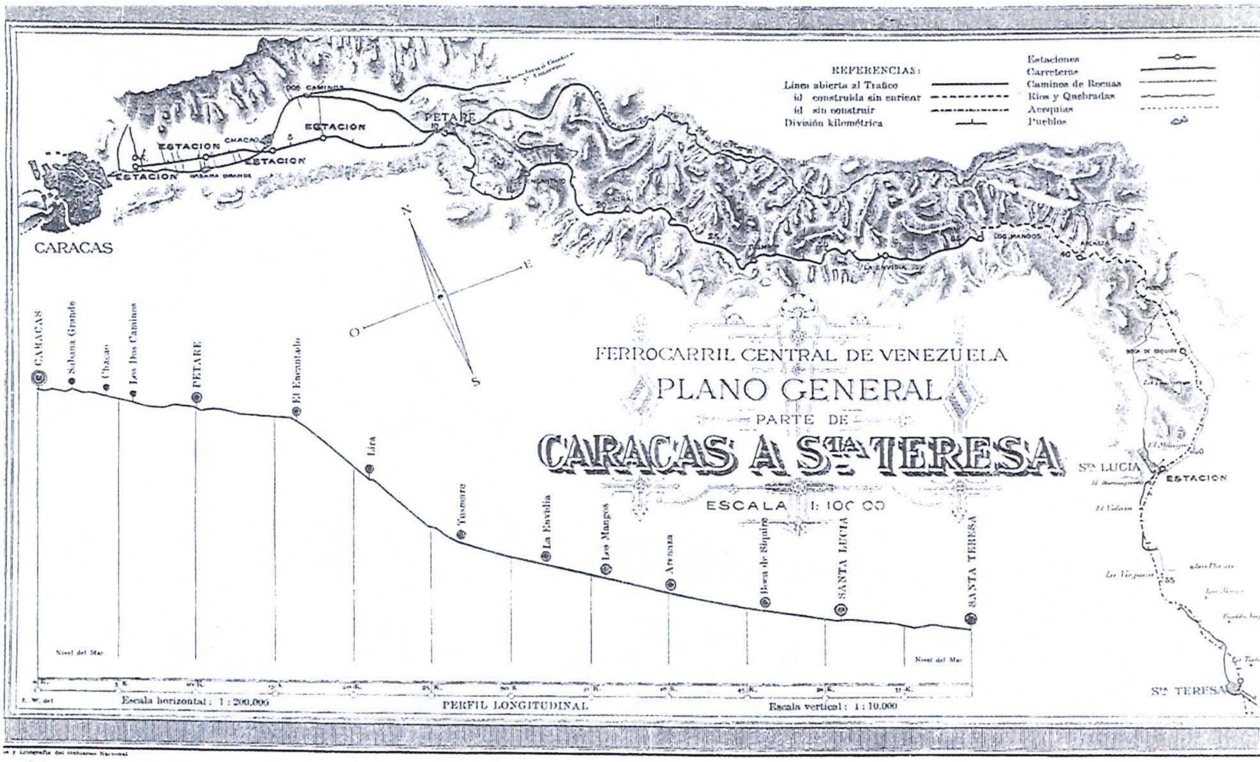


**Figure 2.16** - Plan of the railway line from Caracas to Santa Teresa, 1898. (Source: Biblioteca Nacional de Venezuela, Sección Cartografía)


**Figure 2.17** - Detail of the railway map Caracas-Santa Teresa showing the Caracas valley, 1898. (Source: Biblioteca Nacional de Venezuela, Sección Cartografía)

The people of Pedregal are the only descendants of these peasants left in Chacao. Pedregal was initially owned by Matias Blanco - the land title was dated 1839 and cost less than one slave to purchase. Pedregal means boulders or stony area and it was considered poor arable land. By the 1930s, in contrast to the neat surrounding suburban settlements, Pedregal resembles a cluster of houses with no visible roads communicating with the town of Chacao (see figure 2.18).

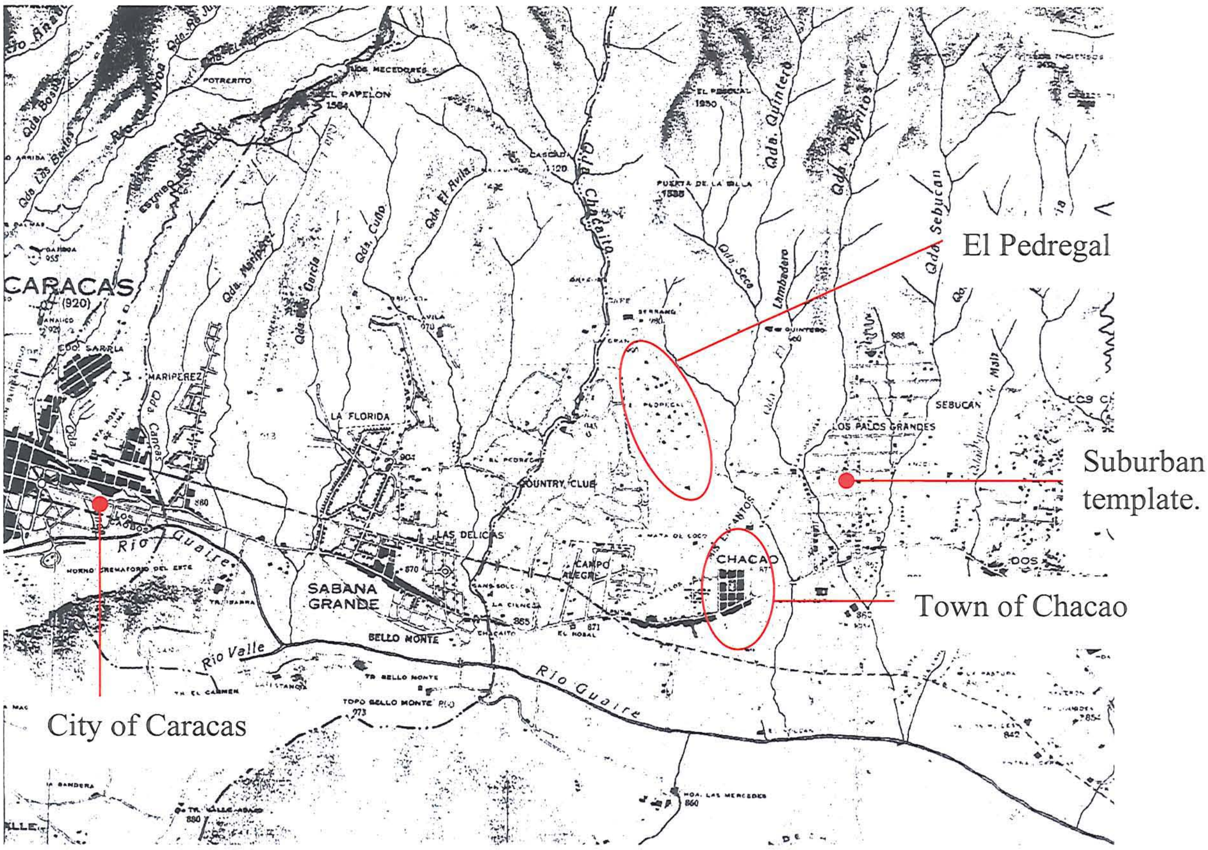


**Figure 2.18** - Detail of a plan of the Caracas valley showing the Chacao Municipality, circa 1930s.
(Source: Biblioteca Nacional de Venezuela, Sección Cartografía)

Figure 2.19 presents Pedregal in a different way – as the peasant workers of the large plantations that are named in capital letters around quaint pictures of their peasant houses. This depiction makes the area look typically rural when, as we saw in the previous map (figure2.18), it is slowly becoming surrounded by well-planned urban settlements. Some reference is made to the varying status of these inhabitants of Pedregal in the drawings of their houses – mud and thatch or clay roof tiles. These clay tiled houses belonged to the ploughers '*arrieros*' who had a higher status than the plantation labourers. The plantation labourers lived in the mud houses and were paid very little but allowed to produce in marginal areas to supplement their subsistence.


**Figure 2.19-** Plan of the farms San Felipe and Serrano, 1929.
(Source: Biblioteca Nacional de Venezuela, Sección Cartografía)

In the 1920s major oil deposits were discovered and exploitation rapidly developed oil into Venezuela's main cash export. As oil revenue began to generate more and more wealth it prompted a drive to purchase real estate as investment and to develop Venezuela's first manufacturing industries. By 1935 oil exports were worth 20 times more than coffee earnings and Venezuela was the second oil producer after USA (Coronil 1997:85-88). The drive to buy real estate by the newly moneyed oil elites led to the steady expansion of Caracas, until by 1964 Pedregal was completely surrounded by newly urbanized landscapes (figure 2.20)

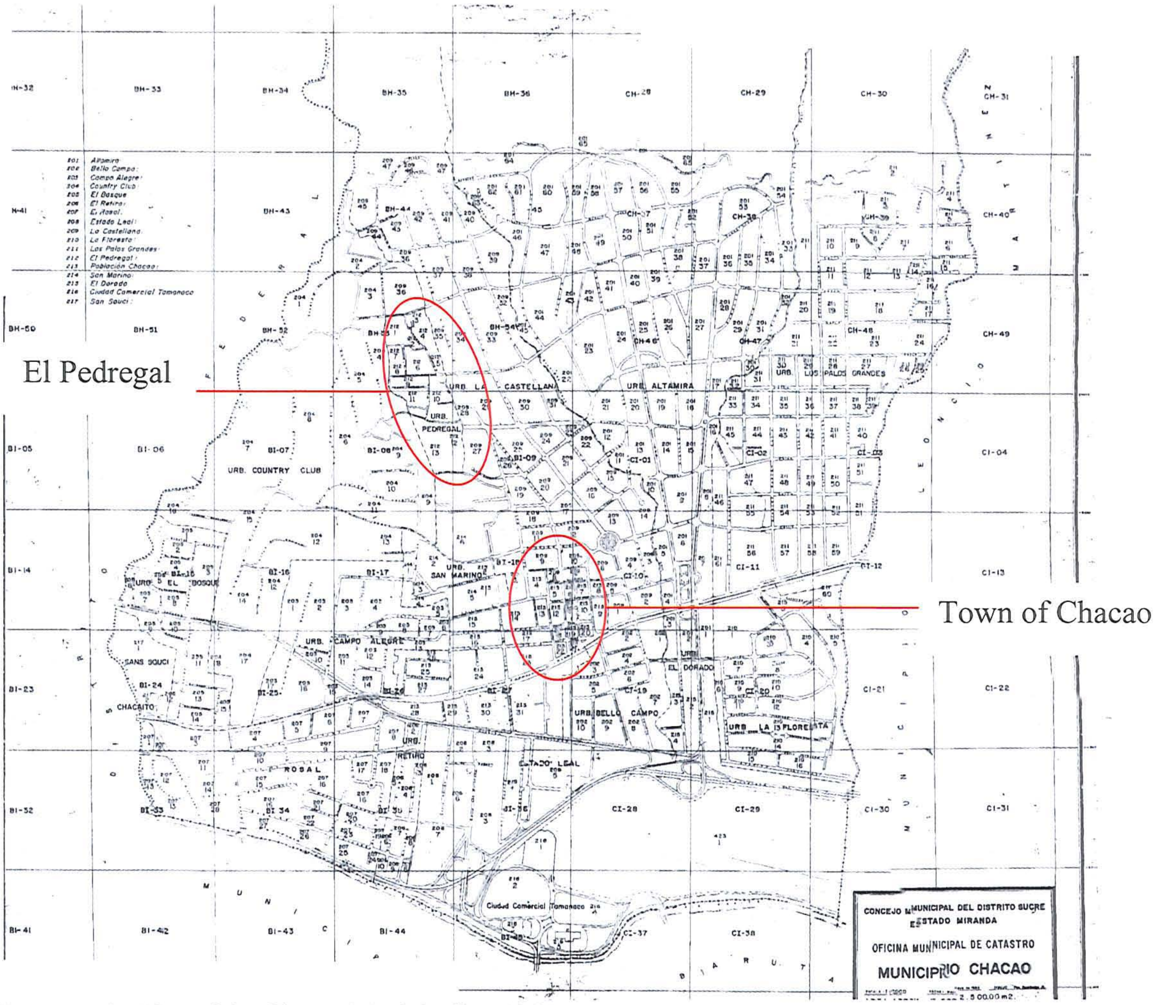


**Figure 2.20** - Plan of the Chacao Municipality, 1964. (Source: Alcaldia de Chacao, Dirección de Catastro Municipal)

During this period the people of Pedregal passed from being rural labourers on neighbouring farms to urban workers involved in construction, providing services to their wealthy neighbours and the new amenities that sprung up around them. These included the country club, shopping centres and offices. Pedregal is a rare island of continuity in the sea of development that has characterised Caracas's expansion from a dormant rural town to vibrant capital city of four and a half million people. Indeed the people of Pedregal are the only rural community from the coffee plantation era who have been able to retain their land and identity due to the fortunate purchase of the land title for Pedregal by Matias Blanco in 1839 (Leizaola 2000).

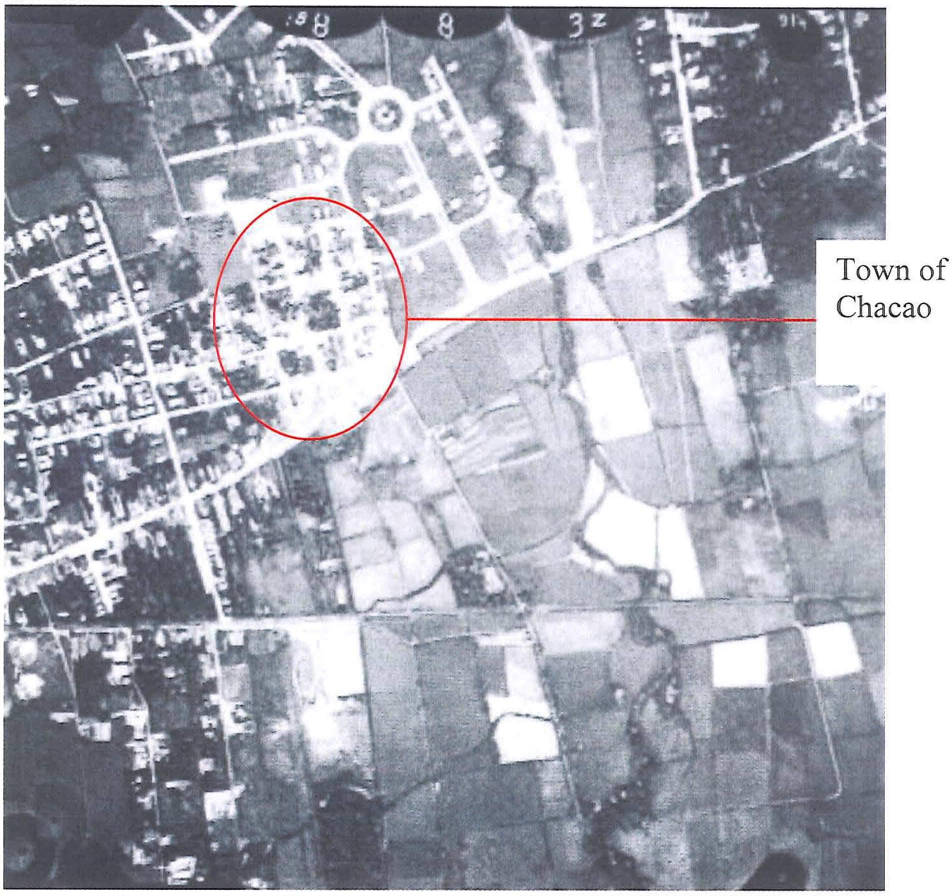


**Figure 2.21** - The south eastern Chacao area in 1940.
(Source: Alcaldia de Chacao, Dirección de Catastro Municipal)


**Figure 2.22** - Satellite image of the same region, south eastern Chacao.
(Source: Google Earth, www. **earth.google**.com)

Figures 2.21 to 2.23 illustrate the transformation of the landscape from rural to urban, from 1929 to 2003.


**Figure 2.23** Plan of the farms San Felipe and Serrano 1929
(Source: Alcaldia de Chacao, Dirección de Catastro Municipal)

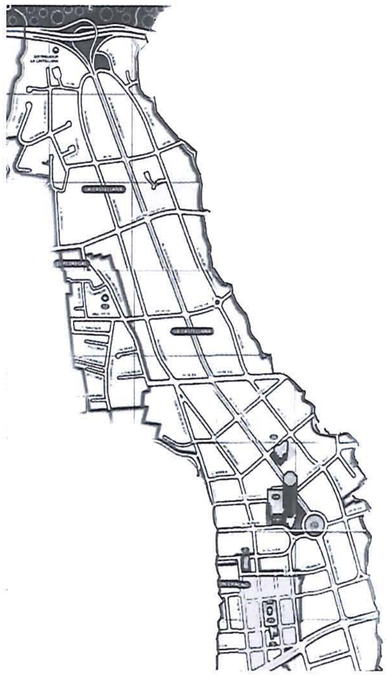

**Figure 2.24** Plan of the neighbourhoods El Pedregal and La Castellana, 1964

Historically Pedregal seems to have a tradition of being marginal to the majority around it. In the early days it was a marginal and stony plantation, then an enclave of peasant workers labouring the plantations of others, but by the 1940s Pedregal had been encompassed by the smartest most expensive part of Caracas. Most urban dwellers in Caracas came as families to the city into the city from the countryside whereas for the people of Pedregal the city came to them. Not as individuals or families but as a whole community (Leizaola 2000).

## Chapter 3

## The Social History of Climate in Chacao - The globalization of the local climate

### Introduction

In mid December 1999, continuous heavy rain produced muddy debris slides and massive landslides killing at least 35,000 people and leaving 200,000 people homeless on the Caribbean coastline north of Caracas. The rains washed out whole neighbourhoods and villages that lie between the Coastal mountain range, the Caribbean Sea and the Caracas Valley. Landslides caused by ground saturation, especially in mountain areas, also affected the city of Caracas.

For the authorities, the press and some scientists it was an unusual natural disaster, neither predicted nor anticipated, and blamed on global climate change. Tropical storms are expected between June and the beginning of October. Typically the rainy season ends in early November, nearly one and half months before this catastrophe took place. Deforestation, modification of slopes and occupation of hazardous areas for habitation also contributed to the human tragedy. In fact, many commentators have classified this tragedy not as natural but an anthropogenic or compound disaster (partly natural, partly man-made). A similar disaster, however, had occurred in 1948 when the population of the coastal area was comparatively small and, more importantly, was concentrated in a few traditional towns dating back to pre-Columbian times- supposedly protected by their strategic, time-tested locations (Manara 1998). Moreover, for very old inhabitants of El Pedregal, born in the local coffee plantations around the first decades of the twentieth century, this was not so much an irregular disaster as an occurrence of the 'irregular' rains that used to happen within the period traditionally known as *Los Nortes* or *Aguaceros del Norte,* a micro-period of the rainy season that overlaps with the beginning of the dry season. Their traditional knowledge of the climate has become almost obsolete and is, in many respects, inaccurate as a result of the expansion of the capital city. In fact, their traditional model of the local climate does not fully match actual/current weather conditions and only features in complete form in people's anecdotes and in accounts of their rural past.

Since the disaster of December 1999, the Caracas valley has been hit by severe drought resulting in the increase of both length and intensity of the dry season, irregularities in flowering patterns of the local vegetation and unexpected episodes of heavy rain during the dry season. In 2003, during the period of my fieldwork there, the dry season extended for almost 3 month more than its now usual length. To the surprise of the local population, researcher included, some trees managed to blossom twice in the same year. Not surprisingly, global climate change was to be blamed.

Historical descriptions (written accounts) of the climate periodicity for the Caracas valley do not match its current features. The first description of the climate cycle for Caracas Valley dates back to the sixteenth century. It is part of the first official colonial report on the area by its first Spanish governor Juan de Pimentel (1578). This account of the climate is not a detailed model but a commentary on the length of the rainy season. According to that report the rainy season extended from May to December. In addition, Pimentel described Caracas climate as "fresh, humid and rainy" (Manara 1998:172). While reports on the climate periodicity of the Caracas valley from the second half of the nineteenth century still match the XVI century description (Diaz 1861), earlier twentieth century accounts for the same area report a reduction on the length of the rainy season attributed to deforestation, intensive agriculture and the expansion of the city of Caracas (Pittier 1970 [1926]).

Systematic scientific measurements of climate variables such as precipitation, humidity and temperature for the Caracas only date back to the 1870s. Data collection began at the same time that the city initiated a drastic transformation (urban expansion and increased demand of food and raw materials: city footprint). As the scientific data series related to weather conditions for the area only began at the end of the nineteenth century, the time line for scientific measurement is insufficient to reconstruct/chart climate transformation using quantitative data alone.

Local understandings and cultural representations of climate periodicity have also changed along with the transformation of the landscape. These changes have taken place to adapt to changing natural and social conditions: climate change and urbanisation.

This chapter charts the transformation of vernacular conceptualisations of the local climate, specifically seasonal periodicity, in the community of El Pedregal as a result of the expansion of the city of Caracas. It deals with the impact of urbanization in the double construction of the environment: the perception/knowledge of the environment and the environment itself from the perspective of the historical ecology. Here, we understand landscape as the material output of the dynamic and not deterministic relationship between society and environment. Hence, we will deal with the social history of the local climate/weather.

In the absence of scientific data the aim is to use the traditional climate classification/model to "reconstruct" past rural climate from the local people's perspective in order to illustrate the drastic socio-ecological transformation of the Caracas valley. At the same time, it is our intention to explore, for the Caracas valley, some of the cognitive effects of urbanization on our knowledge of the environment by charting the transformation and simplification of the local model of climate periodicity from rural to urban.

1. **The setting: Characterizing a bio-social landscape**

One of the many consequences of the so-called the nature/culture dichotomy is the understanding of the natural environment and physical setting as separated from human society. The description of the climate, along with that of the geographical location, topography, vegetation and others 'natural' aspects, normally forms part of a standard section provided at the beginning of most ethnographic papers and monographs, immediately after the introductory section under the rubric of setting. In most cases, if not all, the sources of this information are scientific literature rather than the local subjects. As such, this information is provided as external to the people studied, merely providing the setting: that is to say, framing and/or constraining society. Presented in such a fashion this information not only gives the impression of an independent "natural" setting, external and divorced from society, but also, and more importantly, of being fixed and unchanged.

Ethnoecological studies have shown the intimate associations that exist between local communities and their physical environments by describing the extensive knowledge of the environment that many local peoples acquire and use through this association. In traditional societies, this intimacy is linked to long-term relationships that in turn imply stability of both the physical environment, the society and of the people-environment relationship. The late modern move away from a dichotomised conception of nature and culture (Dove 2000) gives society a greater role in the dynamic construction of the environment viewed as landscape. From this perspective, the notion of construction of the environment does not only refer to its cultural representation (knowledge) but also to its material construction. The notion of landscape understood as the outcome of historical interactions between society and environment is central in this respect (Balée 1998).

This conception of landscape as an artefact introduces change and social history in the analysis of both ecosystems (ecology) and their cultural representations (ethnoecology), previously neglected or generally understood only as the degradation of pristine/climax nature in the former case and lost knowledge in the latter. Moreover, it also allows the use of meanings and cultural constructions, in the study and understanding of physical environments and ecosystems and their histories.

Interest in folk-classifications of the natural word in anthropology following the seminal work of Conklin (1956) led to the constitution of the several sub-fields of anthropology including ethno-science, folkbotany, folkecology among many others. Classifications are easy to represent and formalise while at the same time represent complex models of representation and codified knowledge. However, the study of folk-classifications and many of its formalistic pretensions have been severely criticised. Today it is a practice that is almost *démodé*, even among environmentally oriented anthropological circles. Critics of this approach argue that formal classifications are represented as static and fixed, at the same time excluding context and non-formal meanings from their analysis. Classifications, it is argued, are just a limited aspect of the complex understanding and experience of the environment by local people. Thus, knowledge of the natural word must be approached understanding knowledge as process rather than a product (Ingold 2000) and paying greater attention to its context (Ellen 1996; Descola 1994).

This chapter explores some of the dynamics of the people-environment relationship and, in particular, the social dimensions of the natural environment. It deals with landscape transformation through the perception of one of its aspects: the climate. This is an essay on folk-meteorology. Here, we are concerned with the perception and social construction of the local climate -as expressed in its cultural models, nomenclatures and related practises- as much as with the social history of the climate. The later refers to an understanding of the current local climate as the outcome of the historical interaction of society and environment both at local and global level. This approach introduces the history of human relationships with the environment as a key factor in shaping the landscape and its cultural representations. Thus, it also highlights the dynamic nature of folk-knowledge. Moreover, it also advocates the use of local knowledge and meanings as sources for the understanding of "natural" ecological systems: an intellectual rather than practical contribution of local knowledge to the global scientific knowledge.

## 2. **Chacao social and ecological change. Landscape transformation**

The urbanization of the Chacao area had an impact on both the social practices of its inhabitants and the environment. The case of the climate is one of the most illustrative of these transformations. In fact, many senior inhabitants refer to the changes in the local climate as an important/recursive way to convey dramatic changes experienced in the area. The Caracas valley has been experiencing a dramatic landscape transformation in the past 130 years, accelerated during the last 50 years, as a result of the explosive growth of the city of Caracas. During this later period the city, which up to the 1930s occupied a small area at the western extremity of the valley, has expanded beyond the boundaries of the valley itself swallowing the towns of it periphery including Chacao. As a result, almost all of the valley area fit for human habitation, along with a considerable proportion of its periphery, officially declared and supposedly protected as green belt, have been blanketed by urban development.

The Chacao landscape has long lost its distinctive geographic and ecological character –including its microclimate- as a result of the expansion of the city of Caracas. A predominantly man-made environment, this area is now almost indistinguishable from the rest of the city, except for its opulence. In fact, the former town of Chacao is now located at the geographical centre of the city. Its coffee plantations, which once maintained a modified version of its original evergreen forest, giving the area a distinctive microclimate, have long been replaced by urban expansion with rows of streets, houses and tower block buildings. Remains of this forest still adorn the edges of the 18 golf courses of the exclusive Caracas Country Club, located within the Chacao Council. However, the expansion of the city has deleted all traces of the local landscape.

According to senior inhabitants of El Pedregal born in the local coffee plantations, the current climate of Chacao is hotter and drier, with a more marked seasonality, than that of their rural days. In their view, today the dry season starts earlier and extends for a longer period. With urbanization, they argue, there has been a decrease in rainfall accompanied by a rise of temperature, making the climate hotter and dryer. In addition, some of its traditional climate features, such as periods of fog, are not even part of the current local weather conditions.

For most senior inhabitants of El Pedregal there is more than anecdotal evidence of this local climate change. The successful introduction and current proliferation of all sorts of life forms from warmer climates, typically associated with ecosystems of lower altitude, such as ornamental trees, invasive plants (weeds), birds and reptiles, is the best proof of this process of climate change in the Caracas valley, particularly in the Chacao area.

With urbanization, many fast growing trees from hotter regions, such as *pilon* (*Andira inermis*) and *jabillo (Hura Crepitans)*, were introduced as ornamental plants in private gardens, parks and avenues. Many fruit trees from lower altitudes such as *ciruelo de huesito (Spondias purpurea L.)*, *árbol de pan (Artocarpus altilis Fosb)*, among many others have been also successfully introduced. In addition to plant introductions, many wild and feral birds (e.g. flamingos *(Phoenicopterus ruber ruber)*, parrots (*Amazona barbadensis*), macaws *(Ara sp.)*, etc.) and reptiles such as iguanas *(Iguana iguana)* can also be spotted sunbathing along the polluted Guaire River, away from the parks. Such plant and animal species both wild and domesticated were unknown in the Caracas valley area previous to the urbanization expansion. Their presence is perceived as a confirmation of this process of local climate change.

More strikingly, the changes in the local climate that have accompanied the process of expansion of the city of Caracas have been so drastic that old Pedregal inhabitants believe that the current seasonal periodicity cannot be accounted for using the model of the annual climate cycle previously used before urbanization. In fact, today's vernacular climate model is a simplified and modified version of the complex climate model previously used in the area by local peasants.

Within one generation the perception and knowledge of local climate of the Chacao area has changed resulting in two successive models of the annual climate cycle (seasonal periodicity): the traditional/rural model and the current model. The drastic landscape transformation brought by the expansion of the city of Caracas has rendered the Chacao traditional model of seasonal periodicity not only obsolete but also inaccurate. It is obsolete as city people pay less attention to the weather and even less to peasant knowledge regarded as backward and non-rational, replacing it with educated, scientifically based knowledge. It is also inaccurate, as it cannot account for current weather conditions. In addition, as a direct result of urbanization, Chacao people –and other Caracas urban dwellers- have become less directly dependent on the seasonal variation of the climate for their subsistence, as ecology and economy are now divorced from these factors. As a result, the current model of seasonal periodicity is a simplified and modified version of the complex climate model traditionally used by Chacao peasants.

3. **Current description of the Caracas Valley climate by urban dwellers**

Caracas city dwellers, including Pedregal inhabitants, describe the climate in broader and more general terms, both geographically and meteorologically. Today people in Pedregal describe their seasonal periodicity, in terms of the whole Caracas valley instead of referring specifically to the microclimate of the Chacao area as they and/or their forebears did. By the same token, the climate of Caracas is now described by its inhabitants –including Pedregal people- using, more or less, the same template as used for the climate of the whole northern part of Venezuela.

According to this current general model of climate, the year is divided into two seasons: the dry season ('*temporada seca*' or '*temporada de sequía*') and the rainy season ('*temporada de lluvia*'). These two seasons are also known, and were traditionally referred as summer ('*verano*' or '*regla de verano*') and winter ('*invierno*' or '*regla de invierno*') respectively.

For most people, the rainy season, or *invierno* ("winter") is considered to begin at mid May and to end in October. The dry season or *verano* ("summer") is expected to extend from November to the first part of May. However, while there is agreement about this binary framework, there are also differences of opinion regarding both length of each season as well as starting dates for each of them.

In addition to the mild drought that has been affecting the area since the end of 1999, two parallel processes further complicate this disagreement regarding the length of each season. 0n the one hand, local inhabitants see local climate change as an outgoing continuous process triggered by the urban expansion. As such, the dry season is seen to increase progressively in length both by starting earlier as well as extending beyond its normal period. On the other hand, this climatic change is now perceived not just as local but as part of global climate change, a subject that dominates the media.

In addition to the binary framework, the current general model of seasonal periodicity vaguely distinguishes a micro-period within the rainy season characterised by tropical storms and hurricanes. It extends from late August to the beginning of October with the last heavy storm expected around St. Francis day ($4^{th}$ October). This last storm is known in all the Spanish-speaking countries of the Caribbean Basin as St. Francis Slash (*Cordonazo de San Francisco*). It can be said that this rather simple model of seasonality reflects in part the lack of interest of urban dwellers in the climate, as they do not depend directly on it for their subsistence. Moreover, it is a de-localised knowledge as it is applied to a vast area without regard for local variations.

## 4. **Effects of seasonality on the urban environment**

In a tropical agricultural society, detailed and accurate knowledge of climate variation is required in order to ensure social as well as ecological reproduction. Knowledge of climate is central to the success of farmers as well being crucial for gathering wild resources, especially during periods of scarcity in the dry season and during famines due to crop failure or plagues such as locust. But in an urban environment, seasonal variations only play a subsidiary role in the framing of social activities. Hence, less attention is paid to climate seasonality.

However, seasonal periodicity still has an impact on the running of urban life and its inhabitants. The rainy season brings greenery and fruits to the Caracas valley. In addition, rains clean the pollution of the atmosphere and also reduce temperatures. However, they also bring lots of trouble. Every year the arrival of rain to the city of Caracas threatens to paralyse/halt its rhythm. With the first tropical rains, public drainage systems collapse due to accumulation of debris and garbage during the dry season causing road and motorways overflows as well as property damage. The drainage systems are poorly maintained and ravines are regularly used as dumping places.

These storms affect the city vegetation, especially big trees. Heavy winds damage trees by causing branches to break or affecting their root systems. Damaged vegetation causes human and property damage as well as blocks the traffic while contributing to flooding. The rainy season brings mosquitoes and related diseases such as dengue fever as water accumulates creating favourable grounds for the reproduction of mosquitoes. The beginning of rainy season is also a time of stomach ailments and other annual viruses.

As the city is mostly covered with tarmac and concrete ground water retention is vastly reduced. At the beginning of the rainy season, as ground cover is totally dry, there is even less water retention. As a result most of the rainfall during the first rains runs directly into the drainage system. As the rainy season develops water retention builds up to saturation point on the slopes of hills, where most of the slums are located, progressively threatening to create landslides and destroy houses and urban infrastructure. The lack of a sewage system and the practise of using latrines on steep slopes in slums also contribute to the instability of the hilly land.

It is not storms but slow and continuous moderate rain that causes most of the damage. Storms are generally short and heavy and could produce flash floods. While rainstorms wash away quickly, the terrain absorbs moderate rains more easily. The accumulation of moisture in hilly areas makes them very unstable and likely to produce landslides. This problem becomes more acute towards the end of the rainy season. Landslides annually cause significant material and human lost both in formally and informally occupied areas of the city (slums as well as rich neighbourhoods).

The arrival of the dry season is marked by the withdrawal of rains and the progressive loss of humidity. It is indicated by the flowering of *capim melao (Melinis minutiflora)* and *tara (Oyedaea verbesinoides)*, the dominant grass and tree respectively, of the grasslands located in the lower and mid slopes of the Avila Mountains. The intense green of the slopes as well as the greenery of the city turn into intense red as the *capim melao* flowers. In the lower slopes, the red is spotted by the bright yellow flowers of the *tara* trees (See figure 2). Then the intense red of the grass fade into pale rose and later turn brown. Brown will then fade and decolour as the dry season passes. By contrast the upper slopes maintain their greenery throughout the year. While periods of mist used to feature in the climate of the valley, it has now retreated from the city limits to the slopes of the Avila Mountains.

The dry season brings problems of a different nature. Pollen fever is a common problem as most trees blossom during this period. A cloud of pollution remains in the air of Caracas as it is not washed by rain. The pollution increases with smoke produced by forest fires and grassland vegetation fires surrounding the city. Fire is a landscape feature during this season. Water shortages are common as the level of water reservoirs reach critical lows. There is water rationing throughout the year but it is likely to increase during the dry season and the beginning of the rainy season. Dust also accumulates in drainages along with garbage blocking them before the arrival of rains.

For urban people in tropical areas landscape changes brought by the seasons do not significantly alter the development of social life. In contrast to rural populations, urban people do not directly (or entirely) depend on the annual variation of the climate for their subsistence or cash income. In fact, city-life appears to run against nature (e.g. flooding, storms, high winds, drought, etc.) rather than with nature. While seasonal climate variations result in regular landscape changes everywhere, it is only in rural societies (both foragers and agriculturists) that the climate imposes itself as the fundamental framework of social life. Here, the alternation of seasons periodically transforms the landscape, governing the availability of rain, plants and animals and, as a result, framing both economic (agricultural and foraging) and other social activities.

## 5. **Traditional peasant (farmer) model of climate cycle for the Chacao area**

In this section I describe the 'traditional' model of the annual climate cycle for the Chacao area used by its local peasants before urbanization. This model accounted for the microclimate of Chacao and not for the whole Caracas valley. More specifically, this model was adjusted to the particular microclimate of the upper part of the Chacao located at the base of the foothill of the mountain slope. It was here where most of the coffee plantations were located.

The model was elicited from senior local residents born in the Chacao area, both male and female aged between 70 and 95 years, whom were involved in agricultural activities. While none of them kept individual '*conuco*' gardens, all of them worked in their parents', elder bothers' and/or fathers- in-law's gardens. They also worked as labourers in the coffee plantations both during harvesting times (women and children) as well as other agricultural activities throughout the year (men). Indeed, most of them were born in coffee plantations while only a minority was born in Pedregal.

None of the people interviewed believes the current climate can be accounted for using this model as the local weather has radically changed as a result of urbanization. In fact, all of the people interviewed actually use the current model of seasonal periodicity, occasionally referring to the old model as part of a story or for other anecdotical purposes. For this reason, I describe this "obsolete" traditional model using the past tenses even when some of the climate phenomena are still in place, but are not recognised/accounted for by the current model.

### 5.1. **Invierno (winterwet) and Verano (summer/dry)**

The traditional model of seasonal periodicity divided the year into two major seasons: the rainy season and the dry season. This binary division of the seasons was based on the amount of rainfall rather than on variations of temperature. The rainy season or *invierno* (winter) began in mid April and ended in mid November. The dry season or *verano* (summer) started in mid or late November and went on until mid April. The rainy season was characterised by the presence of rain and humidity. The progressive decline of rainfall and humidity typified the dry season. While the dry season or summer lasted five months, the rainy season or winter extended for the other seven months of the year.

Winter is still used to designate both the rainy season and rain in general. It is also used more specifically to designate heavy rain. Summer refers to the dry season as well as to the lack of rain during the rainy season. The presence of rainwater or *invierno* is associated with harvests and abundance as it allows the practice of rain feed agriculture.

While the model of the local climate cycle was based on this general binary framework, within each major season, local people also identified a series of micro-seasons and transitional periods. Some of these micro-seasons cannot be easily detected in meteorological tables. Table 3.1 shows a summary of the traditional model of seasonal periodicity indicating macro and micro seasons, transitional periods and related dominant weather conditions for each labelled category.

**Figure 3.1** – Traditional Model of Seasonality in Chacao

| Month | Season | Transitional periods | Micro-seasons | Temperature, humidity, clouds and mist | Presence of rain |
|---|---|---|---|---|---|
| Apr | *Invierno* | *Entrada de Invierno* | *Invierno Recio* | Cloudy | |
| May | | | | Night Mist<br>Humid/Wet | Hail Storms<br>Winds/Storms |
| Jun | | | | Humid/Wet | Regular Heavy Rain |
| Jul | | | | Hot | |
| Aug | | | *Dias de Verano* | Dry/ Hot | |
| Sep | | | *(mes tormentoso)*<br>*Invierno Recio* | Humid/Wet<br>Hot | Hail Storms<br>Winds/Storms |
| Oct | | | *Nortes* | | Sporadic Rain |
| Nov | *Verano* | *Salida de Invierno* | | Mist<br>Cold<br>Humid | |
| Dec | | | | | Drizzle |
| Jan | | | *Cabanuelas* | | Dry |
| Feb | | | *Verano Recio* | Clear Sky<br>Dry<br>Hot | |
| Mar | | | *Primavera* | Cloudy<br>Night Mist<br>Humid | Heavy Showers |
| Apr | | | | | |

## 5.2. **Entrada de Invierno and Salida de Invierno**

According to the traditional model, climatic changes from one major season to the other were neither discontinuous nor abrupt –as the binary distinction suggests- nor fixed in the calendar, but were continuous and irregular. There were two transitional periods accounting for this continuity or progression from one season to the other as well as for yearly variations. The rainy season started with a transitional period known as 'entrance of rain' or *entrada de invierno.* The 'entrance of rain' corresponded roughly with the second half of April and the beginning of May. Similarly, the dry season began with the 'exit of rain' or *salida de invierno.* This transition normally covered the second half of November and the first part of December. While 'the entrance of rain' was considered part of the winter, 'the exit of rain' occurred during the first part of the dry season or summer.

These transitional periods (*entrada de invierno* and *salida de invierno)* were not considered separated micro-seasons in themselves and did not have any fixed duration. In this way, while highlighting the continuity between the two major seasons the model also accounted, as much as accommodated, for annual variations in the arrival and exit of the rains during the transitional months (usually April and November) between the seasons.

### 5.3. **Invierno**

In addition to the transitional period known as 'entrance of rain' the wet season was also subdivided into three micro-seasons: two distinctive rainy seasons and a short dry season. The first micro-season of the rainy season or *invierno* was also called *invierno*. This was the rainiest part of the wet season typified by heavy rains and flooding. It was also known as *invierno recio* or strong winter. It occupied most of the wet season. It normally extended from mid April-May, when the planting of the first harvest of the year (*cosecha de invierno*) used to take place, to October. It was characterised by regular heavy rains and stormy weather, including hailstorms, with predominant winds coming from the east and southeast. Hailstorms, strong winds and tropical storms were likely to happen between the months of May and June as well as between August and September.

September was considered the stormiest month and it was also called so (*mes tormentoso*). It was characterised by tropical storms including heavy rain, strong winds, lighting and thunder. Around the 4$^{th}$ of October, day of San Francisco, a heavy storm was expected to end the stormiest month. Known as *Cordonazo de San Francisco*, literally the Slash of St. Francis, it was characterised by heavy winds, rain, lighting and thunder generally accompanied by flooding of the local ravines and Guaire River. The Slash of St. Francis is not an exclusively local phenomenon. In many Central and South American countries of the Caribbean Basin, St. Francis day is considered to mark the end of the season of tropical storms and hurricanes. The micro-season *invierno* prolonged until mid October.

The *invierno* micro-season was interrupted by a short period of lack of rain lasting between 15 to 20 days during August. This period was considered a micro-season in itself and was labelled as 'summer days' or *dias de verano*. However, it did not actually fall in between the two rainy micro-seasons. During the 'summer days' or *dias de verano* period herbaceous vegetation of the grasslands turned dry as humidity receded due to the lack of rain. This time was used to prepare the land – both arable land as well as forest or fallow clearings opened during the previous dry season for slash and burning agriculture (*conuco*)- for the cultivation of the second crop harvest of the rain season *(cosecha de los nortes).*

The second rainy micro-season was known as north or *nortes*. It was also known as *aguaceros del norte* or 'showers of the north'. It began at mid October and extended, at least, until the second half of November, as part of the rainy season. However, *los nortes* extended beyond the end of the rainy season into the dry season as part of the transitional period known as *salida de invierno* or 'exit of the rain'. Including this transitional period, *los nortes* were considered to last until late December.

A change in the direction of the wind, from southeast and east to northeast and northwest, brought lighter and interrupted rains. Most informants described this micro-season as a mixture of *lluvia or invierno* (rain) and *verano* (summer). These sporadic and normally lighter rains contrasted with the heavy showers and storms of the first part of the wet season. This season provided the rain for the best harvest of the year known as *Cosecha de los Nortes* (the harvest of the north).

### 5.4. **Verano**

A significant drop in the amount of rainfall, accompanied by the blossoming of *capim melao* grass *(Melinis minutiflora)* and *tara* trees *(Oyedaea verbesinoides)* in extensive areas of grassland indicated the arrival of the summer or dry season.[1] Rainfall gradually decreased until the end of December when rains were very rare. This initial transitional period was known as 'exit of rain' or *salida de invierno*.

[1] *Capim melao (Melinis minutiflora)* grass still covers most of the savanna/grasslands of the lower slopes of the mountain range. It flowers bright red. Then, its red colour slowly turns into brown. Its flowers produce respiratory related allergies such hay fever. *Tara (Oyedaea verbesinoides)* is a pioneer tree dominant in secondary forest, a transitional state in a regeneration of the vegetation. It flowers bright yellow.

Another indicator of the arrival of the dry season was the presence of dense mist. As rainfall decreased light showers of *los nortes* rains turned into sporadic light drizzles. Mist replaced rain as a source of humidity. Frequent dense mist occurred at night and during parts of the day between mid November and the end of January.

In addition to the initial transitional period known as 'exit of rain', three micro-seasons were distinguished during the dry season or summer: *cabanuelas*, *verano recio* (strong summer) and *primavera* (spring). However, these micro-seasons did not divide the dry season exhaustively.

### 5.5. **Salida de Invierno y Bajada de la Neblina**

Towards the end of November, when the land began slowly to dry up, both the transitional period known as *salida de invierno* and a period of mist started at the same time. While *salida de invierno* or exit of rain finished during the second half of December, the misty period extended until the end of January.

The decrease in rainfall did not dramatically affect the greenery during this part of the dry season as mist replaced rain as source of humidity and moisture. While the dry season used to start at the end of November the greenery of the vegetation did not totally fade into brown until the end of January, when both rain and mist were not present. Herbaceous plants were the first vegetation to experience the lack of humidity, then, it was time for tree foliage to turn brown and eventually to fall.

Mist was considered to descend down from the mountain slopes, as there are clouds and mist covering the upper slopes of the mountain almost all year around. As such, people referred to the beginning of the dry season as the period when mist descended from the mountain (*la neblina baja del cerro)*. At this time of the year, dense mist covered Chacao during the night as well as during most of the day, specially the area occupied by coffee plantations.

This mist was also associated with a period of cold temperatures (*entrada de frío* or entrance of cold). The period of mist (Nov-Jan) and the beginning of the following micro-season (*verano recio*) were considered to be the coldest part of the year. However, while mist was associated with cold, the dry season was a period of extreme contrast between day (hot) and night (cold) temperatures. While the months of December, January and February still register the lowest night temperatures of the year (7° C.), average temperatures for these months are less than two degrees lower than during what were considered to be the hottest months of the year (April-June and September-October).

## 5.6. **Cabañuelas**

*Cabañuelas* was a period occurring within the period of mist. It was a time of mist and occasional drizzle occupying the first 12 days of January. It occurred immediately after the end of the transitional period *salida de invierno*. More than a clearly defined micro-season with its own distinctive weather features, the *cabañuelas* was a time used for/dedicated to forecasting the annual weather conditions.

In general terms, a dry *cabañuelas* forecasted a good rainy season. If, on the contrary, there was drizzle or rain during this period, it prognosticated a bad winter. Hailstones at this time of the year also anticipated bad harvests. When there was rain or hailstones people referred to them with the expression '*se rompio la cabañuelas* or breaking the *cabañuelas*.

This period was also used for forecasting the weather conditions of the year in a more detailed manner. C*abañuelas* uses the first twelve days of January to predict the weather for the twelve coming months. Each day corresponded to a different month of the calendar in a progressive order. January 1st for January weather; January 2nd for February weather and so on.

During each day, and respective night, a series of observations were carried out in order to predict the weather of the month it represented. According to our informants, the most important forecasting method was the analysis of the humidification of common salt. Each evening, common salt, in the form of ground salt crystals, was placed on a dry plate and left outdoors during the night. The salt was inspected in the morning. It was believed that the humidity absorbed by the salt provided a measure of the humidity of the month it represented.

Other methods used each of these days for predicting the weather involved the observation of the sun at sunrise, of the moon and of the house lamps at night. Each morning at sunrise the sun was observed. Attention was given to its shape, colour and size. At night the moon was inspected for its aura and colour. Consideration was given to the amount of insects that were attracted by the house lamps. It is believed that insects take refuge in people houses before storms and bad weather. Hence, an unusually high amount of insects attracted to a lamp prognosticates rain. Some of these methods were also used, and still are, to predict the weather conditions along with observation of clouds, animal behaviour –domesticated and wild animals-, winds, and many other factors all year around.

### 5.7. **Verano bravo o recio**

*Verano bravo o recio* began around St. Candelaria day, the 2nd of February. At this time mist was said to ascend the mountain slope or to exit Chacao (*'la neblina sube', 'la neblina sale'*) and heat was said to enter (*'entra el calor'*). In contrast to the beginning of the summer, which was dominated by mist and sporadic rain, and the end of the summer, which was dominated by heavy clouds. This mid period was characterised by dry and clear days, a noticeable drop of humidity and extreme temperatures. It lasted about 50 days until approximately the 19th of March, St. Joseph's day.

From the end of December the herbaceous vegetation used to gradually dry up as the supply of humidity began to depend almost entirely on mist. By early February most grassland vegetation was dry. Towards the end of February, with no rain or mist, most trees lost their leaves and then flowered.

Most fires occurred during this micro-season. The beginning of this micro season was used for the preparation of agricultural fields (swiddens). It included the use of fire to remove the cleared vegetation cut with machetes and axes. Fire was also used to renew the savanna/grassland vegetation for hunting and plant extraction.

### 5.8. **Primavera**

*Primavera* or spring was considered to be the last part of the dry season. It began around the 20th of March and extended until mid April. It was characterised by the progressive return of air humidity, mist, soil moisture and the formation of heavy clouds. Cumulo-nimbus clouds built up daily thunderstorm fronts that hardly ever broke into rain. It started with one or two heavy showers around the 20th of March. These few showers along with increase of atmospheric humidity were enough to trigger the growth of vegetation foliage before arrival of the rainy season. It was before or during this micro-season that most trees flowered. Herbaceous vegetation burned by summer fires also used to start growing again, turning into green-brown and black grassland areas as well as the forest.

The arrival of *primavera* also marked the return of a period of mist. Mist mostly occurred during the nights. This period of mist lasted until the 24th of June, St. John the Baptist day, well within the rainy season.

It was believed that after the few heavy showers that marked the beginning of the *primavera,* the winter or rainy season was only about 30 days away. Another way of predicting the arrival of the wet season was by focusing on plant and animal indicators.

It was said that after the striking yellow blossoming of the *araguaney* tree *(Tabebuia chrysantha)* winter was only 40 days away. As the *araguaney* flowers at the height of the summer before spring, it blossoms against a brownish background of dry vegetation. It was around *primavera* that the coffee trees blossomed. Table 3.2 shows some of the plants which flowering patterns are used as seasonal indicators.

**Table 3.1** - Vegetation. Climate indicators and flowering patterns

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Bucare<br>(Eritrina* | *Apamate<br>(Tabebuia* | *Araguaney<br>(Tabebuia<br>chrysantha)<br>Canafistola<br>Cedro (Cedrela* | *Acacia<br>Flamboyant<br>(Delonix regia)* | *Mayo Cattleya<br>mossiae)<br>Atapaima<br>(Plumeria* | *Cebadilla<br>Schoenocaulon<br>officinale)* | *Ceb.* | *Cebadilla<br>Tara<br>(Oyedaea<br>verbesinoides)* | *Cebadilla<br>Tara* | *Tara* | *Capim<br>Melado<br>(Melinis* | *Capim melado<br>Pascuitas<br>(Euphorbia<br>pulcherrima)* |

The singing of the cicadas during spring also announced the arrival of the wet season. The annual movement of insects such as ants and cockroaches shifted their nests forecast the imminent arrival of rain. The dry season or summer lasted until the first half of April. Winter arrived in the form of sporadic and moderate showers. After more than a month of cloudy, hot and humid weather (spring), rain brought water and freshness. Showers then later turned into storms and heavy weather.

## 5.9. **Humidity as soil fermentation**

In opposition to the winter or rainy season, the dry season was defined as lacking in rainfall. However, the dry season or summer was better characterised by first, the progressive retreat or decrease of rainfall and humidity, including soil moisture, and later, the return of humidity. These seasonal changes were reflected in the decrease of greenery of the vegetation and, later, in the renewal of most plant foliage during the dry season before the arrival of the wet season.

While the dry season lasted five months, there were only over two months of shortage of humidity. Despite the drop in rainfall there was no marked seasonality between the rainy and the dry season, except for the months of February, March – the period known as *verano bravo o recio-* and, to a lesser extent, the first part of April, as mist and latter heavy clouds replaced rain as source of moisture.

The early dry season (November-January) was misty and wet. The mid dry season (February-March 19$^{th}$) was dryer and colder, featuring clear skies and extreme contrast between day and night temperatures. During this period the browned and dried vegetation, especially herbaceous plants, was prone to spontaneous and intentional fires. As soil moisture receded the ground hardened and dust also featured. By contrast, the late dry season (March 20$^{th-}$ April 20$^{th}$) was humid, cloudy and hot. During this period –spring- humidity preceded the return of rain.

The return of humidity that occurred during the spring micro-season was associated with fermentation. Humidity was expressed in air humidity, soil moisture –including morning plant condensation- and cloud formations. Our informants explained the return of humidity that made possible the growth of greenery before the arrival of the rains by a process of soil fermentation. According to them, the combination of lack of rain and intense heat during the previous part of the dry season fermented the soil resulting in humidity coming out of depth underground and evaporating to form clouds, mist and, later, rain.

The retreat of humidity occurring during the first part of the summer was explained as if air humidity, including clouds, as well as soil moisture descended or receded down in to the ground. By the same token, the return of humidity that occurred during the spring micro-season was conceived as emanating from the ground, in the form of evaporation, as a result of fermentation triggered by heat. While this explanation contradicted the account of the presence of mist – another source and expression of humidity- as coming down the mountain slope, none of the collaborators found this a problem.

## 6. **Scientifically informed descriptions of Caracas climate**

Current knowledge of the climate is a de-localised knowledge: the climate of Caracas is described in general terms, with disregard for local variations or microclimates within its valley. Caracas climate todayis generally described very much in the same terms used to describe the climate of Northern Venezuela. Moreover, the climate of Caracas is described using same model of climate for the whole country.

