SOURCES OF POWER AND THE DEVELOPMENT OF SOCIOPOLITICAL COMPLEXITY IN MALAGANA, SOUTHWESTERN COLOMBIA

by

Hernando Javier Giraldo Tenorio

B.A., Universidad del Cauca, 2007

Submitted to the Graduate Faculty of the

Kenneth P. Dietrich School of Arts and Sciences in partial fulfillment

of the requirements for the degree of

Doctor of Philosophy

University of Pittsburgh

2014

UNIVERSITY OF PITTSBURGH

DIETRICH SCHOOL OF ARTS AND SCIENCES

This dissertation was presented

by

Hernando Javier Giraldo Tenorio

It was defended on

February 21, 2014

and approved by

Marc Bermann, PhD, Associate Professor, Anthropology

Bryan K. Hanks, PhD, Associate Professor, Anthropology

John Frechione, PhD, Associate Director, Center for Latin American Studies

Dissertation Advisor: Robert D. Drennan, PhD, Distinguished Professor, Anthropology

Copyright © by Hernando Javier Giraldo Tenorio

2014

SOURCES OF POWER AND THE DEVELOPMENT OF SOCIOPOLITICAL COMPLEXITY IN MALAGANA, SOUTHWESTERN COLOMBIA

Hernando Javier Giraldo Tenorio, PhD

University of Pittsburgh, 2014

To date, archaeological research in Central America and northern South America has emphasized that religion, rather than economy, was the principal mechanism by which social inequalities were created and maintained. Malagana, the largest known prehispanic village site in the flat valley of the Cauca River of southern Colombia, however, stood out as a possible exception to such a pattern. Known for its large cemetery and many richly endowed tombs, the Malagana settlement had two concentric earthworks for defensive purposes, which is usually an indication of conflict and warfare.

To identify and assess the relative importance of different factors such as wealth accumulation, craft specialization, religious ideology, warfare, and feasting in the emergence and development of social inequalities at Malagana, a 32 ha systematic surface survey was carried out around the site in 2012.

Research revealed that during the Early El Bolo period (400 BC-800 AD), when the tombs with lavish offerings were created, warfare at Malagana was intense. The intensity of this warfare allowed leaders to not only obtain military power, but created the conditions through which they 1) monopolized the production of wealth goods that enabled military leaders to accumulate wealth and buy compliance from commoners; and 2) mobilized the population of the

community to build defensive structures that allowed them manipulate architectural space and thereby control sacred areas and ancestors.

During the Late El Bolo period (800 AD-1550 AD) differences in wealth between households declined and the intensity of feasting decreased considerably. The population expanded beyond the earthworks, suggesting that protection from attacks was not as important an issue during this time. A decrease in warfare is therefore interpreted as the principal cause for the loss of power by the leaders at Malagana.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

PREFACE

This research was possible with the financial support of the National Science Foundation (Grant 1157719). The Department of Anthropology of the University of Pittsburgh provided funds for preliminary research. I am especially grateful to my advisor Dr. Robert Drennan for his guidance and support throughout this process. I thank my committee members, Dr. Bryan Hanks, Dr. Marc Bermann, and Dr. John Frechione, for their comments which helped to improve this dissertation.

I would like to thank the Fundación Cultural Malagana for their help in obtaining permissions for the fieldwork and sharing valuable information about the archaeological objects looted at Malagana in the 90's. The collaboration of the Triviño family and, particularly, Nelson Triviño was invaluable. The El Bolo community assisted me with information and labor in the different stages of the fieldwork, especially Carlos Herrera, Doña Rosa Saavedra, Argemiro, Wilson and Freddy.