Although Venezuela lies within the tropics, its climate is described as varying from tropical to alpine, depending on the elevation, topography, the direction and intensity of prevailing winds, among other variables. According to temperature, which in turn depends primarily on elevation, the country is divided into four horizontal zones (tropical, temperate, cool and alpine).

Caracas' climate is defined as temperate. The city of Caracas is located in a high rift valley seven miles south of the Caribbean Coast. The city lies within the two parallel mountain ranges that constitute the Coastal Cordillera mountain system. With an altitude of 900 meters above sea level, temperatures range from 7.2° to 32.8° C. Its annual mean is 22° C. Positioned at 10 degrees north of the equator (10.50°N 67.00°W) its days and nights are almost of the same length all year around. Mean temperatures are nearly constant throughout the year with an average January temperature of 18° C and July temperature of 22°C. While humidity is also high all year around, it increases during the rainy season. Table 3.3 presents mean climatic data for Caracas.

**Table 3.2** – Mean Climatic data: Caracas
(Source: http://www.stadtklima.de/webklima/cities/america/ve/caracas/caracas.htm#Mittlere%20Klimadaten)

| Parameter | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | YEAR | Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mean air temperature (°C) | 19.2 | 19.7 | 20.7 | 21.7 | 22.0 | 31.5 | 21.1 | 21.6 | 21.8 | 21.5 | 20.8 | 19.9 | 21.0 | 10 |
| Mean maximum air temperature (°C) | 23.9 | 25.0 | 26.1 | 27.2 | 26.7 | 25.6 | 25.6 | 26.1 | 26.7 | 26.1 | 25.0 | 25.6 | 25.6 | 30 |
| Mean minimum air temperature (°C) | 13.3 | 13.3 | 14.4 | 15.6 | 16.7 | 16.7 | 16.1 | 16.1 | 16.1 | 16.1 | 15.6 | 14.4 | 15.6 | 30 |
| Absolute maximum air temperature (°C) | 30.8 | 31.6 | 32.8 | 33.1 | 32.4 | 30.8 | 29.8 | 31.0 | 31.2 | 31.5 | 30.5 | 30.0 | 33.1 | 45 |
| Absolute minimum air temperature (°C) | 8.3 | 7.8 | 7.1 | 10.6 | 11.1 | 11.7 | 11.1 | 11.7 | 11.7 | 12.2 | 10.6 | 8.3 | 7.1 | 45 |
| Mean relative Humidity (%) | 80 | 78 | 76 | 77 | 80 | 83 | 83 | 82 | 81 | 82 | 84 | 82 | 81 | 25 |
| Mean precipitation (mm) | 22 | 15 | 10 | 32 | 95 | 106 | 97 | 112 | 94 | 122 | 86 | 44 | 835 | 30 |
| Maximum precipitation (mm) | 106 | 224 | 47 | 131 | 147 | 288 | 185 | 186 | 172 | 327 | 134 | 97 | | |
| Minimum precipitation (mm) | 0 | 0 | 0 | 0 | 18 | 39 | 18 | 43 | 16 | 40 | 18 | 2 | | |
| Maximum precipitation in 24 h (mm) | 41 | 73 | 36 | 74 | 79 | 71 | 71 | 92 | 84 | 81 | 70 | 48 | 92 | 56 |
| Days with precipitation | 6 | 4 | 3 | 6 | 12 | 16 | 17 | 16 | 14 | 15 | 15 | 11 | 135 | 30 |
| Mean sunshine (h) | 238 | 246 | 257 | 219 | 198 | 201 | 239 | 236 | 213 | 214 | 210 | 217 | 2688 | |
| Radiation (Ly/d) | | | | | | | | | | | | | | |
| Potential evaporation (mm) | 63 | 58 | 73 | 83 | 92 | 85 | 85 | 86 | 84 | 84 | 73 | 76 | 933 | 56 |
| Mean wind speed (m/s) | 2.7 | 3.1 | 3.5 | 3.1 | 3.2 | 3.4 | 3.1 | 2.8 | 2.6 | 2.6 | 2.6 | 2.7 | 2.9 | 30 |
| Wind dir. | SE | SE | SE | SE | SE | SE | SE | SE | SE | SE | NW | SE | | 30 |

While elevation affects temperature, seasonal variations are marked less by temperature than rainfall. Caracas' annual precipitation ranges from 800mm to 1.050mm. As most of the northern part of the country, it has a distinct rainy season. Commonly referred to as winter, the rainy period extends from May to November. Over 80% of Caracas annual precipitation is registered during this period. However, rainfall is not evenly distributed throughout the rainy season. May and November normally register a monthly rainfall of about half the amount of the rest of the rainy months. While the remaining part of the year is known as summer or dry season, December and April both register considerable more rainfall than the rest of the dry months.

Nevertheless, according to Huber (1997), seasonal variation in the Coastal Cordillera is also affected by altitude. Seasonality is strong in the lower regions, where the dry season is marked, but at higher elevations seasonality tends to become less pronounced. The lessening of seasonality at higher elevations is linked, among other factors, to the presence of mist in these areas, and to its important contribution of as source of humidity alternative to rain. Above the level of approximately 800m on the windward and 1000 m on the leeward slopes, frequent mist occurs, extending usually 1000-1200 meters upwards. It is for this reason that the forest occupying this altitudinal range is described as cloud forest, or more specifically, tropical broad leaf moisture forest, instead of rain forest.

Huber (1997) describes the general seasonal variation of the climate of the Coastal Cordillera as being strongly influenced by the north-eastern trade winds, specially during the dry season, whereas during the rainy season southern winds with high in moisture predominate as the Inter Tropical Converge Zone (ITCZ) reaches its northern limit. During the northern hemisphere summer (June-September), the ITCZ resides over northern Venezuela. This period coincides with the height of the Venezuelan winter (rainy season). Table 3.4 presents a summary of the scientific characterization of seasonality for the Coastal Cordillera (according to Huber, 1997).

**Table 3.3** - Characterization of seasonality: Coastal Cordillera

| Dry Season | Wet Season |
|---|---|
| Dec-April | May-Nov |
| North Atlantic Oscillation | Inter Tropical Converge Zone |
| Cold fronts<br>Dry<br>North-Eastern Trade Winds | Warm<br>High Moisture<br>Southern Winds |
| Clear sky<br>High pressure | Cloudy<br>Low pressure |

In fact, the seasonal periodicity of the climate of Central America, the Caribbean islands (Antilles), and the northern part of South America is described in the scientific literature as being largely controlled by the position of the Inter Tropical Convergence Zone (ITCZ) and its interactions with the tropical Atlantic Ocean (the North Atlantic Oscillation) and Pacific Ocean (El Niño Southern Oscillation – ENSO-) (Gonzalez & Gomez 2002).

In this region anomalous rainfall patterns and the flooding and droughts that result from them, have been linked with El Niño Southern Oscillation (ENSO) and the North Atlantic Oscillation. Climatic changes during the last 20,000 years have been attributed to long-term changes in the position and/or intensity of the ITCZ over South America, and changes in ENSO and NAO intensity (Gonzalez & Gomez 2002).

## 7. **Historical accounts of the climate of Caracas city**

Caracas was once described, and is still remembered, as "the city of perpetual spring", "a branch of Heaven in Earth", due to its benign and constant weather. As such it was depicted and celebrated in the works of the local officials, writers and the testimonies of some its visitors (Manara 1998). However, this description neither matches the climate of the contemporary city nor its written descriptions since at least the second decade of XX century. Since then Caracas climate is being described as progressively getting hotter and drier, with a more marked seasonality as a result of its expansion. In fact, the seasonality of the area appears to have inverted: first described as having 8 months of rainy season today it is depicted by many as having 7 months of dry season. In this section written historical accounts of climate seasonality in Caracas city are compared in order to elicit patterns of seasonality change. Written accounts are also contrasted with seasonality models for the Chacao area described earlier.

In 1926 two very different publications put into question the perpetual spring character of the climate of Caracas city. Henry Pittier published his *'Manual de las Plantas Usuales de Venezuela'* in 1926 (Pittier 1970). It was the first comprehensive publication of general economic botany published in the country. In addition to an inventory of plant species it contains a general description of the vegetation according to its geographic distribution as well as some notes on the climate including its seasonality.

Pittier was convinced that seasonal patterns in the Caracas valley had already changed prior to its urban expansion, when it was still dominated by agriculture. According to Pittier both rainy and dry seasons lasted 6 months, the first extending from November to April. However, Pittier remarks that there were irregularities in the lengths of each season. He attributed it to changes in vegetation due to deforestation and erosion as a result of human intervention. In order to illustrate his point Pittier describes the case of the disappearance of the forest of Tacoa and Catia nearby Caracas in the second half of the XIX century and its effects on the reduction and irregularity of the rainy season in the Caracas valley.

The entrance for Caracas in the 13th edition of the Encyclopaedia Britannica printed that year (1926) contains the following reference to the climate:

"The climate of Caracas is often described as that of perpetual spring. It is subject, however, to extreme and rapid variations in temperature, to alternations of dry and humid winds (the latter, called *catias*, being irritating and oppressive), to chilling night mist brought up from the coast by the westerly winds, and to other influences productive of malaria, catarrh, fevers, bilious disorders and rheumatism. The maximum and minimum temperatures range from 84° to 48° F., the annual mean being about 66°, and the daily variation is as often as much as 15°." (BE 1926 13th edition, pp.298)

By highlighting the negative effects of the climate on human health, this account is much more an attack on the myth of perpetual spring than a complete description of the climate of Caracas. However, as the account fails to mention seasonal variations, the author unconsciously acknowledges the lack of extreme seasonality, which is implied and central to the idea of perpetual spring.

The fact that Caracas' climate had been described as that of perpetual spring should be understood within the broader context of the Venezuelan climate. As a result of its altitude, the climate of Caracas is defined as temperate and, before the drastic expansion of the city, used to have a gentle, not extreme, seasonality. In comparison to much of the country, characterised by a tropical climate dominated either by constant high humidity and heat (southern part) or by heat and extreme seasonality, the capital still enjoys a gentle climate due to its elevation, despite the drastic process of urbanization. Here our concern is only with seasonality and its transformation.

Descriptions of the seasonality of Caracas climate have changed through history. In fact, if we compare the first Spanish record of its climate dating back to 1577 with some of its latest descriptions on the Internet it is striking to notice the inversion of its climate seasonality (or at least of its perception). While, it was once dominated by the rainy season, today is dominated by the dry season. Table 3.5 compares historical accounts of Caracas seasonality sorted by length of season.

**Figure 3.2** – Historical accounts of Caracas seasonality, sorted by length of season

| Author | Date | Ratio | J Month | F | M | A | M | J | J | A | S | O | N | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pimentel | 1577 | 4:8 | X | X | X | X | | | | | | | | |
| Diaz | 1861-1877 | 4:8 | X | X | X | X | | | | | | | | |
| Hubert* | 1997 | 5:7 | X | X | X | X | | | | | | | | X |
| Traditional Chacao | 1940 | 5:7 | X | X | X | X | | | | | | | | X |
| Imparques* | 1978 | 6:6 | X | X | X | X | X | | | | | | | X |
| Pittier* | 1926 | 6:6 | X | X | X | X | | | | | | | X | X |
| Current Chacao | 2003 | 6,5:5,5 | X | X | X | X | X | | | | | | X | X |
| UCAB | 2003 | 7:5 | X | X | X | X | | | | | | X | X | X |

(* scientifically informed account) *(X= dry season)*

The first written record of the climate of the Caracas valley describes this area as "humid, fresh and very rainy" (Manara 1998:172). In 1577, ten years after the

Spanish Conquistador Diego de Losada secured the area and founded the town of Santiago de León de Caracas, Governor Juan de Pimentel in the first official report of the area describes its climate as having 4 months of dry season and 8 months of rainy season (May-Dec.). His account is an official report about the place and its resources including its inhabitants. It also contains information of the topography, place-names, climate, vegetation (including useful plants), natural resources, agriculture, and local practices.

Contrary to the 1577 account written by Pimentel, some recent websites describe the climate of Caracas as having seven months of dry season and five of rainy season (May-Sept)[2] Comparing both accounts we note that the rainy season has apparently shrunk from eight to five months over the course of four centuries. It now occupies just over 1/3 of the year while it used to extend for 2/3.

This comparison may be an exaggeration as it is based on purely anecdotal evidence. In fact, not all recent descriptions of the climate coincide in terms of the length of each season nor with regard to their specific dates. This disparity is not limited to current descriptions but can be noticed historically by comparing accounts of climate seasonality in the area.

Comparing lay accounts alone, there is a perception of a progressive reduction of the rainy season, first reported in first half of the twentieth century, resulting in an inversion of seasonality. The year is currently dominated by the dry season while in the past it was dominated by the rainy season. This reduction of rainy season coincides with urbanization.

Scientifically informed accounts of seasonality began in the twentieth century. This limits our understanding of seasonality changes from an exclusively scientific perspective. There is agreement between scientific accounts regarding the ratio of seasons as well as the months of each season. However, Hubert's account, probably the most comprehensive of all, suggests an increase in the length of the rainy season by one month. Curiously, Huber's account of seasonality is very similar to the

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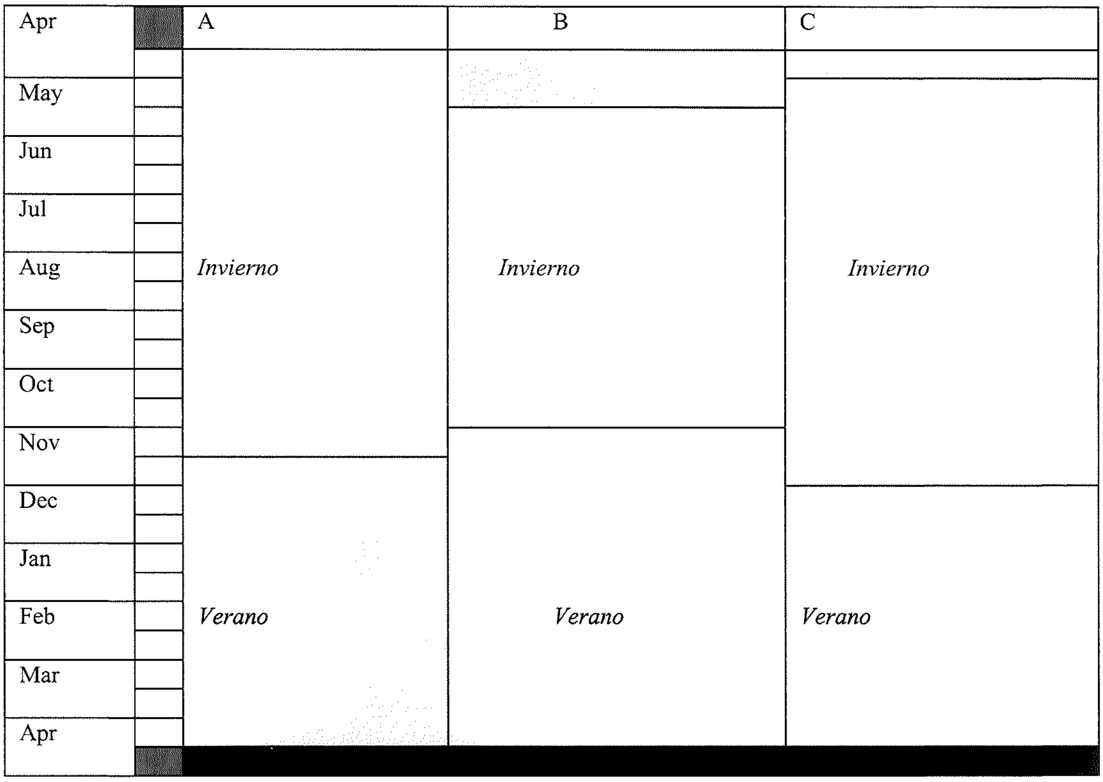
[2] (see http://www.ucab.edu.ve/estudiantes/venezuela/geoehist/geogra/caracas.htm http://www.infodestinations.com/venezuela/espanol/caracas/index.shtml).

traditional model, in terms of ratios of seasonality and the dates marking each season.

Current scientific accounts of seasonality for the area do not match lay perception of a reduction of rainy season during the twentieth century as shown in the comparison of traditional and current lay models. However, compared to historical lay accounts (Pimentel and Diaz), scientific accounts of seasonality report a reduction of the rainy season. Table 3.6 compares the traditional model of seasonality with the current and scientific model for the area of Caracas.

**Figure 3.3** - Models of Seasonal Periodicity (A- Traditional model; B- Current model; C- Scientific current model)




Our interest here is to compare historical accounts describing the local climate seasonality including scientific characterisations based on systematic measurements in order to grasp and explore the transformation of climate seasonality and perceptions of it. There is only one particular reason for this. While scientific measurement of climate variables such as temperature and humidity were conducted in the Caracas Valley since the eighteenth century, systematic data collection about its climate only began in the second half of nineteenth century. The Cajigal

Observatory in Caracas opened in the 1870s with the aim of studying local weather conditions.

As the systematic recording of measurements of weather variables in Caracas only began with the expansion of the city, there is not enough quantitative information to compare changes in seasonal periodicity in the area. In comparison to anecdotal evidence cultural models are hard data (qualitative data). In the absence of long-term systematic scientific data series for the Caracas valley and its city, traditional knowledge of the climate of one of its micro-regions may contribute to the understanding of this landscape's historical transformation and the people-environment relationship.

8. **Comparison of models**

The expansion of Caracas city and urbanisation of the Caracas valley have had a profound impact on its landscape, and in particular on its local climate. While the city used to occupy a small fraction of the valley, which was dominated by agricultural fields, coffee and sugar plantations, today it is the city that dominates the whole valley and spreads far beyond it. City expansion through urbanisation was preceded and accompanied by deforestation and expansion of the agricultural frontier far beyond the limits of the Caracas valley as the city's resource demands of resources for food, raw and industrial materials expanded.

Climate transformation characterised by rise of temperatures and reduction of precipitations is associated with deforestation, as lack of vegetation cover reduces humidity and increases heat retention during the day and heat release at night, leading to both extreme temperatures and extreme seasonality. Cities are islands of heat. Cities also produce large amounts of energy and waste that are liberated in the atmosphere, landscape and rivers from domestic and industrial consumption. In addition, as cities are dependant on rural supplies, and vice versa, what is now known as 'the city footprint' (the demand for materials and production of waste) explains the extent to which cities affect environments, far beyond their immediate surroundings.

The climate of the Caracas valley, specially its seasonal periodicity, has been changing along with (and primarily as a result of) social transformations leading to the expansion of its city. Consequently, local vernacular conceptualisations of the weather have also changed to accommodate this variation. However, changes in the local climate cannot be understood (and in fact they are not understood by vernacular and scientific minds alike) as isolated phenomena resulting from the expansion and modernisation of Caracas city. In fact, these changes are now beginning to be understood within the frameworks of global climate change as well as global weather systems through complex scientific models.

Moreover, urbanisation and modernisation have also had an impact on the appreciation and conceptualisation of the landscape, particularly the so-called natural environment. Today's vernacular climate model is a simplified and modified version of the complex climate model previously used in the area by local peasants.

It is a simplified version as it only recognises the two major seasons of the former model. Whereas today people recognise two seasonal periods, the traditional climate model also identified several micro-seasons and additional transitional periods. It is a modified version of the traditional model as season lengths have changed along with changes in the dates of each major season. Unlike the traditional model of weather, the current model only takes into account rainfall. The traditional model, while focusing on rainfall, also takes into account other climate factors such as direction of rain, winds, fog, clouds, temperature, and humidity, among many others. Compared to the old model, the current model of seasonal periodicity appears to be vague. In addition to its simplified nature, there is no consensus on dates as well as on the length of each season.

As urbanization had erased the specificities of the Chacao microclimate, the current model is not intended solely for this area. In fact, it is a de-located knowledge. On the one hand, knowledge of seasonal periodicity has evolved in order to adapt to ecological changes in the landscape, including its climate, showing the capacity of local knowledge to transform and adapt to new conditions and challenges. On the other hand, it has also, and more importantly, devolved as knowledge has been simplified as a direct result of social transformations.

Urbanisation has radically changed our relationship to, as well as our understanding of, the landscape, including the climate. One of the major effects of modernisation is the extinction of experience of the natural world due to both changes in the relationship with nature (as urban subsistence does not directly depend on agriculture) as well as poor environmental conditions of urbanised areas (Atran, 1999). As a result, urban vernacular knowledge of the climate is not only an adaptation but also a simplified and devolved version.

While the accuracy of traditional knowledge was based on its detailed understanding of local landscape, the accuracy of the modern model of seasonality depends on its generality. People of Chacao used to have a model of seasonality which specifically fitted its microclimate whereas today the same model of seasonality is applied to almost the whole country. Its simplicity allows this knowledge to be applied globally rather than locally. As such, greater resolution of local knowledge is replaced by generalised and less detailed precision.

By contrasting, on the one hand, two successive historical vernacular models of seasonality of the same area of the Caracas valley (Pedregal-Chacao), and on the other, comparing vernacular knowledge of seasonality with a scientific characterisation of the same climate as well as historical written accounts of local seasonality, we have charted the social history of the climate of the Caracas Valley, particularly of the Chacao area. In the absence of quantitative data the traditional model of seasonality stands as the most complete account/model of periodic seasonal changes of the Caracas Valley before its urbanisation. Its contribution to the reconstruction of landscape transformation cannot be underestimated.

Understood as part of the landscape, the seasonal periodicity of Caracas is in part the outcome of the historical relationship between its local society, the local environment and the articulation of the both into broader social and ecological world systems. Therefore, the local climate, as much as any other aspect of the landscape, cannot be seen as just part of the natural setting but the outcome of a dialectical relationship between society and environment (Balée 1998).

## 9. **Conclusion**

The previous section refers to an understanding of the current local climate as the outcome of the historical interaction of society and environment, both at local and global level. This approach introduces the history of human relationships with the environment as a key factor in shaping the landscape and its cultural representations. Thus, it also highlights the dynamic nature of folk-knowledge. Moreover, it also advocates the use of local knowledge and meanings as sources for the understanding of "natural" ecological systems: an intellectual rather than practical contribution of local knowledge to the global scientific knowledge.

Within one generation the perception and knowledge of local climate of the Chacao area has changed resulting in two successive models of the annual climate cycle (seasonal periodicity): the traditional/rural model and the current model. The drastic landscape transformation brought about by the expansion of the city of Caracas has rendered the Chacao traditional model of seasonal periodicity not only obsolete but also inaccurate. It is obsolete as city people pay less attention to the weather and even less to peasant knowledge regarded as backward and non-rational, in need of replacing by educated, scientifically based knowledge. It is also inaccurate, as it cannot account for current weather conditions. In addition, as a direct result of urbanization Chacao people –and the rest of Caracas urban dwellers- have become less directly dependent on the seasonal variation of the climate for their subsistence as ecology and economy are now divorced. As a result, the current model of seasonal periodicity is a simplified and modified version of the complex climate model traditionally used by Chacao peasants.

## Chapter 4

### Palmeros de Chacao: A successful case of bio-cultural diversity conservation?

#### Introduction

In the previous chapter we examined some aspects of the dynamic relationship between El Pedregal's ethnoecological knowledge and its socio-cultural context. We charted the transformation of vernacular conceptualisations of seasonal periodicity as a result of changes in the landscape caused by the process of urbanisation of the Chacao area. We also used the traditional climate classification to reconstruct past rural climate from the local point of view in order to give insight into the drastic transformation of the local landscape. This chapter deals with some of the ways these drastic socio-ecological changes have also affected practices related to ethnoecology. It introduces the Palmeros de Chacao, a pilgrimage to collect palm leaves on a national park, and explores changes affecting this practice and its related knowledge. It focuses on knowledge transfer and the recycling of ecological and conservationist rhetoric by the Palmeros and the political mobilisation of the notion of ethnoecological knowledge as they accommodate to the demands of the park authorities. The transfer and recycling of ideas, discourses and images related to indigenous environmental knowledge between different actors and contexts in the development and conservation spheres has been the focus of recent research, including its political mobilisation (Ellen et at. 1998).

It is assumed that the appropriation of current conservationist discourse by indigenous and traditional people contributes to their claims of stewardship and ownership of natural resources and land (Baviskar 1998). By emphasising links between biological and cultural conservation, the notion of traditional ecological knowledge is given a new key role in negotiating such claims. Little has been said, however, about the negative and unintended effects of this appropriation on indigenous and traditional ecological knowledge.

The *palma bendita* or holy palm (*Ceroxylon ceriferum*) is intimately linked to the history and cultural identity of Chacao (See figure 4.1). The Holy palm has also been the focus of intense conflict between the people of Chacao, and today specifically from the El Pedregal community, and State authorities such as local government, national park authorities, the National Guard and Environmental bodies.

## 1. The Palmeros, pilgrimage and traditional knowledge

The Palmeros refers to an annual pilgrimage to the mountain forests of El Avila National Park, to harvest holy palm for Palm Sunday. This traditional pilgrimage has successfully survived the effects of both modernisation and urbanisation brought to the Chacao area by the expansion of Caracas city, as well as the declaration of El Avila as a national park. Since the creation of the National Park (1958) there has been controversy between park authorities and the Palmeros over the ecological effects of the pilgrimage on the forest and its feasibility. As the main objectives of the national park are to conserve natural habitats and wildlife, park authorities, as well as conservationists, have viewed the Palmeros as causing degradation of ecosystems. Their perception of the pilgrimage has been one of, borrowing the words of Ellen and Harris, a "delinquent pattern of resource extraction" (1998:12). Apart from a ban that lasted 10 years, the park authorities have tolerated or been forced to permit the Palmeros' pilgrimage on the grounds that it is a traditional use of the mountain forest, originating prior to the creation of the park. Figure 4.2 shows the moment when Palmeros announce their arrival back to Chacao with the palms. Figure 4.3 presents a group of palmeros preparing to return with the palms back to Chacao, circa 1950.


**Figure 4.1-** Holy palm (Ceroxylon ceriferum) is blessed and distributed during the celebration of Palm Sunday in Chacao.
Main picture: Ceroxylon ceriferum in the moist forest, Cerro La Palma. Bottom right: Palm Sunday, Chacao. Top right: Palm crucifixes.

**Figure 4.2**- Palmeros announcing their arrival in front of the main door of the Chacao church. This moment marks the fulfilment of the Palmeros mission of bringing the holy palm for the celebration of Palm Sunday.

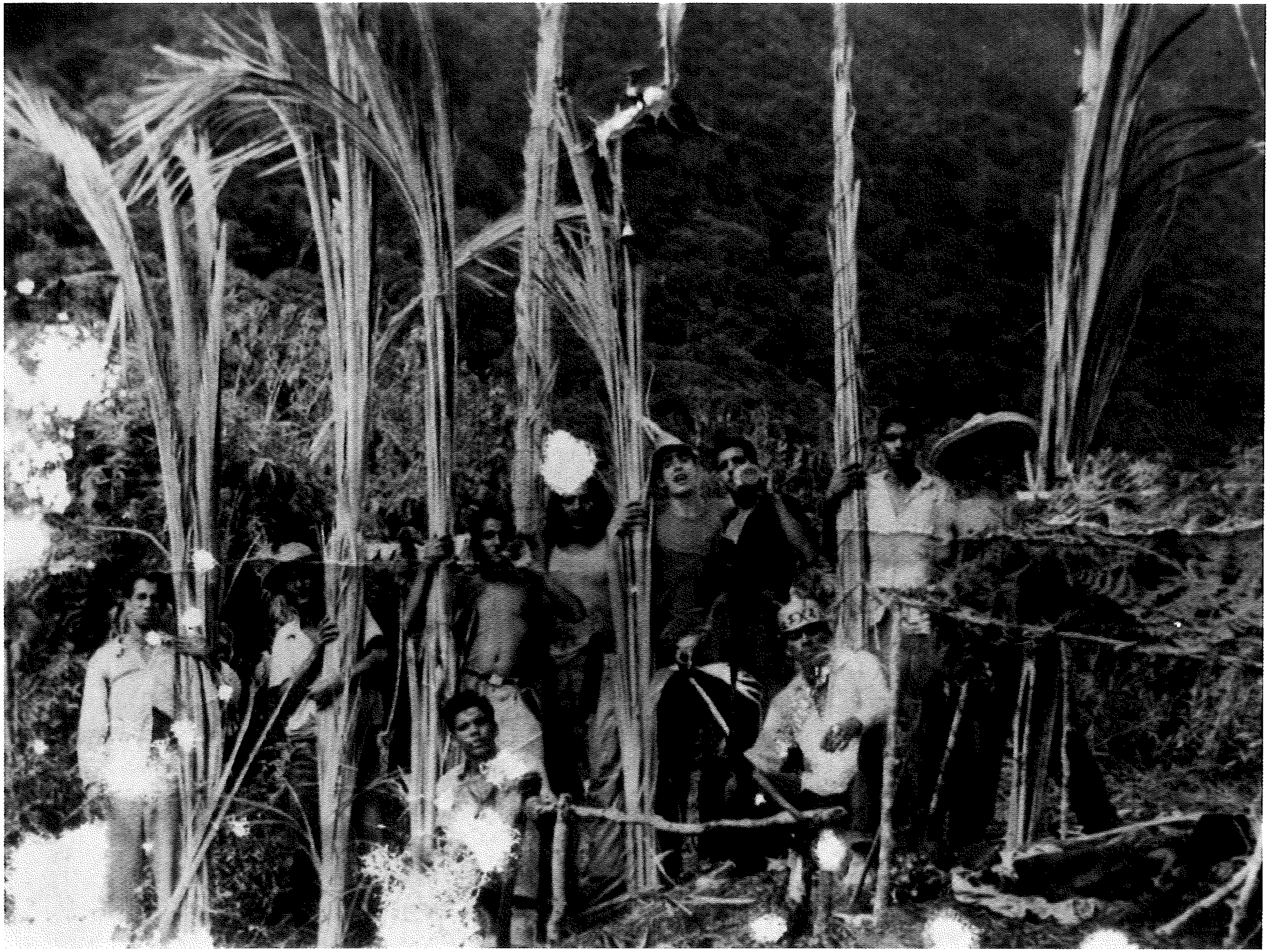




**Figure 4.3** - Palmeros preparing to descend with the holy palm. Dormidero, circa 1950.

Reported conflicts between the National Park authorities and indigenous or traditional people have focused on prohibiting access to natural resources used by local rural people for subsistence or to participate in markets (cash crops), in order to protect wildlife and biodiversity (Baviskar 1998). However, in the Palmeros' case, local claims of access and stewardship of natural resources are made for religious or symbolic purposes by an urban and modern population. While resources inside the park have lost any economic importance, access to the holy palms continues to be seen as crucial for the cultural survival of this section of the population.

Part of the success of the Palmeros' pilgrimage has been based on the political mobilization of the notion of traditional culture (cultural conservation). This idea of preserving a traditional cultural institution in the context of Venezuela's drastic social transformation has legitimised the continuation of an extractive practice of natural resources inside a national park. The Palmeros' appropriation or use of current environmental discourses that emphasise links between biological and cultural conservation have given a new key role to the notion of traditional ecological knowledge in negotiating with park authorities. Paradoxically, the political mobilization of traditional ecological knowledge has not guaranteed the survival of some aspects of the original corpus of this local knowledge and related practices.

According to today's Palmeros, they are the custodians of both cultural traditions and the natural environment. In addition to their religious mission of providing the municipality of Chacao with holy palms for Easter, the Palmeros like to present themselves as the stewards of El Avila National Park and of its holy palms. While the national park authorities and conservationists have accused them of practising an extractive activity that depletes the holy palm populations and degrades the forest in a protected area, the Palmeros argue that their harvesting practice, based on their sound traditional ecological knowledge, is not only harmless to the forest, but actually beneficial, as it promotes the growth of holy palm populations and protects them from other plant competitors. As such, the Palmeros present themselves as traditional conservationists (Alcorn 1994): a successful case of bio-cultural diversity conservation.

According to Richard Delgado, current secretary of the Palmeros association:

"By pruning the palms we help them to see the light. Thanks to our pruning palms can reach the forest canopy. Once blessed, it is the palms that help the people to see the light of God." (Reyes 2000: 83)

Another significant comment is provided by Reyes:

"Palms belong to God and they are offered to God by his people. As Palmeros our promise is to continue living together. We ascend to the mountain and share everything. Up there we consolidate a link, not just among the living people but with our forebears." (Reyes 2002:79)

In its new high profile role within political mobilization relating to the Palmeros pilgrimage, traditional ecological knowledge, specifically palm harvesting by pruning, is presented as timeless, unchanging and naturalized: a kind of wisdom. Traditional ecological knowledge is also presented as interconnected with religious and social knowledge, a kind of worldview that links social harmony to ecological harmony. As a result the pilgrimage itself also becomes naturalized. This not only hides the very dynamics of their traditional ecological knowledge, but also a history of transformation of both Palmeros harvesting practices and its related ecological knowledge. Paradoxically, the Palmeros are adopting a current environmental discourse that argues for biocultural diversity conservation while at the same time losing control over the conduct and organization of their pilgrimage, now in the hands of park authorities and government agents.

Every year the Palmeros have to apply for a permit to access the national park. The appropriation of current environmentalist rhetoric (emphasising links between the conservation of biological and cultural diversity and sustainability) is the latest strategy of the Palmeros in order to substantiate their claims of historical rights to harvest palms in line with the conservationist goals of the El Avila National Park. Yet this strategy entails a selective history. In this context, research suggests that what is actually presented as traditional (e.g. pruning knowledge, harvesting patterns and techniques) is more the product of hybridisation between traditional and scientifically based knowledge. In this hybridisation, the transfer of modern conservationist knowledge has prevailed over traditional knowledge.

The Palmeros, as well as the state, employ the notion of TEK (traditional ecological knowledge) to promote their own varied agendas. These processes raise questions about the ways in which we understand 'tradition' and 'traditional ecological knowledge' (Baviskar, 1998:101). Empowering the notion of traditional ecological knowledge, however, can be in terms of asserting people's rights, its political mobilization alone does not guarantee the survival of the same local knowledge upon which these claims are based. The adoption of current conservationist rhetoric may also be contributing to the erosion of local knowledge and traditional discourse. Global conservationist discourse could be as threatening to TEK as is global capitalism. Political mobilization may also open the possibility for TEK 'in situ' documentation and revitalization.

This chapter reviews the transformation of the Palmeros' traditional ecological knowledge in the context of its political mobilization. It analyses the Palmeros' strategies to conciliate their claims of historical rights to harvest palms in the Avila Mountain with the conservationist goals of the El Avila National Park. It also examines the impact of these strategies on local knowledge transformation. It argues that the survival of traditional ecological knowledge cannot be based exclusively on its political mobilization.

## 2. **Holy Palm and the Palmeros de Chacao: from a rural past to an urban present.**

Here we will describe the use of holy palms, the history and make up of the institution and organisation of the Palmeros, the ritual event and the social transformation of the area. While for over a century both the number of participants as well as the amount of holy palm harvested during the annual pilgrimage of Los Palmeros de Chacao had remained almost constant, this cultural institution has radically changed. Moreover, during the same period Venezuelan society at large, the socio-cultural context in which this traditional institution is embedded, has undergone dramatic transformations.

### 2.1. **Holy Palm**

Since colonial times *Ceroxylon ceriferum* has been the palm distributed on Palm Sunday in the Caracas valley. Its popular name is *palma bendita* (holy palm). It is also known as *palma real* (true palm). Holy palm and holy water are both collected at churches every Easter to protect families and houses throughout the year. According to Catholic tradition, holy palms are replaced every year at Palm Sunday in each house. Traditionally, holy palm leaves are kept in the houses to protect the family members as well as the property. They are distributed and blessed at church and are considered to be a protection (*protección* or *contra*) against evil. During the time of my fieldwork, bunches of wheat spikes and olive branches were also sold outside the churches on Palm Sunday and to be taken to church for the blessing. Wheat was an important naturalised crop in the Caracas valley, especially in Chacao, until the middle of the nineteenth century. However, wheat and olive are not considered now to be as powerful as symbols as the holy palm. At home, holy palms are displayed around the house and leaves can be shaped as crucifixes. Palm leaves can also be burned in case of an emergency such as a torrential tropical storm or an epidemic in order to placate malign forces. Some people carry small pieces of holy palm leaves in their purse as personal protection. Figure 4.4 shows a common display of holy palm along with other *contras*.

### 2.2. **The Palmeros' Pilgrimage**

The Palmeros is an annual male pilgrimage to the tropical moist broadleaf forests of El Avila National Park, to harvest holy palms for the celebration of Palm Sunday in Chacao. Today's pilgrimage involves the harvesting of 500 palm leaves by about 100 adults and 30 adolescents camping in the forest for two nights (See figure 4.5 and 4.6). On their return to the city, on the first Saturday of Easter, the Palmeros parade the holy palms through the streets on their way to the Chacao church. They are welcomed by a multitude of people, including their families, neighbours, local authorities and media reporters. The church then distributes these palms on Palm Sunday and the palms are blessed at the mass (See figure 4.7)

Today's Palmeros' parade is an integral part of Easter in the Chacao Municipality and probably the most important and distinctive religious celebration of the year, despite the fact that neither the pilgrimage nor the Saturday parade are part of the traditional catholic Easter rituals, which in fact start on Palm Sunday. Since the last decade, the pilgrimage has also achieved legal recognition as part of the cultural heritage (*patrimonio cultural*) of both the Miranda State and the Chacao Municipality. For most of its' members it is also one of the most important events of the year, the legacy of their forbearers, and the source and expression of their cultural identity. The tradition of being a Palmero is passed down through male family members (See figure 4.8). Despite all the obstacles imposed on the Palmeros, as we will see in this chapter, they still want to continue their traditional pilgrimage in a modern and urban context.

Unlike the Chacao church, most of the churches in Caracas now buy the palms that are distributed on Palm Sunday. They use palm species other than *Ceroxylon ceriferum. Corozo* (*Acroconia aculeata*) is now the palm most frequently acquired for distribution by churches. This palm is very common in low elevation, semi-deciduous forests outside of the Caracas Valley.

It is important to note that today the pilgrimage takes place under the strict surveillance of park personnel, military guards and environmental officers (plus the occasional ethnographer and media student) – supported by paramedics, mountain rescue teams, firemen among others- as well as under, literally, the lens of the national media (See figure 4.9). As the pilgrimage takes place inside a protected area, the Palmeros have been forced to apply for a permit to the park authorities since the creation of El Avila National Park in 1958. For the past three years, in addition to applying for the park permit, the Palmeros have also been forced to seek permission from an environmental protection tribunal for access to the national park during the dry season.

The pilgrimage is performed during the dry season (*verano)* when the vegetation of the mountain savannas of El Avila slopes is very dry. Numerous fires occur there at this time of the year with considerable impact on the park vegetation. Due to severe drought for the past three years there has been a total prohibition of access to the Avila National Park beyond the park rangers' posts: no overnight camping, smoking or cooking fires are allowed. The ban has been imposed annually between November and June, although the dry season traditionally used to take place form December to April. The Palmeros pilgrimage takes place between March and April, depending on when Easter falls. An environmental court (Tribunal Penal del Ambiente No.33) has been enforcing the prohibition through the national environmental attorney (Fiscal Nacional del Ambiente).

The Palmeros have been organized as a non-profit association (*asociacón civil sin fines de lucro*) since 1984 (See figure 4.10). It has a membership of over 300 people and a directive board. Palmeros directors/leaders are in charge of the bureaucracy, applying for the park permit, lobbying the media and the authorities, and coordinating the pilgrimage and parade. Each year the Palmeros need to apply for a park permit. While all pilgrims are inhabitants of the Chacao Municipality or descendants of Chacao inhabitants, most of them live in the community of El Pedregal.

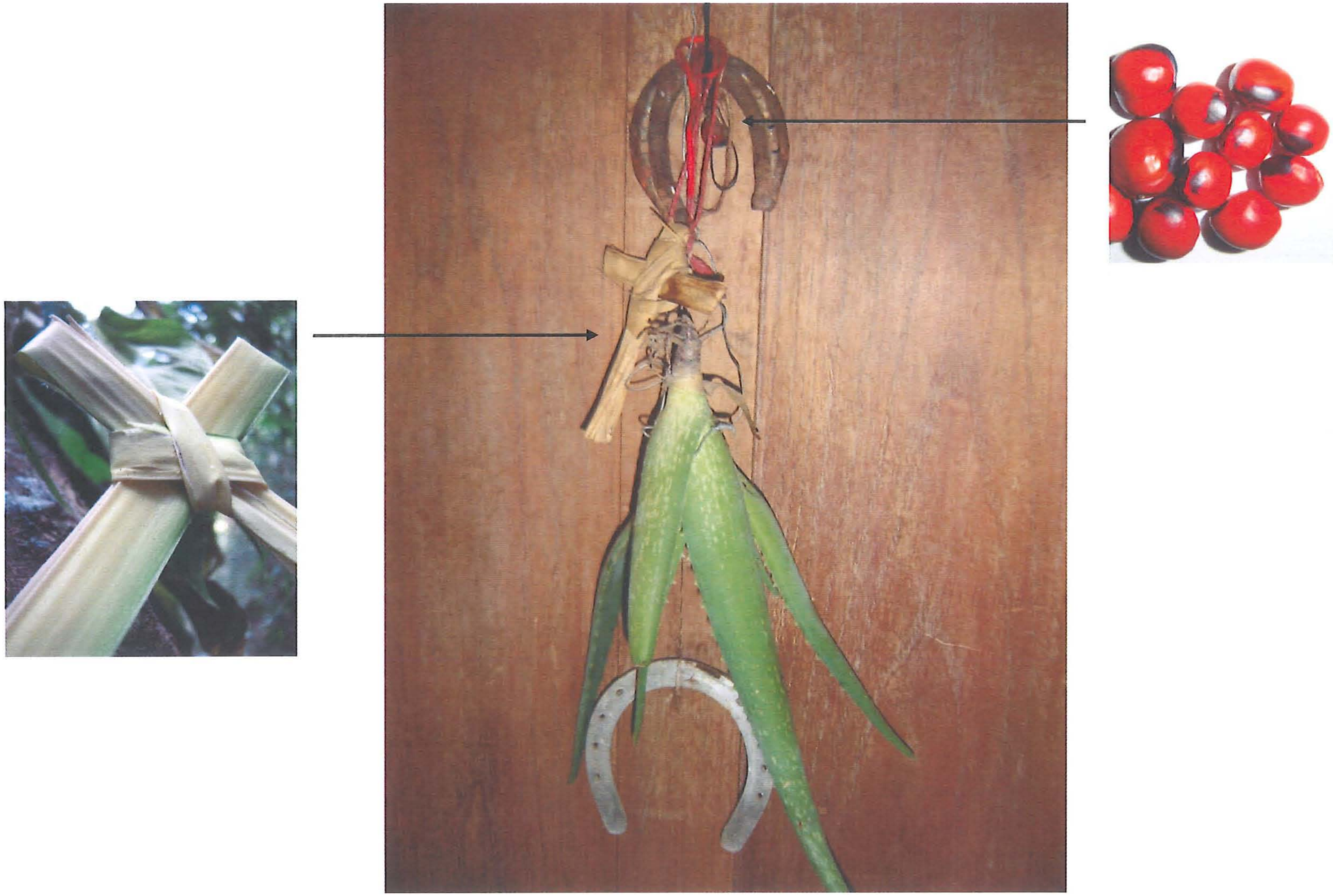


**Figure 4.4** - Protective plants. Holy palm (Ceroxylon ceriferum) –left- and peonía seeds (Ormosia coccinea)- right- collected during the Palmeros pilgrimage, are used as protection or contra. Centre: Contras placed behind the main door of Luis Enrique Reyes house.

**Figure 4.5** - La Cueva de los Palmeros camp. A group of palmeros resting in the camp on the first day of the pilgrimage. Note the palm leaves at the bottom left of the picture, 1992.



**Figure 4.6** - La Cueva de los Palmeros camp. Palmeros resting in the camp on the second day of the pilgrimage, 1992.

**Figure 4.7** - Marking the end of Palmeros parade. Parade arriving back in Chacao.


**Figure 4.8** - Palmeros through the generations, twentieth century. This figure shows four generations, out of five generations documented, of the Reyes family. Matias Reyes, top left, was born circa 1896 (Black and white pictures by Pedro Povea).

**Figure 4.9** - The Palmeros pilgrimage takes place under the surveillance of the National Guard.


**Figure 4.10** - The Palmeros de Chacao are organised as a non-profit association since 1984. Top: Palmeros membership card and its holder, Regino Farfan. Bottom: Palmeros meeting, February 2003.

### 2.3. **From rural to urban**

The Palmeros' pilgrimage is a traditional institution that has successfully survived the effects of both modernisation and urbanisation, brought to the Chacao area by the expansion of Caracas city. Since the 1970s Chacao has been the richest and most modern municipality in the city of Caracas. Located in the north centre of the Caracas valley, at the edge of El Avila National Park, Chacao is now the commercial and financial centre of the country and the site of business headquarters and luxurious neighbourhoods. As in the rest of the Venezuela, the pace of social and economic change has been rapid. Fifty years ago it was a small town surrounded by coffee and sugar cane plantations. Unlike other Caracas neighbourhoods which are socially mixed, Chacao is now populated predominantly by the middle and upper classes, living in modern neighbourhoods.

El Pedregal is one of the few *barrios* (working class neighbourhood) in Chacao. Unlike most of the *barrios* of Caracas, which were the product of immigration (from other parts of Venezuela) El Pedregal was created by local peasants and small landowners. Relatively isolated and highly differentiated amongst modern, richer neighbourhoods, it retained a very rural character until the middle 1960s. People from El Pedregal view themselves as Chacao's original population (*población autóctona*) and the urban bearers of traditional rural practices and knowledge. They are proud to be the keepers of Chacao's main religious celebration, Los Palmeros de Chacao (See figure 4.11).

The explosive urbanisation and expansion of Caracas city have modified the nature and extent of the Palmeros's relationship with the park. In addition to the pilgrimage, El Pedregal people used the Avila mountain before it became a national park for hunting, gathering  (medicinal & edible plants, timber for fuel and construction) and as a hiding place during political strife. Today the Palmeros livelihoods do not remain dependant on resources within the park. In this changed context, however, certain activities remain salient. Access to the holy palms continues to be crucial for the cultural identity of this section of the population.

**Figure 4.11** - Changes from the 1950s to 1960s in the pilgrims' dress code. These pictures show the move from being peasants to urban workers.

Today the Palmeros pilgrimage appears to be a tradition exclusive to the Chacao area: a particular cultural feature of its population. However, a historical approach reveals that this pilgrimage was a practice common to most of the small towns on the East side of the Caracas valley. What is particular about Chacao-Pedregal urban culture is the retention of this traditional feature previously shared by peasants of the Caracas Valley. Old Palmeros remember that right until the end of the 1930s, before the advent of urbanization, there were other groups of Palmeros from nearby towns and villages (Sabana Grande, El Hatillo and Baruta) that harvested holy palms in the Chacao area of the Avila Mountain.

### 2.4. **The Avila National Park**

The Avila National Park borders Caracas to the north and includes part of the Coastal Mountain Range that separates the Caracas valley from the seashore. The highest peak is the Naiguata Peak (2,765 m). Occupying a vast mountain region of 85.192 Ha (210,509 Acres), it includes vegetation zones of savannas (1,000-1,500 m) mainly created by fire throughout the centuries, tropical forests (1,500-2,100 m), and Sub-paramo (2,100-2,765 m). Declared a national park in 1958, it is the largest and most accessible national park near an urban area in Venezuela. According to Park authorities the extraordinary landscape embodies biological diversity and historical patrimony. Figure 4.12 shows the approximate area of the Palmeros harvesting ground in the Avila National park.

Early portraits of the Avila, including sketches by Alexander von Humboldt (1800), depict a largely deforested mountain with grasslands occupying most of the southern slopes and a narrow band of cloud forest at the top (Manara 1998:127). Indeed, the Avila has been cultivated for many centuries and the remnants of old coffee plantations, Spanish mule trails and colonial dwellings abound. There are several farming communities in El Avila, which were there before it was declared a protected area. The forest cover has been regenerating since the last century, a trend reinforced by the creation of the park.

The Avila is an important natural landmark for the people of Caracas. It dominates the landscape of the Caracas valley and provides a convenient reference for orientation. With its popular public footpaths for walkers, and camping sites it has become, as a visitor guide describes "the place where the Caraqueños release their daily tensions and escape to an encounter with nature".

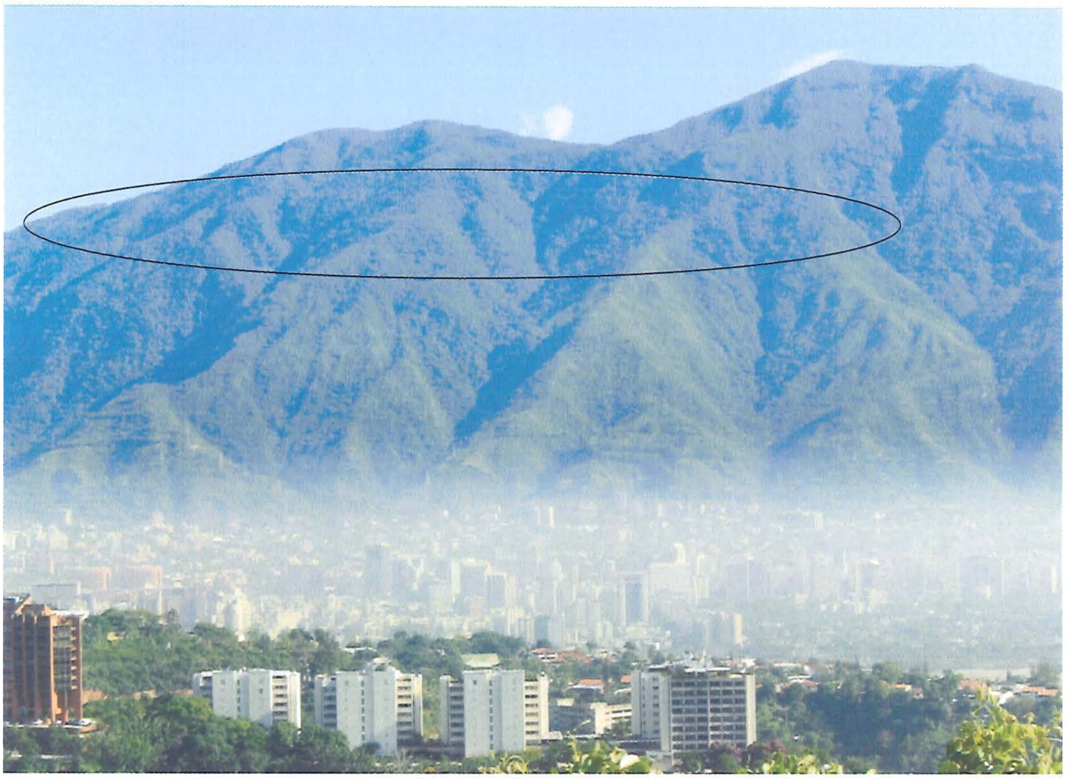


**Figure 4.12** - Palmeros' harvesting grounds, Cerro La Silla de Caracas, El Avila National Park.

3. **Cultural Landscape and naturalized wilderness.**

This section shows how the Palmeros' pilgrimage challenges public perceptions and legal definitions of the Avila National Park as wilderness landscape. Attention is given to National Park and conservationist organizations arguments regarding the Palmeros' impact on biodiversity. In doing so, it underlines both the wilderness landscape as well as the Palmeros' cultural landscape as cultural constructs. The argument looks at cultural heritage conservation versus biological conservation.

The area the Palmeros consider as their traditional harvesting ground is among the most visited in the Avila National Park. The Palmeros have been under the scrutiny of park authorities as well as general public, including conservationist groups. For them, the park is considered and experienced as a natural landscape, ignoring that past and present human intervention have altered and shaped its ecological outcome. For city people El Avila National Park appears as a natural space, exterior to them and without human traces: the domain of wilderness. However, for the Palmeros it is a cultural landscape: It "is a product of past activity that requires constant cognitive attention and behavioural intervention to preserve and reconstruct what is valued in contemporary images of the past."(Frake 1995:91). Caraqueños seek in El Avila a spiritual experience of nature, Palmeros seek a spiritual experience of a different sort: a link with their forebears, origins, identity and culture. These historic ties to the land as a cultural landscape form the base upon which Palmeros claims of rights of stewardship of the national park are made.

The *palma bendita* or holy palm (*Ceroxylon ceriferum*) is linked to the history and identity of the people of Chacao municipality. The historical long- standing relationship that the Palmeros have had with the Avila mountain, however, is not reflected in modern Caraqueños perceptions of the park as natural wilderness, neither is it reflected on modern park maps nor features on the park literature. For most Venezuelans it is a hidden history. As an example, we could use place names as a quick index of the historic relationship of the Palmeros with the mountain. As we will see in the following chapter, the Palmeros have more than 80 names for places located in the area traditionally used for palm harvesting. Only 19 (24 percent) of these place-names are included in the park maps.