The fieldwork would have been impossible without the valuable collaboration of the students of the Universidad del Cauca (Julián Escobar, Natalia Ramírez, Mayra Cruz, Marcela Ordoñez, Diana Mayor, Luisa Claros, Ricardo Ruiz, Carlos Cardona, Maribel Villota, Alejandro Pérez, Oscar Burbano, Catalina Marín, Maritza Ramírez) and the students of the Universidad de Caldas (Dalila Herrera, Valentina Mayorga y Luciano Cifuentes). I would also thank the cooperation of the local managers of the Haciendas Malagana and Ingenio Mayagüez, Carlos and

Ulises, for granting permissions for the fieldwork despite their concerns of new looting activities. I would like to thank to the INCIVA archaeology team, Sonia Blanco and Alexander Clavijo, the anthropologists Diógenes Patiño, Elizabeth Tabares and José Vicente Rodríguez for sharing information on their own research in the Cauca River valley.

I am grateful to all my fellows in the University of Pittsburgh, James, Lizette, Jennifer, Pedro, Hugo, María, Sebastián, Francisco, Juan, Adam B., Julia, Pacho, Felipe, Mauricio, Alex, Enrique, Shawn, Alejandra, Fernando, Maribel, Josefina, Laura, Rabia, Roberto, Enrique, and Adam M. for their friendship during my stay in USA. Among the special people that I met during my residence in Pittsburgh are Gabriela Cervantes and Lindsey J. Fine who deserve a special mention for their help in reviewing and commenting the dissertation, support in difficult times, and sincere friendship.

I owe a debt of gratitude to Dr. Cristobal Gnecco, the path to this doctoral degree would have been impossible without his encouragement and guidance. Also, I thank Mr. Facio Lince for his support to my family in difficult times before and during my academic formation.

Finally, I would like to express my deepest gratitude to my family, my brother José Rafael, my mother Luz Angela, and Angela Márquez (‘Conejito’), whose love and support made possible the fulfillment of this task.

1.0 POWER STRATEGIES OF SOCIOPOLITICAL DIFFERENTIATION

The focus of this research was to establish how different sources of power were used by elite members of the Malagana community in southwest Colombia from 400 BC to 1500 AD to create and maintain unequal power relations, as well as determine if and how these power strategies changed through time. This objective was achieved by evaluating, both directly and indirectly, four strategies of leadership: inter-group conflict, religious ideology, economic control (wealth accumulation and craft production), and manipulation of social relations.

1.1 POWER STRATEGIES

Increasingly, research related to the reconstruction of sociopolitical trajectories of middle-range societies in different parts of the world over the past few decades has highlighted the different paths taken by prehistoric societies in the formation and development of sociopolitical inequalities (Drennan and Peterson 2005, Feinman and Neitzel 1984; Peterson and Drennan 2012). Variability in sociopolitical trajectories therefore suggests the need to reconsider social inequality models reliant on universally applied, monocausal explanations such as population pressure or environmental constrains. At the same time however, variability in sociopolitical trajectories has also encouraged the development of diverse conceptual frameworks that recognize multiple, sometimes dual, categories of social organization to explain emergent

inequality. Unfortunately, such frameworks are often inaccurate when applied to real cases different from those used for building them. For example, the dual division of power strategies in 'corporate' and 'network' by Blanton et al. (1996) includes both competition and warfare as characteristics of a 'network' strategy, in which leadership is obtained through "[…] individual-centered exchange relations established primarily outside one's local group" (Blanton et al. 1996: 4). Similarly, Feinman (1995: 273) classifies chiefly power in Polynesian societies as "[…] rooted in a corporate-based structure" despite the observation that warfare was ubiquitous in Polynesia (Kirch 1984: 195) and that the long distant exchange of women and prestige goods was pivotal for Tonga leaders (Kirch 1984: 238). Proponents of such frameworks defend them by noting that dual categories need not be mutually exclusive and may therefore coexist (Blanton et al. 1996: 5-6; Feinman 1995: 264), in which case, the initial categorization seems pointless.

Framing theoretical paradigms addressing social variability with dichotomized categories such as individual versus group-oriented societies, network versus corporate organizations, and wealth-based versus knowledge-based systems, among others, often results in the homogenization of social processes from what may otherwise be considered very different sociopolitical dynamics. In the search for social patterns this is an unavoidable consequence, but by forcing types of leadership strategies to particular cases, facts are problematically distorted, unable to explain the variability inherent in any particular system, as in the Polynesian example above. When theoretical frameworks such as the corporate/network paradigm, end in check lists (e.g. Ames 2009), specific case-studies must be classified as either one type or another. Yet evidence shows that social processes are more diverse than theories can grasp. The preceding discussion should not be understood as an argument against the search for social patterns, but rather as an argument against the lack of continuous evaluation regarding the models that

evaluate these social patterns. Yet the evaluation of models is not exempt from problems, either. Because there are no purely objective facts, theoretical models indicate for what evidence it is relevant to look. Confirmation of an archaeological model therefore indicates only that the batch of facts forming the model were present in the archaeological record, not that the model was correct. Instead of introducing a pessimistic epistemological argument however, this discussion is intended to highlight that the explanations regarding the development of social inequalities in the Upper/Middle Cauca River valley are based on different models, some of which stress a unique universal factor, while others stress leadership strategies borrowed from broad dual categorizations, such as changes from individual to group-oriented organizations. As a consequence each regional model may thus claim validity due to the support of available evidence, but this evidence is often scanty, and the models, as it will be shown later, are contradictory.

Simultaneous evaluation of different models could therefore has the potential to increase understanding regarding the development of social inequalities in the area, but it is important to remember that different leadership strategies and different trajectories of social complexity from those described in the current models could also have existed. In such cases, power should be broken down into the different mechanisms or sets of activities by which a small group in a community creates and maintains relationships of inequality.

Explanations regarding the sources of social power vary, but those most prominent in the anthropological literature for the creation of social inequalities may be reduced to military might (e.g. Carneiro 1970, 1998; Haas 2001; Lau 2010; LeBlanc 2006; Redmond 1994a; Webster 1975), economy (e.g. Clark and Parry 1990; Clarke and Blake 1994; Cobb 1996; Earle 1997; Frankenstein and Rowlands 1978; Hayden 1995; Spencer et al. 1994), ideology (e.g. Aldenderfer

2010; Demarest 1992; DeMarrais et al 1996; Kantner 2010; Vaughn 2010), and social organization (e.g. Clark and Blake 1994; Dietler 1996; Earle 1997; Hayden 1996, 2001). The set of activities belonging to a particular source of power however, is not always the same. Power supported by economic strategies for example, could involve control over the distribution of luxury objects (Cobb 1996), control of irrigation channels (Earle 1997), or the production of elements needed for bridewealth (Frankestein and Rowlands 1978).

Although some scholars have, in effect, reduced consideration of sources of power exploited by emergent elites to an either/or choice, this is an oversimplification. The potential for understanding the social dynamics of early complex societies that such an approach offers does not come from posing different sources of power as a multiple choice question. It comes from focusing on the often subtle variations in how the different mechanisms from each one of these different sources of power are drawn upon and combined as elite strategies are put together. Earle (1997), for example, has argued strongly that control of the economic apparatus is fundamental to any very successful power strategy. He and others see the most successful power strategies as those involving economic control, but with ideological and military components for additional leverage (D'Altroy and Earle 1985; Gilman 1981; Welch 1996). In a comparative study of three societies however, Earle (1997) noted diverse political trajectories for each society despite elite control over certain economic aspects. Differences were observed in the type of economic control and the way in which ideological and coercive strategies were intertwined, a combination hereafter defined by the term 'power strategies'.

Sources of power are thus best understood as broad categories that allow for identification of the different types of activities strategically used by individuals to obtain and maintain relations of inequality. Economic sources of power for example, include control over

the production, distribution, exchange, or consumption of goods considered either critical or desirable for social and biological reproduction (Earle 1997). The production of luxury objects, the control of irrigation technologies for the production of surpluses, and the control of trade routes are therefore all sources of economic power.

Military might as a source of power refers to the monopolization of lethal violence (Mann 2002). Fear of death, torture, or material loss increases as coercive means are concentrated into the hands of a single one group (Carneiro 1990). Military power is therefore not only restricted to the direct use of force; it is also a source of power when protection is exchanged for support (i.e. Allen 2006).