Although the Avila National Park is seen as much as being promoted by the park authorities as harbouring both natural and cultural (historical) heritage, the Palmeros' pilgrimage and related knowledge (e.g. place names) are not granted the same status as cultural patrimony vis-à-vis the materials remains of historic human presence such as ruins of coffee plantations, Spanish colonial forts, colonial mule trails or indigenous stone walls (historical objects). While having gained official recognition as cultural heritage at local and State level after intense lobbying, the Palmeros pilgrimage remains a controversial issue annually debated in national newspapers: cultural heritage conservation versus biological conservation. Moreover, the recognition of the pilgrimage as cultural heritage has neither changed nor challenged the public perception that the long-standing relationship of the Palmeros with the Avila mountain has had a negative outcome for nature. The Palmeros are viewed as culpable in degrading the ecosystem.

National parks are the domain of wilderness and as such are to be perceived and experienced by its users. As "legal wilderness", national parks functions…

"to provide solitude and counterpoint to technological society in a landscape that is managed to reveal as few traces of the passage of other human as possible. Contemporary wilderness visitors are just that. Unlike the hunters and gatherers who preceded them on the land, moderns who enter wilderness do so not to live on the land, nor to use it, but rather to experience it spiritually. Protecting the spiritual values of wilderness of its users has been the principal aim of wilderness managers." (Graber 1995:124).

Since the creation of the national park (1958) there has been controversy between park authorities and the Palmeros over the ecological effects of the pilgrimage on the forest. As the park objectives are to conserve natural habitats and its wildlife as well as wilderness, park authorities have viewed the Palmeros not only as a 'biotic pressure' threatening the biological conservation but also as spoiling other visitors' spiritual experience of wilderness (See figure 4.13).

While the Palmeros' pilgrimage is a traditional activity, the park itself is of recent creation. However, destructive though the park authorities may consider the pilgrimage, the Palmeros claim undeniable rights to harvest the holy palms, and as noted part of the success of the Palmeros' pilgrimage has been based on the political mobilization of the notion of traditional culture (cultural conservation). This idea of preserving a traditional cultural institution in the context of Venezuela's drastic social transformation has legitimised the continuation of an extractive practice of natural resources inside a national park. Park authorities have been forced to authorize the pilgrimage on the grounds that it was a traditional use of the area prior to the park's foundation.

After the 1974 prohibition the Palmeros put emphasis on conservationist education of its own members. In order to be accepted as cultural patrimony the Palmeros were encouraged to embrace the idea that their practice was destructive to nature and underwent a program of conservationist education. As a result, their ecological knowledge transformed in contact with scientific-based conservationist knowledge. Since then, the framework imposed by the national park has conditioned the Palmeros' re-elaboration of their rhetoric, including the adoption of a conservationist discourse, as well as of their practice. This has been for them a strategy to conciliate their claims of historical rights of palm harvesting with the conservationist goals of the National Park.

**Figure 4.13** - Palmeros' behaviour is not contemplative of nature but festive and includes joking, shouting and blowing horns.
La Cueva de los Palmeros, 1992.

## 4. **Formulating Palmeros' new ecological role**

I have attended the Palmeros pilgrimage on six occasions (1991, 1992, 1993, 1996, 1998 and 2003). Each of these times I went to the preparatory meetings and joined a group with which I spent my time in the mountain, including harvesting palms. So far I have attended the pilgrimage with four different Palmeros groups. My original interest in the pilgrimage was focused on its social aspects, particularly its significance as an inter-generational social institution of the people of El Pedregal. It was only later, after walking the forest looking for palms for many years in company of many knowledgeable people, that I began to pay attention to their ethnoecology.

It was during the 1998 pilgrimage that I listened to the Palmeros for the first time arguing between themselves about their relationship with the landscape and the palms. In this discussion they took the issue of biological conservation beyond ideas of reforestation and garbage collection. Until then, most talk relating to ecological issues emphasised the need for the Palmeros to change the way the pilgrimage is conducted and to participate in the conservation of the Avila National Park by collaborating in reforestation, garbage collection and fire extinction campaigns along with the park authorities.

It was late nigh in March 1998 in the Dormidero camp when a group of Palmeros began to talk about their perceived relationship with the palms. Some of them argued that they were already part of the forest as they have been harvesting palms since at least the creation of the Chacao town at the end of the XVIII century. It was their view that since their practice produces no damage to the forest (e.g. palm population was not declining as a result of harvesting) there may be a symbiotic relationship between them and the palms. Central to this argument was the practice of pruning and the conviction that this harvesting technique was not only harmless, but also beneficial to the palms. Careful harvesting of the palm by removing up to two new leaves and always leaving the newest leaf untouched, they argued, not only allows the palm to survive but also this pruning stimulates its development. They said that they need the palms to continue their pilgrimage as much as the palms need them. By harvesting the palms, carefully pruning only some of their new leaves, they were also protecting the forest and promoting the growth of the palms. In this way they were positioning themselves not only as protecting traditional cultural practices but also, and more importantly, as simultaneously conserving biological diversity. In fact, they were talking in terms of biocultural conservation.

While some people were initially dismissive of this idea others embraced it and elaborated on it. At least the forest tolerated their intrusion, argued the least convinced. I was surprised by this conversation and the complex ideas expressed in the forest by the practitioners of this traditional pilgrimage. For me, it was the first time than the issue of ecology and conservation was not restricted to topics such as garbage collection, palm overexploitation, fire control or reforestation campaigns. These issues had been indoctrinated in them by the park authorities while simultaneously they were portrayed as an ecological hazard. Biological conservation has also been used as an argument to ban or control their pilgrimage. As a result, the Palmeros have embraced conservationist discourse and practices in an effort to accommodate park demands. That night was the first time I heard the Palmeros using ecological arguments to support their pilgrimage and to describe it in an ecologically sound way. At that time, the issue was being raised on an informal conversation among the pilgrims. Today, the depiction of the pilgrimage as an ecologically sound traditional practice is an explicit strategy adopted by the Palmeros in their dealings with the park authorities and the media. These changes in the conception of the pilgrimage by their participants are also related to the activities of a biologist commissioned by the park authorities to find evidence of forest degradation by the Palmeros pilgrimage.

During my fieldwork in 2003, I accompanied Dr. Argelia Silva to the pilgrimage. She is a biologist from the Ministerio del Ambiente in charge of patrolling and monitoring the harvesting. She was accompanied by a group of five Palmeros. We ascended the mountain two days before the pilgrimage began, escorted by two soldiers of the National Guard. The aim of this earlier ascent was to document the conditions of the forest in general, e.g. effects of severe dry season of forest understory, and of the palms in particular. In the case of the palms, the biologist had identified several palm groves near the Palmeros camps in different stages of development. In addition, she had demarcated several plots in the forest containing palm populations. Overtime she has been systematically measuring their development and the impact of the Palmeros practices (See figures 4.14, 4.15, 4.16). I followed Dr. Silva during her surveys and patrolling work. She told me about her research as she was conducting it. I also accompanied her in some of the informal meetings she held with groups of Palmeros. Some of them took place inside her study plots.

**Figure 4.14** - Dr. Argelia Silva and Eduardo Marquez measuring a palm trunk on a forest plot near *La Aguaita*.

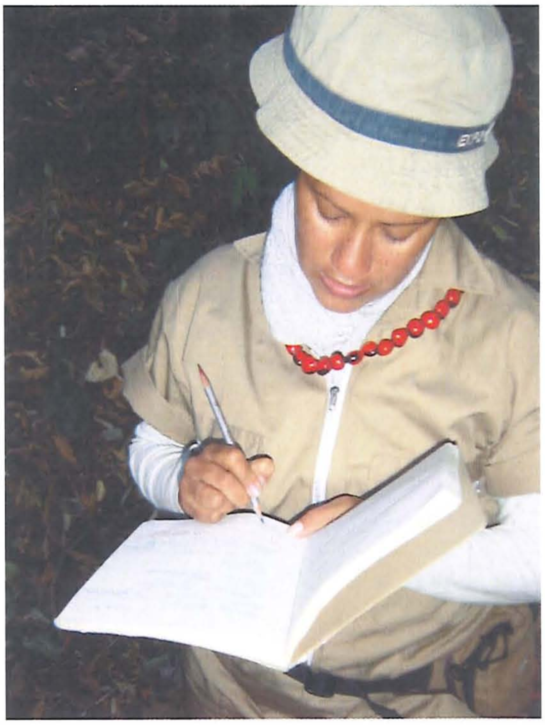


**Figure 4.15** - Dr. Argelia Silva collecting data on her notebook at a forest plot near *La Aguaita*.

**Figure 4.16 -** Eduardo Marques tagging a palm with a painted number at forest plot near *La Aguaita*.

Of particular interest to the biologist were two forest plots containing young palm groves that she literally has been documenting from "birth". For two days we inspected plots, measured palms, counted their leaves and observed their conditions. The palms in the plots are numbered and they were repainted. After the survey Dr. Silva spent the rest of her stay talking to Palmeros about her findings, taking them for walks in the study plots or visiting new clearings in the forest. On the final day of the pilgrimage, before descending the mountain, the harvested palm leaves were counted and their length measured in order to verify the quota of palms authorised by the authorities.

Around the same time I began to attend the pilgrimage for the first time, Dr. Argelia Silva was commissioned to study the effects of the Palmeros on the population of holy palm by the national park authorities. She was personally assigned to find scientific evidence that the palmeros practice was destructive and merited banning or at least strict controls. She received direct instructions by the then Avila national park director who for decades had been personally involved in banning that practice.

Neither as a park officer nor as a woman was she welcomed. She spent most of her stay in the mountain with small groups of young palmeros and some of the leaders isolated from the main groups, visiting distant palm groves dispersed in the forest. Her presence in the camps was related to patrolling and involved activities such as counting palm leaves. She visited groves before or after they were harvested rather than during harvesting as groups feared being judged by the officer. As a woman she was rejected by the men over 45 years old, the more traditionalist and conservative of the pilgrims, as attendance to the pilgrimage is restricted to men. In fact, the Palmeros do not tell their women what takes place on the mountain. As a result, her initial contacts were restricted to monitoring the impact of the Palmeros practice on the forest rather than participating in it.

It was in 1993 that I had first meet Dr Argelia in the forest when our group met her surveying team in the Cerro de No Te Apures. I was surprised that the park had put a woman in charge of patrolling a secretive male pilgrimage. For me this was a clear sign that the park had no respect at all for the Palmeros. Contrary to my expectations Dr. Silva was very interested in the pilgrimage. She was impressed by the physical and emotional demands of the pilgrimage and by its symbolic importance to the pilgrims, their families and their community.

Since 1990 Dr. Argelia Silva has been mapping and surveying palm groves, observing the impact of the Palmeros practices, regulating and patrolling pilgrimage. She has been involved in rationalising the harvesting and the allocation of palm groves to the Palmeros groups. Her extensive survey and evaluation of palm groves shows no destruction or damage of the palm populations by the Palmeros, apart from few isolated incidents. Since that time no fires or other accidents or, altercation with park and army people have taken place.

She has been instrumental in building a collaborative relationship between the park authorities and the Palmeros rather than the confrontational one that previously existed. Initially, she was sent to endorse the view that Palmeros act as a ecologically degrading practice by finding material evidence of it. She could not find such evidence. Though first rejected, she was then welcomed by the Palmeros. She was invited to participate and witness the significance of pilgrimage to participants and their families. She also noted how, in order to preserve their practice, the Palmeros were willing to negotiate, adapt and comply with park demands. She softened the approach of the park authorities and recommended the continuation of pilgrimage under the park supervision.

Subsequently she has invited the Palmeros to participate in conferences and related activities. For example, in September 2003, they were invited to attend a conference on palms at the Jardin Botanico de Caracas (Caracas botanical garden) (See figures 4.17 and 4.18). There the Palmeros set up a photo exhibition and gave a presentation. When she began to work with palmeros she was a botanist working for the national park, now she is the director of the biodiversity education department at Ministerio del Ambiente (MAR).

**Figure 4.17** - Dra. Argelia Silva, Luis Enrique Reyes Jr., Dr. Aníbal Castillo Suárez, director of the Jardin Botanico de Caracas, and Luis Enrique Reyes attending a conference on palms at the Jardin Botanico de Caracas, September 2003.

**Figure 4.18** - Palmeros exhibition at conference on palms at the Jardín Botánico de Caracas, September 2003.

Dr. Argelia Silva began her research thinking, like most of her peers, that the holy palm (*Ceroxilon ceriferum*) was a threatened palm specie. This idea was related to the static view of the forest dominant until recently in scientific circles. Holy palm was considered, and still is considered so by many, a representative specie of the primary forest; a tall tree that takes decades to reach maturity and to reproduce. From this perspective, the harvesting of palm was threatening the survival of the palm population as primary forest once it has been altered it does not revert to its pristine state. As such the Palmeros were altering pristine forest and degrading it. Even pruning practices could be considered to put pressure on the palm population.

After years of observations she could not find evidence of forest degradation. In fact her research challenged her views. First, she did not find evidence of damage on palms or a decline in the number on palms. On the contrary and to her surprise, she noticed an increase of the palm population in the area surrounding one of the Palmeros camps. She also observed that the forest was not static in any way; that natural phenomena such as storms and winds produced extensive forest modifications such as forest clearings. These modifications were of a much larger magnitude than the ones produced by the Palmeros pilgrimage.

Three years after Dr. Silva began surveying palm groves a tropical storm hit the Caracas Valley and the city of Caracas on the 8 of September 1993. Storm Bret caused extensive damage in the city. High winds and tropical rain destroyed houses and disrupted power and communications systems. The forest of the Avila national park was also affected. In the area of the Palmeros harvesting several clearings appeared as large trees fell as a result of high winds. Two of the clearings were located along a trail about 300 meters and 150 meters respectively from the Cueva de los Palmeros, the main palmero camp situated in the forest near the Quintero ravine (See figures 4.19, 4.20 and 4.21).

**Figure 4.19** - A clearing in the forest produced by fallen trees during the tropical storm Bret, 8/8/93.
A view of the canopy.

**Figure 4.20** - A clearing in the forest produced by fallen trees during the tropical storm Bret, 8/8/93.
A view of the ground showing the base of a fallen tree and pioneer vegetation.

**Figure 4.21** - A clearing in the forest produced by fallen trees during the tropical storm Bret, 8/8/93. A view of a fallen large tree.

A year later on the following pilgrimage Dr. Silva noticed several small holy palms growing between the fallen trees competing with secondary vegetation mainly vines and grasses. This observation passed almost unnoticed by her. At that time she was unaware of the significance of this observation. The following year during the pilgrimage she observed how the palms have developed but also that more palms were growing in the clearings. At the beginning of December 1999 continuous rains produced massive landslides on the coastal area near Caracas producing 30,000 casualties (See chapter 3). The landscape of both slopes of the Coastal Cordillera system was modified including the forest of the Palmeros areas. Some new clearings appeared and existing ones increased in size. As previously observed palms began quickly growing in the clearings. After years of informal observations Dr. Silva then realised she was witnessing the establishment of palm groves (See figures 4.22, 4.23 and 4.24).

**Figure 4.22** - A clearing in the forest produced by fallen trees during the December rains, 1999. Notice the palms growing among the fallen trees.

**Figure 4.23** - Dr. Argelia Silva next to some holy palms in a forest clearing opened during the tropical storm Bret, 8/8/93. These palms are at least 10 years old.

It was not just her that noticed this fact. The Palmeros did too. Rapidly the Palmeros started exploiting some of these young palms. Again to her surprise there was not visible damage of or decrease of plant population. In fact by reviewing the location of current grounds of palm harvesting she realised that most harvesting is done on areas of forest regeneration rather than on mature forest (See figure 4.25). These clearings –at different stages of regeneration- have been the focus of the Palmeros harvesting at least since the lifting of the ban. Another finding was that it was mainly young palms –short and told- rather than mature palms the ones being exploited by the Palmeros.

**Figure 4.24** - Dr. Argelia Silva and Palmeros Farfan next to some holy palms inside a study plot in a forest clearing opened during the tropical storm Bret, 8/8/93. These palms are at least 10 years old.

Since 2003 her research has focused on systematically studying these unexpected findings, in addition to her monitoring activities. The study concentrates on mapping and following the development of palms in two plots of similar extension located on two forest clearings where groves are on the making since 1993. She allows one plot to be harvested and keeps the other untouched. It has been only thanks to her friendly approach that the Palmeros have collaborated with the study. They have been kept informed and invited to participate and some of them get paid to collaborate during surveys outside the pilgrimage. At the time of my fieldwork she was employing three Palmeros as assistants. She has also been observing harvesting practices on the plot and the way they might be/are beneficial to the palms. For example, in order to reach each palm the Palmero needs to clear his way to the palm with a machete. In doing so he gets rid of competing aggressive plants than otherwise put pressure on the palm. As palms in the clearings are small, of easy access and abundant they are very attractive to the Palmeros who otherwise have to look for dispersed and isolated palms around the forest or climb large palms of mature groves (See figure 4.26).

**Figure 4.25** - Harvesting palm clearings. Matias Reyes posing next to a holy palm in a forest clearing, Cerro La Palma, circa 1955.
Picture: Pedro Povea

**Figure 4.26** - Alejandro Blanco Mañe, harvesting a young holy palm.

Her informal observations point to a very dynamic view of the forest and a change in the perception of the palm from an endangered primary forest specie to a plant pioneer of the vegetation regeneration: abundant, invasive, opportunistic and fast growing. Palms appear to be part of the forest self-repair kit mechanism for the regeneration of vegetation. Their growth is triggered by exposure to direct sunlight in the clearings and palms are part of the first type of vegetation to populate these clearings. This stage prepares the conditions for other trees to grow and which will later share the forest canopy with the palms.

Dr. Silva is very enthusiastic about her research even if provisional results point in the opposite direction of her initial aim: to find evidence of forest degradation by the Palmeros. She is also enthusiastic about the continuation of the pilgrimage within the national park though surprised and somewhat suspicious of the Palmeros' selective borrowing of her findings and speculations in their articulation of their current conservationist discourse. In particular she is apprehensive of their emphasis on the idea that the Palmeros pruning might be beneficial to the palms in the clearings, as it eliminates their competitors, as there are no long term data to back it. For her, it is not the Palmeros harvesting that is important for the forest regeneration, but the fact that the holy palms are part of the pioneering plants of the vegetation regeneration. As such they are abundant and of easy reproduction. It is this fact that, in her view, makes the harvesting of holy palms a feasible activity inside a protected natural area.

### 5. **From loggers to pruners**

Traditionally the Palmeros have called a concentration of palms in the forest harvested by them *corte de palma* or *palmar*. Today the Palmeros do not allowed themselves to call them *corte de palma* anymore. The Palmeros do not cut down (*cortar*) palms, they prune them. Ethnobotanical and ethnographic fieldwork research shows that since the creation of the national park, palm harvesting techniques, harvesting areas and harvesting patterns have changed.

Contrary to other areas of the Palmeros traditional ecological knowledge, such as landscape classification or plant-animal interactions, which are mundane, un-codified, embedded within practical experience and informally transmitted, knowledge regarding palm pruning, as we will see later, is highly codified and packaged as well as formally transmitted.

The formalization of the Palmeros' harvesting technique contributes to the view that this aspect of their ecological knowledge as timeless and naturalized, tuned with nature, hiding the fact that such a technique is of recent adoption. The modern harvesting technique is a product of hybridisation between traditional and scientifically- based knowledge. In this hybridisation, transfer of modern conservationist knowledge has prevailed over traditional knowledge. Palm harvesting used to involve chopping down mature tall palms of the forest canopy and the harvesting of small palms by pruning. Today most harvesting is done by pruning immature palms of the forest understory. Despite conservationists and park condemnations, the practice of logging palms only stopped when the pilgrimage was banned in 1973. Today, only one or two young leaves are pruned per palm following a strict "code of practice".

The traditional harvest was carried out mainly in concentrations of mature palm trees located on the forest upper limits and Palmeros walked for hours through the forest without paths to reach them. Each group harvested palms on specific *palmares* years after years. They also searched for new *palmares* not exploited by other Palmeros groups. Today the harvest is more concentrated around the Palmeros camps. Some of the nearest *palmares* continue to be exploited but most of the harvesting is done on concentration of young palms and isolated palm trees scattered inside the forest understory in areas of easy access. While today most Palmeros harvest small palms that can be reached easily, some climb taller palms using ropes and harness or simply without any gear at all. All palms are harvested by pruning. Figure 4.27 shows the harvesting of a tall palm without the help of ropes.

The Palmeros' recent use of current environmental discourse that emphasises links between biological and cultural conservation has given a new key role to the notion of traditional ecological knowledge in dealing with park authorities. In particular, knowledge regarding palm harvesting has been the focus of this new conservationist rhetoric. According to the latter, palm harvesting must be considered as a form of pruning.

As previously mentioned, the modern harvesting technique is product of a hybridisation between traditional and scientifically- based knowledge in which modern knowledge has prevailed over traditional knowledge. For example, the formalisation of knowledge of pruning contrasts with informality of other areas of their ecological knowledge such as landscape classification or plant-animal interactions. The latter are mundane and embedded with in practical experience as they are informally transmitted. Knowledge regarding palm pruning is highly codified and packaged as well as formally transmitted.

The Palmeros' pilgrimage involves several kinds of understanding of the environment that they use. Successful palm harvesting requires, among other things, knowledge of habitats (aspect, topography, vegetation types, etc.) and an understanding of conditions favourable to the holy palm. Most of this traditional knowledge about the environment is ingrained in a set of material and ideological practices in which the Palmeros engage in a fairly matter-of-fact way. These skills are learnt on the job, passed on by the older men to the boys.

In the case of palm harvesting, the Palmeros have transformed this aspect of their ecological knowledge into a more self-conscious repertoire. Knowledge of palm harvesting or pruning, as they prefer to call it, is articulated and presented as a set of formal detailed instructions in a step-by-step, mechanistic manner.

The Palmeros' explanation of their 'traditional' pruning technique can be summarised as follows: Each palm produces three new leaves annually. In order to protect the palm, pruning is carefully carried out, removing one or two of the new leaves but making sure to leave intact the newer leaves. Before pruning the palm is cleared of surrounding vegetation using the machete in order to access it as well as to protect the palm. The palm is then shaken and inspected to check for the presence of the poisonous snakes known as *macagua* (*Bothrops atrox*). After reaching the crown, sometimes by climbing the palm, the new leaves are separated using the hands. Then, one or two new leaves are removed doing a transversal cut with a sharpened knife, not a machete. Figure 4.28 shows the process of palm harvesting.

The formalization of the Palmeros' harvesting technique presents this aspect of their ecological knowledge as timeless and naturalized, tuned with nature, hiding the fact that such a technique, or at least the focus on its formalisation, is of recent adoption.

**Figure 4.27** - Pruning a tall palm without ropes (Pictures: Gianni Dal Maso). Bottom: Harnesses and ropes are sometimes used for climbing palms.

**Figure 4.28** - Pruning process. Mañe Blanco harvesting a young palm. Top to bottom: a- Clearing competing vegetation with a machete; b- separating young leaves, leaving the newest intact; c- cutting one or two leaves doing a transversal cut with a sharpened knife.

## 6. **Biological conservation**

As mentioned in Section 2.1, *Ceroxylon ceriferum*, locally known as *palma bendita* (holy palm) or *palma real* (true palm) has been the palm distributed on Palm Sunday in the Caracas valley. This palm is found in the tropical moist broadleaf forests of the Coastal Mountain Range located at more than 1,000 metres above Caracas (1700 – 2400 m above sea level). Its stem reaches a height of between 10 and 25 meters and a diameter between 25 to 30 centimetres. It has between 8 and 20 leaves of 80-116 leaflets per side. It takes between 60 to 80 years to produce fruits (Hoyos and Braun 2001). In the Caracas valley, the highest concentration of holy palms is found in the mountain forest directly above the Chacao area.

The identification of Palmeros pilgrimage as 'biotic pressure' threatening biodiversity conservation within the park is not based on any scientific study. This general perception of the pilgrimage as negative to nature can be attributed almost entirely to the status of the mountain as a national park rather than to the actual outcome of pilgrimage performance itself. The national park regime can be used as a framework to understand both public perceptions of the Palmeros relationship with the park as well as Palmeros' rhetoric.

By definition, a national park is a protected natural landscape. It imposes a legal definition on wilderness as well as on the way this landscape has to be perceived, used and experienced by visitors. It prescribes both a way of managing the landscape and a regime of use. The national park management regime is concerned with natural resource conservation and "the perpetuation of native ecosystem elements and processes" (Graber 1995:133). Its main assumption is that wildlife conservation is a priority that overrides people's rights to resources within the protected area (Babiskar 1998). Moreover, one of the park's main tasks is "to "naturalize" wilderness by eliminating as many traces as possible of human passage and occupation." (Graber 1995:133).

There are many arguments used by park authorities against the Palmeros. Arguments regarding the impact of the pilgrimage on biological conservation, include the following points:

- First, the Palmeros' pilgrimage is predatory extraction of natural resources that affects and degrades palm populations and the related ecosystem.

- Second, the Pilgrimage also causes perturbation of local fauna.
- In addition, as the pilgrimage takes place during the dry season, there is also danger of fires by smoking, cooking and campfires.

Arguments regarding the impact of the pilgrimage on visitors' spiritual experience of wilderness include those connected with the physical alteration of the landscape as well as those related to alteration of visitor park etiquette. The large number of pilgrims alters camping areas by clearing vegetation for camping and producing quantities of human waste (faeces) and garbage. The Palmeros also open new paths in the forest during harvesting and gather medicinal and ornamental plants such as *pesgua (Gaultheria odorata)* leaves and *peonía* (*Ormosia coccinea*) seeds. Finally, the Palmeros do not comply with the visitors' code of conduct. Palmeros' behaviour is not contemplative of nature but festive. It includes joking, shouting, blowing horns and drinking alcohol, all banned under park rules.

Park authorities have been also dismissive of Palmeros ecological knowledge, rejecting and rendering it as meaningless, backward and even dangerous: as a kind of ignorance (Ellen and Harris 1998). The acceptance of a peasant tradition as cultural heritage does not include its related traditional ecological knowledge.

## 7. **Cultural conservation**

Mostly, the success of the continuation of the Palmeros pilgrimage inside the national park has been based on the political mobilization of the notion of traditional culture (cultural conservation). This idea of preserving a traditional cultural institution in the context of Venezuela's drastic social transformation has legitimised the continuation of an extractive practice of natural resources inside a national park.

The recognition of the Palmeros' pilgrimage as a traditional cultural heritage was only achieved after intense lobbying of media and authorities at both local and national level under the banner of "rescuing the tradition" (*rescatar la tradición*). Thanks to intensive lobbying Palmeros changed from being a local affair to a national debate, and from a furtive/illegal/predatory peasant practice to a national heritage status, beacon of Venezuelan cultural identity: A traditional religious pilgrimage in an acculturated, modern society.

During the 1980s and 1990s Palmeros' political mobilization of the notion of traditional culture, lobbying media and state institutions, achieved:

- Official recognition of Palmeros pilgrimage as a cultural and historical patrimony (heritage) of the Chacao Municipality (1992). This included the creation of a council award: *Orden de Honor "La palma de Chacao"* and inclusion of the palm leave in Chacao's newly created coat of arms.
- Official recognition of Palmeros' pilgrimage as a cultural and historical heritage of the Miranda State (1999)

Official recognition by local governments (Council and State levels) entails:

- The continuation of the annual pilgrimage in the national park
- State patronage for the pilgrimage; this facilitates obtaining private patronage.
- Media attention and exposure
- Inclusion of Los Palmeros tradition at cultural exhibitions, books, traditional celebrations calendars, school curricula, television programs and tourist guides.
- Challenge to Palmeros' image as ecological delinquents portrayed by conservationist and park authorities in the media
- Allows Palmeros to lobby local government institutions in order to achieve heritage status at a national level (State Assembly)
- Puts pressure on local government institutions to lobby Park authorities and Environmental officers on behalf of the Palmeros to obtain the annual park permit.

It has been the Palmeros' crucial mobilization of the notion of cultural heritage conservation (*rescatar la tradición*) and intensive lobbying that gained support from local government, church and public opinion that forced park authorities to allow the pilgrimage against park regulations and scientific objections (See figures 4.29 and 4.30). Along with the political mobilization of the notion of cultural conservation, the Palmeros leadership started a campaign to educate the Palmeros on conservationist issues. This focused on sustainable pruning techniques, collecting garbage, participation extinguishing mountain fires and forestation campaigns. The idea was simultaneously to improve the Palmeros' public image as national park users, changing their negative image as loggers and drunkards, and at the same time to change Palmeros' behaviour on the mountain to accommodate it to park standards. Since 1984 the Palmeros have fashioned themselves as a cultural/religious institution as well as a conservationist group.

For park authorities as well as the Palmeros themselves, it was important to try to minimise Palmeros' effects on the forest. These included regulating the practice of cutting, limiting the number of palms harvested, limiting the number of Palmeros in the pilgrimage, their access to the forest and period of stay in the park. After 1984, when the pilgrimage was again resumed after a long ban, the Palmeros tried to fashion themselves as a conservationist group in addition to their religious mission. Since then, the Palmeros have also collaborated with park authorities in forestation campaigns, fire combat, cleaning and restoring park campsites and trails. They also run a plant nursery with local tree species for forestation programs.

According to Pierre Amora Blanco, agronomist and Palmero (1957-2002):

"As Palmeros we need to project a positive image by participating actively in conservationist activities, cleaning rivers, camps and trails; planting trees, extinguishing fires and many other activities. They will contribute to changing the perception that park authorities have of the Palmeros. By participating in such activities we will project an image of work and development that will facilitate the acquisition of the annual park permit that until now has been so difficult to get." (Reyes 2000:86)

**Figure 4.29** - Cultural heritage conservation. National Guard officer holding a copy of the book Soy Palmero by Luis Enrique Reyes (2000), right, and Diego Blanco. The book contains stories of the pilgrimage as told by more than one hundred Palmeros.


**Figure 4.30** - Cultural heritage conservation. Exhibition of Los Palmeros pilgrimage at the Casa de la Cultura de Chacao, organised by Luis Enrique Reyes, left, March 2003.

## 8. **Bio-cultural conservation**

The framework imposed by the national park has conditioned Palmeros re-elaboration of their practices, rhetoric and their adoption of conservationist discourses as strategies to conciliate their claims of historical rights of palm harvesting with the goals of the National Park. Under the banners of rescuing tradition and cultural heritage conservation, the Palmeros have justified their pilgrimage almost exclusively for cultural reasons while at the same time embracing an active conservationist approach to nature and adapting their practice to lessen its biological impact. As a result, their ecological knowledge transformed in contact with scientific-based conservationist knowledge. Now the Palmeros are attempting to justify it based on both cultural and ecological reasons.

Today the Palmeros argue that because their pilgrimage is at least 200 years old, dating back to the early days of the foundation of the town of Chacao, it can be considered part of the forest ecosystem in which they harvest holy palm leaves. This argument is reinforced by the consideration/belief that they also have a beneficial effect on the population of palms they exploit. The Palmeros see themselves as part of a mutually beneficial relationship with holy palms.

In their new re-elaboration of their conservationist discourse, the Palmeros challenge the view that considers their harvesting as an extractive practice of natural resources that degrades both palm population and the forest. According to this view, the Palmeros' pilgrimage is predatory. On the contrary, the Palmeros argue for an alternative view of a reciprocal relationship with the forest that presents their practice as regenerative and mutually beneficial both for palms and the Palmeros. This approach portrays palm harvesting as a kind of pruning and the Palmeros as forest gardeners and palm stewards. Under this perspective, the Palmeros become both stewards of cultural and natural heritages. Moreover, the pilgrimage also becomes naturalized.

Palm harvesting is considered a form of pruning, a practice based on fine-tuned traditional ecological knowledge. Palms are harvested following a careful pruning technique so they are not damaged. On the contrary, it is argued, harvesting stimulates palm growth and the production of new leaves. Palm Pruning and clearing contribute to the regeneration of palm populations as well as to the regeneration of the forest, as holy palms play an important part in the reproduction of the forest.

In the Palmeros' rhetoric the pilgrimage has shifted from being a "reformed" natural resource extraction activity to a sound forest management strategy. The harvest, it is argued, is not a pure extractive practice as it protects and promotes palm populations by clearing and pruning them. Its effect is not predatory. The outcome of the pilgrimage is neither the destruction of the palm populations nor the alteration of the composition of the forest but the promotion of forest regeneration.

## 9. **Conclusion**

The *palma bendita* or holy palm (*Ceroxylon ceriferum*) is intimately linked to the current cultural identity of Chacao, Venezuela. The Palmeros' annual pilgrimage to the forests of El Avila Mountain, to harvest holy palm for Palm Sunday has survived as a tradition, though inevitably affected by both modernisation and urbanisation (See figure 4.31). Another crucial factor has been the declaration of the mountain area as a national park, bringing the Palmeros into conflict with the park authorities and various agents of environmental policies and concerns. In response to the pressures, Palmeros have mobilized very effectively. In particular their use of current environmental discourse emphasising links between biological and cultural conservation has given a key role to the notion of traditional ecological knowledge (TEK) in negotiating with park authorities. Paradoxically, the political mobilization of TEK has not guaranteed the survival of much of the original corpus of this local knowledge and practices. My research suggests that what is presented as traditional is more accurately understood as the product of hybridisation between traditional and scientifically based knowledge. This is an unbalanced hybridisation process that has privileged conservationist knowledge over traditional knowledge. This chapter has reviewed transformations of TEK in the context of this political mobilization. It has analysed the strategies deployed by the Palmeros to reconcile their claims of historical rights to harvest palms with the goals of the El Avila National Park and their impact on TEK erosion.

As a result of these pressures and responses, the Palmeros' pilgrimage has changed, from an unregulated or self-regulated relationship with nature to a regulated and patrolled relationship largely controlled by outsiders. Finally, they are also fully embracing outsider rhetoric to the detriment perhaps of their knowledge. Thus, survival of their pilgrimage has come at a cost.

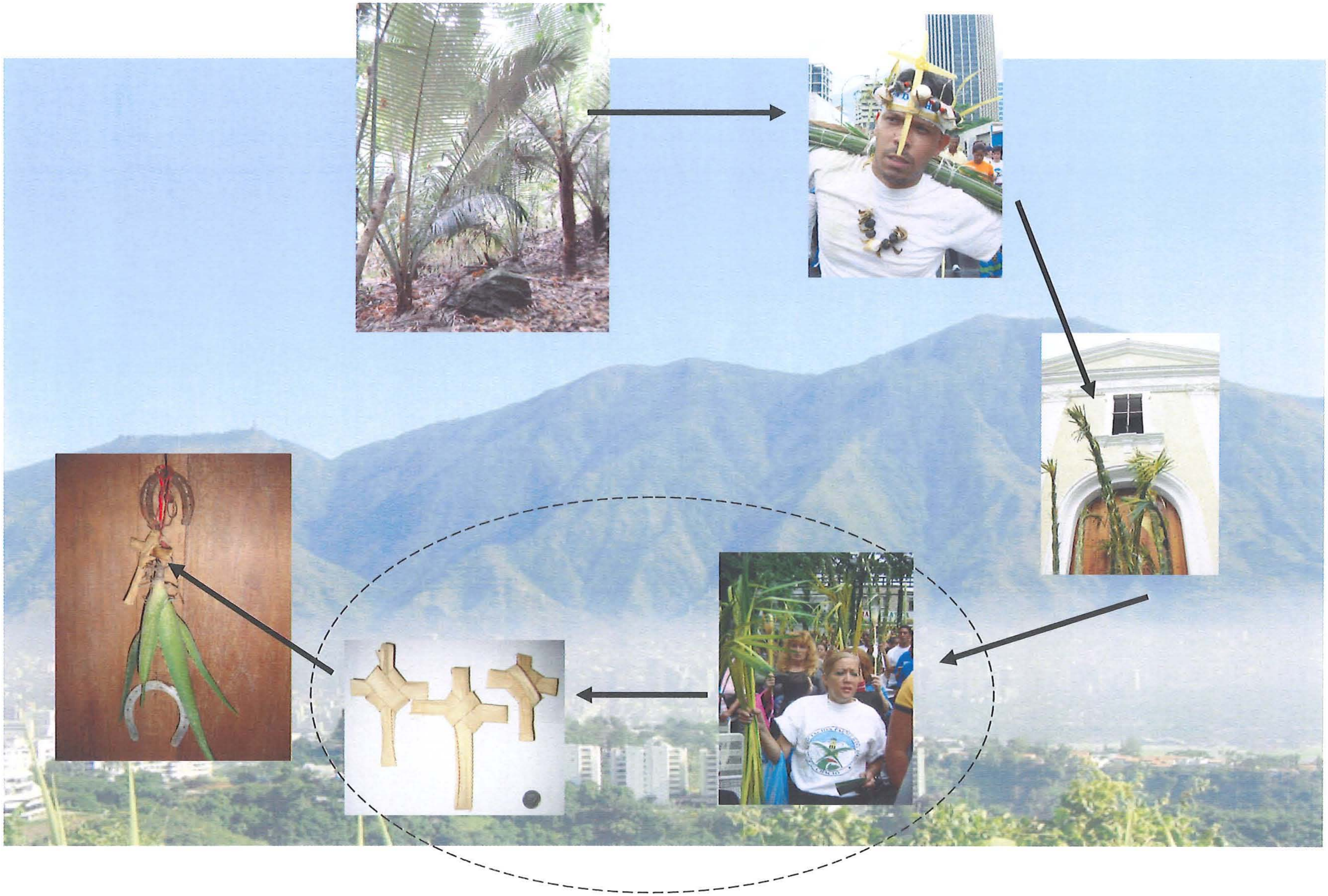


**Figure 4.31** - The Palmeros pilgrimage is part of the process of transformation of the Ceroxylon palm into blessed holy palm.
From a protected plant to a protective plant.

## Chapter 5

### Ethnoecological knowledge in El Pedregal

### Introduction: Making and reading maps

In the previous chapter, we dealt with a particular practice, the Palmeros pilgrimage, and some of its related ethnoecological knowledge, in particular knowledge connected to pruning techniques. Despite the fact that this practice is not for subsistence nor does it have any economic importance, it is very important for identity and symbolic reasons to the Pedregal people. We analysed how this aspect of the Pedregal people's ethnoecological knowledge (both at practical and rhetorical levels) has been undergoing drastic transformation and hydridization. Hence, ethnoecological knowledge appears as a dynamic and open system, open to manipulation, blueprints for action rather than fixed structures, affected by changes, but also able to present locals with repertoires of possibilities to adapt to it, to offer answers to new challenges. It also shows how ethnoecological knowledge responds to demands of the wider socio-economic context, such as restrictions imposed by the national park, and how this local knowledge is marginalised as much as its users are.

While knowledge regarding palm harvesting (today renamed 'pruning') has undergone "severe" transformation, as analysed in the previous chapter, knowledge and categorization of the natural landscape has remained mostly unaltered despite the drastic social and ecological transformations affecting population of the Caracas valley, including exposure to formal education.

This chapter deals with Palmeros's perceptions of the environment. It explores place-names, nomenclatures and classifications for topographic features and vegetation types as important aspects of the Palmeros ethnoecological knowledge. Ethnoecology reveals the complex and intricate relationship of people and their landscape. It is centred on the making of a draft map of the Palmeros's traditional grounds of palm harvesting in the Avila national park using Palmeros's own place-names and ethnoecological categories. It explores potentials of visual images and maps to make tangible abstract notions and to integrate and present information regarding Palmero ethnoecology.

In order to challenge official representations of this area of the national park that ignore the Palmeros's ethnoecological knowledge and toponymy (place-names), I present a local version of this area in the form of text, maps and images using local toponyms, topographic concepts and vegetation terminology. These maps and images highlight their long term and complex, but ignored relationship with today national park based on their practises and related ethnocological knowledge. In addition to their analytical and heuristic value the maps and images could also be used by the Palmeros themselves to further their claims of historical rights of use of the forest in the national park and to revitalise their own knowledge.

The Palmeros do not normally speak of the landscape in abstract terms, but they always refer to specific locations using their place-names. Section two of this chapter deals with the Palmeros's place-names. Place-names provide insights into a culture's linguistics, histories, habitats, and spatial and environmental perceptions. Named places are cultural loci that bring together social history and autobiography; they are also the privileged meeting grounds for humans, plants, animals and spirits. As such place-names are at the interface of nature and society. Through place-names people maintain a deep attachment to place as part of maintaining their sense of self, literally grounding shared identities and stories: named places tell stories (Basso 1996). An analysis of their toponymy will explore further the idea of the natural environment as cultural landscape dealt in the previous chapter. The geographical distribution of toponyms will also help us to define the traditional harvesting area of the Palmeros. It will also introduce us to their landscape categories, significant ecological associations and their way of describing the landscape.

In section three we move from the construction of cultural landscapes through practices such as place-naming to the analysis of the Palmero nomenclature for topographic landscape features. Although the Palmeros recognise almost the same major topographic features that geographers and other scientists for the Avila mountains, they use a different nomenclature. More importantly they conceptualise the landscape in ways different from scientists and educated people. A major difference is the significance of *cerro* (understood as mountain as well as spur) as the Palmeros's main topographic reference point. While geographers and educated people use the category 'basin' as their major reference point in their conceptualisation of the landscape, the Palmeros privilege an inverted view that focuses on landforms, mountains and spurs, rather than on hydrography and, in particular, the drainage basin.

In section four the focus is on the analysis of vegetation associations and their correspondence with scientific classification of the local vegetation. I describe and analyse vegetation types as they are perceived by the Pedregal people. I compare the Palmeros's perceptions of vegetation types with their scientific classification. The aim of this section is to highlight the accuracy of local perceptions of biological reality. I argue that the local perception of vegetation types, while highly correlated with the scientific classification, also discriminates an unreported vegetation type: *Pesgual* is a local category with no corresponding scientific category. It appears to describe a forest-scrub-grassland ecotone which may be of interest to the biological sciences (Posey 1998).

Unlike other inhabitants of the city of Caracas, the people of Pedregal have extensive knowledge of the local natural landscape. This ethnoecological knowledge is reflected in the terminology they use to refer to landscape features, ecological and vegetations types as well as for animals and plants. This knowledge and the related terminologies are the product of their long term and intimate relationship with the local natural environment. Despite the extinction of local agriculture, the continuous exposure to formal education and their current urban(ised) life styles, the Pedregal people conceptualise their natural environment (physical environment) in much the same way as their peasant forebears did.

It is important to stress that the perceptions and categorizations of the local environment/landscape by urban Pedregal people are not just the result of the legacy of their peasant forebears, but also of their continuous interaction with nature. As such, this knowledge is still a practiced knowledge. It allows accurate descriptions of the environment and its symbolic components as well as offering "predictability of natural resource locations." (Frechione et al. 1989:262). But for the Pedregal people, contact with nature is no longer linked to subsistence practices nor is this knowledge and this relationship with the environment of any obvious economic value. In fact, today this interaction is mainly restricted to the mountains of El Avila national park through the Palmeros pilgrimage, as described in the previous chapter.

Nevertheless, the Pedregal people's natural landscape categorization (ethnoecology) is not very different than that of the Creole peasants of neighbouring areas of the Caracas valley. To an extent, the Pedregal people, and in particular the Palmeros, can be considered an urban population with an impressive local command of natural and rural affairs. And yet, in general terms, the Pedregal people share this inherited ethnoecological knowledge with most inhabitants of Caracas, including current city newcomers as well as those whose parents or grandparents were also peasants. But unlike these other *Caraqueños* the Pedregal people still rely on knowledge of the natural environment for ritual purposes even when such "peasant knowledge" has been devalued by educated urban people. Hence the Pedregal landscape nomenclature is not the one used by modern city dwellers, but by Creole peasants. In fact, usages of many of the words in their vocabulary are considered today as archaisms in the Venezuelan Spanish. Although the Pedregal people do share many words of their landscape vocabulary with other educated residents of Caracas, they do not always use these words to designate similar things. For example, while for urban educated people the word *montaña* designates a 'mountain', for Pedregal people and for Creole peasants it designates a 'forest'. While for the former this term falls into their topographic domain, for the later it is purely a vegetation type. The Pedregal people use the term *cerro* to designate a mountain and urban people refer to the forest using the terms *bosque* and *selva*. People in Pedregal are not unfamiliar with the current urban usages of the Spanish language they have been exposed to formal education and educated knowledge for several generations, but they can also switch effortlessly between these two types of knowledge, vocabularies and jargons according to the context and their interlocutors. They still very much rely on their knowledge as encoded in their nomenclature.

The main point to note from this discussion is that, while overlapping and sharing many elements of vocabulary and many notions with other inhabitants of the city, their particular experiences inform their usages and their privileging of some terminologies over others. In general terms and despite lexical differences, the Pedregal people perceive and classify the environment in similar ways to other Caraqueños, with whom they share similar backgrounds. It is experience and intimacy with the local natural environment more than cognitive strategies that differentiates the Pedregal people from other people of Caracas. Moreover, the Pedregal people still view themselves as part of the natural environment that they ritually inhabit as Palmeros. Contrary to other people of Caracas, even with those who actively visit the national park, they do not see mountains as separated, detached, independent landscapes from their own social existence.

## 1. **Cultural landscape: Toponymy and Ethnoecology**

### 1.1. **Shifting landscapes**

While the Palmeros have always harvested holy palms in the forest located in the upper slope of the mountain of La Silla de Caracas, they have been inhabitants of the Chacao area in the Caracas valley. Figure 5.1 shows the mountains of El Avila National Park indicating their names, the Palmeros harvesting grounds and the approximate location of El Pedregal. El Pedregal is located at the foot of the mountains. In order to reach the forest, the traditional grounds for palm harvesting, situated over 1,000 meters above their community, it is necessary to ascend for several hours climbing a steep slope. Covered with grasses and low scrub, most spur slopes are unprotected from the sun until reaching the upper forest. Due to its altitude, topography and vegetation, the landscape of the mountain forest is totally different from the landscape at the foot of the mountain and in the valley bellow.

Contact with the mountain forest is physically demanding and very limited in time. Contact and knowledge of the mountain forest is also confined to Pedregal men, mainly to the members of the pilgrimage of Los Palmeros. For Palmeros, visiting the mountain forest requires a great deal of physical strength and fine-tuned skills for orientation and navigation on the steep slopes under the forest canopy. As there are no permanent trails in the forest, Palmeros skills include reading machete marks in big trees in search of orientation clues, negotiating the steep slope and cliffs, climbing palm trees, carrying back heavy loads of palm leaves up to 35 kilos and camping, among others.

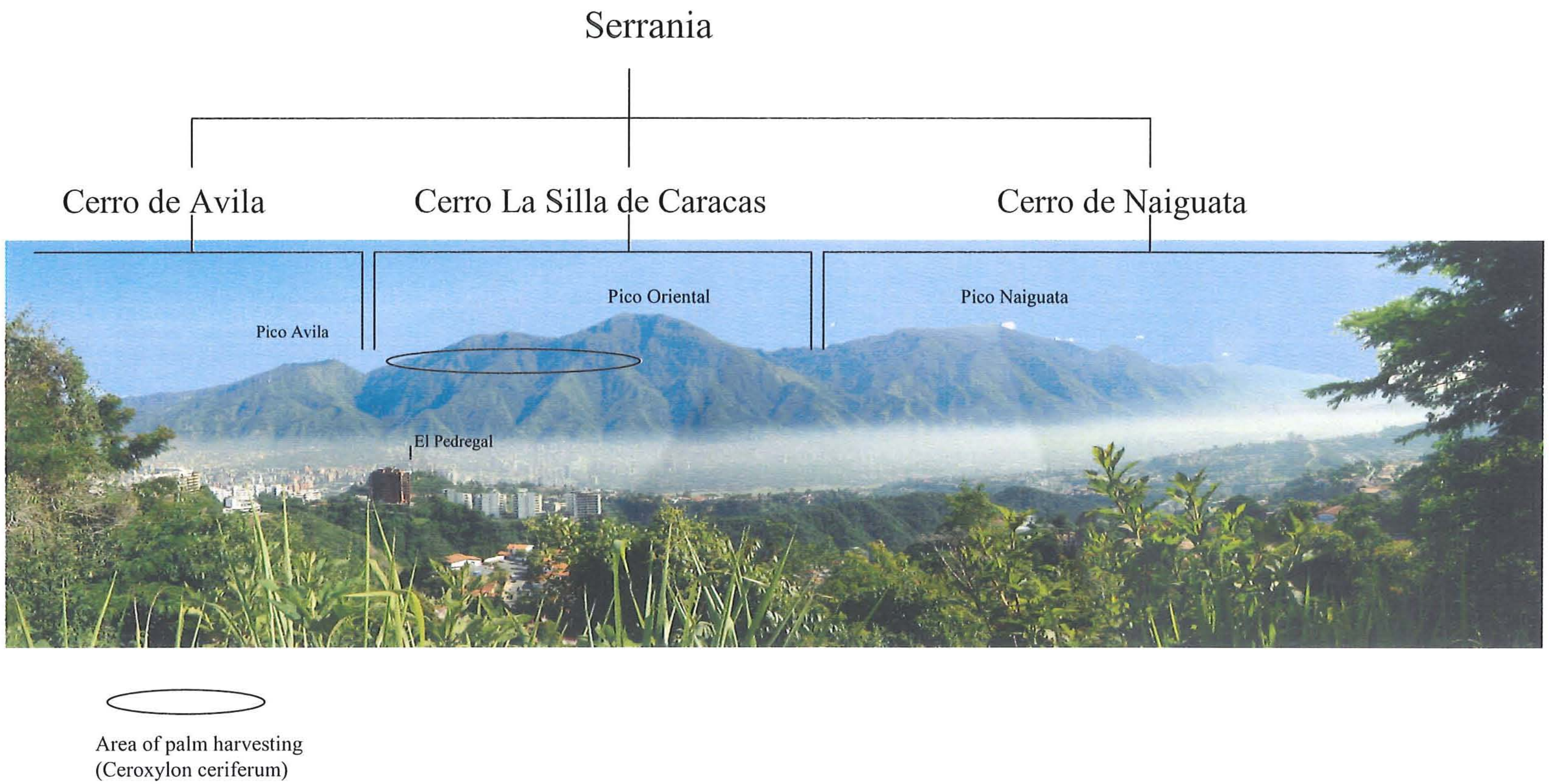



**Figure 5.1** - Partial view of the Eastern part of the Caracas Valley and the south slope of the Coastal Cordillera indicating the approximate location of El Pedregal and the local names for the mountains, their higher elevations, and the mountain range.

At present the Palmeros inhabit an entirely urban landscape. The Caracas valley is a man-made environment of concrete, brick buildings and roads, "in which nature is dominated by things people have created" (Worsley 1997:3). In the days when the area was rural, Palmeros lived as farmers and coffee plantation peasants at the foot of the mountain were they carried out almost all their daily activities combining wage labour and slash and burn farming with the gathering of "wild" resources and hunting. While the natural environment at the foot of the mountain –including its forest- was familiar to both sexes, the mountain forest was, and continues to be, an exclusively male domain.

Today the mountain is separated from the city by a motorway and protected as a national park. Half a mile of modern, luxurious houses and high-rise buildings separate El Pedregal from the mountain. The urban environment has almost deleted the natural landscape features of the foot of the mountain inside the city. As in the rural past, for most Palmeros visiting the upper mountain forest is reduced to few occasions a year, including the pilgrimage. It is also reduced to a relatively small area of the mountain range, the Cerro La Silla de Caracas, except for a small group of Palmeros today are engaged in serious trekking, just as a small group of Palmeros who were hunters did in the past. Figure 5.2 shows the local names for major spurs of the mountain of Cerro La Silla de Caracas along with its boundary ravines. Hunting continues to be practiced outside the Caracas valley by several Palmeros, but not in the mountain of the Avila national park.