Ideological sources of power involve the monopolization of "meaning, norms, and aesthetic and ritual practices" (Mann 2002: 23). Ideological control is therefore usually associated with the religious realm, although it is not constrained to it. Materialistic approaches often give an instrumental role to ideologies, since they are a means by which inequalities may be legitimized (DeMarrais et al. 1996). Other non-materialistic approaches however, view ideologies as a source of inequalities in their own right (Hakansson 1998, Vaughn 2010).

Social relations as a source of power refer to the manipulation of rules that structure kinship relationships. For instance, kin labor can be used by aggrandizers for the creation of social debts through competitive feasting (Adams 2004; Clark and Blake 1994; Dietler and Hayden 2001), or for the accumulation of wealth through work-feasts, which can then be re-invested in other activities for the political goals of the sponsor (Dietler 1996). Manipulation of the kinship structure also includes strategic marriages, such as those observed in Polynesian societies (Earle 1997; Kirch 1984), or the use of marriage rules for obtaining cheap labor and followers (Hakasson 1998).

1.1.1 Power strategies in the Colombian southwest: The archaeological perspective

The Colombian southwest (Figure 1-1) is a macro-region commonly depicted as a culturally and politically homogenous unit. This perceived homogeneity typically derives from the scholarly application of Service's stages of sociopolitical evolution (Reichel 1997; Rodríguez 2002), as well as from similarities in particular sets of material culture, specifically gold artifacts (Plazas and Falchetti 1983; Uribe and Mora 1993). The emphasis on similarities rather than differences however, has prevented a better understanding of the factors that lead to the development of social complexity in each particular polity. In fact, the significant environmental diversity in which the most well-known chiefdoms are located, the variability in other cultural objects and contexts, and the ethnic diversity described in Spanish accounts are often ignored by scholars who favor interpretations that highlight a shared symbolic tradition (Gnecco 2006).

The scholarly perception of a macro-regional ideology in Southwestern Colombia after 500 BC is primarily based on the exchange of luxury goods between elites during this time (Plazas and Falchetti 1983). Fundamentally, supporters of this theory believe that social interaction was possible only if the social organization of the polities involved in the exchange was the same (Gnecco 2006). Exchange of prestige and luxury objects was therefore understood as a symbol of the alliances between elites whose positions were based by their external connections (Gnecco 1996a; Uribe 1995), which created access to foreign knowledge as well as foreign goods. Gold artifacts were an especially powerful materialization of the esoteric knowledge exchanged within specific alliance networks (Gnecco 1996a). The decline in gold artifact in Southwestern Colombia around 1000 AD has therefore been interpreted as the inability of local leaders to monopolize the production and distribution of luxury goods (Gnecco 1996a). Contrary to scholarly expectations however, the failure of elites to monopolize the

production and distribution of luxury goods around this time does not necessarily correlate to the loss of power by those same elites. Instead, it has been hypothesized that the leadership strategies employed at this time shifted from the symbolic realm to control of the economic apparatus, and from 'individualizing' to 'group-oriented' political strategies (Gnecco 1996b; Langebaek 2000, 1993, 1999; Sánchez 2000).

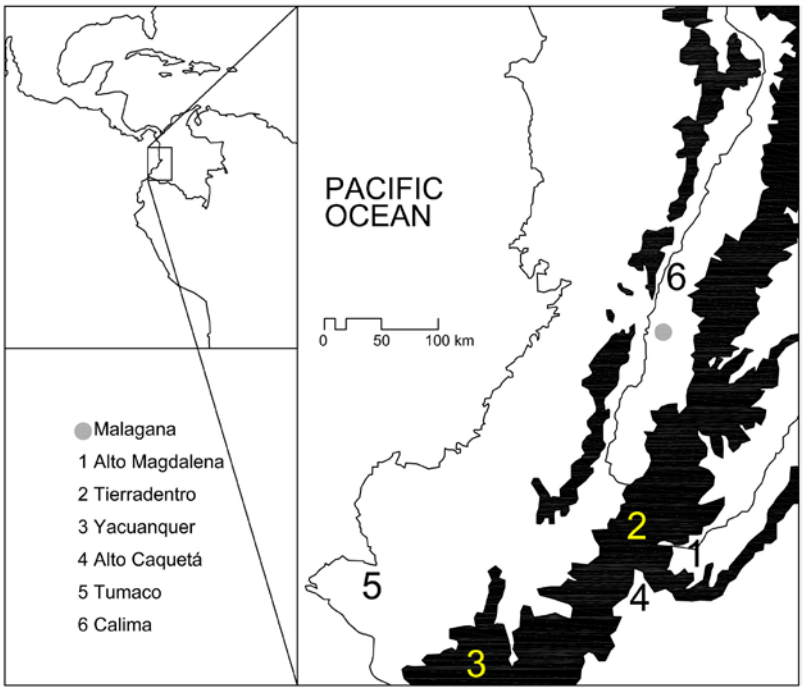

Figure 1-1 Southwest Colombian and its principal archaeological cultural areas. Heights above 2000 m are in black. Redrawn after Gnecco (1996; map 1), with modifications.

This account of the metallurgical tradition and a unified macro-regional ideology in Southwestern Colombia has been criticized from different angles. There is a lack of correspondence between different sub-regions, both in the techniques of elaboration and the dates when gold artifacts first appear (Giraldo 2007). Gnecco (1996a, 2006) has pointed out that despite some recurrent motifs in material culture, there are very specific local styles, even in

neighboring zones, particularly in funerary contexts and ceramics. Langebaek (1993, 2000) has argued rather than being the result of exchange, stylistic differences between sub-regions may be attributed to the imitation of foreign style by local producers. Drennan (2000, 2008) has mentioned the scarcity of prestige goods (including gold artifacts) in the Alto Magdalena societies during the entire sequence. Such theories may erode the concept of a 'regional cultural homogeneity', but they do not challenge either the hypothesis of leadership based on a religious ideology materialized in gold objects, or the hypothesis of shift towards economic sources of power after 1000 AD.

Models of social complexity for the area however, are not similar. Gnecco (1996a) suggests that before 1000 AD, power in Southwest Colombian societies was based on three interwoven mechanisms: 1) an extensive network of alliances between elites from different polities; 2) the possession of esoteric knowledge; and 3) restricted access to symbolically charged gold objects and other prestige goods. As the physical expression of both external alliances and the esoteric knowledge, gold objects and other prestige goods were materials through which power was legitimized. Langebaek (2003), on the other hand, argues that power in some societies of the Colombian southwest before 1000 AD was not related to the long distance exchange of prestige goods, but rather to the local production of symbolic goods. Leaders therefore, did not base their power on strategic connections with chiefs from other polities, but through their links to the supernatural. Leadership was a prerogative of powerful shamans, and gold artifacts were part of their ritual paraphernalia. After 1000 AD however, the use of gold objects was no longer restricted only to leaders, and power thus became obtained through broader economic strategies such as specialization in craft production and short distance trade (Langebaek 2003: 249). Unfortunately, these two models ignore the costs and continuous

reinvestment of economic capital required to support ideological legitimizations of leadership with little to no mention of how exchange channels might have been restricted to the rest of the population.

Different perspectives on the development of social complexity in Southwest Colombia have emerged from study of the particular social, political, and economic trajectories of the most conspicuous regional chiefdoms. The macro-project of the Valle de la Plata (Drennan 2000) has provided information, at different scales, about the trajectories of change in Alto Magdalena societies. Social differentiation observed from mortuary variability between 200 BC and 900 AD, does not match wealth differentiation extrapolated from contemporary household consumption (González 2007; Jaramillo 1996). This pattern has been interpreted as one of leaders with authority and prestige but little capability to exert any real power (Drennan 2000). In addition, the overall amount of luxury and exotic items found by archaeologists (and looters) has been so small that the long-distance exchange of luxury goods probably did not play an important role in the development of social complexity.