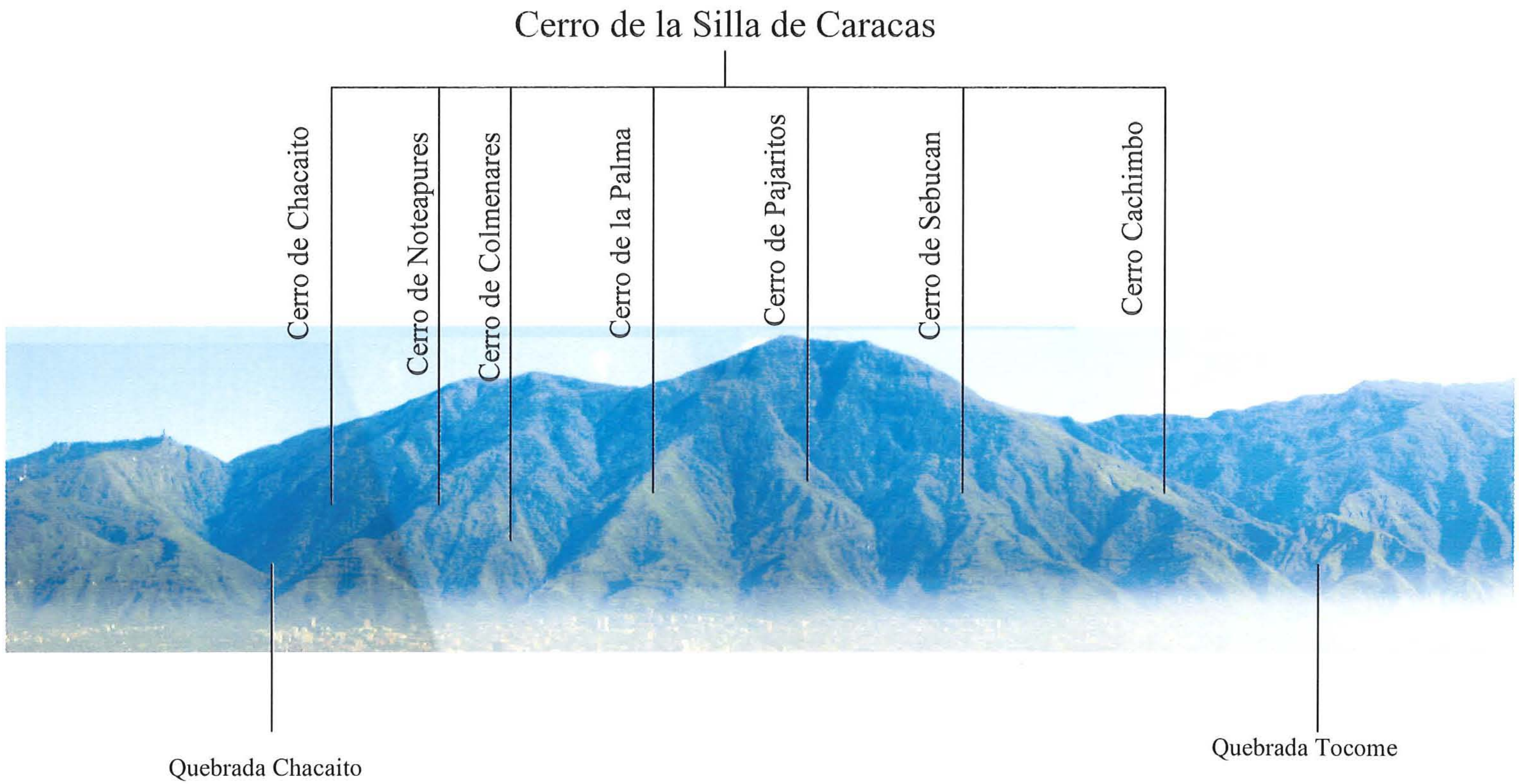



**Figure 5.2**- The Cerro Silla de Caracas mountain, its named spurs (*cerros*) and boundary ravines (*quebradas*).

Nevertheless, the Palmeros know the mountains and especially the landscape /environment of their traditional grounds for palm harvesting in intimate detail. This knowledge is a product of their historical relationship with the mountain. Landscapes are described by using both topographic features and the type of vegetation present. As will be seen in the section on topographic features the Palmeros use over 43 terms to describe natural topographic features and many more for describing man-made features. They recognise several vegetation types, ecotones and ecological zones. They also have extensive knowledge of animals and plants and of their ecological interactions. However, the Palmeros do not normally speak of the landscape in abstract terms as if designating a kind of an impersonal, abstract and general knowledge. When talking about the landscape, they always refer to specific, known areas; in other words, they refer to named spots. They also like to speak about the landscape in those areas by recalling personal experiences through their own stories or by retelling other Palmeros stories relating to these named places.

The Palmeros know at least 80 place-names in the mountains, most of them around their traditional grounds for palm harvesting and almost every mountain, foothill, peak, major spur and ravine has a name. Table 5.1 presents a list of place-names used by the Palmeros to designate locations, landmark features and areas in the Cerro la Silla de Caracas. These place-names were shared by at least 10 experienced Palmeros. Other names were recorded but were not widely shared (e.g. acknowledged) by most Palmeros interviewed. The place-names are presented grouped according to their locations. Out of 80 place-names presented only 18 are included in as official place-names in the official map of the park. Along with the marks of actual use (e.g. campsites) and the remains of past human activity -such as water canals, old houses and tree marks- place-names are also indicators that for the Palmeros the mountain landscape is culturally dense and that their history is inscribed within this land.

**Table 5.1** - Palmeros place-names for the Cerro La Silla de Caracas and the Cerro Avila grouped according to their locations. Each column represents a named mountain spur (indicated in bold) and contains the names of ravines (indicated with letters) and other place-names in ascendant order. Notice some places receive more than one name. Place names for Cerro Cachimbo are excluded. Place-names included in the official map are indicated with (*).

**Table 5.1** –See description on previous page.

| Cerro de Avila | Cerro de Chacaito | Cerro de No Te Apures | Cerro de Colme-nares | Cerro de la Palma | Cerro de Pajaritos | Cerro de Sebucán |
|---|---|---|---|---|---|---|
| a- Qda. Avila* | b- Qda. Chacaito* | c- Qda. Las Adjuntas* | e- Cañadote de Justo, | f- Qda. Quintero* | h- Qda. Pajaritos* | g- Qda. Sebucán* |
| | | d- Cañadote Canoas, El Chorrito | Qda. Seca* | g- Qda. Lambedero | | |
| Sabana de Avila | La Ponderosa | Sabana de las Pulgas | La Aguaita | Pozo de Robaina | Sabana de los Muertos | Las Rivas |
| Puesto Guarda Parques Chacaito* Colmenares | Pozo del Molino | Carrizal | El Quino | El Plan | Las Guagüitas | Agua de Maiz |
| Loma Matamoros* | Pozo de la Ruedita | Loma Serrano* | | Catarata de Quintero | Cementerio de la Peste | |
| Los Naranjitos* | Pozo Azul | La Puerta | | Torre | | |
| Pico El Avila* Hotel Humboldt* | La Toma | El Copeyal | | El Lajal | | |
| Boquerón* | Bucare Caido | Las Cuatro Picas Rancho de No Te Apures* | | Los Mangos | | |
| El Aguilón | | El Quino | | Los Pilares | | |
| | | Plan de la Botella | | El Tubo | | |
| | | Plan de los Capachos | | El Tanque | | |
| | | Plan del Carricillo | | Los Reventones | | |
| | | Piedra del Mirador | | Los Farallones | | |
| | | El Inciensal | | El Peñón | | |
| | | Pico Occidental | | Dormidero | | |
| | | Asiento de la Silla* | | Antiguo Dormidero | | |
| | | El Pejual | | Aguaita | | |
| | | Plan de la Mora | | Cueva de Manuel Conejo | | |
| | | Los 50 metros | | Cueva de los Palmeros* | | |
| | | Antigua Cruz de Madera | | El Palmar Mayor | | |
| | | Cruz de los Palmeros* | | El Peñón de la Pesjua | | |
| | | Pico Oriental* | | El Pesjual | | |
| | | Cueva de la Cruz | | Meseta de San Jorge | | |
| | | | | Los Moriches | | |

Since the second decade of the twentieth century the Caracas valley has undergone drastic landscape transformation as a result of the expansion of the city of Caracas, which as the capital city of Venezuela continues to grow. From rural countryside it has changed into a big city. Transformations of the landscape result from the erasure of original topographic features by the built urban environment. The expansion of the city has also affected the surrounding countryside. The mountain range of El Avila, however, escaped urbanization, a privilege that has now been crystallized as a national park. The creation of the national park has had a number of consequences, from banning of extractive human practises, to restrictions on agriculture. At the same time, lower human biotic pressure has increased woody vegetation and slowly reversed open grassland into secondary forest, in part as a natural process and in part as a result of intentional forestation campaigns inside area of the park. Figure 5.3 shows two photographs containing partial views of the Cerro La Silla de Caracas separated by 60 years. It shows the regeneration of vegetation that has taken place at the lower end of the mountain spurs.

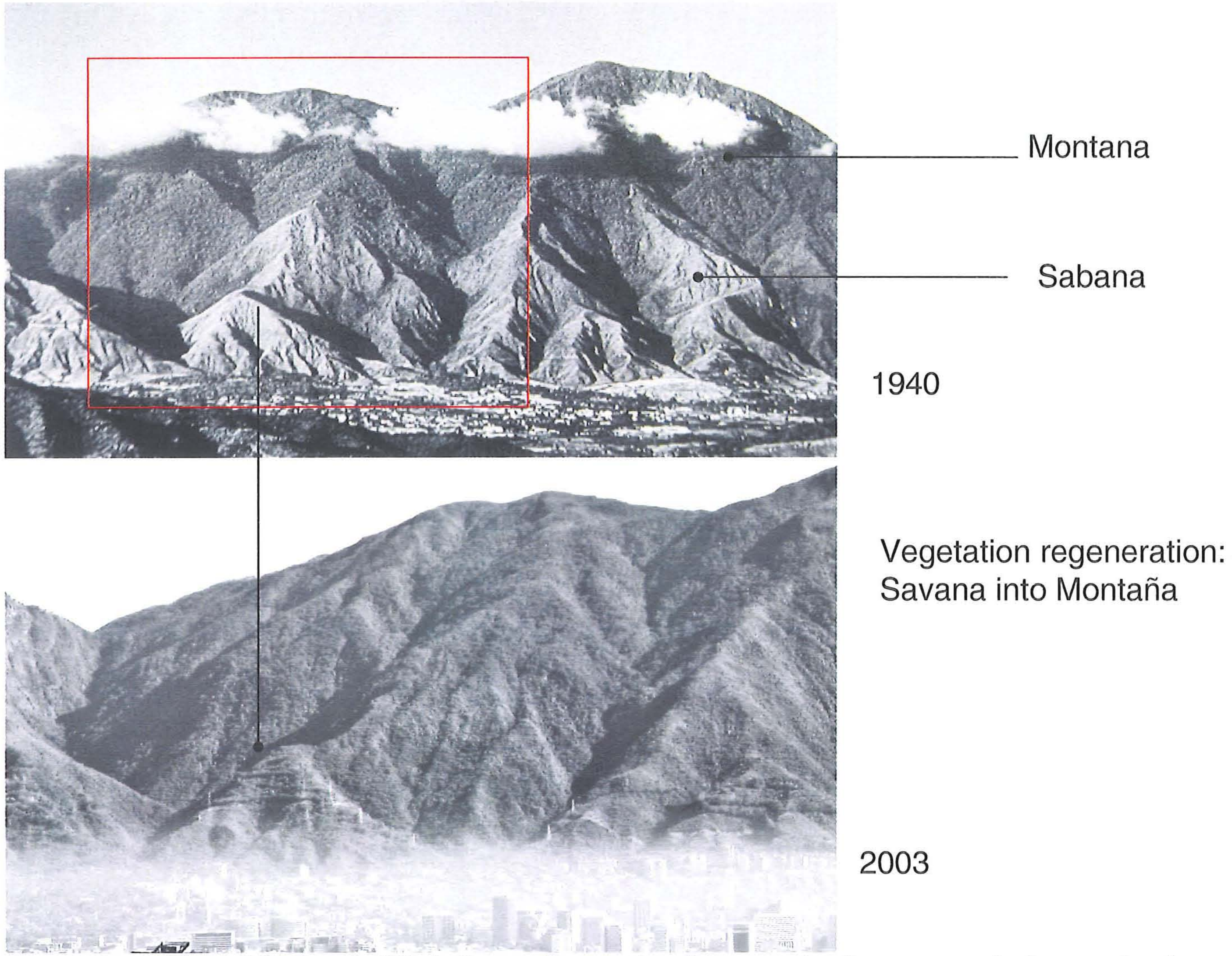



**Figure 5.3** - Cerro La Silla de Caracas. Regeneration of the vegetation, from open grassland to secondary forest.
The pictures present two views of the Cerro La Silla de Caracas, separated by 60 years. It is noticeable the regeneration of the vegetation in the lower areas of the mountain spurs result of reforestation practices and fire control measures introduced since the creation of the national park.

One of the many consequences of the creation of El Avila national park was the re-naming or re-lexicalisation of the mountain landscape. Many mountains, ravines, peaks and all sorts of other of places were re-named by park authorities. These new names therefore acquired legal recognition as the official names and these have been the names used in maps of the park and other official maps. In these cartographic representations, destined both for experts as well as visitors, it is not only place-names that have changed, but also some of the names used to describe the environment including landscapes features and vegetation types. This new terminology was not the one that peasants and authorities once shared and was widely used in the past. The new terminology was scientific and reflected scientifically based categories of educated city people. Maps of the southern slopes of La Silla de Caracas mountain show few place-names, mainly rivers, peaks, mountain crest features, suggesting empty landscape and unused natural space. But the Palmeros's place names show a very different picture. Palmeros' place names for the mountains were part of the local repertoire that included local names in the valley that have now disappeared. These include names of farms and plantations that are today urban neighbourhoods known under other names; ravines and wells that lie under concrete; foot trails; groves; old houses. They have been forced to adopt the official names of the new city, yet, the Palmeros still rely on place-names and landscape feature categories of their peasant forebears. And despite the fact that few Palmeros toponyms are included in the national park map, their long- term relationship with the mountain is hardly recognised at all in the maps.

Figure 5.4 shows a detail of the Avila National Park visitors map covering the south slope of the Cerro La Silla de Caracas. The map was produced by the park authorities in 1976. This area contains 47 official place names, including ravines. The map also shows trails and paths, camping huts, ranger post, firebreaks and mountain peaks, including their altitude. In addition, the map is depicted to provide an idea of the landscape relieve and the vegetation types present. Notice that most place names are located at the lower end of the mountain as well as along the spur located at the far right hand side of the picture. While ravines are named mountains, mountain spurs and hills are not named in the map. There are only two place names indicated around the palm harvesting ground used by the Palmeros: *No Te Apures* and *Cueva de los Palmeros*. With so few place-names this particular area appears empty. A very different picture emerges when we plot the Palmeros place-names over the same map. Figure 5.5 presents the same section of the national park including the approximate location of the 80 Palmeros place-names for spots and areas. Note that some of the palmeros named spots fall outside the area of the national park. Only 19 of them are included in the official map. While indicated in the map named spots are not individually identified in this figure. It is difficult to include the place-names within the map without overloading the picture with text information to the point of making it useless. Here the emphasis of the analysis is on their distribution. Named spots are indicated in pink. A substantial number of Palmeros place-names refer to large areas rather than to specific named spots. This adds more complexity to the graphic representation of the Palmeros place-names. Named areas correspond to spurs and hills. They are indicated by capital letters. There is one spur (A: *Cerro de Avila*) and one hill (I: *Loma Matamoros*) from the *Cerro de Avila* mountain. The rest of spurs and one hill are part of the *Cerro La Silla de Caracas* mountain: B- *Cerro Chacaito*; C- *Cerro No de Te Apures*; D- *Cerro de Colmenares*; E- *Cerro de la Palma*; F- *Cerro de Pajaritos*; G- *Cerro de Sebucan*; H- *Cerro de Cachimbo*; J- *Loma de Serrano*. While the Palmeros name almost every spur in the mountains, the distribution of Palmeros place-names is concentrated on the mountain spurs the *Cerro de No Te Apures* and the *Cerro de la Palma*. Most named spots are located here. This is not surprising given that the forest located at the upper part of these two spurs is the harvesting grounds of palm by the Palmeros. Most named spots are located along the paths leading to the Palmeros areas. Named spots include their camps. There are very few named spots in the forest as there are no permanent trails there. Most navigation inside the forest relies on reading machete marks located at the base of major trees. Trails are temporary and rapidly disappear during the rainy season as understory vegetation renews.

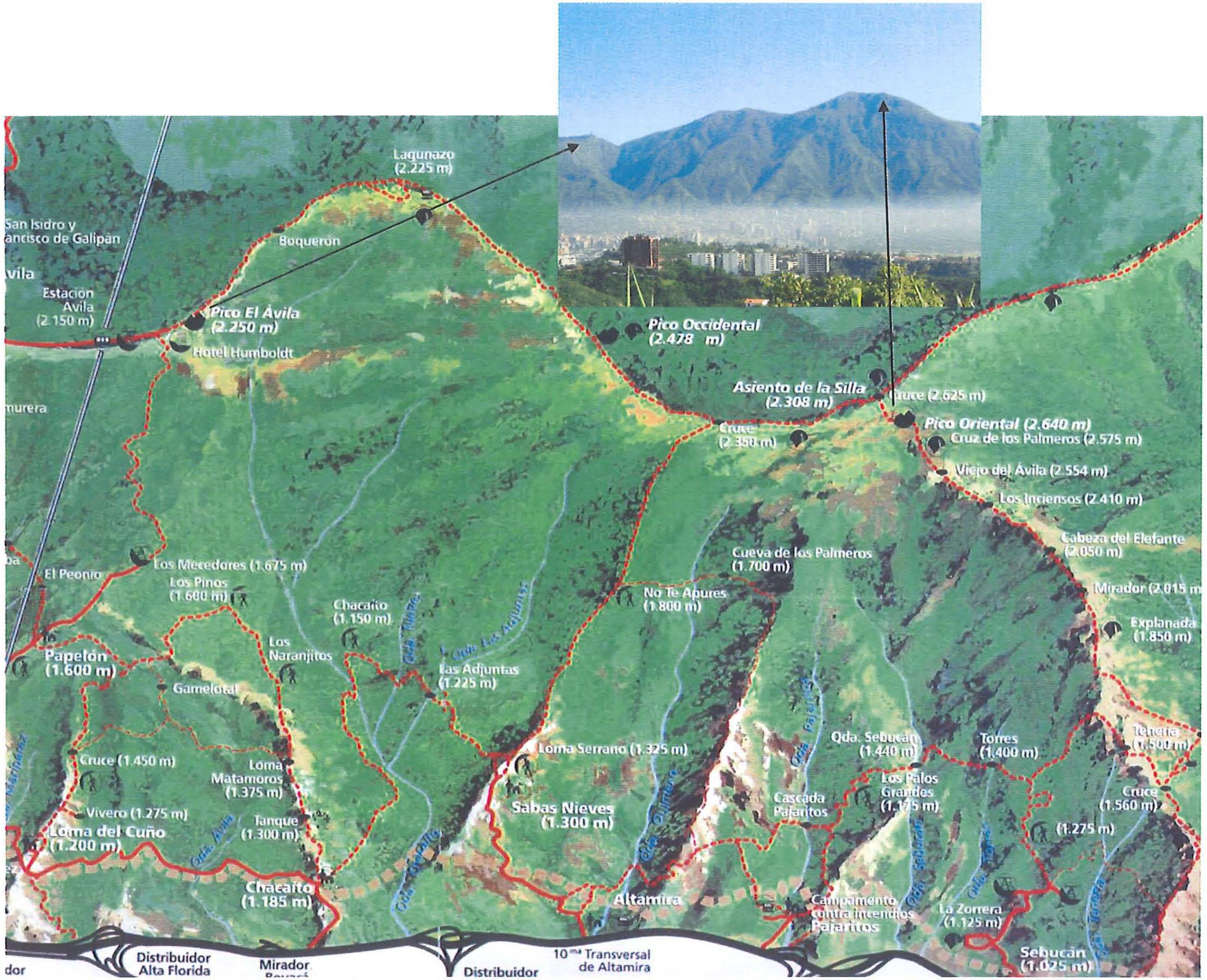



**Figure 5.4**- Partial view of the map of El Avila National Park covering the south slope of Cerro La Silla de Caracas (photo insert). Ravines are named unlike spurs, hills and mountains.

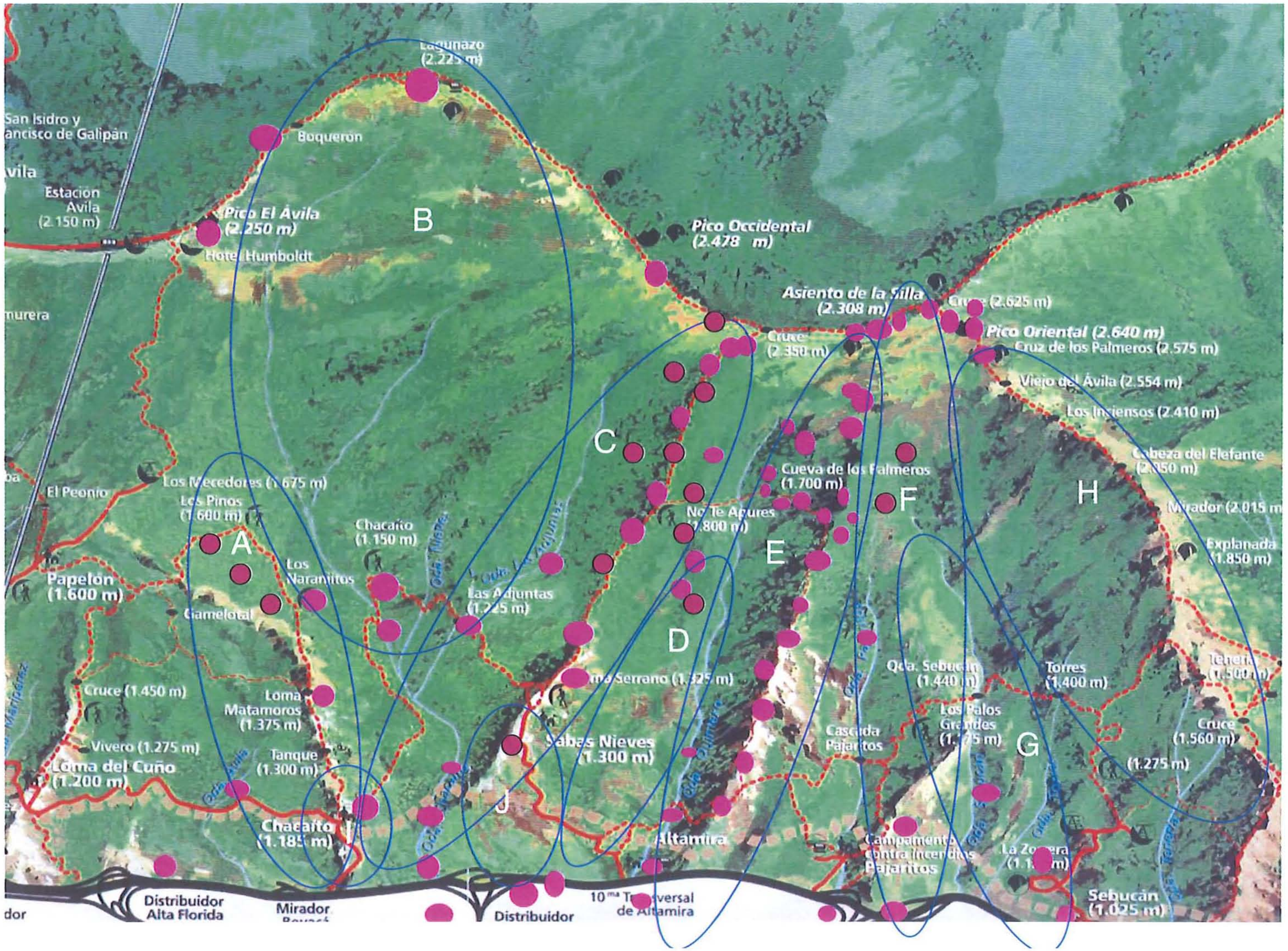



**Figure 5.5**- Partial view of the map of El Avila National Park covering the south slope of the Cerro La Silla de Caracas including the approximate location of Palmeros place-names for spots (pink dots) and areas such as spurs and hills (capital letters).

The distribution of named spots, in particular the concentration of place-names along the routes of the Palmeros pilgrimage, somehow reflects the current restricted relationship between most people in El Pedregal and the Avila National Park based in the performance of a religious pilgrimage. It also points to the importance of this social institution as providing the platform for continuing contact with and experience of nature in an urbanised environment such as Caracas. Other named spots are located on the lower parts of other spurs or correspond to major features at the top of the mountain range that are spotted from the distance such as mountain peaks.

This map is just a draft version as we do not posses the exact location of each place referred and it does not show specific place-names. Additional research is needed in order to produce an accurate cartographic depiction of the area of the Cerro de la Silla de Caracas indicating the Palmeros place-names and named areas.

### 1.2. **How places are named**

The geographical distribution of place-names helps us to define what for Palmeros may be traditional areas and boundaries. An analysis of their toponymy will explore further the idea of 'mountain' as a cultural landscape. It will also introduce us to their landscape categories and significant ecological associations and their descriptions of the landscape.

This section deals with the analysis of Palmeros place-names. I analyse the inventory of Palmeros place-names for the Cerro La Silla de Caracas looking for the patterns that underlie the naming of such places. This is a formal analysis of the Palmeros place-naming system. Eighty place-names are analyzed for syntactic and semantic regularities (Hunn 1996, 1994; Jett 1997). Frequencies of references to natural features such as mountain, spurs water features, and so forth, as well as cultural features such as trails and historic ruins, are then tallied. My aim is to explore an aspect of their perceptions and their experience of the landscape closely related to their ethnoecology. I will attempt to answer the following questions: how do Palmeros name particular spots and landscape features? To what extent do Palmeros take into account the natural landscape in their place-names? Which aspects of the natural environment get their attention?

A toponym or place-name is a word or words used to indicate or identify a geographic locality such as a valley, river, mountain or town. Place names consisting of a single term or specific component such as El Boquerón or El Aguilón are known as simplex names, since in Spanish the article 'el' is a bound word. Place-names of two or more names are known as composite names, consisting of a generic element and a specific element, or of a specific element consisting of more than one word. Examples of composite names are Cerro de Chacaito, Pico Occidental and Cañadote de Justo. In the case of Cerro de Chacaito the word *cerro* is the generic element or term, a common name that in this specific case designates a spur, and Chacaito is the specific or proper name, a diminutive of the proper noun Chacao.

A generic term is a common noun that describes a topographic feature (natural or man-made) in terms of its characteristics and not by its proper name. The generic term, however, does not necessarily indicate the type or class of feature of the item named. In those cases they are known as false generic elements. Nevertheless, in many cases, not only the generic terms but also the specific names are descriptive or primary names. The examples previously given for simplex names El Boquerón or El Aguilón are both primary specific names referring to a saddle and to an eagle respectively. The proper name Chacao, is an indigenous name that could also be translated as sandy area. Place names can also refer to personal names (anthroponyms) as in the case of Las Rivas or can be associated to names of persons or groups of people (eponyms) as in La Cueva de los Palmeros. In fact, every place-name is, in itself, a compressed, miniature story, telling either of the character of the place or of the things that happened there.

Place-names can be categorized into several different groups according to the type of word or words used to identify the locality. According to this, Palmeros place-names refer to one or possibly several of the following groups or paradigms. These paradigms are ordered according to their frequency of use starting from the most frequent:

1) Topographic features (natural landscape features): Topographic landforms such as a mountain, ravine, hill or clift (*cerro, quebrada, loma, farallones*, etc.) as in *quebrada* Quintero (Quintero's ravine). Out of 80 place-names,

63 refer to topographic features. Palmeros use 25 different categories of topographic features in their place-names from an inventory of at least 49 terms. Ravine (*quebrada*), mountain (*cerro*) and flat area on the steep slope (*plan*) are the most common features used in the place-names. 28 place-names are related to the presence of water and water features (21 categories used) including ravine (*quebrada*), water spring (*aguaita*), waterfall (*catarata, chorro*) and swamp (*lagunazo*).

2) Human association or ownership: Individual, family, group, town, proprietor (owner) or farm associated with a place prior to the creation of the national park. Out of 80 place-names, 27 are associated with people and old farms. Only the terms Chacaito, Caracas and Tócome are of indigenous origin. According to Manara (1998:72), the ravine currently known as Quebrada Quintero was recorded under the name of Pacagua by the German botanist Eduard Otto in 1840. There is no memory of this toponym among the Palmeros.

3) Vegetation features: Plants, intermediate, concentration of plant species or vegetation types associated or available at a place or area (*naranjitos, copeyal, carrizal, las guaguitas,* etc.). Out of 80 place-names, 19 refer to vegetation features and 15 vegetation terms are used including names of plant species (folk-generic) (*Quino*), concentrations of plant species, including wild and cultivated plants, (*naranjitos, mangos, carrizal, capachos*), intermediate (*Palma*) and vegetation type (*sabana*).

4) Man-made landscape features: References to man-made features associated with actual or historical land uses such as mills, water tanks, irrigation channels, stonewalls, park-ranger stations, camps and electricity towers (*la toma, el rancho, los pilares, el tubo, la cruz,* etc.). Out of 80 place-names, 17 refer to man-made landscape features and 13 of these terms are currently used.

5) Past and current events: Some place-names refer to historical events such as the epidemic of Spanish flu of 1918, as in the case of *el cementerio de la peste* (cemetery of the plague) and *la sabana de los muertos* (savanna of the

dead). Other names refer to past and present human activities associated to an area such as *el mirador* (viewpoint) and *dormidero* (camp). There may also be included ironic references or comments of steepness of the mountain slope as in the cases of *los 50 metros* (the 50 meters), *el cerro de no te apure* (don't hurry-take it easy spur), *los reventones* (steep hill = burst). Ten (10) place-names refer to past and present events. Eight terms are employed to refer to these events.

6) Resemblance to man-made artefacts: Some place-names refer to resemblance of topographic surfaces to artefacts as in the case of La Silla de Caracas (saddle), La puerta (door), Cachimbo (smoking pipe). There are seven place-names that refer to resemblance to objects. There are five objects used as references.

7) Animal features: Animals associated or available at the place or area (e.g. Sabana de las pulgas, Piedra del tigre, etc.). Only four place-names refer to four different animals.

When the place-names are formed with more than one word (composite names) only the following combinations are made:

8) Combination of topographic feature (1) and human association or ownership (3) (e.g. Quebrada de Quintero)

9) Combination of topographic feature (1) and vegetation features (2) (e.g. Cerro de la palma)

10) Combination of topographic feature (1) and man-made landscape features (4) (e.g. Pozo del molino)

11) Combination of topographic feature (1) and events that took/takes place there (5) (e.g. Cerro de no te apure)

12) Combination of topographic feature (1) and animal features (7) (e.g. Cerro de pajaritos)

13) Combination of man-made landscape feature (4) and human association or ownership (3) (e.g. Cruz de los Palmeros)

14) Combination of man-made landscape features (4) and events that took/takes place there (5) (e.g. Cementerio de la peste)

15) Combination of vegetation features (2) and events that took/takes place there (5) (e.g. Sabana de los muertos).

16) Combination of vegetation features (2) and animal features (7) (e.g. Sabana de la pulgas).

17) Combination of resemblance to animals or to man-made artefacts and human association (3) (e.g. La silla de Caracas, Puerta de la silla)

Table 5.2 presents a list of local terms used as place-names or a part of them ordered according to the previous seven paradigms or group described. It also contains information on the frequency of use per each term. Figure 5.6 presents the criteria for each paradigm along with information on the number of terms employed and frequency of use.

**Table 5.2** Terms used as place-names or as part of place-names grouped according to naming criteria and frequency of use

| Naming criteria | Local term | English translation | Frequency of use |
|---|---|---|---|
| ***Topographic features*** | | | |
| | *Quebrada* | Ravine | 11 |
| | *Plan* | Plain/terrace | 10 |
| | *Cerro* | Mountain/spur | 9 |
| | *Pozo* | River pool | 4 |
| | *Loma* | Hill | 3 |
| | *Pico* | Peak | 3 |
| | *Aguaita* | Spring | 3 |
| | *Canadote* | Draw | 2 |
| | *Penon* | Isolated boulder | 2 |
| | *Piedra* | Boulder | 2 |
| | *Serrania* | Mountain range | 1 |

| Naming criteria | Local term | English translation | Frequency of use |
|---|---|---|---|
| ***Topographic features*** | | | |
| | *Fila* | Ridge | 1 |
| | *Cueva* | Cave/Rock-shelter | 1 |
| | *Chorrito* | Disappearing stream | 1 |
| | *Catarata* | Large fall | 1 |
| | *Cienaga* | Marsh/Swamp | 1 |
| | *Lagunaso* | Pond | 1 |
| | *Lajal* | Talus slope | 1 |
| | *Farallon* | Cliff | 1 |
| | *Meseta* | Tableland/Mesa | 1 |
| | *Agua* | Water | 1 |
| | *Lambedero* | Small spring | 1 |
| | *Boqueron* | Saddle | 1 |
| | *Seca* | Dry ravine | 1 |
| | 25 | *Topographic total* | 63 |
| ***Human associations*** | | Family names & first names | |
| | *Avila* | | 3 |
| | *Chacaito* | | 3 |
| | *Colmenares* | | 2 |
| | *Serrano* | | 2 |
| | *Quintero* | | 2 |
| | *Palmeros* | | 2 |
| | *Caracas* | | 1 |
| | *Humboldt* | | 1 |
| | *Matamoros* | | 1 |
| | *Ponderosa* | | 1 |
| | *Justo* | | 1 |
| | *Robaina* | | 1 |
| | *Manuel conejo* | | 1 |
| | *San Jorge* | | 1 |
| | *Sebucan* | | 1 |
| | *Las Rivas* | | 1 |
| | *Jesus Maria* | | 1 |
| | *Tocome* | | 1 |
| | *Sabas Nieves* | | 1 |
| | 19 | *Human association total* | 27 |
| ***Plant associations*** | | | |
| | *Quino* | Landenbergia moritziana | 3 |
| | *Sabana* | Open grassland | 2 |
| | *Maiz* | Zea mays | 2 |
| | *Naranjitos* | Citrus auantium | 1 |
| | *Carrizal* | Chusquea scandens | 1 |
| | *Copeyal* | Clusia rosea | 1 |
| **Naming criteria** | **Local term** | **English translation** | **Frequency of use** |
| | *Capachos* | Canna edulis | 1 |
| | *Carricillo* | Chusquea scandens | 1 |
| | *Inciensal* | Espeletia nerifolia | 1 |

| | | | |
|---|---|---|---|
| | *Mora* | Rubus floribundus | 1 |
| | *Palma* | Palm | 1 |
| | *Palmar* | Palm grove | 1 |
| | *Moriches* | Oenocarpus utilis | 1 |
| | *Guaguitas* | Guadua latifolia | 1 |
| | *Mangos* | Mangifera indica | 1 |
| | 15 | *Plant association total* | 19 |
| ***Man-made landscape features*** | | | |
| | *Rancho* | Hut | 3 |
| | *PGP rancho* | Ranger post | 2 |
| | *Cruz* | Cross | 2 |
| | *Molino* | Water mill | 1 |
| | *Rueda* | Wheel | 1 |
| | *Toma* | Irrigation channel | 1 |
| | *Pica* | Track | 1 |
| | *Torre* | Tower | 1 |
| | *Pilares* | Aqueduct pillar | 1 |
| | *Tubo* | Pipe | 1 |
| | *Tanque* | Tank | 1 |
| | *Cementerio* | Cemetery | 1 |
| | *Accequia* | Irrigation channel | 1 |
| | 13 | *Man-made landscape feature total* | 17 |
| ***Events that took or take place there*** | | | |
| | *No te apures* | Take it easy | 2 |
| | *Dormidero* | Sleeping place | 2 |
| | *50 metros* | Fifty meters steep | 1 |
| | *Reventones* | Burst | 1 |
| | *Muertos* | Dead | 1 |
| | *Peste* | Plague | 1 |
| | *Mirador* | Vantage point | 1 |
| | *Teneria* | Tannery | 1 |
| | 8 | *Events .. total* | 10 |
| ***Resemblance to artefacts*** | | | |
| | *Silla* | Chair | 3 |
| | *Puerta* | Door | 1 |
| | *Asiento* | Seat | 1 |
| | *Cachimbo* | Smoking pipe | 1 |
| | *Botella* | Bottle | 1 |
| | 5 | *Resemblance to artifacts total* | 7 |
| **Naming criteria** | **Local term** | **English translation** | **Frequency of use** |
| ***Animals associations*** | | | |
| | *Aguilon* | Eagle | 1 |
| | *Tigre* | Tiger | 1 |
| | *Pulgas* | Fleas | 1 |
| | *Pajaritos* | Birds | 1 |
| | **4** | *Animal association total* | **4** |

**Figure 5.6** Criteria used in place-names, numbers of terms used per criteria and frequency of use.

| Naming criteria | Number of terms used | Frequency of use |
|---|---|---|
| Topographic features (natural landscape features) | 25 | 63 |
| Human associations | 19 | 27 |
| Plant associations | 15 | 19 |
| Man-made landscape features | 13 | 17 |
| Events that took or take place there | 8 | 10 |
| Resemblance to artefacts | 5 | 7 |
| Animals associations | 4 | 4 |
| 7 | 89 | 147 |

In their place-naming practices the Palmeros pay attention to the natural landscape and to the human intervention in it both material and symbolic. As described above, they resort to seven paradigms and to a limited combination of them in order to generate place-names. Palmeros'splace-names are frequently descriptive of the topographic and plant features of the sites. Very few refer to animals. Place-names are also associated with people. Some places are named for persons, manmade landscape features and objects; few are commemorative or refer to present events, activities and feelings associated with the sites. These place-names reflect interaction between the natural environment and what the Palmeros consider to be important within it as well as the multiple ways they perceive, relate and interact with it. These place-names are indices of their history and culture –including ethnoecology- written on the land. In this section we have attempted to initiate the mapping of the geography of the Palmeros by using their place-names.

2. **Palmeros topography**

The Palmeros make a primary distinction between the Coastal mountain range (serranía) and the Caracas valley (valle de Caracas) (See figure 5.7). This distinction is not based on the opposition between mountain and valley, but between mountain or high ground (cerro) and flat land or level ground (plan/planicie). Between these two major landscapes, there is the intermediary area of the foot of the mountain characterised by a gentle slope and presence of hilly areas. It is locally designated with the alternative terms 'pata del cerro' (foot of the mountain) and 'orilla de cerro' (edge of the mountain).

The valley has a vast and relatively flat floor. Before the expansion of the city local people distinguished the following major topographic features: 1) *vegas* (river bank plains), 2) *llanuras* (level areas), 3) *lomas* (hills) and *partes altas* (promontories), 4) *rios y quebradas* (rivers and ravines), 5) *cañadotes* (draws of intermittent streams) and 6) *pedregales* (concentrations of boulders). Apart from rivers, ravines and hills, these topographic terms are no longer used to describe part of the urban landscape of the city of Caracas. Some of these feature terms are only used as urban place names.

The Palmeros use the term *Serranía* to refer to the whole mountain range along the Caracas valley. In the ridgeline crest (*fila*) saddles (*boquerones*) and peaks (*picos*) are distinguished. On the upper slopes there are also high rock cliffs (*farallones*). The Serranía is divided into individual mountains. A large ravine (*quebrada*) at each of its sides delimits each mountain. There is also a saddle at the mountaintop clearly separating the mountains. It is under these saddles that the ravines that delimit the mountains are born forming narrow but deep gorges that contrast with smaller valleys of the other smaller ravines, many of the seasonal streams, in each mountain.

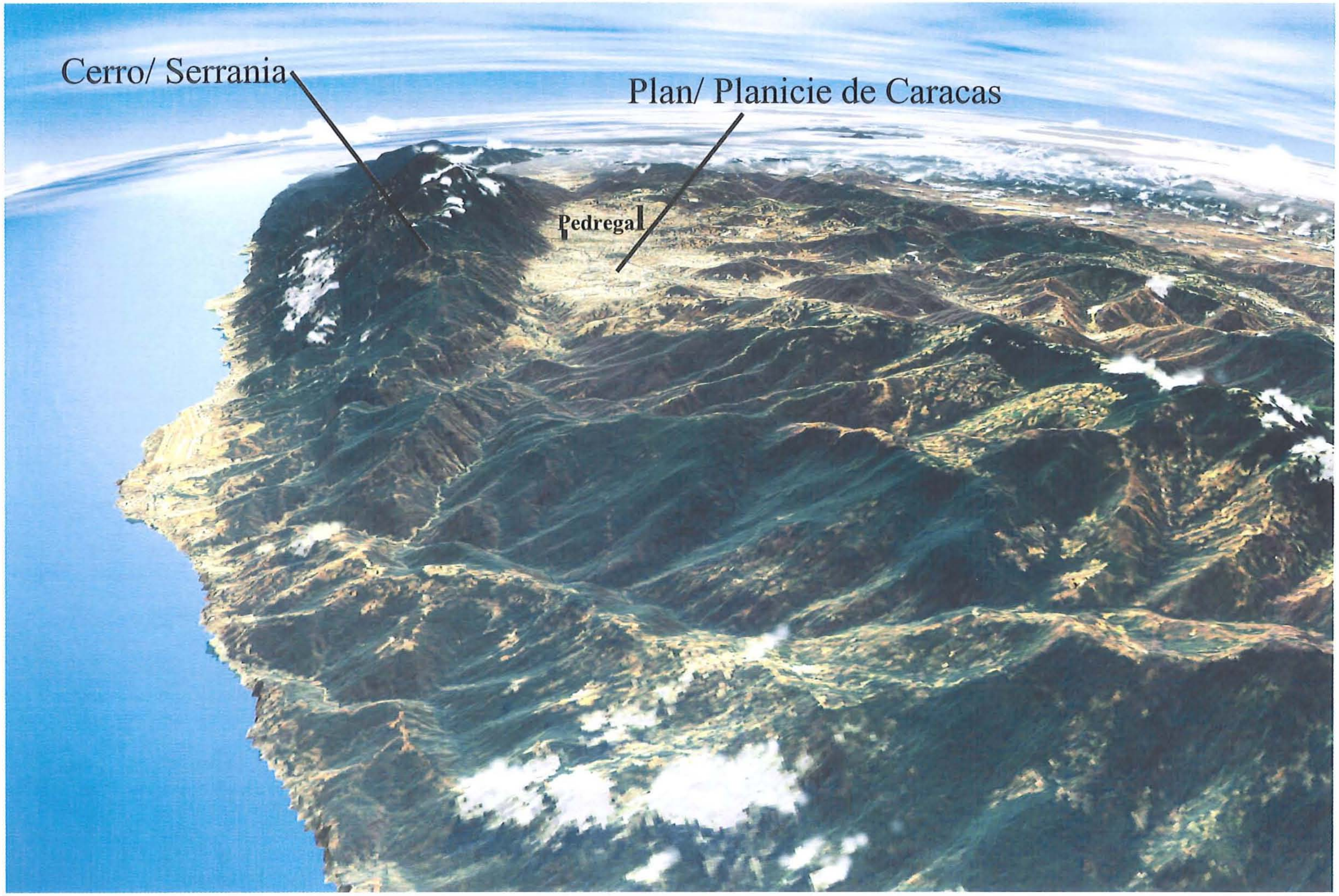



**Figure 5.7** - Aerial photograph of the Caracas Valley and the Coastal Cordilllera showing the approximate location of El Pedregal. It maps the distinction Cerro/plan. (Source: http://earth.esrin.esa.it/ers/ers_action/Caracas_Venezuela)

Mountains are called *cerros*. At the foot of the mountains there are lomas (*foothills*). *Cerros* are successively divided into spurs known as cerros as well. Moreover, spurs are also divided into smaller spurs. The steep slope is also referred as *cerro*. On the upper mountain slope gullies/draws of intermittent ravines (*cañadotes*) are contrasted with smaller spurs (*cerros*). Ravines, and to an extent intermittent ravines (*cañadotes*), are conceptualised as the natural boundaries dividing up mountains, spurs and foothills. Figure 5.8 presents a picture of Cerro La Silla de Caracas indicating some of named topographic features.

Although Palmeros recognise almost the same major topographic features of the mountain as geographers and other scientists do, they conceptualise the landscape differently. A major difference is the significance of *cerro* (mountain as well as spur) as a Palmero reference point rather than valley (*quebrada* and *cañadote*), the scientific reference point as it focuses on a drainage basin.

Palmeros conceive of spurs as kinds of micro-mountains or as mountains within a mountain; as both the same structure, but different scales. As they conceive and use ravines as boundaries, dividing/splitting the mountains into sections, they do not privilege valley or drainage basin as landscape units, as do geographers and biologists. Instead, they focus on their inverted images: *cerros* (mountains and spurs). Palmeros highlight ravines not valleys. As ravines separate mountains and spurs, the opposite slopes at each margin of the ravine are conceptualised as each being part of different mountains or spurs and not as both forming a valley with the ravine at its core. Ravines were traditionally used in the Caracas valley as boundaries between farms.

*Cerro*s (spurs) are not just the main reference points, but also the only access routes to the mountain forest and to the mountaintops. Due to the steepness of the mountain slope, valleys are not easily accessible beyond the foot of the mountain. It is from the crests of spurs that they can view the mountain from outside the forest, know of their pisition and plan their routes. In fact, once they are 'inside' the forest, there are not many major reference points apart from the steep slope. They are also dangerous to climb. Access routes to the mountain forest and mountaintops follow the crest of mountain spurs.

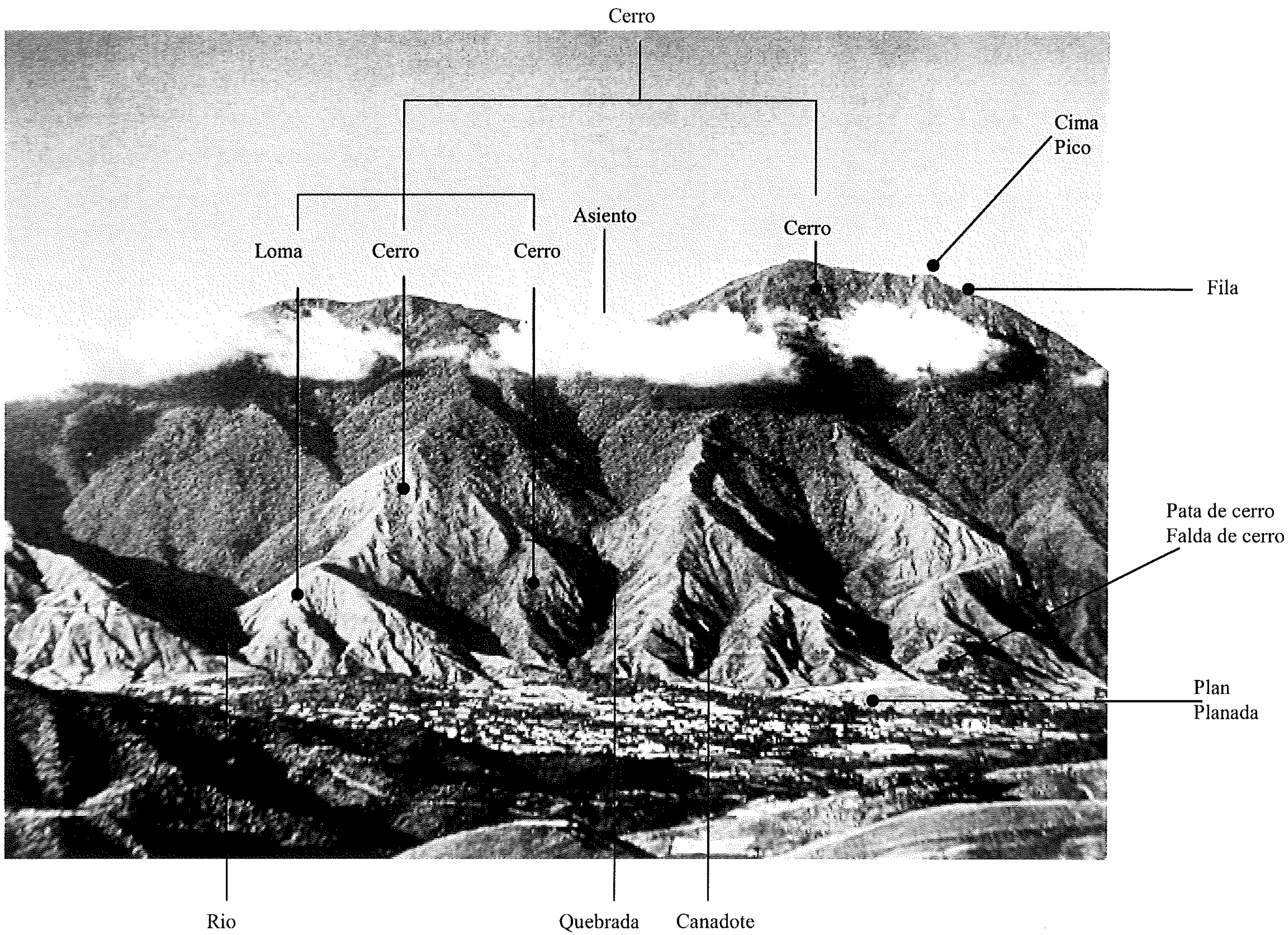



**Figure 5.8** - Detail of the Caracas Valley and the Cerro Silla de Caracas indicating some topographic terms.

In the upper slope, it is only from the crests of spurs that one can view the mountain from outside the forest, find position and plan routes. In fact, once 'inside' the forest, there are no many major reference points apart from the steep slope and scattered, but imposing tall trees.

A small flat area in the steep slope is called *plan*. It is a potential place for resting and also the preferred space for camping. When a *plan* is located at crest of the mountain or the crest of spurs with clear view of the mountain as well as the city is called *mirador.* A larger flat area normally occurring at the upper end of the mountain spurs is called *mesa* o *meseta*. There is only one mesa in the mountain of La Silla de Caracas.

A rocky formation on the crest of mountain spurs is normally called *piedra*. *Lajal* is a particular type of *piedra* that is characterised by non-compact stone subject due to erosion. Isolated boulders in the mountain slope are called *peñones*. There are concentrations of boulders on the banks of the ravines and on draws. A cavern or a projection of the boulder is called *cueva*, a preferred space for camping in the forest.

The headwater of a river or ravine is known as *naciente de rio* or *naciente de quebrada*, as well as simply *cabecera*. A spring is called *manantial*. *Aguaita* refers to a small spring in a spot of an otherwise dry steep draw where water is available. *Lambedero* refers to a small spring where the water just damps the stones. The term can be translated as 'a place to lick'. A waterfall is known as *catarata* o *chorrerón*. A small waterfall is called *chorro*. A ravine or river pool is locally known as *pozo*. It can be made both of natural or manmade origin. A ravine or river shore is called *orilla* (edge). A sandy shore is also known as *playa*. A pond is referred as *laguna*. A swampy area is called *pantano*. Old people also refer to it as *manare*. *Ciénaga* is used to designate a boggy area in the mountain crest (ridge).

Table 5.3 presents a repertoire of local terms for natural landscape or topographic features and English translation. Local terms are grouped into drainage features and landforms. Table 5.4 shows a list of manmade landscape terms divided into relevant functional headings. It is followed by figure 5.9 containing a summary of the number of local terms for landscape features per type of feature.