Settlement pattern data for the Alto Magdalena (Drennan and Quattrin 1995) and Tierradentro polities (Langebaek et al. 2001) indicates that people did not always choose the most fertile lands for settlement, often leaving very productive terrain unoccupied, thereby reinforcing the idea of the lack of control of resources before 900 AD. In the Yacuanquer (Langebaek et al. 2003) and Alto Caquetá regions (Giraldo 2007) however, the distribution of people in the landscape appears compatible with principles of economic rationality since the population settled in the most fertile lands in each region from the earliest periods of occupation. In Yacuanquer however, occupation appears to have shifted from sites located in the most fertile lands to sites where the population could exploit resources from different elevations more

efficiently. Unfortunately, these settlement patterns are documented only after 1000 AD. Questions regarding the relationship between settlement and land productivity also arise in the case of the Alto Caquetá since the data was not analyzed at an intra-valley scale. The precise relationship between land and occupation thus cannot be considered well understood for these areas of Southwest Colombia during these periods.

In Tumaco and Calima societies however, the archaeological evidence shows a different pattern. In Tumaco, raised fields and mounds were contemporaneous with political centralization before 350 AD, when these structures were abandoned. Yet despite this structural abandonment, researchers have thus far found no evidence to indicate that there was a corresponding migration of the indigenous population (Patiño 2003). Similarly, in the Calima region, drainage ditches and intensive cultivation were present from 1-500 AD (Bray 2005). After 500 AD, these particular agricultural features appear to have gone out of use, but new landscape modifications for agricultural production emerged, probably along with greater social differentiation (Herrera 2005). Both Tumaco and Calima demonstrate variability in the kinds of grave goods buried with elites and commoners in the earliest parts of their respective sequences. Elites were buried with items made of gold and exotic materials, as were elites in the Malagana community.

By observing trajectories of sociopolitical complexity for each polity independent then, contrasting patterns of social development appear to emerge. These trajectories differ not only between each other but also within the macro-regional models that depict homogeneous power strategies moving from ‘ideological’ to ‘economic’ sources of power.

1.1.2 Power strategies in the Colombian southwest: The ethnohistoric perspective

In the Colombian southwest, the Cauca River valley is often cited as a regional example of the development of social complexity through warfare in a circumscribed environment (Carneiro 1981, 1990, 1991, 1998). 16th century Spanish accounts portray mighty chiefs dominating the Cauca River valley (Cieza de León 1984; Simon 1981), their power originating from secular military despotism rather than connections with the supernatural sphere (Carneiro 1990; Trimborn 2005). These chiefs mobilized large armies to conquer enemy territories for vital resources, including land, slaves and trade routes (Kelekna 1998; Redmond 1994a). Occasionally, Cauca River valley chiefs ate the bodies of their captives or used their heads to adorn chiefly residences as a symbol of achievement on the battlefield (Eckert 2002; Trimborn 2005). Leadership in the Cauca River valley was therefore not negotiated, but executed. Spanish chronicles mention that Cauca River valley leaders could mobilize anywhere from 100 to 10,000 warriors. Although the number of men mobilized for warfare is not necessarily an indicator of the extent of the polities, it does give an indication as to the size of chiefly alliance networks (Redmond 1994a). Military leaders benefited economically from the spoils of war, and their tombs were richly furnished with objects of gold, ceramics, and weapons, as well as with the bodies of their wives and their slaves. Cauca River valley military chiefdoms were thus clearly divided clearly into a social hierarchy of elite kin groups, commoners and slaves. Warfare therefore seems to have been wide spread and was part of daily life in this region at the time of the Spanish Conquest.

Surprisingly, the Cauca River valley chiefdoms, so often cited in the anthropological literature on military leadership and the development of social complexity (i.e. Carneiro 1981, 1990, 1991, 1998; Keeley 1996; LeBlanc 2004; Redmond 1994a, 1994b), have so far yielded no

notable archaeological evidence for warfare (Bray 2005; Cabal 2006). The only exceptions are a gold sheet in the shape of a club, wooden weapons that could also be interpreted as hunting tools (Herrera 2005) and a few earthworks, discussed below, which are usually interpreted as drainage channels, but that could also be defensive structures (Bray et al. 2005; Herrera et al. 2007). The perceived absence of warfare in the Cauca River valley archaeological record however, might be due to a lack of research specifically designed to identify evidence of warfare in the archaeological record (see Langebaek et al. 2002 for an exception). This situation however, does not preclude the idea that the warfare indicated in the ethnohistoric accounts was a result of the Spanish invasion rather than earlier internal political dynamics (Jaramillo 1995; Pineda 1987; Rodríguez 2002; Rodríguez Cuenca et al. 2007). The discovery of the Malagana site in 1992 has provided circumstantial evidence of conflict in an earlier period, although some scholars have rejected this interpretation for conflicting with traditional wisdom regarding the ideal of the 'good savage'(Bray et al. 2005; Cardale et al. 2007). Therefore, while references to the trade of staples and luxury goods can be found in ethnohistorical accounts (Trimborn 2005), military power is an inescapable subject for studies of social dynamics in Southwest Colombia just before the Spanish invasion.

Southwestern Colombia, in particular the Cauca River valley, is a region where the emergence of sociopolitical inequalities has been attributed by one scholar or another for practically all of the sources of power: alliances in the context of external conflict (Carneiro 1998), intensification of warfare (Redmond 1994a), wealth concentration through the control of surplus agricultural production (Rodríguez 2002), wealth concentration through extensive networks for the exchange of prestige items (Gnecco 1996a), and manipulation of belief systems through public performances (Archila 1996; Gnecco 1996a; Langebaek 2003). Unfortunately,

most of these accounts of prehistoric social change are based either on scanty archaeological information or ethnohistoric sources with very little support from the archaeological evidence. The discovery of the Malagana site, in the Upper/Middle Cauca River valley, thus provides a unique opportunity to investigate archaeologically how different sources of power were used by local leaders to gain political power, how they were interrelated, and how these strategies were modified through time in the context of what has been thought of as a politically homogeneous macro-regional unit.

1.2 THE MALAGANA SITE

The archaeological site of Malagana in Southwest Colombia is located on the flat and fertile alluvial soil of the Upper/Middle Cauca River Valley (Figure 1-2). It is surrounded by the El Bolo River to the south and west and by Timbique Creek to the north and west, where it flows into the El Bolo River. Soils within a 1 km radius are well drained and productive for agriculture. Today, highly mechanized sugar cane cultivation dominates the landscape. For the purposes of this dissertation the period of interest at Malagana begins around 400 BC and extends to the period of the Spanish Conquest in the first half of the 16th century. A three-phase ceramic sequence is commonly used: Ilama (700?-1 BC), Yotoco/Malagana (1 AD-800/900 AD), and Bolo-Quebrada Seca (800 AD- 1550 AD) (Rodríguez 2007) (but see discussion in Chapter 2). Farming, hunting and fishing were the economic base of the Malagana community. Archaeologists have identified evidence for raised fields, but their periods of construction and use remains unknown. A buried soil below the raised fields, but separated from them by a deep layer of sediments, has provided a date of 2670±150 BP (GX-28620) (Herrera et al. 2007:23).

Maize appears to have been the principal staple, but avocado, beans and different species of vertebrates complemented the diet of Malagana residents (Bray et al. 2005; Correal et al. 2003).