**Table 5.3** Natural landscape features

| **Feature type** | Local term | English translation |
|---|---|---|
| **Drainage features** | | |
| | ***Agua*** | **Water** |
| | ***Aguaita*** | **Spring** |
| | ***Catarata*** | **Large fall** |
| | ***Chorrerón*** | **Fall** |
| | ***Chorrito*** | **Disappearing stream** |
| | ***Chorro*** | **Small fall** |
| | ***Cienaga*** | **Marsh/Swamp** |
| | ***Laguna*** | **Lake** |
| | ***Lagunaso*** | **Pond** |
| | ***Lambedero*** | **Small spring** |
| | ***Manantial*** | **Spring** |
| | ***Manare*** | **Marsh/Swamp** |
| | ***Naciente de quebrada*** | **Spring** |
| | ***Orilla*** | **Shoreline** |
| | ***Pantano*** | **Bog** |
| | ***Playa*** | **Beach** |
| | ***Pozo*** | **River pool** |
| | ***Quebrada*** | **Ravine** |
| | ***Rio*** | **River** |

| | | |
|---|---|---|
| | *Seca* | **Dry ravine/Seasonal ravine** |
| | *Vega de rio* | **Fertile plain/River bank lowland area** |
| **Landforms** | | |
| | *Arenal* | **Moraine** |
| | *Boquerón* | **Saddle** |
| | *Cañaote* | **Draw** |
| | *Cañadón* | **Narrow valley** |
| | *Cerro* | **Mountain/Spur/Slope** |
| | *Cima de cerro* | **Peak** |
| | *Cueva* | **Cave/Rock shelter** |
| | *Falda de cerro* | **Foot of a mountain** |
| | *Farallón* | **Cliff** |
| | *Fila* | **Ridge/Ridgeline crest** |
| | *Guaratara* | **Large round stone** |
| | *Lajal* | **Talus slope** |
| | *Llanura* | **Level area** |
| | *Loma* | **Hill** |
| | *Mesa* | **Tableland/Mesa** |
| | *Meseta* | **Tableland/Mesa** |
| | *Mirador* | **Terrace/Ledge** |
| | *Orilla de cerro* | **Edge of mountain** |

| | | |
|---|---|---|
| | ***Pata de cerro*** | **Foot of mountain** |
| | ***Pedregal*** | **Concentration of boulders** |
| | ***Peñón*** | **Isolated boulder** |
| | ***Pico*** | **Peak** |
| | ***Piedra*** | **Boulder** |
| | ***Plan*** | **Terrace/plain** |
| | ***Planada*** | **Terrace/plain** |
| | ***Serranía*** | **Mountain range** |
| | ***Valle*** | **Valley** |
| | ***Voladero*** | **Steep slope** |
| | ***Zanjón*** | **Depression/Fill** |

**Table 5.4** - Manmade landscape features

| Feature type | Local term | English translation |
|---|---|---|
| **Building and construction** | | |
| | ***Cementerio*** | **Cementery** |
| | ***Cruz*** | **Cross** |
| | ***Empalizada*** | **Wall** |
| | ***Molino*** | **Water mill** |
| | ***Paredón*** | **Thick wall** |
| | ***PGP rancho*** | **Ranger post** |
| **Building and construction** | ***Rancho*** | **Hut** |

| | | |
|---|---|---|
| | *Teneria* | tannery |
| Electricity systems | *Torre de electricidad* | Electricity tower |
| Fire control | *Cortafuego/ Contrafuego* | Fire-break |
| Irrigation systems | *Acequia de agua* | Irrigation channel |
| | *Pilar* | Aqueduct pillar |
| | *Tanque* | Tank |
| | *Tanquilla* | Irrigation ditch |
| | *Toma de agua* | Irrigation channel |
| | *Tubo* | Pipe |
| Roads | *Camino* | Path |
| | *Carretera* | Road |
| | *Pica* | track |
| | *Trocha* | Trail |

**Figure 5.9** - Nomenclature of landscape features, number of local terms per type of feature

| Feature type | | Number of terms | |
|---|---|---|---|
| **Natural features** | | | |
| | **Drainage features** | **21** | |
| | **Landforms** | **28** | |
| | | **Natural features total** | **49** |
| **Manmade features** | | | |
| | **Buildings and other constructions** | **8** | |
| | **Electricity systems** | **1** | |
| | **Fire control** | **1** | |
| | **Irrigation systems** | **6** | |
| | **Roads** | **4** | |
| | | **Manmade features total** | **20** |
| | | **Total** | **68** |

By presenting an inventory of landscape features and an account of the ways the Palmeros conceptualise the landscape we have dealt with an important aspect of their perceptions and categorizations of the local environment/landscape. We have also attempted to map some of these concepts into images of the landscape. What is relevant to note here is the fact that an urbanised population such as El Pedregal still retain relatively complex conceptual apparatus for identifying and mapping nature.

## 3. **Vegetation types**

The classification of plant associations as vegetation types constitutes an important aspect or sub-domain of the perception of the natural landscape for the Pedregal people, and especially the Palmero pilgrims who still actively interact with it. In this section I describe and analyse vegetation types as they are perceived by Pedregal people. By applying a formal analysis to the nomenclature the Palmeros use to describe vegetation types I present the criteria involved in such discrimination of plant communities. Following that, I compare Palmeros's perceptions of vegetation types with their scientific classification, particularly regarding the south slope of the Avila national park.

The aim of this section is to highlight the accuracy of local perceptions of biological reality. I argue that the local perception of vegetation types, while highly correlated with the scientific classification, also discriminates a category unknown to science: *pegual* or *pesgual*. It appears to describe a forest-scrub-grassland ecotone.

Here I highlight as well the problem of relying exclusively on linguistic information to elicit folk ecological knowledge as classification models and rules. *Pesgual* is an ecotone recognised and named by local people, but ignored by scientists. However, the naming of this ecotome does not comply with local linguistic rules of nomenclature for vegetation types based on plant morphology. According to these rules *pesgual* appears to refer to a concentration of *pesgua* trees (*Gaultheria odorata*). A focus exclusively on elicited data and internal linguistic rules will miss this 'recognised' ecotone. The mooted implication is that formal linguistic methods might not be sufficient to grasp the complexity and organisation of local knowledge.

I came to grasp the meaning of the category *pesgual* as an unreported vegetation type not when researching vegetation but while enquiring about place-names. I understood it first as a concentration of *pesgua* trees and second as a place-name. I was trying to plot this supposedly place-name into a map after recording this term in numerous occasions as part of accounts of many Palmeros about their pilgrimage in the mountain. I understood their usage of this term as a place-name as they referred to it as visiting it. Then, it was pointed out to me that the term referred no to a specific location but to a vegetation type in which the *pesgua* tree is an indicator no the dominant vegetation. They talk of visiting *el pesgual* as they do about visiting the *montaña* or forest.

### 3.1. **Local classification of vegetation types**

The classification of plants associations (communities) as vegetation types constitutes an important aspect or sub-domain of the perception of the natural landscape for the Pedregal people, specially the Palmero pilgrims who still actively interact with it. Vegetation types constitute general or primary indicators of ecological communities.

The local categorisation of the vegetation is based primarily on morphological criteria. As pointed out in the introduction the Pedregal system of classifying plants appears to conform in principle with the taxonomic model described by Berlin et al. (1973) and Berlin (1992). As such we use Berlin nomenclature to describe the criteria used in the discrimination of plant communities based on plant morphology. The lifeforms locally named are *árbol* (tree), *arbusto* (shrub), *bejuco* (vine), *hierba* (herb). *Palma* (palm) is a named intermediate between the lifeform tree, at an upper rank, and several palm species locally named such a *palma bendita* (*Ceroxylon ceriferum*). Ecological and functional criteria are also used for discriminating plant communities. The analysis of the nomenclature of vegetation types show that plant communities are differentiated according to the classification criteria as seen in figure 5.10.

**Figure 5.10** - Local classification of vegetation types, including classification criteria and local nomenclature. Local nomenclature for secondary vegetation types presented here is not exhaustive but represents examples for each of the criteria described.

| **Vegetation types** | **Classification Criteria** | | **Local nomenclature Referents** | **Vegetation types** |
|---|---|---|---|---|
| Major vegetation types | | | *Hierba* (herb)<br>*Árbol* (tree) | *Sabana* (savanna)<br>*Montaña* (forest) |
| Minor vegetation types | Plant morphology | Dominant life-form | *Árbol* (tree)<br>*Bejuco* (vine) | *Arboleda* (orchards and concentrations of trees in a savanna)<br>*Bejuquero* (concentration of vines) |
| | | Dominant folk-intermediate | *Palma* | *Palmar* (concentration of palm trees) |
| | | Dominant folkgeneric specie | *Copey* (*Clusia rosea*)<br>*Bucaral* (*Erythrina glauca*)<br>*Carrizo* (*Chusquea fasciculate*)<br>*Gamelote* (*Panicum maximum*)<br>*Guagua* (*Guadua latifolia*) | *Copeyal*<br>*Bucaral*<br>*Carrizal* (concentration of … )<br>*Gamelotal*<br>*Guagüitas* |
| | Ecological | Ecological behavior | *Mogote* (island-like patch of grasses) | *Mogotal* (concentration of *Mogotes*) |
| | | Seasonal variation | *Chamisa* (dry herbaceous vegetation) | *Chamisero* (dry savanna) |
| | | Animal association | *Chivo* (goat) | *Chiviritál* (grazing grounds for goat) |
| | | Regenerative stages of secondary vegetation | | *Monte* (non-woody pioneer vegetation)<br>*Montarral* (bushy vegetation)<br>*Barbecho* (fallow) |
| | | Ecotones (Natural)<br>(Manmande) | *Pesgua* [plant indicator] (*Gaultheria odorata*) | *Pesgual*<br>*Orilla de conuco* (swidden-fallow)<br>*Orilla de casa* (house-fallow)<br>*Orilla de acequia* (irrigation channel-fallow) |
| | Functional | Kind of agriculture | | *Conuco* (swidden)<br>*Tablón* (arable land) |

Palmeros distinguish several vegetation types and ecotones which constitute general or primary indicators of (more complex) ecological communities. Ecotones specifically are transition areas of vegetation between two different plant communities, such as forest and grassland that have some of the characteristics of each bordering community and often contain specie not found in the overlapping communities.

Based on plant morphology, two major vegetation types are distinguished on the slope of the mountains of the Avila National Park: *sabana* (savanna/grassland- open non-woody vegetation) and *montaña* (forest- woody vegetation). These vegetation types are distributed following a mosaic pattern rather than just a succession order. *Sabana* dominates the lower areas of the mountain spurs while there is *montaña* vegetation along the valleys and on the upper areas of the spurs where it forms belts or strips. Ridges are covered with *sabana*. Within these two general types, several minor vegetation types are also distinguished according to plant morphology and ecological criteria. In addition, a major natural ecotone is distinguished between the mountain forest and the (sub-andean) elfin forest at an altitude ranging from 2,000 to 2,400 meters over the sea level. It is a broad belt on the upper edge of the broadleaf moist forest, linguistically encoded as *pesgual*.

The conceptualisation of the vegetation into categories does not imply that local people hold a static view of plant communities. On the contrary, stages of vegetation regeneration, such as fallow (*barbecho*), are also recognised as vegetation types. Major vegetation types are differentiated from cultivated vegetation. Cultivated vegetation, however, is to an extent associated with *sabana* vegetation, as both are understood as 'cleared forest' and also – particularly in the case of swiddens- as stages of the process of forest regeneration. Minor vegetation types based on morphological criteria are also recognised among cultivated vegetation.

Cultivation areas are locally classified according to the kind of agriculture practised in them: 1) slash and burn agriculture practised in temporary swiddens, locally known as *conucos,* 2) irrigated agriculture on permanent arable land or *tablones* and 3) coffee plantations or *cafetales* under the canopy of highly modified forest. Smaller manmade ecotones linked to agriculture are linguistically encoded using the term *orilla* (edge). There are at least three of these locally recognised ecotones: a) between swidden and fallow (*orilla de conuco*), b) between house garden and fallow (*orilla de casa*) and c) between irrigation channels and fallow (*orilla de acequia*). As agriculture is not longer practised in the Caracas valley as a consequence of the urban expansion, these distinctions are no longer applied to the local landscape.

### 3.2. **Major vegetation types**

On a general level, according to the dominant folk-life form, there are two major categories of vegetation: s*abana* and *montaña.* The term *sabana* corresponds to open non-woody vegetation, prototypically composed by grasses (grassland, meadow, savanna), in which the dominant folk-life form is *hierba* (herb). *Montaña* refers to woody vegetation in which the dominant folk-life form is *árbol* (tree). It is exemplified by tropical forest dominated by tall trees and a closed canopy.

While these categories generally refer to both large (broad belts) and small areas (small pockets), the category of *montaña* is not applied to small concentrations of tree isolated among grassland nor to man-made tree concentrations such as peasant orchards or bigger commercial fruit plantations. Instead, local people use the general term *arboleda* to refer to all man-made tree concentrations as well as to isolated groups of trees in a grassland. These later groups, however, are most commonly referred to using terms based on the specific names of the dominant tree species, rather than its folk-life forms. Such is the case of *bucaral*: a concentration of *bucare* trees (*Erythrina glauca*).

Apart from *arbol* (tree) and *hierba* (herb), no other life form category is used to discriminate major vegetation types. The life-form *bejuco* (vine), however, can be used to describe particular areas of the forest understory dominated by species of this life form *(bejuquero*).

Forest and savanna are not differentiated by species composition, but rather by the topographic location. It is important to note that none of these two main categories of vegetation types is understood to represent a particular ecosystem or as homogeneous environment in terms of plant and animal composition and related ecological features. On the contrary, these vegetation types are perceived as heterogeneous and diverse. They are only general indicators of the structure of ecological communities which are also defined in terms of landscape features, altitude, humidity, soil type, plant and animal composition among other criteria.

### 3.2.1. **Minor or specific vegetation types**

On a more specific level, with respect to the diversity of biotopes in both forest and savanna, there are also categories discriminating the vegetation according to dominant folk-generics and, in few cases, named intermediate rank taxa. As in the previous example of *bucaral*, these categories specifically describe concentrations of particular plant species (folk-generics) such as in the case of *copeyal* (concentration of *copey* trees), *gamelotal* (concentration of *gamelote* herbs) and *carrizal* (concentration of *carrizo* herbs), etc. In the case of terms such as *palmar*, a concentration of palm trees of a particular specie, discrimination is based on named intermediate rank categories instead of folk-generic. Not all concentrations of plant species, or named intermediate categories, are conceptualised as vegetation types categories or received a name.

Normally, the categories for plant concentrations based on intermediate and folk-generic taxa are linguistically formed by combining the folk-generic name or the intermediate name with the suffix _al or _ar (copey+_al= copeyal ). In some cases, nonetheless, the term is formed by using the plural form of the dominant plant specie as in the case of *guagüitas* (a concentration of *guagua*).

Categories based on concentrations of particular plant species and intermediate rank are used to discriminate the vegetation of both natural and man-made environments. These categories are more specific than the major vegetation types and refer to particular biotopes and ecological associations. For its users, they not only provide information regarding the dominant plant species but also of related plant and animal species associated with them. For example, the term *copeyal* describes a concentration of a particular forest tree locally known as *copey* (*Clusia rosea*). The sap of this tree is still used as medicine for healing broken bones and skin problems. On account of their abundant fruits, this vegetation type is also associated with big birds and small mammals. Hence, this vegetation type is good for hunting as well as for being a source for medicine.

Finally, as the two major vegetation categories *(sabana* and *montaña)* are also categorized into more specific vegetation types (e.g. *carrizal*), the life-form of the specific types may or may not correspond with the dominant life form of the more inclusive categories within which they are found. For example, we can find a concentration of *bucare* trees or *bucaral* in the *sabana* or a concentration of c*arrizo*, a bamboo-like grass, or *carrizal* in the *montaña* (forest).

### 3.2.2. **Specific vegetation types based on ecological criteria**

In addition to plant morphology, local people also use ecological criteria to discriminate other vegetation types such as ecological behaviour, regeneration stages, seasonal variation and animal associations. For example, based on ecological behaviour, the term *mogotal* is used to describe particular areas of *sabana* vegetation dominated by communities of several grasses growing on bare land in a multitude of compact and small island-like patches of no more than 30 cm of radius (*mogotes*).

The conceptualisation of the vegetation into categories might seem to impose or imply a static view of the plant communities and ecosystems. On the contrary, successive changes of vegetation are also recognised as categories. In the process of vegetational regeneration, at least three stages of secondary succession are conceptualised as vegetation categories according to the degree of maturity of the vegetation.

The terms *monte* and *montarral*, refer to earlier stages of vegetation regeneration of both grassland and forest. These terms describe non-woody pioneer vegetation that spreads rapidly to colonise disturbed soil (*monte)* as well as the following bushy vegetation *(montarral*).

The term *barbecho* refers to the next stage of vegetation succession. The use of this term is restricted to the regeneration of the forest. It designates more mature secondary vegetation characterised by woody bushes, small trees and young exemplars of bigger tree species. While the term *barbecho* is somehow traditionally associated with anthropogenic secondary forest or fallow, it is also used to describe vegetation succession caused by natural process such as forest clearing caused by a fallen tree. The successional secondary vegetation of natural forest clearings can also be referred to using the term *montarral.*

*Chamisero* is a category used to describe *monte* and *montarral* vegetation during the dry season when their plants became dry and dead.

*Chiviritál* is a term often used to describe an intermediate or transitional stage of vegetation succession characterised by the presence of both non-woody pioneers and young secondary forest. This category overlaps with b*arbecho* and *monte* vegetation types. The criterion for the discrimination of this category is based on ecological association of this type of vegetation with a domesticated animal. This type of vegetation is associated with the domestic goat *(chivo)* as it was considered (as well as used as) the best environment to graze them in small numbers for domestic consumption.

## 4. **Scientific description of the vegetation:**

### 4.1. **'Tropical and Subtropical Moist Broadleaf Forests' Ecoregion**

The forests of the south slopes of the mountains of the Avila National Park adjacent to Caracas are part of the ecoregion known to biologists/ecologists as (Venezuelan Coastal Cordillera) 'Tropical and Subtropical Moist Broadleaf Forests'. This ecoregion is composed of various forest enclaves with an altitudinal range from approximately 600 to 2675 m. According to Huber (1997, 1996), it includes three forest types: evergreen montane transition forests, evergreen montane cloud forests, and upper montane elfin forest.

These patches of montane forests are isolated from one another by a mosaic of xerophytic and savanna vegetation. Isolation and a great variety of topographic scenarios have created extraordinary species richness and strong speciation processes manifested in a relative high level of plant and animal endemism. The flora of the Venezuelan Coastal Cordillera contains some 10% of endemic taxa. Endemism like floristic richness is mainly concentrated in the montane cloud forest, being almost not present from the dry flora of the lower montane belts (Huber 1997).

### 4.2. **Coastal Cordillera vegetation types**

Ecologists and biologists recognise a variety of vegetation types covering the entire Coastal Cordillera. These types are distributed following a characteristic altitudinal sequence ranging from see level to 2,765 m. Accordingly, each vegetation type forms an "altitudinal belt". The predominant vegetation is the forest ranging from deciduous low forest to evergreen upper montane forest or cloud forest. Scrub is present in the arid coastal areas and on the uppermost peaks of higher mountains. Savannas and related herbaceous formations occur on lower slopes, mainly toward the interior valleys and plains and are considered modifications (human disturbances) of the original forest vegetation mainly of anthropogenic origins. As such, the distribution of savanna vegetation does not follow an altitudinal sequence as the rest of the original vegetation covers.

According to Huber (1997), the typical transect upward from sea level in the central Coastal Cordillera showing the altitudinal sequence of vegetation types on the wetter or windward side of the cordillera (northern side) is as follows:

1) Mangrove forest (sea level)
2) Coastal xerophytic thorn scrub (c. 2-200 m)
3) Semi-deciduous lower forest (c. 200-600 m)
4) Evergreen montane forest (c. 600-900 m)
5) Evergreen montane cloud forest (c. 900-2200 m)
6) Upper montane elfin forest and scrub (*subparamo*) (Above c.2200-2400 m)

There are altitudinal variations of this pattern in various areas, due to local climatic, topographic and edaphic conditions. In addition to the altitudinal variations, modifications of this pattern are also present in the south slopes of the mountains of El Ávila National Park and other mountains of the region where the original forest vegetation had been substituted by open vegetation. The destruction of the original forest on the lower and middle mountain slopes has been the result of centuries of shifting cultivation, fires and logging. These anthropogenic savannas and related herbaceous formations display a strong component of exotic grasses (Huber 1997).

### 4.2.1. **The south slope of The Cerro de La Silla de Caracas**

In the particular case of the south slope of the Cerro de La Silla de Caracas mountain, (the dry or leeward side of the cordillera) the lower and middle slopes are covered by a savanna-forest mosaic in which the former is predominant, particularly on the mountain spurs. Patches of evergreen montane forest extend far beyond its normal altitudinal range up to an altitude of 1700 m. from where a broad belt of the cloud forest extends to approximately 2200 m. Finally, upper montane elfin forest and scrub or subparamo vegetation extends beyond that altitude to the highest mountain peaks (2650 m.) The following is a sketch of these vegetation types according to Huber (1997):

The semi-evergreen forest (*bosque veranero*/ Dry season forest) has a 3 month long dry season, due to its location at the leeward side of the Cordillera.

Evergreen montane forest (c. 800-1700m) is a transition forest between the lower montane semi-deciduous forest and the upper montane cloud forest. Heavily buttressed trees 60 m tall of the endemic *Gyranthera caribensis* emerge above the general forest canopy dominated by *Trophis racemosa*, *Ficus macbridei*, *Tetragastris caracasana*, *Zanthoxylum ocumarense, Banara nitida*, etc. The understorey is dominated by shrubs of *Aphelandra micans, Besleria disgrega, Psychotria macrophylla* and *Hoffmannia apodantha*, together with large colonies of giant herbs, e.g. *Musaceae (Heliconia bihai, H. revoluta), Araceae (Dieffenbachia maculata),* Marantaceae and ferns (Huber 1997).

For centuries, this montane forest was used for coffee plantations. In the adjacent mountain slopes of the Caracas valley, the forests originally modified for plantations through selective logging, planting of shade trees and clearing of its understorey are slowly recovering their original structure, although not yet their original floristic composition.

Evergreen montane cloud forest (c. 1700-2200 m) is the most species-rich plant communities in the entire Coastal Cordillera, representing also the most complex ecosystems with the most life forms and ecological niches (Huber 1997). The forest is structured in 2-3 layers, with a main canopy extending 15-20 m, overtopped by emergent 40 m. tall trees. Canopy trees include *Ecclinusa abbreviata, Sloanea* spp., *Neea spp., Eschweilera perumbonata, Graffenrieda latifolia* and *Ocotea* spp. Palms are very frequent in the canopy and in the understorey as well, either growing solitary *(Dictyocarium sp., Socratea sp., Geonoma* spp.) or in large clumps *(Hyospathe pittieri, Catoblastus praemorsus, Bactris* sp.). Epiphytes are also very abundant, mainly ferns, orchids, bromeliads, ericads and gesneriads. The shrub and herb layer is usually dense and dominated by many endemics, such as *Psychotria agostinii*, *P. costanensis*, *Palicourea fendleri, Schoenobiblos daphnoides, Geonoma spinescens* and *Anthurium bredemeyeri*. Terrestrial ferns, including tree ferns, are particularly abundant and diverse.

Cloud forests include all forests in the humid tropics that are frequently covered in clouds or mist thus receiving additional humidity, other than rainfall, through the capture and/or condensation of water droplets (horizontal precipitation), which influences the hydrological regime, radiation balance, and several other climatic, edaphic and ecological parameters.

Upper Elfin forest and scrub (subparamo) (Above c. 2200-2400 m.) is a low mossy forest grading into open scrub vegetation covering the highest peaks of the Coastal Cordillera. It resembles in some instances the subpáramo belt of the Andes, sharing some significant species, such as *Libanothamnus neriifolius*. This primitive espeletioid composite dominates the open scrub, whereas in the elfin forests the most frequent tree species are *Clusia multiflora, Weinmannia* spp. and *Prumnopitys harmsiana*. In the upper montane scrub an irregular, but often rather dense herbaceous layer is present, in which several species of Andean affinities grow, e.g. *Achyrocline flavida, Orthrosanthus chimboracensis or Juncus effusus* (Huber 1997). Figure 5.11 displays a scientific classification of vegetation types for Avila National Park according to Huber.

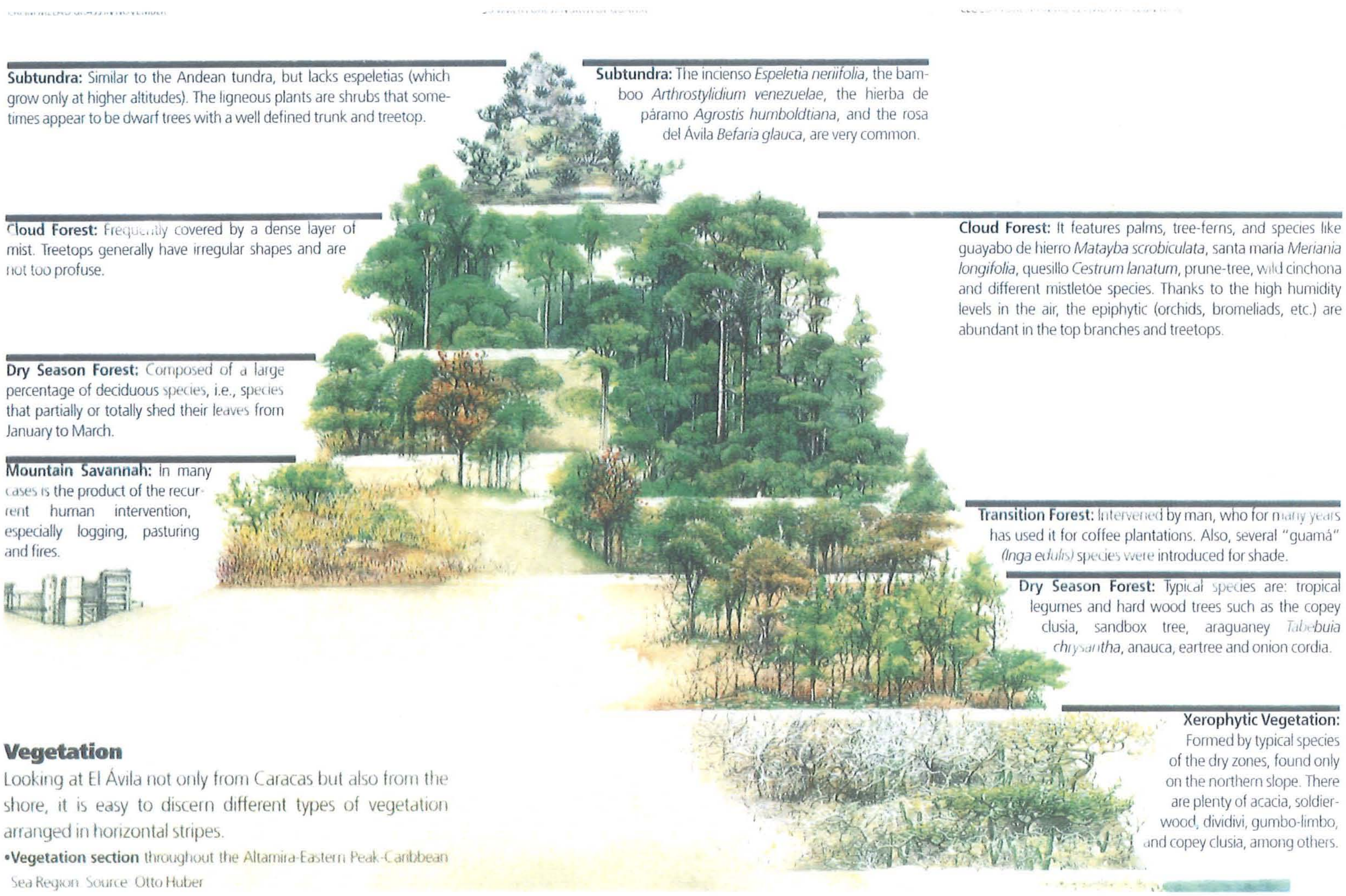



**Figure 5.11** - Scientific vegetation types for the Coastal Cordillera according to Otto Huber as described in the English version of the Avila National Park visitor guide. (IMPARQUES 1986).

### 4.3. **Scientific and Pedregal classification of the vegetation. A comparison.**

In general terms, Pedregal folk and scientific conceptualisations of the main vegetation types for the area of Caracas and adjacent mountains are not very different. First, both differentiate between close woody vegetation (forest) from open non-woody vegetation (savanna) as the main vegetation types. Second, both of them also consider the savanna vegetation as a modification of the original forest vegetation. To an extent, local classification is a simplified version of the most sophisticated scientific classification. A close look at these classifications, however, reveals several important differences. Moreover, it will also show the accuracy / consistency / richness of local Palmeros knowledge despite its simplicity as well as some inconsistencies of scientific knowledge (system/classification) of vegetation despite its sophistication.

#### 4.3.1. **Savanna and Forest**

Scientists' opposition of forest/savanna is not so evident. They emphasise types of forest and exclude savanna from the natural vegetation. In appearance, for scientists the forest and savanna distinction is made according to woody/ non-woody vegetation (plant morphology), but it is also based on the distinction original/non-original vegetation.

While both Pedregal people and scientists divide the local vegetation into two main categories (forest and savanna), scientists, in addition, also discriminate among various forest types. In order to do so, they use more criteria for their discrimination than just plant morphology such as altitude and humidity, in addition to plant morphology to discriminate different forest types.

Therefore, scientific classification is more specific than the local one as it makes more distinctions (as it segregates more categories). According to Huber (1997), this mountain area includes three forest types: evergreen transition forests, evergreen montane cloud forests, and upper montane elfin forest. Regarding the forest, it can be said that while scientists are splitters, the Pedregal people are lumpers. Figure number presents a comparison of both classifications.

**Figure 5.12** - Scientific and Palmero classifications of vegetation types.

<table>
<tr><th colspan="2">Scientific classification.<br>Spanish (ital) and English (non ital)</th><th>Altitude(3)</th><th>Scientific Description Plant types (4)</th><th>Palmero Folk-classification</th></tr>
<tr><td colspan="2">Sabana<br>Savanna</td><td>-</td><td>The original forest had been substituted by open vegetation that display a strong component of exotic grasses</td><td>Sabana</td></tr>
<tr><td rowspan="3">Bosque<br><br>Forest<br><br>Tropical and Subtropical, Moist Broadleaf Forests</td><td>Bosque de transición<br><br>Evergreen transition forests</td><td>From 600 to 1000 m</td><td>Semi-deciduous, semi-evergreen and evergreen deciduous tree species</td><td rowspan="2">Montaña</td></tr>
<tr><td>Bosque nublado<br><br>Evergreen montane cloud forest</td><td>From 1000 to 2200 m</td><td>Evergreen deciduous tree species</td></tr>
<tr><td>Matorral subandino<br><br>Upper montane elfin forest</td><td>Above 2000 –2400 m</td><td>Open scrub, herbaceous layer<br><br>and low mossy forest</td><td>Pesgual<br>________<br>(Sabana)</td></tr>
</table>

Sources: (1) Huber, O.1996. Bosques montanos de la Cordillera de la Costa. D. Olson, E. Dinerstein, G. Castro and E. Maraví, editors. Identificación de vacíos de información botánica para la conservación de la biodiversidad en América Latina y el Caribe. Memorias del taller llevado a cabo entre el 7 y el 9 de abril de 1996 en Washington D.C. y consultas con los especialistas de la región.

(2)Huber, O.1997. Coastal Cordillera, Venezuela. Pages 308-311 in Davis, S.L.D, V.H. Heywood, O. Herrera-MacBryde, J. Villa-Lobos and A.C. Hamilton, editors. Centres of plant diversity: a guide and strategy for their conservation. Vol. 3. The Americas. World Wildlife Fund (WWF) y The World Conservation Union - IUCN. IUCN Publications Unit, Cambridge, U.K.

(3) "This general pattern in the distribution of vegetation due to elevation is common in most of the mountains of the Cordillera de la Costa. Examples of modifications in the vegetation patterns are present in the slopes of the mountains of El Ávila National Park, and other mountains of the region, where the original forest vegetation had been substituted by open vegetation, savannas." (Bonaccorso.2000 World Wildlife Fund)

(4) Plant types composition according to Bonaccorso, E.2000.

Scientists also distinguish these forest types from savanna vegetation, considering the former as original vegetation and the latter as derived or modified vegetation. As a consequence of this, savanna is not included in the "altitudinal sequence of vegetation types", which typifies the description of vegetation in this area, but as a modification of it. In Huber's description it is not even defined as the other vegetation types, rather it is only mentioned in the general overview of the vegetation as herbaceous formation showing a strong component of exotic grasses. It is related to degradation and deforestation, destruction of forest cover.

For many scientists, it seems humans and their impact have to be excluded from the representation of the natural environment. In other words, the scientific classification is devised to account for an undisturbed environment. On the other hand, the local Pedregal system accounts for the vegetation 'as it is'. For the locals the human presence is not an issue; they are an active part of the environment they try to understand in order to relate to it.

For local people, savanna vegetation is also a modified/derived vegetation from the forest. It is not always considered a degraded environment, as most types of savanna have the potential to turn back into a forest (regenerate). Despite its mostly anthropogenic nature/origin, savanna is conceptualised vis-à-vis the forest, as vegetation types based on plant morphology. For locals the vegetation is partitioned as forest and savanna. These are not seen as static fixed concepts/categories, but as a dynamic process with two concepts at opposite poles. The emphasis is on the dynamic nature of vegetation.

The fact that Palmeros devise a classification that does not discriminate forest into more specific types does not mean that local people do not recognise differences in the forest in terms of floristic composition, complexity of ecological relationships and climatic conditions. Rather, it means that they do not label them as part of their nomenclature.

Locally, a strip of savanna vegetation (grassland) separates the evergreen montane cloud forest, located at the upper slope of the mountain, from the evergreen montane forest (c. 800-1700m). It is only in the slope of the Cerro de Chacaito (Chacaito spur of the Cerro de la Silla de Caracas mountain) where there is an interrupted forest cover comprising both types sequentially. It is also the least visited area due its slope. There is also continuity of forest cover along mountain ravines. These forests are thin strips along the ravine banks. Evergreen montane forest, a transitional forest between the lower montane semi-deciduous forest and the upper montane cloud forest, occurred in the valley, *pata de cerro*. It was used for *cafetales* or coffee plantations.

In addition to the distinction between forest and savanna, scientists also discriminate another main vegetation type under the term 'scrub' based on plant morphology. Scrub vegetation is classified as an independent main type only at lower altitude (Coastal xerophytic thorn scrub. c. 2-200 m), while upper mountain scrub is lumped together with elfin forest as a main vegetation type. In fact, it is in the conceptualisation of the upper mountain elfin forest and scrub where these scientific and local classifications tend to differ the most.

While folk and scientific systems of classifications share a distinction between forest and savanna types as the main categories partitioning the vegetation, their terms do not coincide, but rather overlap. For local people, the term *montana* (forest) has a more restrictive referent than the scientific term forest. The term *montana* lumps evergreen transition forests and evergreen montane cloud forests, but does not include elfin forest and scrub. On the other hand, the referent of the scientific term for forest is wider than the local term for forest. It extends to include all these three forest types despite their heterogeneity.

Nevertheless, as there is an implicit differentiation between forest and elfin forest in the scientific classification, it can be said that there is some common ground in both systems regarding what vegetation is conceptualised as forest. This differentiation between forest and elfin forest is even more evident in the Spanish nomenclature of the scientific classification. There the term *bosque* refers generally to all types of forest and specifically to closed canopy forest (evergreen transition forests and evergreen montane cloud forests) while the term sub-Andean *matorral* refers exclusively to the elfin forest and scrub. *Matorral* can be translated to English as 'scrub' or more generally as 'thicket'.

While scientists lump together upper elfin forest and scrub with other kinds of forest under the forest category, local people generally classify these former vegetation types as savanna. They also discriminate a transitional category or ecotone between the evergreen montane cloud forest and this particular type of savanna (corresponding to elfin forest and scrub), which they label as *pesgual.* This local category overlaps with the scientific category for elfin forest and scrub. *Pesgual* does not refer to a particular type of vegetation as in the cases of forest and savanna but to an ecological community characterised by its heterogeneity in terms of vegetation types as well as floristic composition. It is a natural ecotone.

4.3.2. **Savanna as derived from forest (natural and anthropogenic origins)**
Finally, while for scientists the derived character of the savanna implies that this vegetation is almost always considered as a degraded (impoverished) environment, local people only consider as degraded environment savannas composed exclusively of grassland (*pajonales*). In general terms, local people expect the savanna to turn back into forest through a fallow transition period, as if this (savanna) type has the potential to regenerate. Under the savanna term are grouped several heterogeneous vegetation types with different amounts of scrub and trees and at different stages of regeneration.

As we have seen, the savanna is treated by scientists with disdain. It is viewed as marginal, excluded from the general representation of the vegetation (the original one versus the modified-degraded). Local people offer a different perspective: that of the mosaic. Savannas in the valley and lower and middle mountain slopes have been closely associated with the forest over the last several centuries, if not longer. Despite recognition of its' derived nature, emphasis is placed on its regenerative potential (therefore seen as a process rather than as a product). Only *pajonales* savanna types are considered to be a degraded vegetation. They are also taken as an indicator of the exhausted state of the soil. They are considered to be an anthropogenic vegetation type resulting from overfarming practices and/or fire (human malpractice as opposed to human intervention). They are not even considered suitable for grazing of cattle.

4.3.3. **Upper elfin forest/ matorral subandino: Forest or savanna?**

In general terms, the subparamo is the most difficult of the vegetation types to define.

It is also here that both scientists and local people's conceptualisations of the vegetation of this area are more unsatisfactory. Scientists recognise one category to refer to this vegetation. Local people split it into two categories and refer to it as savanna and a *pesgual*. Figure 5.13 presents a comparison of the scientific category 'upper montane forest' with the folk-category 'pesgual'.

**Figure 5.13** - Comparison of the scientific category 'Upper montane elfin forest' with the Palmero folk-category 'Pesgual'.

| Scientific Classification *Spanish*(1) and English(2) | Scientific Description Plant types (3) | Palmero Folk-classification | |
|---|---|---|---|
| ***Matorral subandino*** **Upper montane elfin forest** | Low mossy forest Open scrub Herbaceous layer | *Pesgual* | |
| | | ***Sabana*** | *Sabana y barbecho* |

The classification of forest and particularly elfin forest is a source of disagreement among scientists. The vegetation that covers the upper mountain slopes beyond the upper limit of continuous, closed-canopy cloud forest, including the crest of the Coastal cordillera has been classified by scientists under one category. This vegetation is called Upper elfin forest, subalpine vegetation and *matorral subandino* by scientists based on physiognomic resemblance to the vegetation of other geographic areas (eg. Andes). This area falls outside the range for *páramo* vegetation. But it is described as paramo-like vegetation. Unlike the rest of the vegetation terms defined by scientists, this category comprises several vegetation types. According to the definition of this area there are elfin forest, also referred to as low mossy forest, grading into (upper montane) open scrub with a dense layer of and herbaceous vegetation.

Scientific classification brings together under the category of upper montane elfin forest the following: lower forest, scrub and herbaceous vegetation based exclusively on topographic and climatologic considerations (e.g. altitude, extreme weather, mountain crest) and not on dominant life-form. Moreover, according to scientific descriptions, dominant vegetation is scrub and herbaceous. Elfin and scrub- category are defined by geographic/topographic area rather than by vegetation (purely). Extreme weather conditions, exposure to wind, sun, rain, temperature extremes, diversity of topographic conditions, multiple microhabitats is common. Also there are not clear edges from cloud to elfin forest, and both are evergreen forests. There is ambivalence in the category of elfin forest which is sometimes classified as forest and sometimes as scrub. But there is a contradiction: for elfin forest there is no distinct differentiation between canopy and understory.

Scientists' association of *subparamo* vegetation with forest is related to a conception of forest as original vegetation as well as to the fact that it shares some characteristics of the cloud forest. One of the reasons for grouping these heterogeneous vegetations under one category is that despite the altitudinal and vegetation variations its floral composition is relatively poor in comparison to the forest below. The vegetation of the *subparamo* type (Elfin forest and scrub) does not represent a unique type, nor a transitional one, combining characteristics of bordering communities. Rather the vegetation consists of a mosaic of elfin forest, scrub and savanna (herbaceous) patches with a tendency for a greater predominance of elfin forest towards the lower part next to the montane cloud forest. Therefore, there are two simultaneous distribution patterns of the vegetation that can be defined as a mosaic of grading vegetations (vegetation mosaic and altitudinal zonation). The spatial distribution of vegetation types is complex, a small-scale mosaic, varying mainly with the relief where numerous microhabitats are found.

Huber (1997) defines *subparamo* as an elfin forest grading into open scrub. Then, in the open scrub an irregular but dense herbaceous layer is present. We prefer to describe this area as a mosaic of small patches of these three vegetations, much in the same way as the real *subparamo* belt of the Andes is described (Luteyn 1999).

### 4.4. **Subparamo as savanna vegetation**

Unlike scientists, local people used to lack comparative cases from other geographic areas to classify their vegetation. Locally the term *páramo* refers to a wet fog and not to a vegetation type resembling the Andean vegetation. Like scientists, local people use one general term to refer to the heterogeneous vegetation that covers the upper mountain slopes beyond the upper limit of continuous, closed-canopy cloud forest, including the crest of the coastal cordillera.

Contrary to scientists, local people associate this heterogeneous vegetation (herbaceous and woody) with the savanna type, not forest. As such, the local term used to refer to it is *sabana* (savanna). Unlike lower slope and valley savannas, this upland savanna is natural, not anthropogenic like the former. This vegetation is also occasionally or informally associated with *chiviritial, barbecho* types (secondary vegetation types) as it is not a grassland savanna but a scrub savanna (shrubby or woody vegetation) resembling these stages of forest regeneration. But it definitely falls outside of what local people consider forest *(montana)*. The mosaic distribution of these vegetation types also reinforces the idea of savanna as it can contain woody vegetation in scattered patches.

*Pesgual* does not refer to a particular type of vegetation but to an ecological zone (ecozone), a very heterogeneous transition area that spreads as a broad belt immediately beyond the upper limit of the cloud forest. It is not a vegetation type vis-à-vis forest or savanna, nor is it a folk-secondary type. It is a culturally recognised natural ecotone between the cloud forest and *subpáramo.* Subpáramo is the most distant area, less visited and less used, its extreme condition making it unattractive to locals.

#### 4.4.1. ***Pesgual.* A mosaic within a mosaic?**

We have seen that a transitional category or ecotone between the evergreen montane cloud forest and this particular type of savanna (corresponding to elfin forest and scrub), is labelled as *pesgual.* We have also seen that this local category overlaps with the scientific category of elfin forest and scrub, but as a category it does not refer to a particular type of vegetation as in the cases of forest and savanna. Rather, it refers to an ecological community characterised by its heterogeneity in terms of vegetation types as well as floristic composition.

According to our initial analysis of the nomenclature of vegetation types p*esgual* would correspond to a concentration of *pesgua* plants (*Gaultheria odorata*). As we have pointed out *pesgual* is a term locally used to designate a natural ecotone in the upper slope of the Avila mountain. Ecotones are transitional areas between vegetation types characterized by a mosaic distribution of species from contiguous areas. As such these are areas of high biodiversity.

The altitudinal range of distribution of the *pesgua* plant falls almost within the same range of the cloud forest in the south slope of the mountain of La Silla de Caracas. However, the *pesgua* plant does not grow inside the forest. This small tree-scrub is found both at the lower and upper edges of the cloud forest. Palmeros gather its leaves in both areas but consider that it is more abundant on the upper edge of the forest. It is an indicator that *pesgual* is an ecotone, but not a dominant plant community.

*Pesgual* ecotome is a broad vegetation belt located above and along the upper limit of the montane cloud forest and elfin forest. It is a transition zone between two adjacent ecological communities. As such it is a convergence point of vegetation (flora) from two vegetation types. It is also a convergence point of vegetation from the forest canopy and its understory. In fact, it is a complex mosaic characterized by heterogeneity of life-forms and species. There is usually not an abrupt end to the forest, not a sharp edge or border, but instead more of a transition from the tall forest trees to gradually shorter trees with increased elevation, then small trees and shrubs in a more or less thicket formation, and finally, above the forest line to the grasses, herbs, and scattered small shrubs. For Palmeros *pesgual* morphologically resembles '*barbecho*', a young stage of forest regeneration of secondary vegetation. Unlike '*barbecho*', it is in not a stage of forest succession but an ecotone.

As an ecotone, *pesgual* is characterised by heterogeneity of life forms as well as diverse floristic composition. It is a transitional zone, nurturing together flora from adjacent vegetation types, resulting in a concentration of biodiversity. *Pesgual* as an ecotone does not compete with scientific concepts such as 'elfin forest' and 'scrub'.

It just highlights its inconsistencies. On the other hand it directs attention to this unknown ecotone which comprises vegetation from cloud forest and elfin forest/scrub in the area where most endemic species of the local flora are located. Futher biological ecological research is needed in order to establish scientific validity of this local category.

## 5. **Conclusions**

In this chapter I have attempted to map out some aspects of the Palmeros ethnoecological knowledge. Using their place-names as starting points to explore their perception and conceptualisation of the landscape, I have reviewed their topography and vegetation types. I have also attempted to plot this knowledge into images of the landscape. In doing so I have pointed out how these domains of knowledge are not just intellectually coherent as systems of knowledge but also accurate in the discrimination of the environment. As such, this knowledge might be useful to science as in the case of the *pesgual* ecotone.

## Chapter 6

## Pedregal Homegardens and Vegetation

### Introduction

In the previous chapters we analysed some features of Pedregal folkbotanical knowledge such as, changes in knowledge and practices of palm harvesting during the Palmeros pilgrimage in chapter four. We also dealt with other aspects of their folkecological knowledge, such as seasonal periodicity, topography and vegetation types relating to the area, particularly to the Avila National Park (chapter 5). Emphasis was given to the accurate and systematic ways local people discriminate and organise the natural environment as well as to the ways the landscape is embedded with meanings through practices. A study of their folkbotanical knowledge cannot be completed without taking into consideration the local plant diversity of their urban community, including a survey of local plants. Here the idea of cultural construction shifts from eliciting cultural models of the natural environment to the description and understanding of the urban vegetation as an ongoing artefact.

This chapter deals with some particular aspects of Chacao biodiversity focusing on Pedregal vegetation. Relations between people and plants are strongly expressed in the domestic environment. This chapter looks in some detail at the way plants are incorporated into the domestic space systematically and at the way diversity of plants and diversity of meanings is retained despite the heavy modifications of the urban environment. In an urban setting plant diversity is confined to public areas such as plazas, streets and avenues, as well as private gardens. As there are very few plants in the public areas of Pedregal, the focus here is on houseplants and homegardens. Even though within Greater Caracas, Chacao has the reputation of having a large area of vegetation, within Pedregal –ironically the most 'rural' part of Chacao, most vegetation is restricted to homegardens. Contrary to the rest of Chacao council, Caracas greener council, the distribution of plants in this community is virtually limited to the private domain, specifically, homegardens. In the last section of the previous chapter we compared the local classification of natural vegetation types with the corresponding scientific classification of the vegetation of the area of the Avila National Park. We described how the Pedregal people, mainly the Palmeros, recognised and labelled as *pesgual* an ecological zone located in the upper edge of the cloud forest characterised by high concentration of biodiversity from adjacent vegetation areas. We suggest that this cultural category may constitute what is known as a natural ecotone. In this chapter we deal with a different kind of ecotone. Gardens constitute to a degree manmade ecotones as they are spaces of high biodiversity of mainly domesticated plants and animals originating not only from different ecological niches within a region, but also from very different parts of the world. Like natural ecotones gardens are also concentrations of useful plants. However, unlike ecotones gardens are the direct outcomes of human manipulation. While in the case of *pesgual* Pedregal people recognise, label and utilise natural areas of high diversity (ecotones), regarding gardens they promote and create micro-concentrations of biodiversity.

Homegardens as distinct ecological and cultural entities have attracted the attention of ethnobiologists for the past twenty-five years. Much ethnobotanical research on homegardens has been conducted among indigenous peoples of the tropics as part of the study of their agricultural systems. This research has let to new insights into the composition, management, and importance of these agrosystems for subsistence, sustainable development and the conservation of biodiversity (Vogl, C. R. et al. 2004: 285). For example, the inclusion of the homegarden as an integral part of the cultivation system has transformed the understanding of tropical shifting agriculture as production system. Its components are cleared forest for the cultivation of sun-exposed crops and, fallow management, homegardens and the harvesting of wild resources as strategies of agroforestry. Homegardens play an important role in growing subsistence crops, enhancing food security and producing medicinal herbs, livestock and plants for ritual and religious purposes. While in traditional societies knowledge and practises of management and composition of homegardens can be understood as reflecting long term histories and experience of managing local natural resources, in migrant and displaced populations homegardens take on a much more experimental role both in recreating known environments and managing new plant species and cultivation techniques. In many cases, their contribution to subsistence cannot be underplayed (Vogl, C. R. et al. 2002). From this perspective homegardens are viewed as sites of production and experimentation as well as inhabited micro-sites of biological conservation such as in the case of local varietals of cultigens (gene reservoir). Other cultural and social aspects of tropical homegarden have until very recently been overlooked. Homegardens keepers have extensive knowledge of plants, their applications and ecological processes. This knowledge is at the interface of cultural heritage and ecology with implications for biocultural conservation and ethnobiology.

The first section presents a description of Pedregal vegetation as a set of micro-region of the Chacao area. It starts by looking at the vegetation of the public domain: the only public spaces –apart from the community centre- in the community are its streets and lanes. Pedregal street vegetation is then compared and contextualised within the vegetation in public areas of other Chacao neighbourhoods.

After an analysis of the vegetation in the public space the second section concentrates on the vegetation of Pedregal's private domain: homegardens. Here, we begin by discussing the reasons why local people do not think of their homegardens as gardens. Pedregal people refer to their homegardens as 'just houseplants'. They also reserve the use of the term garden to denote modern western homegardens of their posh neighbours: lawn gardens. Moreover, local people do not recognise their homegardens as differentiated units within the house plot. On the contrary they consider houseplants to be very much part and boundaries of different dwelling spaces.

1. **Methods**

Surveys of street vegetation, including plants from private gardens in view from the street were carried along the entire neighbourhood. Surveys were conducted with Luis Enrique Reyes. During these surveys names and numbers of each plant species were annotated along with uses, propagation techniques, life-forms and other functional categories and explanations. Similar surveys were conducted in the adjacent neighbourhood of La Castellana accompanied by Luis Enrique Reyes (See section Survey of vegetation in the public domain).

Surveys of house plants were also conducted in several houses of El Pedregal (N=32). During our house visits we interviewed plant keepers and recorded the information on names and related knowledge from them. These surveys focused on plant composition and structure of the house gardens. We also elicited data on the history of the gardens and the plants. The latter information is not included in this chapter. Contact with many of the plant keepers interviewed during the surveys was not restricted to the one-off visit as we returned to many of the houses in several other occasions in order to conduct more formal and informal interviews and socialize.

No herbarium vouchers were collected during these surveys. There are several reasons why we did not collect herbarium vouchers during gardens surveys. The most obvious one was that most of the plants surveyed were well known documented species. There are several illustrated publications for the vegetation of Caracas. There was also the issue of quantity. Herbarium collection requires the gathering of at least 3 voucher samples for each of the plant species, preferable, with flowers and fruits. This requirement proved to be too difficult to fulfil. Due to space limitations there are very few plant individuals of each of the species in the gardens. Demanding several samples with flowers is not problematic in the case of a tree but in the case of vines and herbs it can amount to removing the whole plant from a garden. Most people would be reluctant to give up their precious plants such as an orchid in bloom for the sake of science. Moreover, a good collection will require several herbarium vouchers per specie, something very difficult to make with only one small orchid plant. Furthermore, as will be seen in this chapter, issues related to the harming of plants by envy and evil eye were factors in deciding not to collect herbarium samples.

Most garden keepers are suspicious of any favourable casual commentary or compliment regarding their plants. They are even more suspicious of and avoid requests for plant parts such as cuttings for propagation, fruits to eat or leaves to prepare medicines. In part, this is part of a general believed that domesticated plants are capable of being influenced by people's desires. As such, cultivated plants, like small children, are vulnerable to envy (conscious desire) and evil eye (unconscious desire). Praise and interest can turn into harm as admiration reveals a potentially harmful desire to posses someone else's objects. I was familiar with these views towards plants prior to fieldwork as a result of my long term relationship with Benito Reyes. In fieldwork settings, every time I referred to a particular plant individual I made sure to accompany my comment with the phrase: "*Dios la* *guarde*" (God protects it) following the local protocol by way of acknowledging the existence of potentially harmful desire and also the means to neutralise it.

The identification of gardens plants was done using plant guides (Hoyos 1882; 1983; 1989; 1992; 1998; 2000; 2001). In most of our visits we also carried out photographic documentation of the plants and gardens. The photos were used to identify plants with printed sources. In many of our visits we were given plant cuttings as presents for propagation. In some cases we reciprocated these presents with other plants and plant cuttings.

2. **Pedregal public vegetation**

Some Pedregal placenames are plant names: *el tartago* (*Ricinus communis*), *la manguera* [concentration of mangoe trees] (*Mangifera indica*), *la mata de coco* [the coconut tree] (*Cocos nucifera*), *el manguito* [the little mangoe tree] (*Mangifera indica*). These placenames have survived the drastic social and ecological transformation brought about by urbanisation. However, unlike the names, most of the vegetation did not survive.


**Figure 6.1 -** Av. Pedro Matias Reyes

At first glance El Pedregal looks like an almost treeless urban neighbourhood. There is hardly any vegetation growing in Pedregal public areas. As there are no plazas or public spaces and amenities, apart for the newly built community centre, the public space is limited to the street and pavements. Furthermore, there are very few trees growing along the pavements. (See figure 6.1 & 6.2)

Given the narrow pavements, the few trees create an obstacle to passers-by. Of the very few trees there, most are old mango trees predating the construction of the street, the pavement and the urban community. These old mango trees have broad trunks and occupy most of the pavement, making it difficult to walk by them without stepping into the road. Most of them also occupy part of the streets or part of the walls separating pavement from the private property.

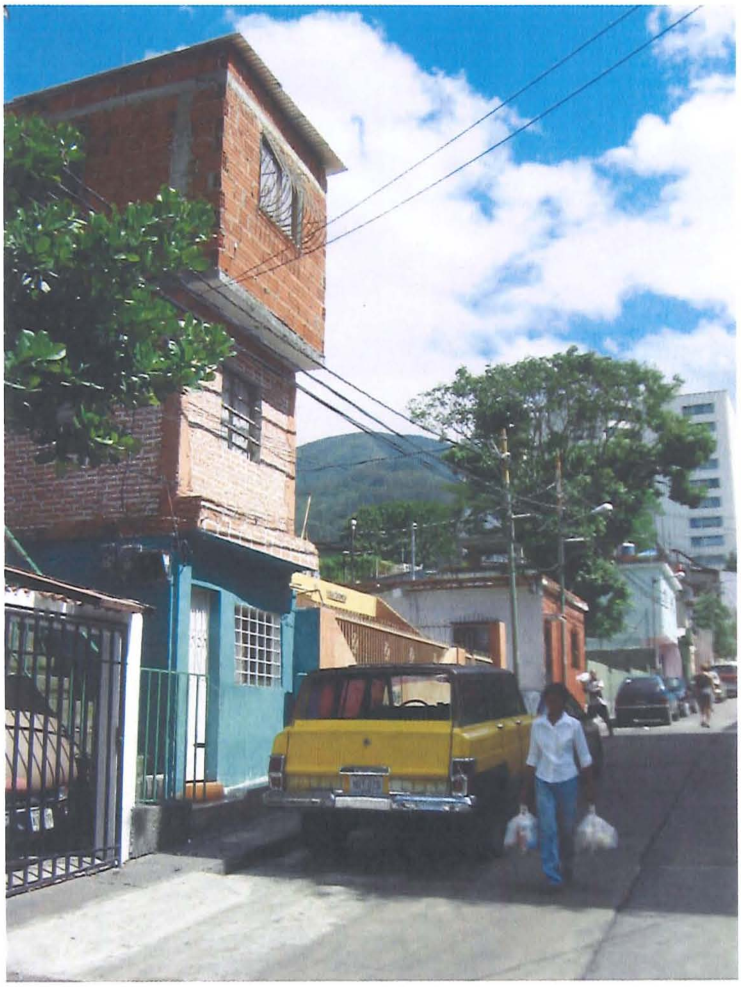


**Figure 6.2** - Callejon Farfan, El Pedregal

Because these trees were not planted after the street was built, in designated areas for trees, the city has 'grown' over them. Some of the bases of the trees have been totally covered by tarmac or concrete since the 1960s. However, these trees do not show any sings of damage (See figure 6.3). These mango trees that are almost the only street/public vegetation are also the tallest trees in the community. Some of them reach a height of about 15 meters or over. The only other tree inside the community of that height is an *algarrobo* tree (*Hymenaea courbaril L.*) in the backyard of the Blanco-Blanco compound.


**Figure 6.3 -** El Manguito. Av. Pedro Matias Reyes. A meeting and reference point, predating urban growth.

The old trees along the pavements and house plots are the only physical remnants of the rural past, survivors of a transformation that victimized most plants. Some trees have been the longest witness and survivors still alive of the drastic transformation, product of urbanization. They are older than any person alive in the community and are older than any construction still standing in the community. Due to their longevity most of these trees are also densely associated with personal and social memories. Some of them have provided food for several generations of the same families. Some have remained the focus of social life in the community since rural days (both as meeting points and reference points). Despite their small number, trees in the public space remain symbolically important, landmarks of the cultural landscape of the community. Figure 6.3 shows a mango tree locally known as *el manguito.* It is located in front of one of Pedregal's shops in the upper part of its main avenue. Under this tree senior men meet on daily basis to informally talk under the protection of its shade. According to many of them, this practice predates the urban community as they remember many of their parents, uncles and grandparents sitting and talking here.

The only place in the community where there are other trees in the pavement is in the Naiguatá area. This is a very small area, occupying less than two blocks, and has been inhabited by newcomers, mainly middle class professionals, since the seventies. In fact, the Naiguatá area was planned and built in the 1970s in a plot of land bought by outsiders. Its street trees were planned and planted after the construction of the pavement. There are mango trees here too, but most of the other trees are of smaller size.

Pedregal street vegetation consists almost exclusively of the tree lifeform and as we have seen almost all of the trees growing in the pavements belong to the same species. Apart from the *mango* trees, other trees that can be seen from the street, some of which also provide their shade to the streets and pavements, are the ones located in open front gardens and at the edges of private gardens, behind the house walls (See figures 6.4, 6.5 & 6.6). In addition to old *mango* trees, there are *aguacate* (avocado) (*Persea americana Mill.*), *guanabana* (sour soup) (*Annona muricata L.*), *guayaba* (guava) (*Psidium guajava L.*), *jobo* (*Spondias mombin L.*), *canafistola* (*Cassia grandis L.* ), *cedro* (*Cedrela odorata*), *apamate* (*Tecoma pentaphyla*), *naranjas* (oranges) (*Citrus sinensis L.*), *rosa de montaña* (*Brownea grandiceps*), *azahar de la India* (*Murraya exotica L.*), *malagueta* (allspice) (*Pimenta ramerosa*), *pumagas* (*Syzygium malaccense*), *mamón* (*Melicoccus bijugatus Jacq. / Melicocca bijuga L.*), *mata de coco* (coconut) (*Cocos nucifera L.*), *cambur* (bananas) (*Musa paradisiaca L.*), etc. Most of these are fruit trees like the mango trees, though of a smaller size.


**Figure 6.4** - Av. Pedro Matias Reyes. Mango trees are the dominant vegetation.

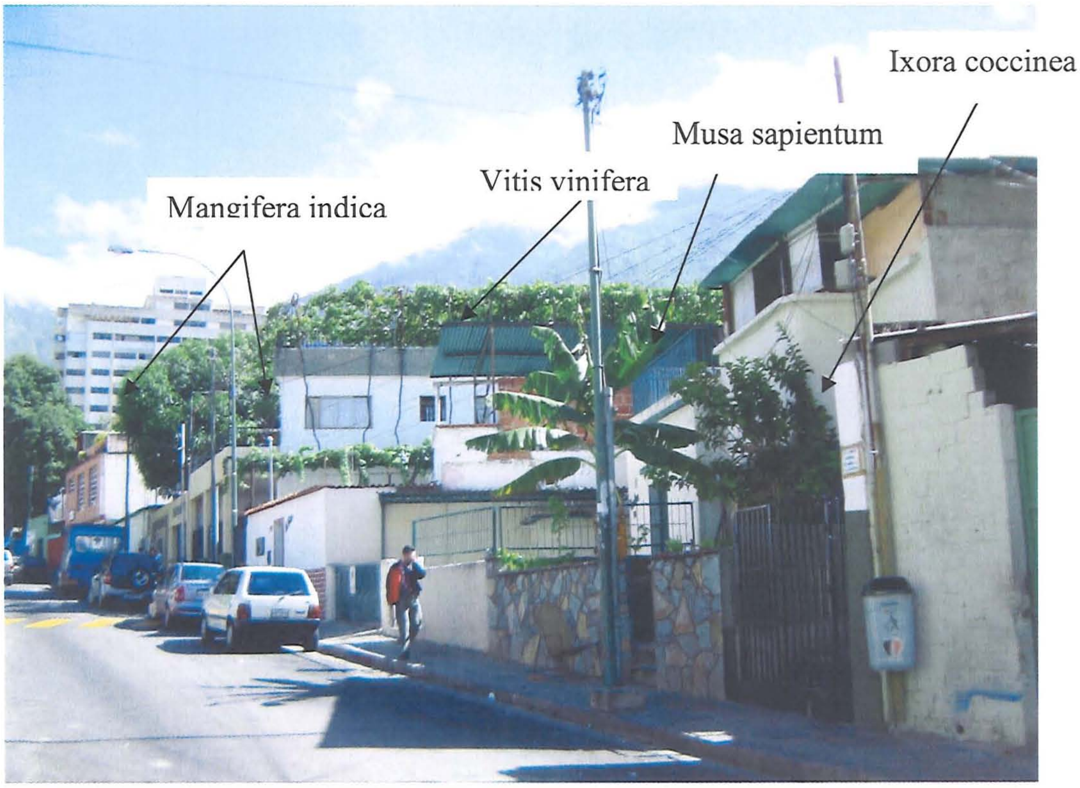



**Figure 6.5** - Avenida Pedro Matias Reyes. There is only vegetation on private property.

**Figure 6.6 -** *Nispero (Manilkara zapota),* Callejon Farfan.

So, as noted earlier, despite the fact that there are very few trees growing in the street pavements, many other trees can be seen from the streets. Therefore, whilst having almost no vegetation, the public domain still contains some greenery and it is not entirely made up of bare blocks and concrete walls. Scattered around the houses there is the greenery of tree canopies providing shadow to streets and houses as shown in figures 6.7, 6.8 and 6.9. There are also plants in containers and hanging baskets, alone and in groups, in front gardens, windows, balconies and roof terraces. There are also banana plants and vines and many shrubs that manage to escape from the gardens to reach the street. It can be argued that they constitute (and are also) part of the public vegetation. They add greenery to the otherwise potentially barren public space. Thus, it is not an exaggeration to state that the vegetation of the public space is made up from vegetation from private gardens.

**Figure 6.7** - *Mango* tree in the front yard of the Garcia house provides shade to the Av. Pedro Matias Reyes.

**Figure 6.8** - Tall tree right: *Mamón* (*Melicoccus bijugatus* Jacq) and *jobo* (*Spondias mombin* L.), Callejon Farfan.

**Figure 6.9 -** *Cambur* (*Musa sapientum*), *cafecito* (*Ixora coccinea*) and *mango* (*Mangifera indica*)

However, it is not vegetation but buildings that dominate the view from the streets. Street trees and garden trees at the edges of/next to the streets lay along a dominant backdrop of tarmac, concrete pavements, tall walls, metal fences, parking spaces, front patios covered with concrete floors and a mixture of bare and colourful painted house facades. Houses and buildings stand very close to each other. Many constructions appear to occupy the entire area of their plots (Figures 6.10 and 6.11). From the street it seems as if almost any inch of space suitable for habitation has already been used for habitation. It is concrete and aerials, not greenery that dominates the view.

**Figure 6.10** - No space left for plants, Callejón Farfan.

**Figure 6.11** - Callejon Blanco-Blanco. The public vegetation is provided by the neighbours.

This lack of vegetation in Pedregal public areas contrasts with the plant exuberance of most of Chacao's public areas, including streets and avenues, public parks, private social clubs and private gardens. As soon as we leave Pedregal we find that there are more trees in the streets. Compared to Pedregal, some trees are taller and there is more variety of species in both public and private areas on public view. In contrast to Pedregal, pavements are predisposed to the presence of trees, with square beds for them carefully spaced out, so that the trees are planted following a pattern. There are also many public parks and plazas with green areas.

**3. Caracas Country Club**

Next door to El Pedregal, limiting it to the west, the Caracas Country Club is a real oasis. The Country Club is at the western limit of Chacao Municipality. It is an exclusive private neighbourhood, a private social club that includes 18 holes golf courses, swimming pools, tennis courts, stables and other sports and social facilities. It is strictly residential And the home of the very rich as well as of some ambassadors of wealthy countries. Residence is conditional upon club membership, in which all members have the right of veto. There are strict building restrictions: only mansions of no more than 3 floors are allowed and no multifamily buildings can be constructed in the Club. Here, the plots of land are considerably bigger than in other Chacao neighbourhoods. Mansions are surrounded by massive gardens along with a semicircular drives. Some have separate parking and staff facilities.

Both the golf courses and streets are planted with trees of all sorts of species, showing a wide range of shapes and sizes. Open golf courses are surrounded by thick vegetation dominated by mature tall trees, some trees reaching a height of 25 meters. Amongst them the *mijao* (*Anacardium Rhinocarpus*) is the tallest. But there are also *cedros* (*Cedrela odorata*), *matapalos* (*Ficus sp.*), *bucares* (*Erythrina sp.*), *ceibas* (*Ceiba pentandra*), *jabillos* (*Hura crepitas*), *caobos* (*Swietenia candollei*), *samanes* (*Samanea saman*) and, again, *mangos* (*Mangifera indica*) and many others. These trees species, today ornamentals, once protected the coffee plantation with their shade (Figures 6.12 & 6.13).

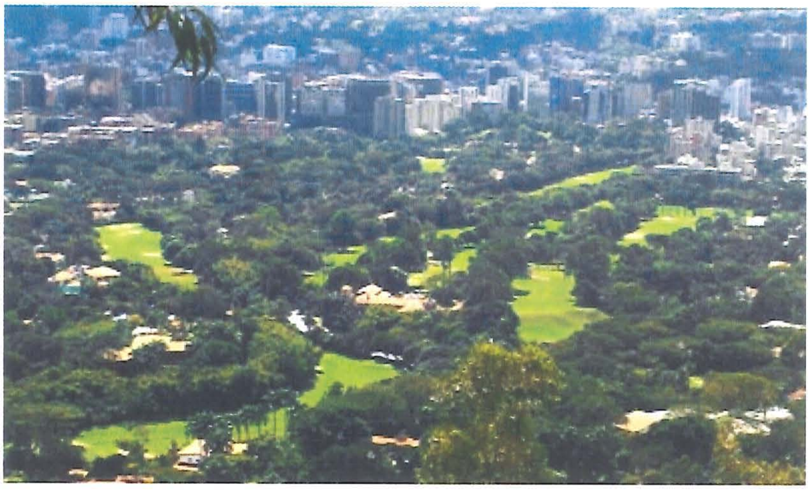


**Figure 6.12** - The Caracas Country Club viewed from the Avila National Park.

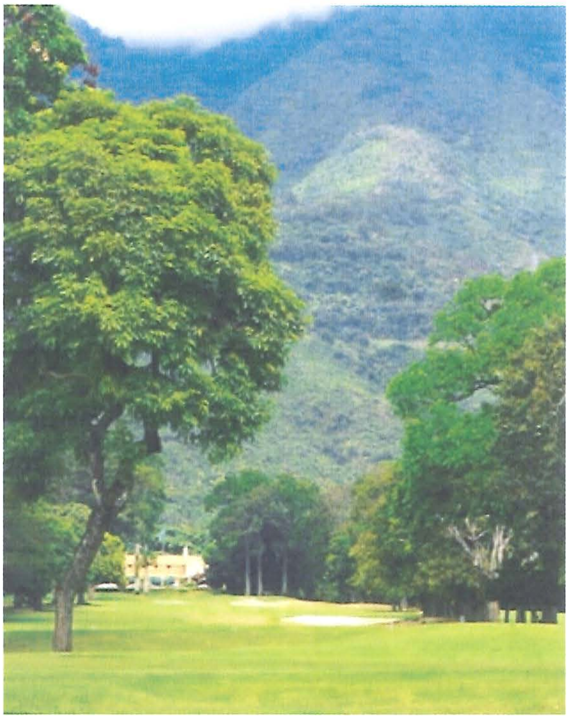


**Figure 6.13** - Golf course, Caracas Country Club

There are also tall trees in streets planted along the pavements and in public plazas and roundabouts. Many of the roundabouts were constructed to protect these trees when the neighbourhood was developed. In fact, many mature trees predate the neighbourhood and were part of the coffee plantation that the suburban neighbourhood replaced (and in whose terrain the Country Club was built) in the 1920s.

In some areas, the trees at both sides of each street form vegetable tunnels. Pavements are not covered with concrete as in the rest of Chacao, but bare ground sparkled with boulders of all sizes (not intended for walkers, the automobile is the preferred transport) around which tropical gardens of herbaceous, vines and shrubs grow as understory vegetation of the tree canopies. The overstory is also populated with orchids, bromeliads and other parasites.

The canopies of street trees join the canopies of trees of private gardens despite the tall walls protecting each property. Trees of different heights form a multilayered canopy. There are many mature tall trees in the private gardens some of them also dating from rural times. Apart from the golf courses and the extensive lawn areas of the private gardens, the Caracas Country Club can be described as a neighbourhood under a green forest canopy. It has got its own microclimate: dominated by shadows and humidity -as water is retained by vegetation- it has a comfortable, stable temperature as it is protected from direct sunlight by trees. It is also the only neighbourhood in the north of the city to be covered regularly with fog and sometimes clouds descending from the slopes of the Avila mountain at night and in the mornings during part of the year.

The structures of the Country Club's public and private gardens are not very different. In both domains the space is divided into tree gardens and grass lawns. The home garden features shady areas of trees as well as clear areas of lawn and flowerbeds exposed to the sun. The golf course too has the lawn courses surrounded by massive tree concentrations. As mentioned, most of the streets are green, vegetable tunnels, complex tropical gardens with plants representing all plant lifeforms.

Due to its' prime location and extensive "undeveloped" land (alias gardens) the Country Club is under threat, very much like Pedregal, from urban developers. These are using a combination of bribery, loopholes in residential regulations and fat lumps of money offers to acquire properties in order to turn them into blocks of flats for the upper middle classes. As a result, there is campaign in place to protect the Country Club against construction of multi-family/high rise blocks of flats. The campaign is not only led by rich residents but by non-resident intellectuals, architects, politicians and urban planners. Their aim is to declare the Caracas

Country Club as historical, cultural, architectural and environmental national patrimony. Therefore, grating the neighbourhood of special legal status to protect its gardens, mansions and streets as residential area as well as protected monument.

**4. Other neighbourhoods**

Limiting with El Pedregal to the north and east, La Castellana neighbourhood is a mixture of mansions, 2 or 3 floor houses (villas) and medium and small blocks of flats buildings (high rise, residential). Originally conceived as a residential neighbourhood of multilevel houses with gardens, today it is also a commercial and office area. Here, as in the rest of adjacent suburban neighbourhoods (Altamira, Los Palos Grandes, El Bosque, etc.) houses are being replaced by blocks of flats.

While in Country Club trees of different height grow in unpaved paths/pavements along the streets enabling the development of exuberant and complex understory vegetation, in the rest of the neighbourhoods trees are grown in square holes in the concrete pavements in perfect rows, at regular distances (Figure 6.14).

**Figure 6.14** - Av. Principal La Castellana

The tree is the only or the dominant lifeform present in the public vegetation except for open plazas. In plazas herbaceous vegetation in sun-exposed beds tends to dominate. In the streets, there tends to be less tree diversity than in the Country Club but more numbers of trees than in Pedregal. However, compared to the former, there are smaller trees with no understory vegetation apart from a few weeds that are periodically removed (See figure 6.15).

**Figure 6.15** - Primera transversal, La Castellana.

While the public vegetation of the Country Club maintains the complexity of the tropical forest (even if simplified and degraded), in the rest of the neighbourhoods this complexity of plant communities is almost unrecognisable. Some lifeforms are almost absent in the public vegetation: vines and shrubs. The vegetation is fragmented and compartmentalised: trees in pavements, herbaceous vegetation on squares and plazas. Trees are planted in a straight row in holes in the pavements. Canopies of street trees do not interact with each other nor with canopies of garden trees.

**Figure 6.16** - Plaza Francia, Altamira.

Plazas are normally open spaces with concrete pavements, trees, plant beds and flowerbeds. The vegetation is predominantly herbaceous. It is colourful vegetation but lacks both diversity and complexity. This vegetation is exposed to direct sunlight and requires significant amounts of water and feed. It is very demanding and requires high maintenance (Figure 6.16). There are some plazas dominated by trees but instead of understory vegetation there is a concrete floor or bare ground. The latter is usually the result of a failed attempt to grow a lawn, due to either shadow intolerance and/or excessive use.

The motorways crossing the municipality as well as Caracas airport, which in part falls within the boundaries of Chacao municipality, are covered with grasses and other herbaceous vegetation (savanna). There are few trees.

In contrast to the remaining areas of Caracas, Chacao council has enough money to invest in their public vegetation (streets, park and plazas) and also intervene in the private vegetation such as compulsively pruning and removing dangerous trees from private gardens. Chacao council expends considerable resources in maintaining public vegetation both in the plazas and with regard to the street trees. It also employs, among a number of gardening companies, some people from El Pedregal who are organised as a gardeners' cooperative.

Chacao is considered Caracas' garden and Caracas' greenest council. Historically there were coffee plantations - today there are urban gardens, golf courses and plazas. It's emblematic tree is the *mijao* (*Anacardium Rhinocarpus D.C*) (Figure 6.17), used in the local plantations to provide shade to the coffee plants. It is perhaps significant that a number of Chacao neighbourhoods bear the names of plants or are plant-related: El Bosque (The Forest), Los Palos Grandes (The Tall Trees), El Rosal (The Roses), La Floresta (The Orchard). As well as being a green council Chacao has also boundaries with other extensive green areas of the Caracas city. To the North is El Avila National Park; to the East is Parque del Este, Rómulo Betancourt; to the South is La Carlota airport which doubles as the Francisco de Miranda Air Base; to the West the Country Club. So, compared to the rest of Caracas, Chacao gives the impression that there is more vegetation than people.

**Figure 6.17** - *Mijao* (*Anacardium Rhinocarpus* D.C). This tree predates the urban neighbourhood of Altamira.

Despite its reputation, there are areas in Chacao that lack vegetation in public areas, as we have seen. Apart from the Plaza Bolivar, Chacao old town is almost stripped of public vegetation (Figures 6.18 & 6.19). The same can be said for the industrial area (Estado Leal), the commercial area (CCT) and most of the areas covered by high-rise buildings, both commercial and residential, located along the major avenues. While some trees can be found in these areas they are isolated and overshadowed by concrete blocks.


**Figure 6.18** - Downtown Chacao

**Figure 6.19** - Plaza Bolivar, Chacao

Other areas without significant public vegetation are the small pockets of barrios, semi-consolidated shantytowns, scattered around the council and mainly located along ravine streams (La Cruz, Bucaral, Barrio Nuevo, Pajaritos and San Jose) (Figures 6.20 & 6.21). Like Pedregal, these areas are the result (more appropriately part of the process) of informal, opportunistic settlement rather than of official urban planning. As such, there are no other public areas beyond the streets and lines. Due to limited space and high population density trees were replaced by buildings.

**Figure 6.20** - Barrio El Bucaral

**Figure 6.21** - Barrio La Cruz

This urban landscape dominated by high rise blocks rathen than vegetation offers poor ecological conditions. But even in these densely populated public spaces, tiny dots of greenery can be seen from the streets, stubbornly scattered across many balconies and roof terraces of blocks of flats and multi-storey houses (Figures 6.22 & 6.23). Given the changes in the environment, people of all social classes nurture greenery in the private domains (and seek pleasure from it). Plants are people's companions, analogous to pets, hence, their greenery contributes inadvertently to the vegetation of the public domain.

In the barrio, there is a strong association between people and plants. People tend to keep plants as part of their domestic environment. The surveys conducted as part of this research show that in spite of reduced space availability plants are always part of the household/domestic space. Not a single house surveyed registered an absence of plants with at least one cultivated plant recorded for every household, with plants of all lifeforms opportunistically present in any space available.

**Figure 6.22** - Plants as human companions

**Figure 6.23** - Plants as human companions

Urbanization is associated with habitat destruction and loss of biodiversity. In Pedregal the trees that survived urbanization are all fruit trees and garden trees. In the rest of Chacao –particularly in the Caracas Country Club- the trees that survived urbanization are mostly plantation trees and fallow trees (characterised by being taller, non-fruit bearing and extremely large).

## 5. Survey of vegetation in the public domain

Common names and uses of all plants in view from the streets were elicited along with information relating to their propagation, life-forms and functional categories from the residents interviewed during or after the survey. A similar survey was conducted in the adjacent neighbourhood of La Castellana. This survey was limited to an area of similar extension than El Pedregal. It was carried out also with the help of Luis Enrique Reyes. Our aim in partially surveying the public vegetation of this adjacent neighbourhood was to provide some empirical data to support our informal observations and claims made in this chapter. It is important to notice that the names of the trees and related information collected during the surveys of La Castellana were provided by collaborators from El Pedregal and not by residents of the former neighbourhood. Popular guides of trees and ornamental tropical plants from Caracas were used for scientific identification of the plants surveyed. (Hoyos 1882; 1983; 1989; 1992; 1998; 2000; 2001)

The survey of Pedregal covered all road and alleys of this neighbourhood. The Survey of La Castellana was limited to part of Av. Mohedano (from Av. Blandin to the 3ra. transversal de la Castellana), part of calle Santa Teresa (from Av. Blandin to the 3ra. Transversal de la Castellana) and parts of Calle Los Chaguaramos, calle El Bosque and calle Los Granados between Av. Mohedano and calle Santa Teresa. While the two surveys covered a similar area in terms of street extension/length it is worth noticing, as we previously pointed out, that La Castellana neighbourhood was built taking vegetation into consideration while El Pedregal urban expansion has been at the expense of its vegetation. La Castellana's pavements were built to accommodate trees and other plants. There are also well delimited gardens hosting trees and other vegetation. In contrast, El Pedregal streets are not conditioned for trees and its pavements are very narrow. El Pedregal gardens, like its houses and the neighbourhood itself, are not the results or products of planning. Houses, gardens and neighbourhood are better conceived as very dynamic processes (generally seen as or intended as forms of improvement). Consequently, areas originally destined to plant populations have been replaced by built environments as a consequence of house extensions. As a result, most plants in Pedregal streets are in householdplots while most plants in La Castellana streets are in the streets themselves and residential gardens.

Surprisingly, given the differences between the two neighbourhoods the survey of El Pedregal street vegetation yielded 50 folk-generics for the life-form tree while the survey of La Castellana recorded 61 folk-generics. The survey of El Pedregal's homegardens produced another 10 folk-generic for trees growing in the community corresponding in total to 59 scientific species (See figure 6.24). While the two areas present more or less similar proportions of tree species, the area surveyed in La Castellana shows that the total number of trees in that neighbourhood is much higher than in El Pedregal.

Here we limit our analysis to a comparison of the top 20 trees found in each of these neighbourhoods. Figures 6.24 and 6.25 present the 20 most common tree species of each neighbourhood. It contains common names, scientific identification and information on the origin of these species, their uses and frequencies. Figure 6.26 compares plant uses for those areas.

**Figure 6.24** - 20 most common trees in El Pedregal

| Common name | Scientific name | Uses | Origin | Frequency |
|---|---|---|---|---|
| Mango/manga | Mangifera indica L. | F, M, O | * | 40 |
| Aguacate | Persea americana Mill. | F, O | | 23 |
| Palma areca | Dypsis lutescens | O, P | | 19 |
| Semeruca Cereza | Malpighia glabra L. | F, M, O | | 07 |
| Guanabano | Annona muricata L. | F, M, O | | 06 |
| Mandarina | Citrus reticulata | F, O | * | 06 |
| Mamon / | Melicoccus bijugatus Jacq. | F, M, O | | 06 |
| Pino | Pinus sp. | O, M | * | 05 |
| Naranja | Citrus sinensis | F, M, O | * | 05 |
| Jobo | Spondias mombin L. | F, M, O | | 04 |
| Fisco | Ficus benjamina | O, G | | 04 |
| Algarrobo | Hymenaea courbaril L. | F, M, O, R | | 03 |
| Apamate | Tecoma pentaphylla B | O | | 03 |
| Granada | Punica granatum L. | F, M, O | * | 03 |
| Malagueta | Pimenta ramerosa (Mill.) | F, M, O | | 03 |

| | | | | |
|---|---|---|---|---|
| Guayaba | Psidium guajava L. | F, M, O | | 03 |
| Guasimo | Guazuma ulmifolia Lam. | F, M, O | | 02 |
| Caimito | Chrysophyllum caimito L. | F, M, O | | 02 |
| Nispero del japon | Eriobotrya japonica | F, M, O | * | 02 |
| Uva de playa | Coccoloba uvifera (L.) L. | F, M, O | | 02 |
| | | | Total | 148 |

**Figure 6.25** - 20 most common trees in La Castellana

| Common name | Scientific name | Uses | Origin | F |
|---|---|---|---|---|
| Jabillo | Hura crepitas | M, O | | 32 |
| Mango1 | Mangifera indica L. | F, M, O | * | 27 |
| Pilon | Andira inermis | O, M | | 22 |
| Cedro caobo | Swietenia candollei | O | | 15 |
| Cepillo | Melaleuca sp. | O, M | * | 13 |
| Caobo de Santo Domingo | Spathodea campanulata | O | * | 11 |
| Apamate 1 | Tecoma pentaphylla B | O | | 10 |
| Chiflera | Schefflera arboricola | O | * | 9 |
| Bucare | Erythrina sp. | O | | 9 |
| Palma areca 1 | Dypsis lutescens | O, P | | 9 |
| Mamon 1 | Melicoccus bijugatus | F, M, O | | 7 |
| Fisco1 | Ficus benjamina | O, G | | 6 |
| Flor de la reina | Lagerstroemia speciosa | O | | 6 |
| Laurel matapalo | Ficus retusa | O | * | 6 |
| Pumagas | Syzygium malaccense | F, O | * | 6 |
| Naranja 1 | Citrus sinensis | F, M, O | * | 5 |
| Jobito | Cordia alba | O | | 5 |
| Sauce | Salix humboldtiana | O | | 4 |
| Chaguaramo | Roystonea regia | O | | 4 |
| Uva de playa 1 | Coccoloba uvifera | F, M, O | | 4 |
| | | | Total | 210 |

(1) Also among Pedregal top 20 trees. Origin: (*) introduced (non-American origin). Uses: F (food), M (medicinal), O (ornamental), G (glue), R (resin)

**Figure 6.26** - Plant uses a comparison of 20 top trees

| Uses | Pedregal | Castellana |
|---|---|---|
| Food | 16 | 5 |
| Medicinal | 15 | 7 |
| Ornamental | 20 | 20 |
| Protective | 1 | 1 |
| Glue | 1 | 1 |

The total frequency of trees of the 20 species most common species of El Pedregal was 148 while for La Castellana was 210. The two areas share seven tree species among their top 20 most frequent. Of these shared trees 4 species are fruit trees while the other three are ornamental. In terms of the geographic origin of the top 20 trees both El Pedregal and La Castellana present a similar proportion of introduced and natives trees. The number of introduced tree species is 6 for El Pedregal and 7 for La Castellana. It is in their functions that the vegetation of these two neighbourhoods differentiates the most. The vegetation of La Castellana has mostly ornamental value. Out of the 20 top species of La Castellana only five are fruit trees, seven of them have medicinal uses, one species is considered to offer protective powers and, the sap of another tree is used to prepare glue for capturing birds. In clear contrast El Pedregal vegetation is not only appreciated for its ornamental significance but also for its products. Out of its 20 top tree species 16 are fruit trees, 15 have medicinal uses, one is considered protective and another is valued for its sap.

**6. Pedregal: private vegetation/ hidden vegetation**

As we have seen in the previous sections, a view from the streets of Pedregal reveals it as an almost treeless and ecologically degraded neighbourhood with most of its greenery coming from private gardens. In contrast to its adjacent greener neighbourhoods, where the exuberant and overgrown street vegetation threatens to destroy and replace pavements, streets, walls and water and sewage pipes, in Pedregal it is the vegetation that is being threatened by the expansion of its buildings (See figure 6.27).

**Figure 6.27** - An Avocado tree that has survived urban expansion

If we analyse the private vegetation on display in the public domain as seen from the streets, plants are located in different areas of the house plot. There are front gardens with container plants and front gardens with a small lawn and flowers (figures 6.28 and 6.29). There are container plants, potted individually and in groups, scattered around entrances, balconies, roof terraces and windows (figure 6.30). Finally there are trees and shrubs concentrated in back gardens and on the sides of properties, very close to the houses. Apart from the back gardens, most vegetation is poor.

**Figure 6.28** - Front garden, Callejon Farfan.

**Figure 6.29** - Front garden, Callejon Reyes.

**Figure 6.30** - Vertical gardens: Roof patio and plants in windows. Callejon Farfan.

But taking a view of the community from a different perspective gives us a very different picture of its vegetation. The community as seen from the roof terraces reveals Pedregal's hidden vegetation. Back gardens are dominated by trees but they are also composed of multiplayered vegetation. Tree canopies are shared by several backyards. Back gardens form vegetation buffers, urban ecosystems. There is a sharp contrast between treeless streets and these green strips or rather islands -due to the particular community configuration as well as house expansions- in the backs of the houses. Most of Pedregal vegetation is hidden in back gardens (figures 6.31 and 6.32).

**Figure 31** - View of the backyards, Callejon Reyes.

**Figure 6.32 -** Backyard garden, Av. Pedro Matias Reyes.

The plant surveys –including street vegetation and household plants- show that despite the limited space devoted to plants, and the limited area available to the community, more than 15 percent of the trees reported for the Caracas valley flora are to be found in El Pedregal. A total of 59 tree species were identified inside the neighbourhood out of 389 trees reported by Hoyos (1992). This is surprising considering not only the poor ecological conditions of El Pedregal but also the fact that Hoyos includes both cultivated and not cultivated trees in his inventory. Pedregal gardens like its houses and the neighbourhood itself, are not the results or products of planning. Houses, gardens and neighbourhood are better conceived as very dynamic processes (generally seen as or intended as forms of improvement). Consequently, areas originally destined for plant populations have been replaced with built environments as a result of house extensions.

7. **Houseplants or home gardens?**

**Figure 6.33** - Callejon Reyes.

During my fieldwork, every time I asked a person to let me visit and survey her/his garden (*'jardín'*), she/he always replied laughing and saying that she/he does not have a garden at all. However, I was always invited to see their houseplants (*'las matas de la casa'*) (figure 6.33). The keepers of these houseplants were always willing to talk about them. Disregarding the size and plant composition of Pedregal gardens, local people do not designate them using the Spanish equivalent for the term garden (*'jardin'*). However, they could understand what I meant in the first place.

The term garden and its more specific and related categories such as home garden, front-garden, back-garden, interior garden and roof-garden are only used here as descriptive and analytical categories to designate different plant concentrations inside a house plot. They do not correspond to cultural categories local people use to designate, think or talk about their own houseplants. However, the term garden is not an alien concept. It is a cultural category local people are familiar with. Local people use the term garden (*'jardín'*) not to designate their own gardens but to refer to gardens like the ones located in the neighbourhoods adjacent to Pedregal. These are rich and upper-middle class neighbourhoods consisting of mansions, villas and small buildings of flats surrounded by considerably larger gardens. More than size, the idea of the garden is always associated with the presence of lawns and flowerbeds as well as herbaceous plant, shrubs and trees. Having the lawn as a main garden feature means that most of the garden is exposed to direct sunlight. As such, the garden is viewed as a weed-free, tidy open space occupied by heavily managed ornamental cultivated vegetation (figure 6.34).

More importantly, the garden is always conceived as a well-defined separate and distinct unit adjacent to the house: a place within the house plot specifically designated for plants. Due to its demanding nature, the garden also needs periodic maintenance –including large amounts of water and garden feed and intensive management- that, in turn, produces a lot of waste. Therefore, it requires a specialist keeper: the gardener.

**Figure 6.34** - High maintenance garden. Av. Mohedano, La Castellana

There are many reasons why Pedregal people do not equate their houseplants (*matas de la casa*) to the garden of their rich neighbours (*jardines*). Almost all Pedregal gardens are smaller in size as the built houses occupy most of the plot areas. As a result there seen to be less plant variety and fewer trees, sometimes none at all. Except for a few front-gardens, there are no lawns, hardly any flowerbeds and not many flowers at all. Indeed, Pedregal gardens are not cheap imitations of the gardens of its opulent neighbours despite sharing many plant species. While the latter are mostly open gardens exposed to direct sunlight, the former are partially shadow gardens, simplified versions of tropical tree gardens. As such, despite their heterogeneity, Pedregal gardens constitute a different type of garden that requires a different practice of gardening.

In addition to trees and shrubs growing from the ground, most of Pedregal houseplants are evergreen species growing in plastic, metal, clay and concrete containers in partially shadow areas. These include not only cultivated species but also weeds and other non-cultivated species, tolerated or even transplanted to the containers by garden keepers. Most of Pedregal houseplants require little care and also produce little waste. Those gardens are self-managed and garden maintenance is done as part of household maintenance by the same person(s) rather than as a specialised or separated activity.

As this material shows, Pedregal people do not label their homegardens – as a descriptive category- as gardens (*jardines*) per se–cultural category- as they do not conceive/conceptualise their concentrations of houseplants – regardless of their size- as constituting separate units within the house plot. For them, houseplants are always part of other divisions of the house and its surroundings (house plot) such as front, courtyard (*patio*), backyard, corridor, roof terrace, living room, etc., not separated units within these areas. Moreover, plants are always located at the margin or edges of this spaces enclosing and sometimes sheltering most social areas of the house compound.

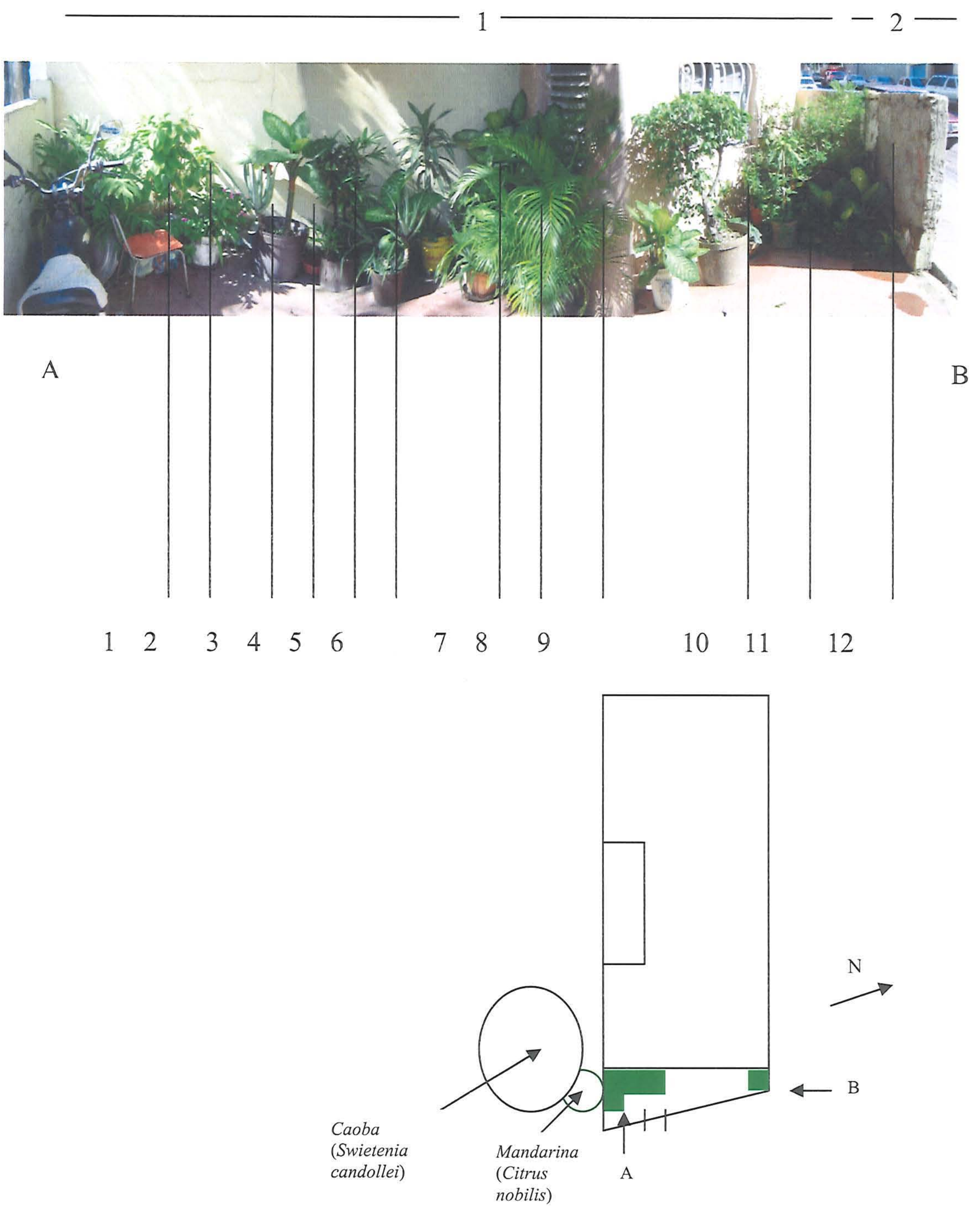
The most illustrative example is that of the courtyard, one of the focuses of the house social life (Figures 6.35 & 6.38). The courtyard is normally next to the kitchen but also possesses an open fire. There is no division between the courtyard and the laundry facilities. The courtyard is used for drying clothes, cooking preparation such as cleaning and selecting black beans or peeling vegetables. It is also used for festivities and formal occasions. Container plants, shrubs and trees growing from the ground always surround the courtyard. It is clear of all vegetation in its open centre, exposed to direct sunlight. The courtyard also extends under the tree canopies as it makes the most of their shadow during the hotter moments of the day. Due to house expansion many houses in Pedregal have their courtyards located on the flat roof their buildings. They remain an important focus of domestic sociability. Here there are also laundry facilities, an open fire for cooking and houseplants located along the edges of the roof patio. There is a roofed area or/and a vine providing shade. Some roof terraces enjoy the shadow of adjacent trees. Some people opt for having a corrugated roof over the entire terrace in order to avoid sun exposure. Plants in containers are always kept along the edges of the terrace. In other cases the courtyards are located at the front of the house.

**Figure 6.35** - Most backyards patios do not have vegetation at the centre. Garcia Family.

Even though Pedregal people deny that they conceive of their gardens as separate units within their house plots, but rather as concentrations of plants around the edges of specific house plot areas, they still happily talk about their plants as occupying a unified space.

Figure 6.36 shows the structure and composition of the garden located in the front yard of the Capuchino family house. Due to its size, structure and species composition it is a good example of most of the gardens in the neighbourhood. It consists mostly of small and medium size plant growing in containers. There are also very few plants growing directly in the ground. The containers are displayed against the walls. The plants enjoy the shade of the building and boundary walls and perhaps more importantly the shade provided by the trees from next door garden (Figure 6.37). Despite its reduced size there are 12 plants species of cultivated plants belonging to 8 botanical families. In fact, this open garden resembles a modern cosmopolitan interior garden.

**Figure 6.36** - Capuchino's front yard, Av. Pedro Matias Reyes. Garden structure and composition, including two trees from next door household. (1) Plants in containers. (2) Plants growing in the ground.



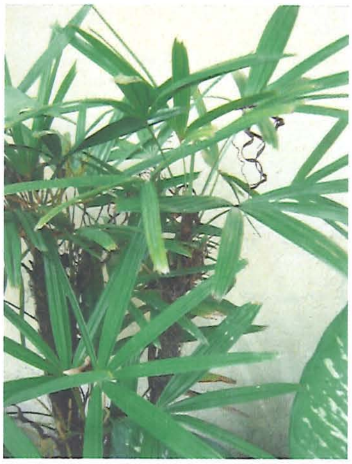
1. *Una de danta*
*Philodendron bipinnatifidum (selloum)*
Araceae

2.*Cana de la India*
*Costus comosus var. comosus*
Zingiberaceae

3. *Coqueta*
*Impatiens sultani*
Balsaminaceae

4. *Zabila*
*Aloe vera* Liliaceae

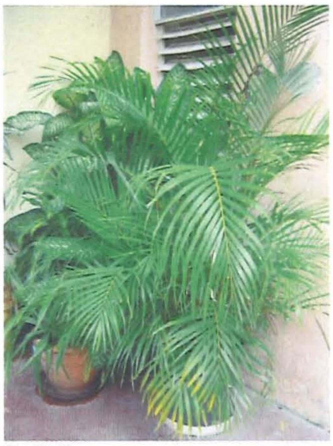
5. *Berraco, cana muda*
*Dieffenbachia amoena, D. maculata* Araceae



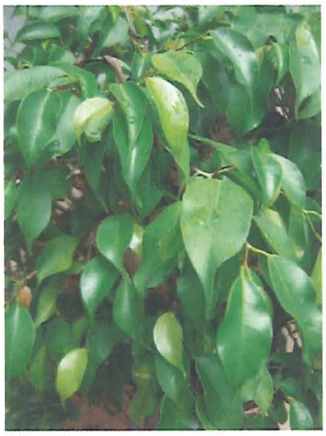
6. *Palma enana*
*Rhapis sp.* Palmaceae

7. *Tronco de la felicidad*
*Dracaena sp.* Agavaceae

8. *Tronco de la felicidad.*
*Dracaena fragrans* Agavaceae



9. *Palma areca*
*Dypsis lutescens* Palmae



10. *Fisco*
*Ficus benjamina* Moraceae

11. *Turiara, fortuna, malanga*
*Xanthosoma violaceum* Araceae

12. *Yerbaluisa*
*Lippia alba* Verbenaceae

**Figure 6.37** - Mandarina (Citrus nobilis). Melecio, the plants keeper, requested to include this tree from next door as part of the inventory of his house plants as it provides shade to his plants and fruits to his family.

**Figure 6.38 -** A 'garden' activity. Melecio having a haircut in his front yard by the local barber Pipo Farfan.

**Figure 6.39** - Capuchino plants inventory.

| Common names | Scientific name | Family | Uses | Life form | Origin | |
|---|---|---|---|---|---|---|
| *Una de danta* | Philodendron bipinnatifidum (selloum) | Araceae | O | NA | | C |
| *Cana de la India* | Costus comosus var. comosus | Zingiberaceae | O, M | H | | C |
| *Coqueta* | Impatiens sultani | Balsaminacea e | O | H | * | S, C |
| *Zabila* | Aloe vera | Liliaceae | O, M, P | NA | * | D |
| *Berraco, cana muda* | Dieffenbachia amoena, D. maculata | Araceae | O | S | | C, D |
| *Palma enana* | Rhapis sp. (?) | Palmae | O | S | * | D |
| *Tronco de la felicidad* | Dracaena sp. | Agavaceae | O, L | S | * | C |
| *Tronco de la felicidad.* | Dracaena fragrans | Agavaceae | O, L | S | * | C |
| *Palma areca* | Dypsis lutescens | Palmae | O, P | T | * | S |
| *Fisco* | Ficus benjamina | Moraceae | O | T | * | S, C |
| *Turiara, fortuna, malanga* | Xanthosoma violaceum | Araceae | O, P | NA | | D |
| *Yerbaluisa* | Lippia alba | Verbenaceae | O, M, F | S | | C |

Origin: * non-American origin
Life forms: T (tree), S (shrub), V (vine), H (herb), NA (non-affiliated)
Uses: F (food including food additives), M (medicinal including beauty care), O (ornamental), G (glue), S (soap), R (resin), AF (livestock food), C (construction material. Timber not included), B (boundary marker), E (edge), L (luck)
Propagation C (cuttings), S (Seeds), D (root and rhizome divisions)

There are five native plants and seven introduced. They are mostly low maintenance evergreen rather than seasonal flower plants. They are also easy to reproduce. Most of them (8) are propagated by cuttings. Four plants species are propagated by the division of their roots or rhizomes while only three propagate by seed. Regarding their uses, in addition to their ornamental value, only three of the species are used as medicine, three other species are used as protective and two are used to attract fortune and luck (Figure 6.39).

**Figure 6.40** - Pola Reyes garden, Av. Pedro Matias Reyes.

Figure 6.40 shows a partial view of Pola Reyes garden. As in the Capuchinos garden it is composed mainly of potted plants growing under the shadow of trees. Here, the diversity of plant species is much higher. However, it is ornamental plants that dominate the composition of the garden. Pola garden resembles a traditional homegarden as much as it does resembles a modern tropical plant nursery of Caracas. This duality may be due to the fact that homegardens are characterised as sites of both in situ biodiversity conservation as well as of innovation and experimentation.

Figure 6.41 shows a partial view of the Mendez garden where crops are grown in sun exposed areas. Crops are grown directly in the ground.

**Figure 6.41** - Surveying the Mendez garden, Av. Pedro Matias Reyes. Crops are grown along ornamentals.

Considering the garden as an etic unit of analysis most gardens in Pedregal consist of small plants growing in containers in partially shaded areas. In addition, some gardens contain plants growing directly in the ground, including tall trees. These trees provide shade to container plants. Shade is also provided by the walls of buildings and their boundary fences. Lawns and flowers, while present in some gardens are not the dominant features, but exceptions. As such, and despite their heterogeneity and the space limitations, Pedregal gardens are simplified versions of tropical tree gardens. These gardens are composed of multiple plant species distributed in a multistory distribution. Gardens are dominated –due to their size rather than by their numbers- by trees in which under their shadow many other plants are grown normally using pots. The practice of growing plants in pots originated in rustic past. They used to have elevated nurseries for crops such as tomato and peppers. Today many of the plants are grown in elevated containers. Plant in containers make the garden mobile as plants are rearranged to suit the use of the space. Even treeless gardens could be defined as partially shadowed gardens as they use the shade of adjacent trees from other gardens along with the shade of buildings and walls to protect plants in containers. Apart from the absence of tree speciments, the species composition of treeless gardens is not very different than that of tree gardens.

While the urban garden mimics in a simplified way the multilayered structure of the rural tree garden –which in turn is modelled itself on the structure and process of forest regeneration- the keeper also takes advantage of the regeneration of the vegetation. Garden keepers encourage, promote and tolerate invasive (wild) plants and sometimes seeds and cuttings of non domesticated plants, in particular with medicinal properties, are also introduced in the gardens. A case in point is the herb *colmillo de perro* (*Pavonia fruticosa*) which used to grow in abundance around the area and is now grown in some gardens almost as a cultivated plant. It produces a mucilaginous substance praised for its effects on the liver and as blood purifier.

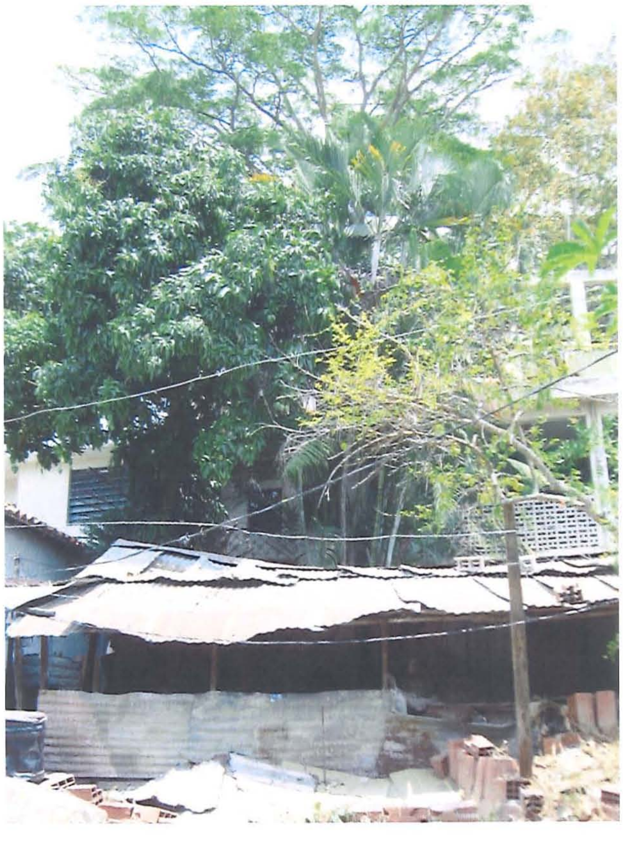


**Figure 6.42** - House trees, Alejandro Farfan house, callejon Farfan.

Trees grow close together at a very close distance and in competition (Figure 6.42). Most trees are not planted intentionally. Trees, especially fruit trees are not planted on containers or nurseries beds. They are encouraged and desired rather than cultivated. Seeds are scattered or buried in humid and shady areas, rich in organic matters and herbaceous vegetation. No effort is put into clearing the area, as this micro-buffer vegetation will retain ground moisture otherwise lost if cleared. Seeds are scattered in order for them to grow, sometimes seeds are buried, but little care is put into them afterwards. Once seeds germinate the trees are protected.

Cultivated fruit trees are considered somehow to fall in between the contrasting pair domesticated/wild. They are part of the human domain as they grow in cultivated fields, fallows and gardens. Ultimately their existences depend on humans but at the same time they are treated like wild plants in terms of management. They are rather encouraged and protected rather than strictly cultivated as other crops are. In contrast to the latter, they are low maintenance. Fruit trees that are not productive are ritually beaten with a heavy stick in a brutal fashion and nails inserted in their trunks on San John's day, 24 of June, as punishment and remedy for their lack of productivity or infertility.

Trees are by far the most important source of food from the homegardens. They provide most of the edible plants as well as the higher quantities of edible plants products. Pot herbs, chillies, cassava and other crops are also cultivated in some large gardens. They are cultivated directly on the ground or in pots. Other plants are used as food flavouring and medicines. Figure 6.43 presents a list of fruits cultivated in Pedregal, including other uses, sale of the fruits in local markets and life-forms.

**Figure 6.43** - Fruits cultivated in El Pedregal homegardens

| Common Names | Scientific Names | Families | Life-forms | Origin | Not on sale fresh locally (X) | Uses |
|---|---|---|---|---|---|---|
| | | | | | | |
| *Aguacate* | *Persea americana Mill.* | LAURACEAE | T | | | F, M, O |
| *Algarrobo* | *Hymenaea courbaril L.* | CAESALPINIACEAE (LEGUMINOSAE) | T | | X | F,M, R, O |
| *Almendrón* | *Terminalia catappa L.* | COMBRETACEAE | T | | X | F, O |
| *Bairrum* | *Pimenta officinalis* | MYRTACEAE | T | | X | F, M, O |
| *Cacao* | *Theobroma cacao L.* | STERCULIACEAE | T | | X | F, M, O, |
| *Cafeto* | *Coffea arabica L.* | RUBIACEAE | T | * | X | F, M, O |
| *Caimito* | *Chrysophyllum caimito L.* | SAPOTACEAE | T | | X | F, M, O |
| *Cambur* | *Musa sapientum* | MUSACEAE | S | * | | F, M, O, AF |
| *Cañafístola burrera; Maremare* | *Cassia grandis L.f.* | CAESALPINIACEAE (LEGUMINOSAE) | T | | X | F, M, O |
| *Castano* | *Pachira insignis* | BOMBACACEAE | T | | X | F, O |
| *Catigüire; Manirote* | *Annona purpurea Moc. & Sessé ex Dunal* | ANNONACEAE | T | | X | F, M, O |
| *Ciruelo de huesito* | *Spondias purpurea L.* | ANACARDIACEAE | T | | | F, M, O |
| *Ciruelo de monte; Ciruelo de fraile* | *Bunchosia argentea* | MALPIGHIACEAE | T | | X | F, M, O |
| *Cocotero* | *Cocos nucifera L.* | PALMAE | T | | | F, M, O |
| *Coquino* | *Syagrus orinocensis* | PALMAE | T | | X | F |
| *Granado* | *Punica granatum L.* | RHAMNACEAE (PUNICACEAE) | T | * | X | F, M, O |
| *Guamo* | *Inga sp.* | MIMOSACEAE (LEGUMINOSAE) | T | | X | F, M, O |
| *Guanábano* | *Annona muricata L.* | ANNONACEAE | T | | | F, M, O |
| *Guásimo* | *Guazuma ulmifolia Lam.* | STERCULIACEAE | T | | X | F, M, O |
| *Guayabita del perú* | *Psidium sartorianum (Berg) Niedenzu* | MYRTACEAE | T | | X | F, M, O |
| *Guayabo* | *Psidium guajava L.* | MYRTACEAE | T | | | F, M, O |
| *Higuera* | *Ficus carica L.* | MORACEAE | T | * | | F, M, O |
| *Jobo* | *Spondias mombin L.* | ANACARDIACEAE | T | | X | F, M, O |
| *Jobo de la india* | *Spondias dulcis Parkinson / S. cytherea Sonnerat* | ANACARDIACEAE | T | * | X | F, M, O |
| *Lechoza* | *Carica papaya L.* | CARICACEAE | S | | | F, M, O |
| *Limon* | *Citrus limon* | RUTACEAE | T | * | | F, M, O |
| *Limonero francés* | *Citrus limon (L.) Burm.f* | RUTACEAE | T | * | | F, M, O |
| *Malagueta* | *Pimenta ramerosa (Mill.) J. W. Moore* | MYRTACEAE | T | | X | F, M, O |
| *Mamey* | *Mammea americana L.* | GUTTIFEREAE (CLUSIACEAE) | T | * | X | F, M, O |
| *Mamón* | *Melicoccus bijugatus Jacq. / Melicocca bijuga L.* | SAPINDACEAE | T | | | F, M, O |

| | | | | | | |
|---|---|---|---|---|---|---|
| *Mandarina* | *Citrus reticulata Blanco* | RUTACEAE | T | * | | F, M, O |
| *Manga* | *Mangifera indica L.* | ANACARDIACEAE | T | * | | F, M, O |
| *Mango* | *Mangifera indica L.* | ANACARDIACEAE | T | * | X | F, M, O |
| *Martinica* | *Citrus grandis (L.) Osbeck / Citrus maxima Burm. Merr. / Citrus decumanu L.* | RUTACEAE | T | * | | F, M, O |
| *Naranja* | *Citrus sinensis (L.) Osbeck* | RUTACEAE | T | * | | F, M, O |
| *Naranja cajera* | *Citrus aurantium L. /Citrus vulgaris Risso* | RUTACEAE | T | * | X | F, M, O |
| *Níspero* | *Manilkara achas (Mill.) Fosberg./ Manilkara zapota (L.) v. Royen* | SAPOTACEAE | T | | | F, M, O, G |
| *Níspero del japón* | *Eriobotrya japonica (Thumb.) Lindley* | ROSACEAE | T | * | X | F, M, O |
| *Parchita* | *Passiflora stipulata* | PASSIFLORACEAE | V | | | F, M |
| *Plátano* | *Musa paradisiaca* | MUSACEAE | S | * | | F, M, O |
| *Pomagás* | *Syzygium malaccense (L.) Merr & Perry* | MYRTACEAE | T | * | X | F, M, O |
| *Pomelo* | *Citrus paradisi Macfadyen / Citrus maxima var. uvicarpa Merr. & Lee* | RUTACEAE | T | * | | F, M, O |
| *Semeruca* | *Malpighia glabra L. y Malpighia emarginata Sessé & Moc. ex. DC.* | MALPIGHIACEAE | T | | X | F, M, O |
| *Totumo; taparo* | *Crescentia cujete L.* | BIGNONIACEAE | T | | X | F, M, O, C, B |
| *Uva* | *Vitis vinifera L.* | VITACEAE | V | * | | F, O |
| *Uvero de playa* | *Coccoloba uvifera (L.) L.* | POLYGONACEAE | T | | X | F, M, O |

Origin: * non-American origin
Life forms: T (tree), S (shrub), V (vine), H (herb)
Uses: F (food including food additives), M (medicinal including beauty care), O (ornamental), G (glue), S (soap), R (resin), AF (livestock food), C (construction material. Timber not included), B (boundary marker), E (edge)

There are 50 folk taxa for cultivated fruit plants of which 46 are folk generics, four are folk subgenerics corresponding to at least 44 botanic species. We cannot be sure of the total number of species as some genera such as *inga* have several species coexisting together in the area. We do not have enough information or expertise to determine the total number of species for this genera present in the gardens. 44 species belong to 25 botanical families. There is, surprisingly, a very small number of folk-subgerenic taxa (mango, manga; limon frances, limon). 26/46 cultivated fruits in the gardens are not found on sale in local markets. 19/43 cultivated fruits are of non-American origin.

**Figure 6.44** - Macaw (*Guacamaya*) (*Ara ararauna*), Blanco-Blanco garden, Av. Pedro Matias Reyes.

**Figure 6.45** - *Morrocoy* (*Geochelone carbonaria*) a common edible pet in Pedregal gardens

Homegardens host domesticated plants and animals (cats, dogs, parrots, etc.) as well as urban wildlife such as weeds, birds, bat, insects, reptiles and mammals, including feral animals. Some animals such as the *morrocoy* are introduced in the gardens from savannah areas and kept as pets until they are eaten (Easter) (See figure 6.45). Other wild nocturnal visitors to gardens such as the *rabipelado* (*Didelphis marsupialis*) are hunted for their meat.

Despite its drastic transformation, its reduced space and "apparent" diversity poverty compared with neighbouring communities, homegardens are still a reservoir of local biodiversity, sites of in-situ conservation of biodiversity. Homegardens are living gene banks where landraces, obsolete cultivars, rare species and endangered species are preserved.

Pedregal homegardens have lost their economic importance overtime. They are now mostly ornamental. They are also sites for the cultivation of non market fruits (both local and introduced) and other luxury food and medicinal plants. These gardens have been undergoing drastic transformation and, despite constrains of land availability, people are still very much attached to plants beyond any utilitarian concerns. Due to space limitation and constant transformation due to expansion of the houses, Pedregal gardens can be seen as reservoirs of knowledge and contact (familiarization with) of nature (otherwise drastically limited by urban conditions) rather than sites of production or just reservoir of plants.

Stripped of almost all economic significance, the Pedregal homegardens present themselves as a good opportunity to explore other socio-cultural dimensions of the people-plants relationship and homegardens as cultural creations (products and process).

## 8. Garden keepers

Tending houseplants is not a separate activity from the general maintenance of the household, which also includes feeding and cleaning domestic animals among many other activities. It is generally done by a female in charge of the domestic affairs rather than by a specialist. House maintenance is done every morning after breakfast when other members of the household have left for work. According to the demands of the menu anticipated for the family's meals, it generally takes place before or during cooking the meals.

While it is generally women who carry out all these activities, in some cases, adult men are in charge of the houseplants and animals. In the latter case, it is retired older men who enjoy the daily routine of tending plants and cleaning animals. In other cases, it is unemployed or self-employed men who are forced to share the domestic burden with partners or sisters.

Nevertheless, as houseplants are part of the dwelling space they are associated with women. More specifically, houseplants are associated with the women who run the households. As they are responsible for their maintenance and look, it is the female head of the household who get the praise for the look of the garden regardless of who actually does the tending.

Even within the set of activities designated 'tending household plants and animals' there is a garden-based division of labour. Tending and watering the houseplants are female activities; pruning, chopping trees, moving or re-potting plant containers are all considered male work. Harvesting fruit trees is also considered men's duty, adolescents included. Trees must be climbed to reach their fruits or fruits are removed with a long wooden stick with a container at the end. In some cases, although undesirable, fruits are picked from the ground after falling. Feeding and cleaning animals are considered male responsibilities. This division of labour based on gender does not really deter or prevent women from performing most of men activities or men from taking on women's roles.

## 8.1. **Daily plant care**

Part of the daily cleaning and tidying house routine is to inspect the houseplants, especially the ones in containers and hanging baskets. Dead leaves of herbaceous plants are removed using a sharp knife. Container plants are checked for signs of disease, ants and other pests. Soil moisture is also checked. Cigarettes and other garbage are removed from containers. Plants with yellow foliage, pest attacks or diseases are normally separated from other plants until properly attended. New houseplants are carefully observed in order to determine if the place chosen for them suits its individual demands of light, winds, humidity, etc. Container plants may be moved to improve their exposure to sunlight -or to avoid it- or for aesthetic reasons.

Normally, all container plants are watered on the same day. Watering is done every two or three days according to soil moisture conditions. Some container plants exposed to direct sunlight in balconies and roof terraces may be watered every day during the dry season. As most container plants located outside the house do not have bottom plate to retain water, there is no concern about over-watering them. While container plants are watered on a regular basis, strong shrubs and mature trees are almost totally neglected. They are only watered at the height of the dry season, if there is water available. Tender shrubs and immature trees are watered only during the dry season on a regular basis.

Plants are watered preferably in the morning before it is hot and the sunshine too strong. Interior plants, and plants in other shady areas, are also watered early in the morning. Otherwise, they can be watered at late afternoon or evenings. Plants are watered using kitchen pans or plastic containers. A bucket, glass or mug is used to carefully pour the water in the container. Watering cans and hosepipes are very rare.

Water is poured mainly at the base of plant trunks but also in the leaves and branches if it is not too hot. The leaves of some pants are carefully cleaned with water. When plants are watered later in the day, water is poured directly on the trunk and not on the leaves. According to local people, it is necessary to avoid watering plants exposed to full light and the heat of the sun. Like people and animals, plants can be damaged by the combination of heat and cold. It is called *pasmo*. If a plant is hot as a result of its exposure to sunlight and contact with cold water the plant may stop growing, weaken or even die. In the case of human beings, *pasmo* manifests itself through a variety of symptoms ranging from a skin rash to paralysis.

Houseplants are watered with tap water. Immature trees, however, may also be given cooled down left-over vegetable and animal stocks from cooking as well as water from boiling eggs, pasta or potatoes whenever available. Eggshells and used coffee are also added to container plants. Vegetable peelings and bones are added to the soil of shrubs and trees, but not to container plants. However, in most of the houses fruit and vegetable peelings are used to feed tortoises and hens. The use of fertilisers is not uncommon, but sporadic.

## 8.2. **Advanced container plant tending**

The soil of containers is replaced when plants show loss of vigour or yellowing leaves. Large and mature plants in containers are top-dress. Instead of replacing all the soil of the container, only the top 10 cm of soil is removed and replaced by new compost. Container plants are re-potted in bigger containers if there are roots poking through drainage holes. Commercial clay and plastic plant containers are used. Recycled plastic and metal containers are also used. Red is the preferred colour for containers as plants can be the victims of envy. Red is said to be a protective colour that repels evil eye and sorcery. Plants can be recipients of black magic intended for people in the household.

A mixture of black soil (*tierra negra*), rich in compost, and sand is preferred for container plants, beds and trees. Yellow clay soil is avoided, as it does not drain properly. Black soil, rich in animal manure and wood chippings, is not used alone as it is said to be too hot and to kill the roots of container plants.

Soil is brought to the community from the countryside, bought at a plant nursery or gathered in the community during construction work. Pedregal soil is considered to be very good. The community is in constant renovation and expansion (including gentrification). When there is construction work in a house plot in the community everybody wants to know if it includes excavations. When there is an excavation, for a house or for waterworks, the soil removed is very precious for renovating the content of plant containers and plant beds, and excavations supply a considerable amount of black soil for Pedregal houseplants. Other free sources include plots of land owned by Pedregal people outside Caracas valley or soil collected opportunistically during trips to the countryside. The last resort is buying at the local plant nurseries. Nursery compost is not preferred, as it is normally not sufficiently rotten making it unsuitable for container plants.

Adding more soil to and replacing existing soil in container plants or plant beds are not regular or periodic activities, nor are they carefully planed. The same goes with re-potting plants into bigger containers. These activities are carried out on an individual basis in response to and according to the needs of each container plant. Re-potting and soil replacement normally take place at late afternoon or early evening on a shady area. These are done with the help of a trowel or, more commonly, a machete. Plants are watered after these operations.

Pests are removed by hand and container or potted plants are watered with a mixture of soapy water and used cigarettes. Plants with deformed leaves or other severe diseases are pruned. They are discharged if after a period of observation in isolation there is no recovery. The use of specialized garden tools is not uncommon, but such instruments are nevertheless considered luxuries. Most of the work is done using a sharp knife or a machete. Heavy duties involve using axes and construction tools. Axes are also used to collect firewood for outdoor cooking. The use of secateurs is reserved to a few advanced gardeners, generally men who also work as professional gardeners.

### 8.3. **Mano ligera (light hand/heavy hand)**

When visiting a house with exuberant plants, guests normally praise the female head of the household for the good appearance of her houseplants by saying that she has a light hand (*mano ligera*). This can be translated as a soft touch. All successful houseplant keepers, male or female, are said to have a light hand. Successful houseplants (and their carers) are judged on the basis of plant diversity, healthy appearance and aesthetic qualities.

Having a light hand does not just refer to tending and watering plants on a regular basis or to expending extra time gardening. It also refers to knowing each plant in detail. Moreover, it refers to in depth knowledge of the house plot microenvironments and immediate growing conditions. These include understanding the implications of variable conditions such as sunny and shady areas, the times at which sunlight reaches the area, moisture conditions, among many others. Most of this knowledge is gained by experience and personal observation. This knowledge guarantees placing each of the plants places where conditions are most suitable to their needs.

Light handed houseplant keepers engage with their plants. They enjoy their company and relate to the plants. There is pleasure in that engagement. There is empathy between them (a kind of plant-people reciprocity). Some of them even speak to the plants. It is said that successful plants are pleased to live in an inviting environment. They accept their hosts. Having a light hand also means knowing the mystery of each plant: knowing about the personality of every plant species, the strength of its power and the direction of its power. There are powerful plants as well as vulnerable ones. There are neutral plants without any mystery. Some plants attract while others repel. Some plants are so powerful that they need to be baptised.

Bad houseplant keepers are criticised. They are said to have a heavy hand (*mano pesada*).

## 9. **The mystery or secrets of plants**

Part of what local people refer to as the mystery of plants consists of the idea that plants –like animals and people- can be influenced by human desires (for good and bad). By the same token, plants can also influence people and animals.

### 9.1. **Dangerous envy and desire**

Envy- *fuerza de vista, mal de ojo-* and sorcery relate to negative supernatural forces that may be mobilized deliberately as in sorcery, or unconsciously as in the case of evil eye (*mal de ojo) and* envy. All are relevant here. Many people have 'power of sight' (*fuerza de vista*) which leads to them destroying what they desire. Strong desire and envy can be harmful as they produce evil eye. Plants receive '*daños*' as a result and are ruined. However, there are strong and weak plants regarding possible susceptibility to human desire.

As a result of human desire, domestic plants, as well as domestic animals, are subjects of envy and sorcery, very much in the same way that people are. Crops and farm animals are also subjects of human desire. They can be influenced unintentionally or by intentional desire (through envy and sorcery). If they are weak plants, they can be vulnerable to these attacks. Effects of these attacks are called *daño* (whether the victim is an animal, a plant or a person). In the case of evil eye, plants absorb or 'catch' an exterior influence from people directed – intentionally or unintentionally- to them. While all plants are subject to negative human influences some are more susceptible that others. People do not desire common, easy to grow, plants that are seen commonly in all gardens. They prefer exclusive, exuberant, exotic and difficult to grow plants, in flower, in public view. It is the healer of people, using exactly the same prayers and rituals as she/he uses on behalf of people and animals that extract the influence (*daño*) from the plant. The healer transfers the *daño* from the patient to him or herself. As the healer is strong, the *daño* does not harm (at least most of the time).

Just as plants are vulnerable to human influences, they are also used to protect people and their houses. Plants can absorb *daños*, intended not for them but for people (but by extension also their possessions). Some plants are considered to have properties that allow them to protect the house and its inhabitants. The most important of these is the aloe plant (Figure 6.46 & 6.47). It is kept inside the house and all around it, especially in the front. The Holy palm, which we have discussed in connection with the Palmeros and their pilgrimage, is also a special and blessed plant. Pumpkin fruits, locally known as *auyamas* (*Cucurbita pepo*) are also kept inside the house as they are seen to absorb the effects of the evil eye and of sorcery intended for the inhabitants of the house.

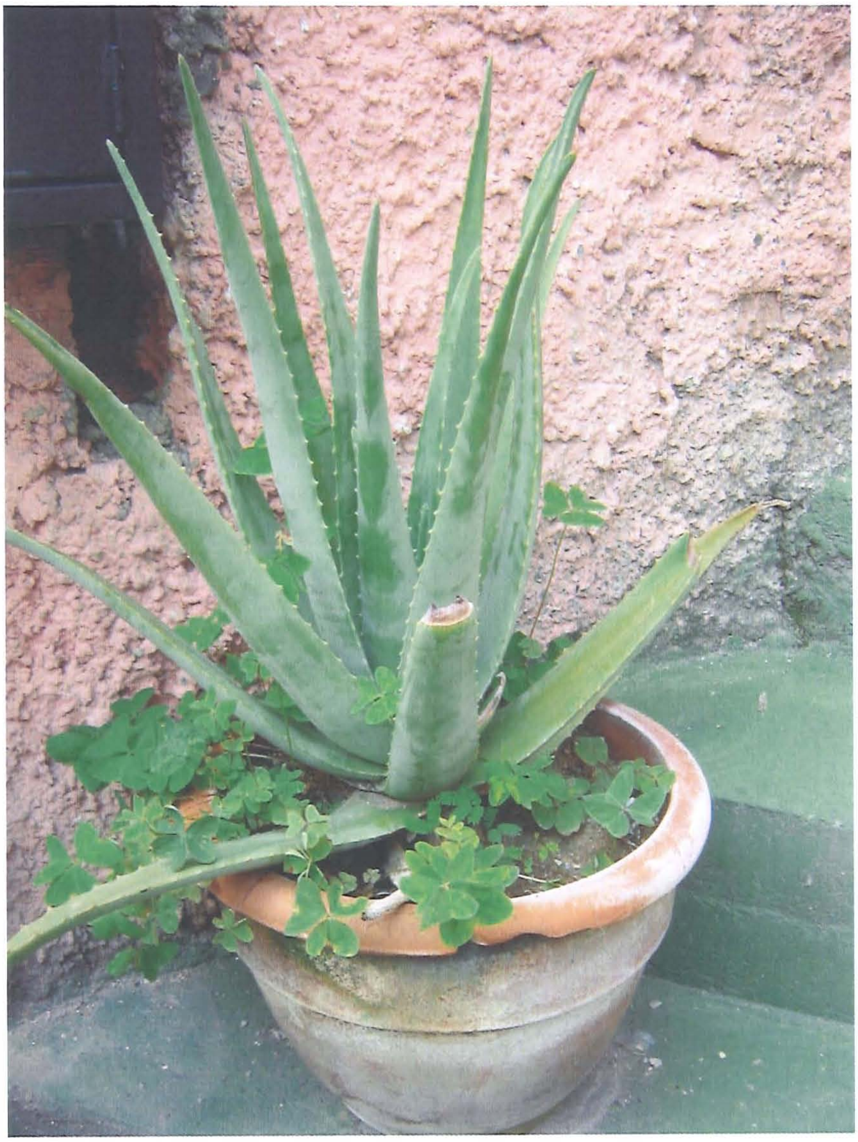


**Figure 6.46** - *Zabila* (*Aloe vera*) protecting the entrance of a house, Callejón Reyes.

**Figure 6.47** - Aloe vera and holy palm, along with horse shoes and red cords, are keep as protection behind the main door in almost all houses.

Aloe, holy palm and pumpkins are believed to absorb negative energy directed to them as well as to the people of the house. The *turiara* or *fortuna* (*Xanthosoma belophylum*) protects the house by repelling negative energy instead of absorbing it. As such it is an active plant capable of shielding the domestic environment (Figure 6.48).

As Benito explained to me:

"This plant is called '*turiara*' or '*fortuna*' (fortune). It has a secret. It is said that if you pour sugarcane spirit over it, it will whistle at midnight. But I haven't heard it. Mami has baptised this one with holy water. She keeps it here as protection for the house. It has a secret but I don't know about it."

This was Benito's account, offered while he was visiting his niece Mami. Mami keeps a *turiara* plant in her front garden, next to the front door of her house. She said that this plant protects the house against robbers. As the plant is powerful and, also, is used in sorcery it needs to be baptised with holy water in order to tame it. Similar powers are attributed to palma areca (*Dypsis lutescens*).

**Figure 6.48** - *Turiara* or *fortuna* (*Xanthosoma belophylum* Araceae)

**Figure 6.49** - Palma areca (Dypsis lutescens) is believed to protect the household.

Wild plants are considered to be strong and they are not owned by people. They are not the subject of envy and they are also strong in their capacity to resist people's influence as long as they remain in the wild. As soon as wild plants are incorporated into housegardens they are subject to the possibilities of *daño*. For example, orchids like the *vara the san jose* (*Epidendrum secundum*) are common ornamental plants in Pedregal gardens. They are collected from the mountains of El Avila National Park and transferred to gardens. Once in the gardens they become vulnerable. They get *daño* because they are owned. Only wild plants harvested for medicinal purposes can be subject of *daño* in the wild. A wild plant harvested for medicinal uses can become vulnerable to attacks.

### 9.2. **Fear of envy**

When a visitor makes a comment about the look of the houseplants or a specific plant, the host thanks the visitor but in her/his head she is saying, "God protects it" ('*Dios la guarde*'). The host implores divine protection for the plant(s), as someone else's desire can hurt the plants. This practice is not reserved for plants. It is also used when people comment on children and domestic animal. It also extends to property such as cars, houses, stereos, washing machines.

If a previously healthy and exuberant plant (that caught the attention of visitors –family members included- suddenly became weak, lost foliage, had yellow leaves or died, all these things could be attributed to envy (intentional or unintentional) and even sorcery.

People don't like to give cuttings and leaves as such act may attract unintentional envy. If you ask a garden owner or keeper about the possibility of obtaining a specific plant, it is quite likely she/he will refuse to give you a sample of it. But if you say that you do not feel very well because you are suffering from an illness that a plant will cure, it is very likely you will be given a sample of the plant. There is a degree of danger about having a nice garden or plant as this can generate envy and attract the evil eye. Garden trees are vulnerable to human influences, but they are also stronger than smaller plants in resisting negative impact. While trees may stand most evil eye attacks, harvest may damage them. The death of a tree may be explained as a combination of natural and supernatural causes. For example, a tree may die as a result of a pest attack after being weakened by envy.

## 10. **Conclusion**

Due to limited space today Pedregal gardens are reservoirs of knowledge and genetic diversity rather than sources of plant resources; more like libraries, hands-on exhibitions – interactive, senses stimulation (visual, tactile, smell, taste, audio)- and weather instruments (seasonal markers) than refrigerators. They are good to think and enjoy rather than good to eat. They are places for familiarization (cognition) with nature (cultured nature as well as hosted wildlife) as well as of practical knowledge and emotional attachment. They are places for conservation as well as for experimentation and innovation (e.g. introduction of new species). One of the most important traits of traditional homegardens is their experimental nature as places for testing and introducing new species. With modernization many more species have been introduced into the gardens enhancing their biodiversity, instead of reducing it as expected with urbanization and related scarcity of land. Pedregal homegardens are sites of contact and experience with "nature", otherwise very limited in an urban ecological impoverished environment (Figure 6.50).

**Figure 6.50** - Luis Enrique Reyes surveying his own garden. Av. Pedro Matias Reyes.

## Chapter 7

## Medicinal Plants

### Introduction

This chapter focuses on the use of plants as remedies. It presents a description and analysis of herbalist practices in Pedregal along with an inventory of some of the plants used as medicine collected during fieldwork. It is an attempt to present some generalizations based on interviews and observations on the use of plants as medicine by non-specialist domestic practitioners.

During fieldwork, there were many occasions when I confronted questions about the nature of my work. My interest in ethnobotanical research was mainly identified and recognized as an enquiry on medicinal plants by the subjects of my research and others. My own explanation, that I was interested in the relationship between people and plants was too vague and academic and it also seemed very unconvincing to them. As urban dwellers, the subjects of my research viewed their relationship with plants as very restricted and totally uninteresting. Indeed, they believed that their practices were no different from those of the rest of the Caracas population, whether rich or poor, educated or uneducated. But the subject of medicinal plants is one that resonates with them, and it is a topic they are eager to learn about; and through learning to acquire new skills and knowledge.

The local term used to designate medicinal plants –*monte*- is the same term that is used to designate non-cultivated plants, and I was interested in both usages. While many other uses of plants were mentioned during interviews, for example the use of the fruits of the *totumo* tree (*Crescentia cujete L.*) as containers and the tree itself as boundary marker due to its easy propagation by cuttings, their medicinal uses were the most frequently raised and discussed. In the specific case of the *totumo*, its flowers and the pulp of its fruits are used to treat respiratory alignments.

### 1. **Monte(s) and its multiple meanings**

As mentioned above, the term was used to refer both to medicinal plants and non-cultivated plants. It is worth looking at this term more closely.

### 1.1. **Monte as a vegetation type and stages. Monte/fruto (crop); undomesticated/ domesticated plants**

This term is used to refer to non-cultivated vegetation in general but more specifically to secondary vegetation (disturbances mainly of anthropogenic origin) and particularly among the later to pioneering vegetation (first stages of vegetation regeneration: fallow vegetation). As such, in the context of cultivated land (including gardens) it is also (and commonly) used to refer to weeds (unwanted and undesired vegetation). From this perspective *monte* is a collective name used to designate vegetation that is non-dependant on human control or to non-domesticated plants. Thus, in this sense, *monte* is the antonym of the term *fruto* (crop) or cultivated plants. The term *monte* is commonly used to refer to *unnamed* non-cultivated plants.

Nevertheless, while referring to vegetation that is not dependant on human management, undomesticated plants or non-crops, *monte* also refers to vegetation linked to the human footprint (vegetation disturbances, weeds, and first stages of vegetation regeneration -fallow). In other words, it also refers to undomesticated plants that thrive –sometimes almost exclusively- on anthropogenic disturbances or interventions of the vegetation.

From this perspective, the pair *monte/fruto* (undomesticated/domesticated) does not entirely parallel the classic distinction or dichotomy between nature and culture. For the locals, non cultivated vegetation is not always considered untouched vegetation, but one enhanced or modified and encouraged by human intervention. Furthermore, this implies a dynamic conception of the vegetation as part of the landscape, which importantly also includes human populations. Furthermore these various relationships and elements are understood in terms of a process. As we have seen in chapter 5, this local view contrasts with the static vision once dominant among scientists, who considered primary forest as the original state of vegetation so that some forms, such as the savannah were seen as extraneous or derivative. And furthermore, this view excludes people from the 'natural' environment. Here again, human populations are only viewed as a negative element, posing potential or real threats to the vegetation. In other words human action is linked explicitly to degradation of the natural environment.

For my informants, desirability (here understood in terms of taste and aesthetics), material dependence and the symbolic importance of plants leads to the ranking of crops as superior to non-cultivated plants. In terms of ecological behaviour, cultivated plants (*fruto*s) are considered both as a burden and inferior as they require human management for their reproduction and long term survival unlike non-cultivated plants. From this perspective it is not weeds but crops which are viewed as a burden and of inferior quality. Crops require both work for their production and reproduction as well as protection against weather and predators. *Monte*s are not only considered independent but also opportunistic as many of them -such as pioneer plants- also thrive on human disturbances. From this perspective both cultivated and uncultivated plants –especially those thriving on human disturbances- are viewed as human companions. Nonetheless, the nature of their companionship is radically different: crops are intended companions while *monte*s are unintended ones. The former are dependent and inferior –a burden- the latter are independent and opportunistic. These views can be summed up in the following figure:

**Figure 7.1-** Pair *monte/fruto* as human companions

| **Terms:** | ***monte*** | ***fruto* (crop)** |
|---|---|---|
| **Domestication:** | undomesticated | domesticated |
| **Desirability, material dependence and the symbolic importance:** | less | more |
| **Human dependency:** | less<br>independence | more<br>dependence |
| **Ecological behaviour:** | equal<br>competitor<br>opportunistic<br>more | inferior<br>burden<br>vulnerable<br>less |

1.2. **Medicinal plants**

When used to refer to medicinal plants, the term *monte* overlaps the distinction between *monte*s and *frutos* as it includes uncultivated as well as cultivated plants alike used for medicinal purposes. However, while many crops are used as medicine, it is thought that uncultivated plants are more powerful than cultivated plants (cultivars) in terms of medicinal efficacy. This is because they are insubordinate and independent. For this reason the wild plants are, at least theoretically, preferred to the domesticated varieties.

Nevertheless, any plant –cultivated or wild- used for medicinal purposes is labelled as *monte*. Alternatively, medicinal plants may also be referred to as *remedio* (remedy), a general term for anything considered to be medicinal. The term *remedio* is also used to refer to animal parts and excreta, earth (mainly clays), manufactured drugs, fizzy drinks, petrol and other substances reputed to have medicinal properties. In this restrictive use, as a source of medicinal and curative powers, the term *monte* is equivalent to *remedio*. A wide range of remedies and plants can be purchased at specialist market stalls. Such stalls are referred to as either *puesto de monte*s (*montes'* stall) or *puesto de remedios* (remedies' stall).

1.3. **Pot herbs (fresh)**

Cultivated and uncultivated pot herbs are also referred to as *monte*s. Many of these have also medicinal uses. Some green vegetables such as lettuces and other vegetable leaves are also referred as *monte*s.

2. **The question of specialists**

Recent articles focusing on plant inventories of medicinal plants stalls in markets in Mexico lament the loss of native plants and native plant specialists at the same time that they highlight the urgency of documenting what is seen as a dying system of knowledge (Bruce et al. 2000; Ugent 2000; Nicholson & Arzeni 1993). A shared concern is related to the alteration of local repertories of phytomedicines by the replacement of native species as a result of contact and modernisation. The introduction of new species with medicinal uses is generally depicted and viewed as threatening, not enhancing, local biodiversity and traditional knowledge. Another concern relates to the unintended consequences involved in the production of plant inventories aimed to documenting these threatened knowledge. In places like Mexico, plant vendors are normally plant specialists (herbalists, bush doctors, traditional healers) who, as well as selling the medicinal plants, also diagnose and treat patients.

In addition to the lament over the loss of local plants and related knowledge these articles report that, when interviewed by ethnobotanists, healers/dealers express regret about the lack of interest of new generations in learning about this knowledge and a lack of desire to become herbalists. This they see as already eroding knowledge and as a threat to the survival of this traditional practice. Practitioners also point out that salvage operations alone, such as inventory making, cannot guarantee protection of local knowledge as there are unintended consequences to documenting and circulating traditional plant knowledge in the form of texts (Bruce et al. 2000; Ugent 2000: 54; Nicholson & Arzeni 1993: 191).

According to herbalists who run these market stalls, the publication of medicinal plant inventories renders their own role as specialist herbalists redundant. On the one hand, inventories bypass herbalists by putting specialist knowledge in the public domain, including details about plant uses, preparations and dosages. On the other, inventories dismiss or at least minimise the role of the herbalist in mediating the patient-remedy relationship and their role in healing. Herbalists diagnose, prescribe and advise on healing through the face to face, eye-to-eye, interaction that cannot be replaced by written indications such as inventory entries. Not only do the herbalists in these studies highlight their specialist knowledge, but they also place emphasis on their experience, gained through practice which can not be easily translated or formalised into a text.

My fieldwork experience was very different to the one reported in these studies of Mexican medicinal plant stalls. In Caracas I was not offered information about medicinal plant uses by plant vendors as it would be illegal, according to them, for them to provide such information. It was their clients, plant buyers, and other domestic practitioners who provided the information. Furthermore, there was not the same sense or threat of loss as recorded in the Mexican studies. The introduction of new plants with medicinal properties was celebrated as a welcome addition to the existing plant repertory. Plant inventories and other written sources of plant knowledge, local and foreign, were also welcomed. Published documents have already been embraced as sources and references of plant knowledge by my collaborators. Furthermore, instead of mourning a lack of interest in the subject by younger generations and fearing the resulting erosion of knowledge, as their Mexican counterparts, old people highlighted the extent to which some young people were interested, wanting them to talk about and explain the proper preparation of plant remedies. As my informants pointed out, their practice and knowledge was complemented by the inventories and other written forms of knowledge. So, rather than a dying or adulterated specialised tradition in need of urgent documentation, the practice of herbalism is described here as a reconstituted, open and dynamic domestic practice of contemporary relevance for people of Pedregal.

### 3. A declining field of knowledge?

The use of plants as medicine has survived both urbanization, formal education and the availability of modern medicine (largely through the public health service) in Pedregal and Chacao. Pedregal's first school and infirmary date back to the mid 1940s when the area was still rural. At the same time, there are currently two medicinal plants stalls at Chacao Municipal market. Medicinal plants are also collected in and around Pedregal including the garden of the newly opened state-of-the-art site of the community's General Practice. The point is that people's resort to herbal remedies is not simply or only driven by a lack of access to modern health services and poverty. Rather, both systems operate in contiguous, even overlapping spaces.

Nevertheless, the use of plants for healing purposes has survived the impact of modernization and urbanisation of the Caracas Valley as domestic rather than as publicly recognised practice[3]. Stalls of fresh and dry medicinal plants are one of the few visible reminders of the continuation of this practice, associated with a rural past, in an otherwise very modern and urban environment. At the same time, 'natural' alternative and complementary medicine is a fast growing global business, ranging from multinational companies to local and regional cottage industries. Medicinal plants are fashionable. As such the issue receives attention in the media. Consequently plant based commodities are traded both in the formal and informal circuits of the economy.

Despite its continuing and current popularity there are no full time herbalist practitioners, whether traditional or modern, who operate openly in the public domain. In fact, it is an outlawed practice by several legislations regulating medicine and pharmaceutical practices dating back to 1960s (Velez Salas 1982:134-137) Contrary to what has been reported in many areas of Latin America, plant vendors are less herbalists than plant dealers. This means that while the sale of medicinal plants and plant based medicinal products is legal, it is illegal for vendors to diagnose and prescribe any product for medicinal purposes. By law, these tasks are the exclusive domain of doctors and pharmacists. Thus customers are not patients. Dealers are not healers. Plants rather than knowledge are traded or are involved in the commercial transactions. Buyers and sellers share to some extend the same knowledge regarding plant uses.

[3] The practice of herbalism as a domestic rather than professional activity predates the expansion of the city and modernisation. In fact, in 1926 Pittier's inventory of medicinal plants of rural Venezuelan Creole population is accompanied with a note of caution on what he saw as a degenerated and adulterated practice: due to the lack of specialists-experts, knowledge was being vulgarised (Pittier 1970:55-56).

The explosion of alternative medicinal product shops as well as street stalls offering fresh and dry plants, manufactured plant-based products and related literature and media programs have made it more difficult to enforce existing legislation. Manufactured products and packed dry plants normally include information regarding target diseases, dosages and preparations. Alternative new-age practitioners prescribe medicinal plants on radio programs, answering callers' questions. At the same time, there has been a relaxation in the enforcement of the law by authorities regarding the recognition of the failures of the existing formal public health system. While old plant vendors are reserved and still refrain from providing information on uses of plants for fear of prosecution, young sellers use aggressive marketing practices involving advertising about the uses of plants and openly prescribe plants and treatments to clients.

While herbalists are not publicly visible, there are other recognised "traditional" healers operating in the public domain along with a wide variety of New Age therapists. The former specialise in personalised aspects of healing and some of their practises involve the use of plants. There is a wide variety of healers, ranging from faith healers, to mediums, diviners and sorcerers. Most of them are part-time practitioners combining supernatural activities with very mundane jobs. The lack or severe shortage of specialist practitioners suggests that far from being a restricted domain of specialist knowledge of medicinal plants, plant knowledge is widely shared among the population as part of a domestic area of knowledge and practice. The empirical aspects of the use of plants as medicines are not the sphere of publicly recognised (full time expert-specialist-practitioners) professionals, but of lay people. As such herbalism is primarily a practice within the popular sector of the health care system while personalistic healing is more clearly identified with the folk sector, but not restricted to it (Waldstein and Adams 2006: 120; Berlin & Berlin 1996).

In a small community like Pedregal there are five recognised healers. They all operate on a part-time basis. Three of them are faith healers and two are mediums-sorcerers. None, however, earns part of his/her income as a herbalist. Furthermore, these recognised healers are not considered to posses any special knowledge in phytomedicines.

4. **An apprenticeship with Mr Benito Reyes**

After almost nine years of learning with Benito Reyes I considered him to be an expert (knowledgeable), but not a specialist-practitioner, that is to say, a publicly recognised practitioner herbalist. He was a faith healer (See figure 7.2). His practice sometimes involved the use of some plants such *yerbamora* (*Solanum americanum*) to treat *culebrilla* or shingles (*Herper zoster*) or *arnica* (*Tithonia diversifolia* ) to deal with muscular pain. Mr. Reyes always liked to talk about and teach me about plants. He was proud to display his extensive knowledge and to remember the history of the community, in particular its rural past. In private he presented himself as an expert and emphasized his authority as he was one of the older residents of the area. He remarked that he was one of the few men who did not consume alcohol and his memory was really impressive. Contrary to the opinions expressed in the section above, Benito thought the practice of medicinal plants was a threatened tradition, dying out with the last witnesses of the rural days. He was dismissive about the interest in plants shown by young people like his son Luis Enrique who is a keen reader of books related to medicinal plants. Yet Benito loved it when I brought botanical books with illustrations to talk to him. He did not have any difficulty identifying plants and commenting on them nor did he object to reading these books in order to learn about other plants.

My first lessons on medicinal plants were given by Mr. Reyes in his own courtyard, with plants he collected during his daily afternoon walks. I sat listening and writing down the names and uses of plants as told by him directly and/or "distilled" from his stories. The first "lessons" were very impressive, not just because of Mr. Reyes' knowledge but also because of the number of plants collected by him. Then we started walking, looking for medicinal plants. He avoided walking around the neighborhood looking for plants. But we visited parks, the Avila national park, construction sites and demolished areas away from the scrutiny of fellow neighbors. On many occasions we were accompanied by his 14 years old grandson Marco Luis. As soon as we started on our walk, Benito pointed out all the plants he knew, useful or otherwise, instead of only highlighting medicinal plants. Even when describing a plant with medicinal properties, he also pointed out what its non medicinal uses were, as well as basic knowledge related to the plant morphology and ecological behavior. My learning rapidly changed from medicinal plants as "*montes*" to wild plants in general, also of course known as "*montes*". Our walks included frequent visits to Benito's relatives' farms outside

Caracas. Here, as in the Saturday market and Chacao market, his teaching included cultivated plants. We also visited medicinal plant stalls in the markets. It was with Mr. Reyes that I began to learn about plants, their properties, uses and the related complex web of cultural ideas.

For example, while walking on a landfill near Pedregal collecting plants Mr. Reyes said to his grandson and me:

"We call this plant *salvia* (*Pluchea odorata*). We boil its leaves and use the water to bathe people with *pasmo*.

We were told that before cutting a branch you have to greet the plant. 'Good morning, lady *salvia*. I request your permission to take some of your leaves, in order to cure a person with *pasmo*'.
After cutting only the leaves you need, you say:
'Enough for today. I will return if I need some more. Thank you very much and good day'.

Do you understand it? That was the old way. Today people cut trees for no reason.

Sap and resins are the blood of plants. When the moon is waning, the sap remains down in the roots then there is not much circulation of sap in the branches and leaves. It is a good time to harvest them because the plant does not bleed. On new and crescent moon, the sap is circulating. By picking a plant's branches, it can bleed to death."

Later before collecting some leaves of *arnica* (*Tithonia diversifolia*) Benito addressed the plant and later us by saying:

'With the permission of this plant, I need these leaves to prepare a tincture.'
'This is used for muscular pains and sprains. It is also drunk as medicinal tea. It is called *arnica*.'

'Mum used to heal with incantations. She used plants too. There were no doctors. That is why I learnt the effects of plants. Today I heal with incantations and plants. I still use plants especially for muscular pain, but I don't use most of them. Today there are manufactured medicines. I heal by praying but I know the medicinal benefits of plants.'

It was thanks to years of listening to Mr. Reyes that I gained some competence talking about plants. This prepared me to engage in conversations with many other people in the neighborhood during the course of my fieldwork.

**Figure 7.2** -Benito Reyes was a faith healer but not an herbalist.

In contrast to the expertise and enthusiasm he confidently displayed for years during these informal lessons, when I communicated my determination to conduct my PhD studies on the subject of plants Mr. Reyes was very dismissive of my choice. He introduced me to the older market vendor of medicinal plants in Chacao, Sra. Virginia, in order to put me in contact with a proper specialist. Sra. Virginia was not an herbalist, but a medicinal plant dealer. At least she deals with medicinal plants on a daily basis as trader. He also tried to dissuade me from doing ethnobotany, on the basis that there was nothing left to study in the community. Hence his idea of sending me to the market to study at the stall of medicinal plants. This was a very common opinion among people inside and outside Pedregal, including fellow academics and the authorities. Pedregal people have long been exposed to urbanisation and modernisation. The traditional lifestyle of the coffee plantations has long been replaced by urban spaces and urban styles. While Benito and many other people used to collect medicinal plants on a daily basis in order to supply urban stalls with medicinal plants, today Pedregal people buy these plants from the stalls of the market (See firegures X and X1). An important factor is the wide availability and use of modern medicine, while in the past people used to rely on domestic healing. Moreover, as a domestic practice these forms of healing came to enjoy a much lower status than the specialist modern medical interventions of the professional sector (Waldstein and Adams 2006: 120).

**Figure 7.3-** Stall of medicinal plants at the Mercado de San Jacinto, Caracas. Circa 1930. Benito and his brothers and sisters collected plants every morning to supply this stall during the 1920s. His fathers sold the produce of his *conucos* at this market.

**Figure 7.4-** Experimental medicinal stall at Saturday Pedregal street market. This stall was used to interview market customers with fresh plant samples. Samples were collected outside the neighbourhood.

The use of plants as medicine has survived while also undergoing drastic modifications through long term exposure to urbanization, formal education and the availability of modern public medicine in Pedregal and Chacao. The continuation of the use of plants for medicinal purposes cannot be explained entirely by issues of poverty and lack of access to modern health services. As mentioned, medicinal plants are collected from the garden of the newly opened General Practice that offers free consultation and medicines. In fact it is a parallel practice to modern medicine. In fact, modern medicine has acted as an important source of renewal of the domestic healing herbal practices. In reality folk-practitioners incorporate or appropriate elements of practice and rhetoric from modern medicine so traditional rhetoric is reshaped by modern medicine jargon, new modern diseases and, manufactured drugs are incorporated into domestic healing practices. People themselves also combine both practices: doctors diagnoses prompt responses that draw on domestic treatments. In other words, medical treatment and herbal/domestic complement one another in people's everyday practice.

As domestic issues, health and health restoration (healing) are primarily individual and family responsibilities. Even with doctors available, people takes an active interest in the restoration of health, by seeking professional and non-professional assistance and resorting to self-medication. Sickness is a family matter. As such it is discussed and dealt with by the family. In the mid nineteen century, referring to the lack of specialist herbalists and the regular practice of self-medication using plants in the Creole health care system the Frech doctor R. De Grosourdy declared that: 'Everybody thinks of himself as a doctor.' (De Grosourdy 1864:37).

People are very aware of the limitations of medicinal plants, just as they are about the limitations of allopathic medicine. Silvia Reyes for example visits her doctor on a weekly basis. While following her doctor's treatments and medication she also self-medicates using plant remedies. She suffers a combination of ailments: high blood pressure, diabetes, liquid retention in the legs and she is also overweight. She sees neither practice as miraculous or as offering a panacea. She joked that if skin reflected what you consume she would look green because of the amount of herbal remedies she has taken. While recognising the limitations of herbal remedies, she is not prepared to give up completely on her own sense of control over her health (or the health of her family) simply delegating this to remote medical specialists. She knows very well the limitations and monetary cost of modern medicine and manufactured drugs too.

The renewal of interest in the qualities and use of medicinal plants and remedies, which includes not just local and traditional plants but also the marketing of global alternative products, is very much to do with living in the modern world. Younger generations also look for other sources of knowledge and while underestimating it, they also actively seek local knowledge (tradition) from parents and grandparents. In fact, a new generation of practitioners actively seeks new sources of information/knowledge as well as new plants in order to address old sickness as well as new ones such as diabetes and cancer. Luis Enrique, one of Benito's sons, and my assistant and main informant during fieldwork, is also a faith healer and has taken over his father's clientele. Luis Enrique is very interested in the subject of medicinal plants and, like his father, he enjoys talking about plants and remedies and engaging in such conversations with his cousins, friends, aunts and other older residents. He also possesses a collection of original books and photocopies of popular literature on medicinal plants. In addition, he also likes recording radio programs dedicated to the issue. He is particularly interested in plants that might be used to treat diabetes as he suffers from its non-hereditary form. In addition to following his prescribed medication Luis Enrique self-medicates with medicinal plants. He shares much of the progress of his treatments with his family and friends. Like many other adults in the neighbourhood Luis Enrique treats himself his diabetes combining manufactured drugs prescribed by doctors and medicinal remedies made at home. These remedies consist of infusions and beverages prepared boiling plant parts, generally leaves, in water. Some plants are prepared and consumed on its own while others are mixed. These beverages are then cooled down and drink normally in mornings and evenings. They are stored in the refridgerator for up to a week. Plants and plant combinations are often alternated in order to avoid side effects. Figure 7.5 presents a list of 27 plants species used by Luis Enrique to treat his own diabetes.

**Figure 7.5** - Plants used by Luis Enrique to treat non-hereditary form of diabetes

| Common names | Families | Scientific names | Parts used |
|---|---|---|---|
| Aguacate | Lauraceae | Persea americana | L |
| Ajenjo | Compositae | Artemisia vulgaris | L |
| Algodón | Malvaceae | Gossypium hirsutum L. (G. Purpurascens Poir.) | L |
| Arnica | Compositae | Tithonia diversifolia (Hemsl.) Gray | L, F |
| Bejuco de cadena | Caesalpiniaceae | Bauhinia cumanensis HBK. | B, T |
| Caña de la india | Zingiberaceae | Costus comosus (Jacq.) Roscoe var. comosus | L, T |
| Coffee | Rubiaceae | Cofea arabica | L |
| Cundeamor | Cucurbitaceae | Momordica charantia L. | L, Fr |
| Cayena | Malvaceae | Malvaviscus arboreus Cav. | L, F |
| Eucaliptus | Myrtaceae | Eucalyptus camaldulensis Dehnh. | L |
| Flor escondida | Euphorbiaceae | Phyllanthus niruri L. | L |
| Granada | Punicaceae | Punica granatum | Fr, B |
| Guaco Morado | Compositae | Mikania guaco | L |
| Guanábano | Annonaceae | Annona muricata L. | L |
| Higo | Moraceae | Ficus carica L. | L |
| Lechoza | Caricaceae | Carica papaya L. | L, S |
| Mapurite | Phytolaccaceae | Petiveria alliacea L. | L |
| Ortiga | Urticaceae | Fleurya aestuans | L |
| Pasote | Chenopodiaceae | Chenopodium ambrosioides L. | L, S |
| Pira | Amaranthaceae | Amaranthus dubius Mart. | L, T, F |
| Salvia | Compositae | Pluchea odorata (L.) Cass. | L |
| Tomillo | Labiatae | Thymus vulgaris L. | L |
| Tuatua | Euphorbiaceae | Jatropha gossypiifolia L. | L |
| Urape | Caesalpiniaceae | Bauhinia megalandra Griseb. | L |
| Verdolaga | Portulacaceae | Portulaca oleracea | L, T |
| Yagrumo | Moraceae | Cecropia cf. peltata L. | L |
| Zábila | Liliaceae | Aloe vera L. | L |

Plant part used: B (bark), F(flowers), Fr (fruits) L (leaves), S (seeds), T (trunk, steam)

During fieldwork Benito Reyes or *tio veneno* (uncle poison), as many knew him, continued to be one of my main informants. At that time his health was deteriorating rapidly as he was suffering a cancer of the oesophagus. It was detected very late and was hard to treat. He took his sickness stoically and never complained. He continued providing information and enjoyed talking about the plant samples we took to his house. He also wrote lists of plants and their uses as a pass time in his bedside. He died peacefully on May 26 2003.

After burying Benito Reyes at midday on a hot and humid day at the beginning of the rainy season, his son Fermin began to laugh standing in front of his father grave. His laugh broke the solemnity of the burial ceremony and the sadness of the occasion to the relief of all of all of us attending it. Fermin pointed out that his father uncle poison (*tio veneno*) has been buried under a poisonous tree. He named the tree as *piñol* (*Jatropha curcas*) and explained its uses. According to his account the seeds of the plant are used as purgative in very low douses. Given in high douses the seeds could be lethal.

Fermin told the story of how his father told him how to use its fruits both as medicine and as poison to kill people. He explained the process of preparation of the poison with great detail from harvesting the seeds to placing on the food of the potential victim. Then he told a real case in which someone from Pedregal, known by everybody at the ceremony, used the poison to kill a reputed bully workmate at the factory of car tires Chacao (in which many local people, including Fermin, were employed.

The *piñol* tree was growing at the foot of the family grave. Many other trees, weeds and shrubs were growing incontrolably in the semi-abandoned plot of the run down cemetery. I was surprised and somehow disappointed, as Benito never told me about that particular tree. In fact, he never mentioned plants used as poisons intended to kill humans to me. A funny feeling accompanied Fermin's comments as I had spent almost a decade learning about plants with Benito. At that moment I realized that Benito always avoided talking to me about drugs, poisons, sorcery and the like. He always refused to answer my related questions by pleading ignorance on these subjects, yet he had told his son Fermin how to use a plant to get rid of his enemies in extreme cases.

Fermin always took any opportunity available to display to me his knowledge of plants. He resented the fact I had chosen his brother Luis Enrique as my collaborator. To add to what I felt having I lost my best teacher and great friend, I was disappointed I was not passed all Benito's knowledge despite my extensive collaboration and, though I was happy that people like Fermin had learnt from Benito and that they were interested on plants despite urbanization. I could see how unevenly plant knowledge could be distributed within a close group of collaborators. This incident somehow was a confirmation that my research was not mere salvage anthropology, but a topic of contemporary interest and practices.

### 5. **The knowledge of Miss Abilia Farfan**

When I began to walk in Pedregal's streets carrying plants and my notebook many people began to make jokes comparing me with Miss Abilia Farfan. "Are you going to take/steal Abilia's place?" they asked me. "Abilia, be aware. This guy is going to steal your job!" they told Abilia. Abilia like myself always took the joke without offence or suspiciousness. She never refused to answer my queries and many times she took particular interest in lecturing me on the use of the plants she was carrying and the particular reason for having collected those plants. She also agreed to collaborate with me, providing information on the samples I collected and never demanded any compensation. While she considered herself to possess an extensive knowledge of plants due to her interest and dedication she did not think about it as specialist's or restricted knowledge. It was experience, in her view, rather than the nature of knowledge than differentiated her from non experts.

Abilia Farfan is 69 years old. She is the only person in Pedregal who closely resembled what is understood as a 'practitioner herbalist'. Almost everybody I interviewed in the community referred to her as the only recognised local expert on medicinal plants. she is not, however, a professional as she does not charge for her advice and sometimes supplies plants for free. Not only does she not charge, but she also provides unsolicited services. She is consulted by people and she will visit sick people after learning of their health problems from others. She collects plants from public spaces and always carries some samples with her. Her conversations are almost always related to issues of sickness and health.

While mostly associated with medicinal plants, Abilia also deals with anything that might be used as remedy. As an expert-specialist-practitioner her knowledge is not limited to the topic of plants, but of remedies (medicine) which includes animals, animal excreta, earth (lime and clay), manufactured medicines, esoteric treatments, magic spells, among many others. She is equally able and willing to deal with problems such as diarrhoea and bad luck. In is important to point out that people divide illnesses according to their origin into naturalistic (*enfermedades naturales* or natural illnesses) and personalistic (*enfermedades postizas* or artificial illnesses). They also divide illnesses, remedies and food into hot and cold.

Abilia did not have any formal training. She did not learn from any professional. She learnt about plants mainly from her mother and sister as much as during many informal interactions with many other people. She did not have any formal education either. She was born at a time when Pedregal began to change and urbanization began to take off. She has always worked as a domestic worker and continues doing ironing on a freelance basis. Despite her reputation, she is constantly ridiculed by educated people and by the younger generations as she is a reminder of the long gone rural past.

6. **Disputed experts**

There is consensus in Pedregal on only one expert in medicinal plants: Abilia Farfan. However, she is not the only one who is knowledgeable about the healing properties of plants or who applies their uses. Apart from Abilia there are very few consistently recognised experts on medicinal plants in the community. In fact, they are all disputed experts. As an informal practice the authority of experts is not based on formal qualifications or training but on reputation within social networks. Expertise is gained through experience and practice, testing common knowledge, and dedication.

The idea of the disputed expert relates to the idea that, in the absence of professionals, there are recognised experts operating within social networks, mainly family and household based, and of limited scope, but the authority of these experts is normally disputed beyond and sometimes within these networks. As such, they are mainly domestic experts. Practitioners who are domestic herbalists are not necessarily or commonly viewed as specialists or experts even by closer relatives regardless of their record of success.

My first contact with the use of plants as medicine in the community dates back to 1992 when I began transferring a film archive on Alejandro Farfan into video format. Working with Alejandro I was introduced to his sisters Abilia and Margarita. They were both actively engaged in the use of plants. Alejandro could not be more dismissive of their knowledge on the issue. By the same token Margarita always made fun of Abilia's public reputation as herbalist.

We have seen that Benito Reyes was not considered, nor did he consider himself to be, an expert herbalist. He was in charge of domestic healing with plants in the house he shared with his daughter and her family. He gave advice to many people in his family mainly women on plants. However neither his sons nor his neighbours considered him an expert on plants. He was a faith healer not an herbalist. His sons were constantly correcting his terminology and explanations. For me it was almost impossible to interview Benito at his house without being interrupted by one of his sons wishing to correct some aspect of Benito's account. For example, on one occasion his son Luis Enrique interrupted his father's explanation regarding edible plants in order to amend it. Benito was classifying all root vegetables under the name 'raices' (roots), following local conventions. His son looking in horror at his father's 'backward' explanation jumped to remark on his mistake and proceeded to enumerate the proper educated nomenclature to refer to different kinds of roots such as tubers, rhizomes, etc. On another occasion, Fermin, another of Benito's sons, accused me of perpetuating local ignorance after I encouraged his father to elaborate on the idea that bats were traditionally thought to belong to the class of nocturnal birds.

Nor did Benito's neighbours give him any credit for his knowledge and expertise despite of being his clients as a faith healer. Benito on the other hand was convinced that he was one of the very few who knew about plants and dismissed any claim of authority that his neighbours made to me during interviews.

### 7. **The patient-healer relationship**

Given that the use of medicinal plants is a domestic rather than a publicly recognised specialism and that the authority and reputation of practitioners begins and, in most cases, ends at the the boundaries of the household, it is fair to say that the patient-healer relationship overlapped with and was encompassed by other kinds of relationship, mainly kinship relations. Practitioners and patients normally belong to the same family and/or social network and the relationship between practitioner and patient is not restricted to healing and it is clearly not a professional relationship. This has several implications for the relationship and indeed for diagnosis and treatment. As a domestic practice this kind of healing involves the participation of all the family playing the roles of patient-practitioner-helpers-witnesses. As a result knowledge about the specific case and, significantly, about the treatments and the plants selected, prepared and applied is widely shared rather than restricted to single individuals. Therefore claims to monopolizing knowledge and skills and to expertise are difficult to sustain. Much knowledge and especially much practice on the use of medicinal plants are gained playing domestic roles other than that of herbalist. This means that even sickness produces knowledge: being sick places a person in a position of exposure to knowledge and practice relating to their own treatment. Having to help with sick, elderly or frail people also entails learning about these practices. Furthermore, informal conversations and general discussions about people, about diseases and about specific cases, conditions and ailing persons also provide opportunities for family and friends to gain insights and 'expertise'. In other words, the sharing of knowledge and 'expertise' cancels out potential claims of single individuals to fulfilling the role of 'expert'.

Nevertheless, domestic practitioners are also unspecialised experts: they do need to master knowledge and skills, and they are expected to and required to be experts or at least to have a command of many domains at specific moments. There are continuities between the knowledge and skills relating to the use of medicinal plants in the household and other domestic tasks such as cooking, laundering and child rearing. As such, it is an informal and unstructured practice carried out alongside many other unrelated activities and tasks of the household and there is not a specific or exclusive place or time dedicated to this activity. It takes place in the kitchen, toilet, and bedroom. The collected plants are stored in the laundry area or hung to dry in the kitchen. Remedies are prepared in the kitchen at the same time as the meals, perhaps while watching soap operas. And consumption of remedies takes place anywhere within the space of the home.

As a result, domestic experts on medicinal plants tend to be active grandmothers or mothers who are also responsible for running of the households. But as we have seen there are also men and childless women in some households who act as domestic practitioners using medicinal plants - sometimes they also take charge of the rest of the household activities. As a domestic issue knowledge of medicinal plants is widespread in the population but its practice is restricted to persons in charge of running the household (mainly women). As a result, the gap between practitioners and lay people regarding knowledge of plant identification and uses is narrow but there are nevertheless significant differences with regard to putting that knowledge into practice. There are also important differences between practitioners and other members of the household based on levels of interest and experience.

Plant remedies, like cooking, are learnt mostly at home. Luis Enrique Reyes, like his father, claimed that his knowledge was learned at home from women. In the case of Luis Enrique, he claims to have learnt it mainly from his maternal grandmother rather than from Benito. Benito on the other hand allegedly learnt about healing plants from his mother. Benito described his mother as more than a mere domestic practitioner as her expertise was sought after by other members of her family and community. For her part, Abilia also claimed to have learnt her skills from her mother.

### 8. **Sharing and innovating knowledge**

As previously mentioned the lack or severe shortage of widely recognised expert practitioners suggests that knowledge of medicinal plants is not a separate, distinct domain of specialist knowledge with restricted access. Instead, it is knowledge that is widely disseminated and shared as part of domestic life. Because of this, knowledge circulates freely and informally and, up to a point, anyone can claim authority on the topic until it is contested by someone else. Doing fieldwork, privately almost everybody wanted to provide information for my research. But in public these same people who had been keen to share their knowledge with me when talking on a one to one basis, assumed a more humble approach regarding their authority for fear of being contested by others. For example, few people outside his own domestic compound believed Benito Reyes possessed much knowledge of plants or considered him a specialist on the issue despite him being a faith healer. Nino Hernandez for one did not believe in Benito's authority on the issue until I displayed my knowledge (mostly learnt from Benito) during our first formal interview at his home. On the other hand, he was very eager to establish his own authority by publicly displaying his knowledge of plants. Once he forced me to interview him quizzing him on forty different specimens, on a street corner in front of an audience of 10 friends. I was conducting this test formally and in private. But he wanted to be tested in public to prove his knowledge in front of his friends. His friends expressed a very limited knowledge and themselves recognised only a few samples, but they nevertheless made a mockery of Nino's attempts to proclaim his authority on medicinal plants. I did notice though that while laughing at

Nino, some of his friends were paying careful attention to Nino's explanations. So, as the authority of domestic practitioners is almost entirely restricted to the household and the family network, any attempt to state authority beyond the domestic realm is risky. Not only can the individual making a claim to authority in the matter of plants face criticism or even ridicule, she/he is also giving for free the information on which the claim of authority is based. So ironically, the very claims to authority and to having somehow special or additional knowledge or skills enhances the circulation of already known information as well as the dissemination and sharing of recent knowledge innovations and plant introductions. In the end, there is a widely shared and free circulation of knowledge. But while knowledge is freely exchanged, plants are not. They are subject to restricted exchange along formal and informal networks. There is no property claims regarding knowledge, but property in relation to objects, in this case plants, is another matter.

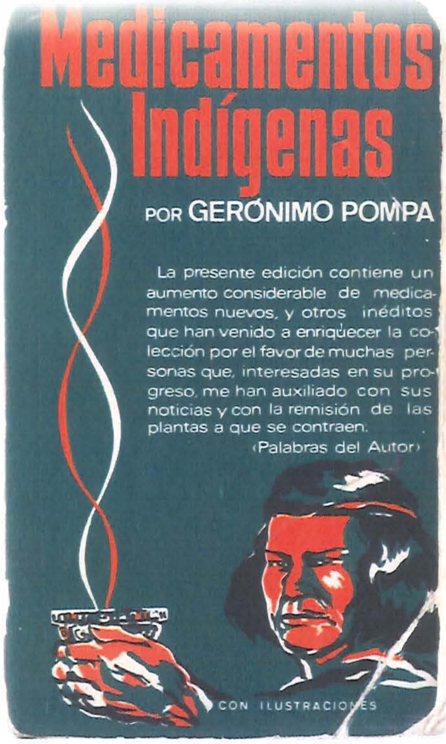
**Figure 7.6** -Interviewing Sra. Felicia Garcia on her way shopping at Pedregal Saturday market.

Most information in my research on the uses of plants was generated by asking my collaborators to name and talk about the uses and knowledge of specific plants in-situ, such as gardens, or using fresh or dry plants samples I had previously collected. Many interviews were carried out in private in the houses of my collaborators individually.

Other interviews were carried out in public and, in many cases, many people took part in them (See figure 7.6 and 7.7). While some people expressed reservations about the nature and value of the information provided on the grounds that it was colloquial and uneducated none refused to provide information because they considered it restricted or for fear of appropriation without acknowledgment. In addition to providing information about the plants I showed them to elicit their response, many people suggested other plants that were not included in my samples. Some people supplied samples of the plants they suggested to include in my inventory. They also suggested other people as possible collaborators for further interviewing. Some also proudly showed me some of their books on the issue (see figure 7.8).

**Figure 7.7** - Interviewing Sra. Ana Laura Dorta using herbarium vouchers during an exhibition of our research. Casa de la Cultura de Chacao.

What is central here – and unsurprising given the arguments above – is that during these conversations plants did not only or mainly elicit comments and explanations regarding their medicinal uses. They also produced stories about people. In fact, it was often the case that the two were inextricably linked: the stories of plants related to the stories of plant uses and the stories of the people who used them.



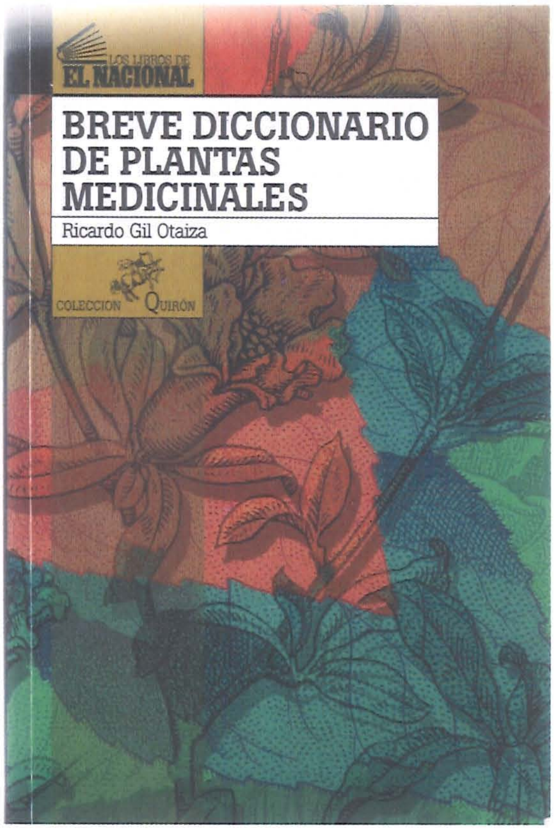



**Figure 7.8** - Two examples of popular books on medicinal plants used by neighbours of El Pedregal. Medicamentos Indigenas by Geronimo Pompa was first published in 1868. It has been published 42 times. Breve Diccionario de Plantas Medicinales by Ricardo Gil Otaiza was published in 1999.

In general, when talking about plants people resorted to generalisations (or rather impersonal knowledge) when the information seemed too obvious or when in doubt about its accuracy. Otherwise, knowledge of plants as remedies is passed on and remembered alongside – or as part of - the stories of people, particularly those cases where there are known positive results. It is more the case that the people interviewed and engaged with in my research avoided resorting to generalisation (abstract knowledge) rather than it being the case that they are incapable of doing so. For example, an explanation on the following lines: "Pedro Luis used *zabila* (*Aloe vera*) to heal his haemorrhoids by making frozen suppositories from its crystals" is much more common than the more general: "*zabila* is commonly used to heal haemorrhoids by making frozen suppositories with its crystals". By linking stories of known people to particular properties of plants the authority of knowledge is based on real cases rather than on standardized inventories or formal accounts. Claims of authority are therefore based on relating that authority of knowledge to someone (particular) else rather than relating it back to the speaker him or herself or his or her individual qualities or knowledge. A kind of impersonal knowledge (attributed to someone else) is thus always linked to personal knowledge (stories of people that you personally know or people you know about). Rather than attributing authority to an expert or to the speaker himself it is given instead to concrete, known examples of successful outcomes. Success is assessed on the basis of known examples, focusing on specific practices and empirical results rather than expertise itself.

So far we have characterised the use of plants as medicine as a domestic practice where the lack of agreement on what is an expert and who are the experts results in the unrestricted circulation of information and expertise. Such an informal and therefore unregulated practice is very dynamic and involves a large idiosyncratic component, essential for experimentation. It entails trial and experimentation and a lot of failure. It is also subject to external influences as sources of information are not controlled or regulated. Information/knowledge circulates along formal and informal social networks. Sources of information are not fixed or vertical but disparate and horizontal.

"You are doing a research on medicinal plants and you haven't heard about *Noni*? Has someone mentioned it to you yet?" Rodolfo Farfan was annoyed that I was unaware of the existence of *Noni* as it was one of the fashionable remedies being marketed by the alternative medicine global industry. He explained:

> "*Noni* is the new medicinal panacea. It is good for you, for everything. Everybody is talking about Noni. It is good for cancer. The Internet is full of references to this plant. Its power is amazing. An American went to some island in the Pacific and saw how the locals use it for many dietary and medicinal purposes. He then took the plant to Hawaii and commercialized the juice. He is multimillionaire. It is sold all over the world. I used to sell it here. I was a sale representative of the product. Its scientific name is *Morinda citrifolia*...The bottle is very expensive but you notice the difference very quickly. The tree grows locally and it is possible to use the fruit to prepare its juice ..."

*Morinda* is now grown locally in private gardens. It is of recent introduction or at least it is not reported by Pittier in his 1926 records. But under the name of *morinda* it is included in both Hoyos' volumes on fruit trees of Venezuela and trees of Caracas (1994). Its fruit is not popular, and it is not commercialized as a fresh fruit. It is considered an ornamental more than a fruit tree. However, the connection between the bottled Noni juice and the naturalized *morinda* tree is spreading fast among the community. Some people are now experimenting with the fresh juice especially to treat diabetes, cholesterol and hypertension. The global popularity of this plant helps to swallow an otherwise unpalatable fruit, providing it with an authority as a medicinal plant that was, until recently, ignored.

The case of *Noni* juice and the *morinda* plant illustrates the fact that traditional local knowledge is not privileged over external influences and foreign remedies. In fact, it is important to stress that the frame of reference of the practice discussed in this thesis is not only local or even regional, but also has a global dimension. Eclectically perhaps, practitioners borrow from different and sometimes competing sources. This is an open system of knowledge and an open system of practice rather than a closely guarded and well kept closed tradition. There is a disposition towards accepting what promises to be useful, a perceived need to innovate and borrow and a constant search for information, including new forms and sources of information. The aim is to overcome failure and the limitations of a domestic practice (and, as we have seen, biomedical practice as well). The apparent keepers of tradition turn out to be producers of a reconstituted practice in constant renewal.

### 9. **Local objections to inventory making**

'Everybody' has something to say and everybody talks about plants and their medicinal properties. But it is only experienced practitioners who highlight the problems of using plants as medicine rather than merely celebrating their virtues.

While Abilia Farfan never refused to provide me with information she was worried about the idea of making an inventory of medicinal plants. Several times she warned me of the dangers of producing an inventory. "You are going to poison a lot of people" she said to me. Abilia's main concern was that plants were not like manufactured medicines. Plants normally do not act as specifics but affect many parts and processes of the body at the same time. As a result there are many uses for each plant at the same time that each disease can be treated using a wide repertory of plants. In addition, as each plant has a different concentration of components according to the time of year, soil composition, humidity, among other factors, the application of the knowledge regarding plants is extremely complex and at the same time specific. There is no secure way of establishing proper amounts of plant material to be used for remedies or remedy dosages. Moreover, each person reacts differently to each plant. Abilia's view was that, based on her experience, these observations make the standardization of knowledge of medicinal plants (correspondence plant-disease) misleading rather than helpful.

Abilia's concerns relate in some respects to the earlier discussion regarding the Mexican situation, where herbalists are concerned about the publication of plant inventories as they render redundant their role as specialist herbalists. While one danger is that inventories bypass herbalists by putting specialist knowledge in the public domain there is also the question of the risks entailed in cutting out the herbalists' mediating relationship vis a vis the patient and the plant-remedy. Herbalists diagnose, prescribe and advise on healing through eye-to-eye interaction that can not be replaced by written indications such as inventory entries (Ugent D 2000; Nicholson & Arzeni 1993). Abilia's concerns with the effects of documenting and compiling or formalisation of traditional knowledge did not emphasise the value of specialists practitioners and the dangers to them or their patients if they are left out of the healing circuit. Instead, Abilia highlighted the importance of testing plants by each individual before committing to a treatment in order to establish tolerance to the plant as well as plant efficacy, in other words, a careful, attentive relationship with the plants and with the patient and healing and health as processes.

Though not defending expertise as such, Abilia's comments do stress the importance of 'know-how' of this otherwise domestic practice such as testing the reaction of each person to the plant selected as cure before engaging in a regular treatment. According to Abilia herbalists know about plants but not about individual's reactions to them. He/she may know how to diagnose particular sickness too, and even know the patient very well, but that does imply they have the capacity or means to predict the effect of a treatment on each individual. In Abilia's view it is not the relationship between the healer/herbalist and patient but the relationship between the 'patient'/sick person and the plant(s) chosen that is most important: the empirical testing of diagnosis and treatment. For example, while I interviewed using a formal sample, Felicia responded with the voucher sample of *cundeamor* (Momordica charantia) saying that it was the best remedy to treat diabetes and hypertension but added that she herself was not able to use it, in spite of suffering from these illnesses, as this plant affects her badly.

Abilia explained that when commencing a treatment using a plant(s) not previously taken by the sick person it is crucial to test the new medicine before starting a regular treatment. Small (and diluted) dosages are taken at the beginning, leaving long intervals between doses in order to check body reactions to the remedy. Careful observation of the person's response to the plant treatment suggests how to proceed. If tolerated, the dosage is increased and treatment starts on a regular basis. In the case where the plant is not tolerated, another plant is chosen and testing begins again, as described.

Once the treatment commences, the process is far from being predictable and straight forward. Plants are taken individually or in combination to deal with a particular complaint. Treatments using the same remedy (medicinal preparation which contains plants among other things) are limited to short periods to prevent side effects and loss of efficacy of treatment. Treatments are sometimes stopped even when people are not fully recovered in order to avoid secondary effects. There are periods of resting when no remedies are taken, after which further treatment commences, preferably using different plants.

For all these reasons Abilia considered that standardization leads to simplification and error. She is against generalizations as they are misleading: general indications (such as correspondence plant-use) are not universally valid. She favours practice and experimentation rather than, common or specialised, knowledge and experience. And her practice is focused on the individual person, and his/her complaint, but also their specific reactions to each plant remedy. And again, her practice is based on healing as a process, with possible shifts, interruptions and changes of direction in response to the specifics of each case.

## 10. **Conclusion**

The local practices of herbalists have survived urbanization and the introduction of modern medicine. In fact, there is a renewal in the use of and interest in medicinal plants and remedies, not just local traditional remedies but also including the marketing of industrial global alternative products. The introduction of new plants and other remedies into the local phytotherapies and the influence of New Age alternative and complementary medicine and healing constitute new sources of renewal and innovation of domestic practices. Rather than threatening and displacing local plants, knowledge and practices these new introductions contribute to maintain such local dynamic processes and enhance plant repertory. Plants continue to play an important role in the maintenance and restoration of health along with manufactured drugs and medical interventions and, new age practises and remedies. Domestic practices and specialised ones –healers and professional doctors- coexist and interact as part of different and sometimes overlapping sectors of the local health care systems.

While practices of phytotherapy remain relevant in a urbanised environment, even before urbanization the same practices have being viewed as a dying traditions threatened by both lack of specialists and external influences. As such they have always been described in negative terms as degenerated, corrupted and non-traditional. The survival of these domestic practices suggest that they may be understood in a more positive light as open and dynamic systems capable of generating answers to new social and ecological demands.

## Conclusions

This thesis has provided an account of the practices and the schemes of knowledge of the people of El Pedregal, especially as they pertain to the natural environment, specifically, the plant environment. It attempts to describe and analyze the architecture of the complex historical relationship between plants and people.

The thesis sets out the characteristics of an area that ranges from the urban to the rural – from El Pedregal to the valley of Caracas, notably the Avila National Park. Although the spatial regime has transformed radically over the years, an important unifying and stable referent, identified in the written historical records and in the oral accounts of my informants, is seasonality. My exploration of the historical data and the contemporary accounts of my informants suggest that despite significant changes in the seasonality of the area and in the perception of this seasonality, it still provides or constitutes a focal notion that provides a framework within which folk knowledge is articulated and rearticulated. Notably, with the lengthening of the dry summer season, there has been a simplification of the categories available to mark the annual cycle of seasons. A direct consequence of this has been a decrease in the detail and subdivisions that characterised earlier representations of the climate, a shift towards what might be described as a dual system (wet/dry, winter/summer).

The climatic changes can be – and are - attributed to some extent to the changes in the landscape. The central factor here is increasing urbanization to the detriment of green spaces. However, my account shows that this loss of green space is not evenly distributed. For example, the Caracas Country Club, a haven for the wealthier sectors of Caracas society, has been able to preserve earlier vegetation, for example plantation trees, and replicate a tropical forest-like environment. As I also show in chapter 6, there is evidence of small but meaningful acts of resistance, for example those revealed by the green on balconies and in private spaces of homes and patios.

The simplification of the climatic scheme is, importantly, also a product of changes in life-style, work and overall relationship with the environment. Living and working in an urban environment, there is a much lower dependence on weather changes and seasonal patterns. Cycles of production, and the economy in general are perceived as being divorced from the natural environment, thus requiring a lower level of engagement with, and understanding of, natural cycles. The discussion regarding changes in seasonality concludes that, given the lack of reliable scientific information, the best approach to understanding the transformations is through charting the changes in perceptions and forms of representation expressed through local cultural models. Informants' narratives and life stories provide invaluable insights into the changes themselves and the changes in the representations through which the climate is understood or described.

Finally, when approached as part of the landscape, the seasonal periodicity of Caracas can be understood at least in part as the outcome of the historical relationship between its local society, the local environment and the articulation of both into broader social and ecological world systems. Like the landscape in general, the local climate landscape, cannot be understood as if it is seen as part of a natural setting. Instead, it is the outcome of a dialectical relationship between society and the environment (Balée 1998). This in turn, strengthens the earlier point about the centrality of local cultural models and local knowledge systems.

My discussion of the Palmeros' pilgrimage in Chapter 4 raises issues of change and continuity and indeed the relationship between the two. So, the Palmeros' efforts to preserve their pilgrimage, against mainstream views regarding conservation – and policies aimed at preserving the environment – have been successful. However, these efforts have in turn implied or brought about significant changes to the pilgrimage and its meaning. In particular, some areas of knowledge such as palm pruning, have been entirely re-invented in order to fit into a conservationist discourse and to keep within the boundaries of legality. These changes do not prevent the Palmeros from claiming that they are traditional practitioners, enacting a historical ritual. It is these claims that grants them authority and legitimacy and have been invaluable in their struggle against local and national authorities and conservationist groups. The Palmeros' efforts to present themselves as conservationists themselves, implies an enormous amount of change and renewal in their practice, illustrating their capacity for change, adaptation and innovation within the parameters of local practice and understandings. Moreover, the Palmeros pilgrimage can be taken as an example of processes of renegotiation of concepts such as nature, tradition, traditional knowledge and modernity which have attracted much anthropological attention. These processes include transfer of ideas and images between actors and contexts as well as the political mobilization of such notions.

It is interesting to note that the pilgrimage focuses on the palm (*Ceroxylon ceriferum*). The palm, a sacred symbol used in Catholic ritual during the Easter festivities, becomes through the pilgrimage a symbol of resistance of the Palmeros and of cultural identity for the people of El Pedregal. It is important that the palm used during the annual pilgrimage belongs to the *Ceroxylon ceriferum* species, which only grows in high altitude forest environments – in the Avila National Park. So the pilgrimage has guaranteed the preservation of ecological knowledge and maintained a strong relationship between people and the environment, in an otherwise urbanized milieu.

Chapter 5 describes in some detail some of the knowledge of the environment that is still current among informants in El Pedregal. The account does not reflect a single view or scheme of understanding. Rather, the account is the outcome of a careful process of collating different fragments of knowledge, provided by a number of informants. Nevertheless, informants were able to recognize this information, regardless of what had been their own specific contribution to it. It is important to point out that this knowledge is not simply a result of an historical 'heritage' but it is also the outcome of an active interaction with the environment, through the pilgrimage as well as the relocation of older residents of El Pedregal to the outskirts of the city. Family contacts between the urban dwelling Pedregaleños and their relatives who are now living in a more rural environment are frequent. Overall, it is noteworthy that the people of El Pedregal do not conceptualize the natural environment as somehow separate and external to them, even though everyday life takes place in a built environment.

In fact, as chapter 6 illustrates, within this built environment, the domestic space provides the main setting for a continued interaction between people and plants. In the domestic environment plants and people share an intimate space. Relationships between plants and people involve caring, knowledge and communication (in that people talk to and 'read' their plants). But this intimacy also carries dangers for people and plants since it makes both vulnerable to envy, the evil eye and other negative forces. It is as though plants become part of the dynamics of social interaction. The opposite is also true since individuals will give plants and cutting, not on request, but when such things are seen to be needed, as in the case of illness. Similarly, plants mark out the boundaries of the household, with some plants seen as protectors of the household.

Plants in the domestic space are valued for various reasons: they may have aesthetic, curative, or protective qualities. Caring for them demands knowledge of the plants and of the micro-environment of the domestic space. A good carer is praised – a bad one, identified by the poor state of his or her plants, is disapproved of. A good carer has knowledge and experience. Nevertheless, it is interesting that this urban population has maintained and developed a number of maintenance strategies, such as the shaded garden (with certain parallels with the tropical rural garden) that do not require the amount of work needed to maintain lawn-based and flower-bed gardens. These are the preferred forms amongst the people of Pedregal. Gardens or patios are both places of conservation and of innovation, as local biodiversity is retained and new species are introduced and experimented with. The domestic space is not restricted to domestic plants: wild species flourish here and they are protected and encouraged to do so by the keepers. Weeding is not a concern for these gardeners. Some wild plants are also intentionally cultivated to compensate for their disappearance from the urban public space. The majority of wild 'cultivated' plants are appreciated for their culinary and medicinal properties.

Wild plants are considered to be stronger and have more powerful healing effects. But the number of plants used for medicinal purposes includes many cultivated or domestic plants as well as many wild ones. To understand the different properties of these species requires a great deal of knowledge and, many healers would argue, experience. Within the urban environment the domestic space, as chapter seven shows, is not only a place for the conservation and experimentation of biodiversity, but also a key space for practices related to ethnobotanical knowledge. This knowledge is practiced and transmitted largely in the domestic space, in the context of the family. The context of intimacy in which the healing practices take place mean that the knowledge is part of other sets of understandings and other practices related to the household, for example cooking, cleaning and caring for the young or the old. This also means that this knowledge is widely available and dispersed in the community rather than being the privileged property of an individual or group. In the current climate of environmental crisis and scientific specialization and the compartmentalization of knowledge, the ethnographic account of the people of El Pedregal illustrates a case where the circulation of knowledge rather than its accumulation is promoted.

It is important to note that the framework of reference of this domestic knowledge is not domestic or local, but global. The emphasis on newly introduced plants and knowledge, including literature of medicinal plants, points to the existence of a much broader referential framework rather than to the demise of the local systems of knowledge. The conservation of local knowledge and practices, indeed of tradition itself, entails transformation, renewal and change, as a condition of the possibility of the survival of these systems of knowledge. Distinctions such as local and global, public and private, wild and domesticated, tradition and modernity are constantly challenged and transgressed. Since systems of knowledge are intertwined with the dynamics of socio-cultural contexts, as this account points up, the resilience of these systems and practices are based on their capacity to change.

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**Apendix:**

**An inventory of plants with medicinal uses identified from the herbarium collection made during fieldwork.**

A total of 211 voucher samples were collected during fieldwork. The plants were collected accompanied by a collaborator(s) who identified the plants and talked about their uses and related information. A total of 19 collaborators participated directly in collecting the samples to make the herbarium collection. Voucher samples were collected at gardens (56), parks and plazas (29), unmanaged plots inside the city (56) or markets (70). Most plants from the market were bought at the medicinal stall run by Sra. Virginia, the oldest medicinal plant vendor at the Chacao Municipal Market. Voucher samples were deposited and identified at the Herbarium Ovalles, Facultad de Farmacia, Universidad Central de Venezuela. Voucher samples were identified by Dr. Stephen Tillett, former director of the Ovalles Herbarium. Once dried, each voucher sample was identified by at least two collaborators. One copy of the collection was used for interviewing during fieldwork. This copy is kept by my collaborator Luis Enrique Reyes in Pedregal. Another copy of the herbarium collection was deposited at the Ovalles Herbarium.

The following table presents a list of plant species identified from the herbarium collection including information on the botanical family, genera and species. There is also information elicited from my collaborators regarding folk-names and life-forms of the plant identified. This part follows the nomenclature of Berlin (1992): Folk-generic, folk-specific and folk-varietal.
Pedregal people discriminate life-forms into four categories: tree (*arbol*), shrub (*arbusto*), vine (*bejuco*) and herb (*hierba, yerba).*

There is also information regarding the origins of the plants mentioned.
Introduced plants are indicated with the character '*'.
Cultivated plants are indicated with the character '+'.

The table also indicates other uses in addition to medicinal uses. These uses are divided into the following groups:

F (food including food additives and beverages)

FF (famine food)

M (medicinal including beauty care)

O (ornamental)

R (resin)

AF (livestock food)

C (construction material. Timber not included)

B (boundary marker)

T (textile)

D (detergent)

P (protective)

L (luck)

D (drug)

G (gum)

| Familia | Genera | Species | Folk-generic | Specific | Varietal | life form* | Origin | Domesticated | Other Uses |
|---|---|---|---|---|---|---|---|---|---|
| Acanthaceae | *Bravaisis* | *integerrima* | *Naranjillo* | | | t | | + | O |
| | *Justicia* | *pectoralis* | *Curía* | | | h | | + | L |
| | | *secunda* | *Sangría* | | | h | | | |
| | *Ruellia* | *tuberosa* | *Yuquilla* | | | h | | | |
| 02 | | | | | | | | | |
| Agavaceae | *Agave* | *cocui* | *Cocui* | | | s | | | T |
| | *Furcraea* | *foetida* | | | | s | | | F, T |
| | | *humboldtiana* | *Maguey Cocuiza* | | | s | | | T |
| 03 | | | | | | | | | |
| Amaranthaceae | *Alternanthera* | *bettzichiana* | *Te de jardín* | | | h | | + | O |
| | | *dentata* | *Curía de jardín* | | | h | | + | |
| | *Amaranthus* | *dubius* | *Pira* | *dulce* | | h | | | F, AF |
| | | *hybridus* | | | | h | | | F, AF |
| | | *sp.* | | | | h | | | F, AF |
| | | *spinosus* | | *brava* | | h | | | F, AF |
| | *Celosia* | *argentea* | *Amaranto* | | | h | | + | O, F |
| | *Pfaffia* | *iresinoides* | *Valeriana* | | | h | | | AF |
| 04 | | | | | | | | | |
| Anacardiaceae | *Mangifera* | *indica* | *Mango* | | | t | * | + | F, O |
| 05 | | | | | | | | | |
| Annonaceae | *Annona* | *muricata* | *Guanábano* | | | t | | + | F |
| | *Xylopia* | *aromatica* | *Fruta de burro* | | | t | | + | |
| 06 | | | | | | | | | |
| Apiaceae | *Hydrocotyle* | *umbellata* | *Paraguita* | | | h | | | |
| 07 | | | | | | | | | |
| Apocynaceae | *Catharanthus* | *roseus* | *Buenas tardes* | *blanca* | | h | * | + | O |
| | *Lochnera* | *rosea* | | *morada* | | h | * | + | O |
| | *Nerium* | *oleander* | *Rosa de berbería* | | | s | * | + | O |
| | | | | | | | | | |

| Familia | Genera | Species | Folk-generic | Specific | Varietal | life form* | Origin | Domesticated | Other Uses |
|---|---|---|---|---|---|---|---|---|---|
| Apocynaceae | *Thevetia* | *peruviana* | *Retama* | | | t | | + | O |
| 08 | | | | | | | | | |
| Araceae | *Xanthosoma* | *violaceum* | *Fortuna*<br>*Malanga*<br>*Turiara* | | | h | | + | O, P |
| 09 | | | | | | | | | |
| Asclepiadaceae | *Asclepias* | *curassavica* | *Yuquillo* | | | h | | | |
| 10 | | | | | | | | | |
| Bignoniaceae | *Crescentia* | *cujete* | *Totumo* | | | t | | + | FF, O, C, B |
| 11 | | | | | | | | | |
| Boraginaceae | *Cordia* | *polycephala* | *Cariaquito* | | | h | | | L |
| | *Heliotropium* | *angiospermum* | *Rabo de alacrán* | *pequeño* | | h | | | |
| | | *indicum* | *Rabo de alacrán*<br>*Borrajón* | | | h | | | |
| 12 | | | | | | | | | |
| Bromeliaceae | *Ananas* | *comosus* | *Piña* | | | s | | + | F |
| 13 | | | | | | | | | |
| Cactaceae | *Opuntia* | *ficus-indica* | *Tuna* | | | s | | + | F, B |
| | *Selenicereus* | *inermis* | *Rabo de iguana* | | | s | | | O, P |
| 14 | | | | | | | | | |
| Caesalpiniaceae | *Bauhinia* | *cumanensis* | *Bejuco de cadena* | | | v | | | |
| | | *megalandra* | *Urape*<br>*Casco de vaca*<br>*Una de vaca* | | | t | | | O |
| | *Brownea* | *macrophylla* | *Rosa de montaña* | | | t | | | O |
| | *Cassia* | *moschata* | *Cañafistola* | | | t | | + | F |
| | *Hymenaea* | *courbaril* | *Algarrobo* | | | t | | + | F, O, R |
| 15 | | | | | | | | | |
| Cannaceae | *Canna* | *generalis* | *Capacho* | *blanco* | | h | | | FF, O |
| 16 | | | | | | | | | |
| Capparidaceae | *Capparis* | *spinosa* | *Clavellina* | | | h | | | |
| 17 | | | | | | | | | |
| Caprifoliaceae | *Sambucus* | *canadensis* | *Sauco* | | | t | | + | O |

| Familia | Genera | Species | Folk-generic | Specific | Varietal | life form* | Origin | Domesticated | Other Uses |
|---|---|---|---|---|---|---|---|---|---|
| 18 | | | | | | | | | |
| Caricaceae | *Carica* | *papaya* | *Lechoza* | | | s | | + | F |
| 19 | | | | | | | | | |
| Chenopodiaceae | *Chenopodium* | *ambrosioides* | *Pasote* | | | h | | + | F, L |
| 20 | | | | | | | | | |
| Commelinaceae | *Phaeosphaerion* | *efoveolatum* | *Suelda consuelda* | | | h | | | |
| 21 | | | | | | | | | |
| Compositae | *Ageratum* | *conyzoides* | *Rompezaragüelo* | | | h | | | L |
| | *Ambrosia* | *peruviana* | *Altemisa* | | | h | | | |
| | *Artemisia* | *vulgaris* | *Ajenjo* | | | h | * | + | F |
| | *Bidens* | *pilosa* | *Pincuo*<br>*Amor seco*<br>*Flor seca* | | | h | | | |
| | *Emilia* | *coccinea* | *Colmillo de León* | | | h | | | |
| | *Eupatorium* | | *Pebete* | | | s | | | |
| | | *urticoides* | *Cruceta* | *morada* | | s | | | |
| | | *odoratum* | *Crucete* | | | s | | | |
| | *Matricaria* | *recutita* | *Manzanilla* | | | h | * | + | F |
| | *Mikania* | *guaco* | *Guaco* | *morado* | | v | | | |
| | *Parthenium* | *hysterophorus* | *Escoba amarga* | | | h | | | |
| | | | *Abrecaminos* | | | h | | | L |
| | *Pluchea* | *odorata* | *Salvia* | | | s | | | F |
| | *Porophyllum* | *macrocephalum* | *Namú* | | | h | | | |
| | *Porophyllum* | *ruderale* | *Namú* | | | h | | | |
| | *Psila* | *trinervia* | *Pebete* | | | s | | | |
| | *Sonchus* | *oleraceus* | *Cerraja*<br>*Diente de león* | | | h | | | F |
| | *Tagetes* | *erecta* | *Clavel de muerto* | | | h | | + | D, P |
| | *Tithonia* | *diversifolia* | *Arnica* | | | s | | | |
| | *Tridax* | *procumbens* | *Voladora* | | | h | | | L |
| | *Vernonia* | *brasiliana* | *Palotal* | | | s | | | |
| | | | *Rompezaragüelo* | *morado* | | h | | | L |

| Familia | Genera | Species | Folk-generic | Specific | Varietal | life form* | Origin | Domesticated | Other Uses |
|---|---|---|---|---|---|---|---|---|---|
| Compositae | | | *Cruceta* | | | s | | | |
| 23 | | | | | | | | | |
| Crassulaceae | *Kalanchoe* | *pinnata* | *Colombiana*<br>*Libertadora* | | | h | | + | |
| 24 | | | | | | | | | |
| Cruciferae | *Brassica* | *juncea* | *Mostaza* | | | h | * | | F |
| | *Lepidium* | *virginicum* | *Mastuerzo* | | | h | | | |
| | *Nasturtium* | *officinale* | *Berro* | | | h | * | + | F |
| 25 | | | | | | | | | |
| Cucurbitaceae | *Cucumis* | *anguria* | *Pepino* | *sabanero* | | v | | | F |
| | *Cucurbita* | *moschata* | *Auyama* | | | v | | + | F, P |
| | *Luffa* | *operculata* | *Estropajo* | | | v | * | + | F, C |
| | *Momordica* | *charantia* | *Cundeamor* | | | v | | | F |
| 26 | | | | | | | | | |
| Cyperaceae | *Cyperus* | *rotundus* | *Corocillo*<br>*Coquino* | | | h | | | F |
| 27 | | | | | | | | | |
| Elaeocarpaceae | *Muntingia* | *calabura* | *Majagüillo* | | | t | | | |
| 28 | | | | | | | | | |
| Equisetaceae | *Equisetum* | *giganteum* | *Cola de caballo* | | | h | | | |
| 29 | | | | | | | | | |
| Euphorbiaceae | *Acalypha* | *alopecuroidea* | *Destrancadera* | | | h | | | |
| | *Cnidoscolus* | *aconitifolius* | *Amansaguapo*<br>*Lechoso*<br>*Chaya brava* | | | s | | + | FF, L |
| | *Euphorbia* | *hirta* | *Boquera* | | | h | | | |
| | | *glomerifera* | *Espanta mavita*<br>*Hierba de boca* | | | h | | | |
| | | *tirucalli* | *Lecherito*<br>*Palitroque* | | | s | | | O |
| | *Hura* | *crepitans* | *Jabillo* | | | t | | | O |
| | *Jatropha* | *gossypiifolia* | *Tuatua* | | | s | | + | |
| | *Phyllanthus* | *niruri* | *Flor escondida* | | | h | | | |
| | | | | | | | | | |

| Familia | Genera | Species | Folk-generic | Specific | Varietal | life form* | Origin | Domesticated | Other Uses |
|---|---|---|---|---|---|---|---|---|---|
| Euphorbiaceae | *Ricinus* | *communis* | *Tártago*<br>*Higuereta* | | | s | | | |
| 30 | | | | | | | | | |
| Geraniaceae | *Pelargonium* | *graveolens* | *Aroma rosa* | | | h | * | + | O |
| 31 | | | | | | | | | |
| Gramineae | *Andropogon* | *ischaemum* | *Espadilla la India* | | | h | | | |
| | *Cymbopogon* | *citratus* | *Malojillo* | | | h | * | + | F |
| | *Eleusine* | *indica* | *Pata de gallina*<br>*Guarataro* | | | h | | | |
| | *Melinis* | *minutiflora* | *Capin Melao* | | | h | * | | |
| 32 | | | | | | | | | |
| Labiatae | *Coleus* | *amboinicus* | *Oreganón,*<br>*Oregano orejón* | | | h | * | + | F |
| | *Hyptis* | *suaveolens* | *Mastranto* | | | s | | | |
| | *Marsypianthes* | *chamaedrys* | *Cariaquito morado* | | | h | | | F |
| | *Mentha* | *piperita* | *Menta criolla* | | | h | * | + | F |
| | | | *Yerba Buena* | | | h | * | + | F |
| | *Ocimum* | *basilicum* | *Albahaca* | | | h | * | + | F |
| | | | | *morada* | | h | * | + | F, L |
| | | *selloi* | *Siete potencias* | | | h | | | F, L |
| | *Rosmarinus* | *officinalis* | *Romero* | | | s | * | + | F |
| | *Scutellaria* | *purpurascens* | *Espanta mavita* | | | h | | | L |
| | *Thymus* | *vulgaris* | *Tomillo* | | | h | * | + | F |
| 33 | | | | | | | | | |
| Lauraceae | *Persea* | *americana* | *Aguacate* | | | t | | + | F, O |
| 34 | | | | | | | | | |
| Liliaceae | *Aloe* | *arborescens* | *Zábila* | *arbórea* | | s | * | + | O, P |
| | | *vera* | | | | s | * | + | O, P |
| | *Schoenocaulon* | *officinale* | *Cebadilla* | | | h | | | |
| 35 | | | | | | | | | |
| Malpighiaceae | *Malpighia* | *glabra* | *Semeruca*<br>*Cereza* | | | t | | + | F |
| | | | | | | | | | |

| Familia | Genera | Species | Folk-generic | Specific | Varietal | life form* | Origin | Domesticated | Other Uses |
|---|---|---|---|---|---|---|---|---|---|
| 36 | | | | | | | | | |
| Malvaceae | *Gossypium* | *hirsutum* | *Algodón* | | | s | | + | T |
| | *Malachra* | *alceifolia* | *Malva* | | | s | | | |
| | *Malvaviscus* | *arboreus* | *Cayena* | | | s | * | + | O |
| | *Pavonia* | *fruticosa* | *Colmillo de perro* | | | h | | | |
| | *Malvastrum* | *coromandelianum* | *Escoba* | *babosa* | | s | | | C |
| | *Sida* | *acuta* | | | | s | | | C |
| | | *sp.* | | | | s | | | C |
| | | *procumbens* | | *dulce* | | s | | | C |
| | | *rhombifolia* | | *babosa, dulce* | | s | | | C |
| | *Urena* | *lobata* | *Cadillo de perro* | | | s | | | |
| 38 | | | | | | | | | |
| Meliaceae | *Cedrela* | *angustifolia* | *Cedro* | *amargo* | | t | | | |
| | *Melia* | *azedarach* | *Paraiso*<br>*Alelí* | | | t | * | + | |
| 39 | | | | | | | | | |
| Moraceae | *Cecropia* | *peltata* | *Yagrumo* | | | t | | | |
| | *Ficus* | *carica* | *Higo* | | | t | * | + | F |
| 40 | | | | | | | | | |
| Myrtaceae | *Eucalyptus* | *camaldulensis* | *Eucaliptus* | | | t | * | + | O |
| | *Melaleuca* | *leariifolia* | *Bayrum* | | | t | * | + | O |
| | *Pimenta* | *racemosa* | *Malagueta* | | | t | | + | O, F |
| | *Psidium* | *guajava* | *Guayabo* | | | t | | + | F, C |
| | | *guineense* | | *sabanero* | | t | | | F, C |
| | | *sartorianum* | *Guayabito del perú* | | | t | | + | F |
| 41 | | | | | | | | | |
| Nyctaginaceae | *Mirabilis* | *jalapa* | *Maravillosa* | | | h | | | O, P |
| 42 | | | | | | | | | |
| Oleaceae | *Jasminum* | *officinale* | *Jazmín* | *real* | | v | * | + | O |

| Familia | Genera | Species | Folk-generic | Specific | Varietal | life form* | Origin | Domesticated | Other Uses |
|---|---|---|---|---|---|---|---|---|---|
| 43 | | | | | | | | | |
| Oxalidaceae | *Oxalis* | *latifolia* | *Vinagrillo* | | | h | | | F |
| 44 | | | | | | | | | |
| Papilionaceae | | | *Matapulgas* | | | h | | | |
| | *Cajanus* | *cajan* | *Quinchoncho* | | | s | * | + | F |
| | *Crotalaria* | *stipularis* | *Espadilla*<br>*Angelón* | | | h | | | |
| | *Indigophora* | *sufruticosa* | *Camburillo* | | | h | | | |
| 45 | | | | | | | | | |
| Passifloraceae | *Passiflora* | *edulis* | *Parchita* | | | v | | + | F |
| 46 | | | | | | | | | |
| Phytolaccaceae | *Petiveria* | *alliacea* | *Mapurite* | | | h | | | |
| | *Phytolacca* | *icosandra* | *Mangalarga* | | | h | | | F |
| | *Trichostigma* | *octandrum* | *Guacharaco* | | | s | | | |
| 47 | | | | | | | | | |
| Piperaceae | *Peperomia* | *pellucida* | *Cristalina* | | | h | | | F |
| | *Piper* | *tuberculatum* | *Cordoncillo* | | | h | | | AF |
| 48 | | | | | | | | | |
| Plantaginaceae | *Plantago* | *major* | *Llantén* | | | h | * | + | |
| 49 | | | | | | | | | |
| Portulacaceae | *Portulaca* | *oleracea* | *Verdolaga* | | | h | * | + | F, AF |
| 50 | | | | | | | | | |
| Punicaceae | *Punica* | *granatum* | *Granada* | | | t | * | + | F, O |
| 51 | | | | | | | | | |
| Rubiaceae | *Borreria* | | *Suelda con suelda* | | | h | | | |
| | *Cofea* | *arabica* | *Café* | | | s | * | + | F, O |
| 52 | | | | | | | | | |
| Rutaceae | *Ruta* | *chalepensis* | *Ruda* | | | h | * | + | O, L |
| 53 | | | | | | | | | |
| Sapindaceae | *Melicoccus* | *bijugatus* | *Mamón* | | | t | | + | F, FF |
| | *Sapindus* | *saponaria* | *Parapara* | | | t | | + | D, C |

| Familia | Genera | Species | Folk-generic | Specific | Varietal | life form* | Origin | Domesticated | Other Uses |
|---|---|---|---|---|---|---|---|---|---|
| 54 | | | | | | | | | |
| Sapotaceae | *Achras* | *zapota* | *Níspero* | | | t | | + | F, G |
| | *Chrysophyllum* | *cainito* | *Caimito* | | | t | | + | F |
| 55 | | | | | | | | | |
| Scrophulariaceae | *Angelonia* | *salicariaefolia* | *Espadilla Angelón* | | | h | | | |
| | *Capraria* | *biflora* | *Fregosa* | | | h | | | |
| 56 | | | | | | | | | |
| Solanaceae | *Brugmansia* | *candida* | *Camapanita Campana* | | | s | | + | D, O |
| | *Capsicum* | *frutescens* | *Ají* | *picante* | *rabo de candela* | h | | + | F |
| | *Datura* | *stramonium* | *Ñongué* | | | h | | | D |
| | | | | | | | | | |
| | *Lycopersicon* | *esculentum* | *Tomate* | *cagón* | | h | | + | F |
| | *Nicotiana* | *glauca* | *Almorronera* | | | s | | | D |
| | *Solanum* | *americanum* | *Yerbamora* | | | h | | | |
| 57 | | | | | | | | | |
| Sterculiaceae | *Guazuma* | *ulmifolia* | *Guásimo* | | | t | | + | F, AF |
| | *Melochia* | | *Bretónica* | | | s | | | |
| | | *caracasana* | | *blanca* | | s | | | |
| | | *parvifolia* | | *morada* | | s | | | |
| | | *pyramidata* | | | | s | | | |
| | | *pilosa* | | *amarilla* | | s | | | |
| | *Waltheria* | *americana* | | | | s | | | |
| | *Theobroma* | *cacao* | *Cacao* | | | t | | + | F |
| 58 | | | | | | | | | |
| Umbelliferae | *Coriandrum* | *sativum* | *Cilantro* | | | h | * | + | F |
| | *Eryngium* | *foetidum* | *Culantro* | | | h | | | F |
| | *Petroselinum* | *crispum* | *Perejil* | | | h | * | + | F |
| | | | | | | | | | |

| Familia | Genera | Species | Folk-generic | Specific | Varietal | life form* | Origin | Domesticated | Other Uses |
|---|---|---|---|---|---|---|---|---|---|
| 59 | | | | | | | | | |
| Urticaceae | *Fleurya* | *aestuans* | *Ortiga* | | | h | | | |
| 60 | | | | | | | | | |
| Verbenaceae | *Lantana* | *achyranthifolia* | *Cariaquito* | *blanco amarillo* | | s | | | L |
| | *Lantana* | *camara* | *Cariaquito* | *colorado (rojo)* | | s | | | L |
| | *Lantana* | *caracasana* | *Cariaquito* | *blanco, morado* | | s | | | L |
| | *Lippia* | *alba* | *Yerba luisa* | | | s | | + | F |
| | *Lippia* | *micromera* | *Oreganito* | | | h | | | F |
| | *Verbena* | *litoralis* | *Verbena* | | | h | | | |
| | | | | | | | | | |
| 61 | | | | | | | | | |
| Zingiberaceae | *Alpinia* | *zerumbet* | *Flor de paraiso* | | | s | | + | O |
| | *Costus* | *comosus* | *Caña de la india* | | | s | * | + | O |
| 62 | | | | | | | | | |
| Zygophyllaceae | *Tribulus* | *cistoides* | *Abrojo* | | | h | | | |