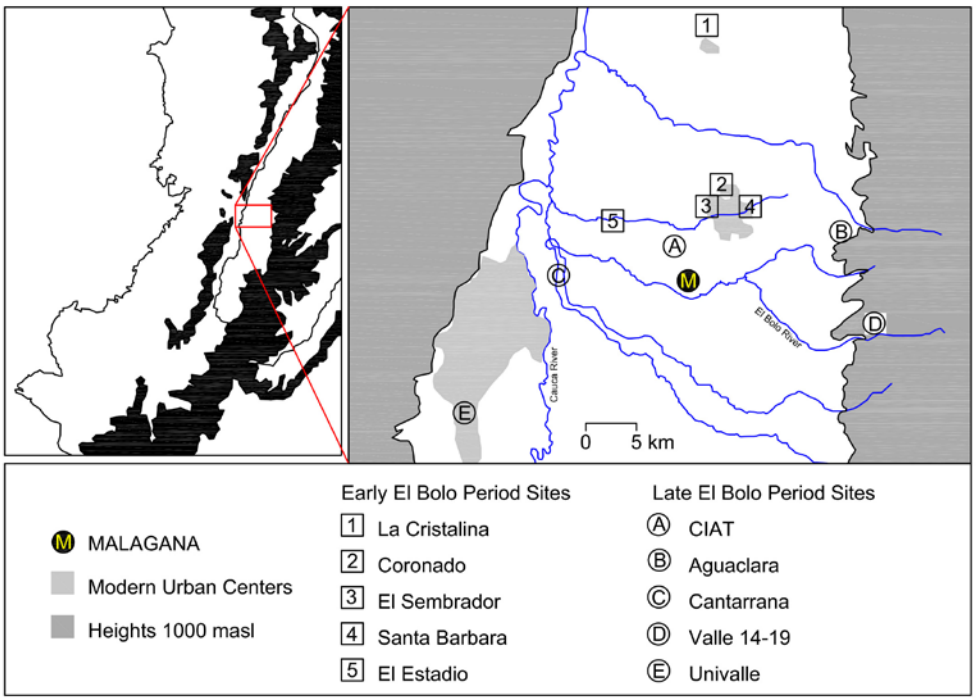

Figure 1-2 Location of Malagana and other archaeological sites mentioned in the text.

Knowledge of the site is based primarily on the astonishing amount of valuable objects recovered from graves in its southern sector. Made of gold, greenstone, quartz and ceramic materials, these objects included vessels, masks, breastplates and human figurines (Bray et al. 2005; Blanco et al. 2007). Obsidian and the remains of *Spondylus* shells have also been reported (Bray et al. 1998). Objects were however, not recovered under controlled conditions. The discovery of Malagana in 1992 was the result of extensive plundering of the tombs by looters, who left very few remains for the archaeologists (Botiva and Forero 1995). Fortunately, this

illegal plundering was primarily restricted to the burial area in the south, with little damage to the rest of the site, thus providing a good opportunity to analyze the residential areas at Malagana.

Based on the contents of the tombs, many scholars have interpreted Malagana as a chiefdom with powerful leaders whose wealth came from extracting surplus from the commoners. Elites are thought to have accomplished this by manipulating belief systems, appropriating the production of attached specialists, and exploiting their links with chiefs from other polities. Attractive as this hypothesis about the character of the Malagana community is however, it derives more from scholarly preconceptions formed by theoretical models than strong empirical evidence. Recently, archaeological excavations in the area around Malagana have revealed another cluster of tombs, but ones with a few luxury objects as grave goods. It is therefore reasonable to assume that some individuals at Malagana were given special treatment at death involving the products of specialized labor, which were decorated to motifs related to the natural world. However, the extent to which real economic control of either subsistence or craft production as opposed to prestige existed, is currently unknown.

The specific sources of power used by Malagana leaders are even more uncertain when other features of the site are considered. The site of Malagana is surrounded by a rectangular ditch with an interior embankment enclosing approximately 20 ha, which is itself encompassed by a second, larger ditch and embankment visible in old air photographs (Figure 1-3). These concentric ditches are separated by distances between 50 and 200 m, which altogether enclose an area of 56 ha. Although no dates for these ditches have yet been obtained, it appears that they were not in use during the last period of occupation at Malagana (Herrera et al. 2007). The cemetery with luxury grave goods is located to the south of the innermost ditch (Figure 1-3).

Interpretations of the ditches at Malagana are varied. Some scholars consider the ditches a form of protection against seasonal floods (Blanco et al. 2007), while others note similarities to defensive structures from societies that have been studied ethnographically (Bray et al. 2005; Herrera et al. 2007). At Malagana however, evidence of conflict is scanty. Some tombs contained only heads or other body parts, and tombs with collective interments have been encountered some 9 km to the west (see Chapter 7). With two exceptions, there are no injuries in the skeletal remains from Malagana or other nearby prehispanic cemeteries.

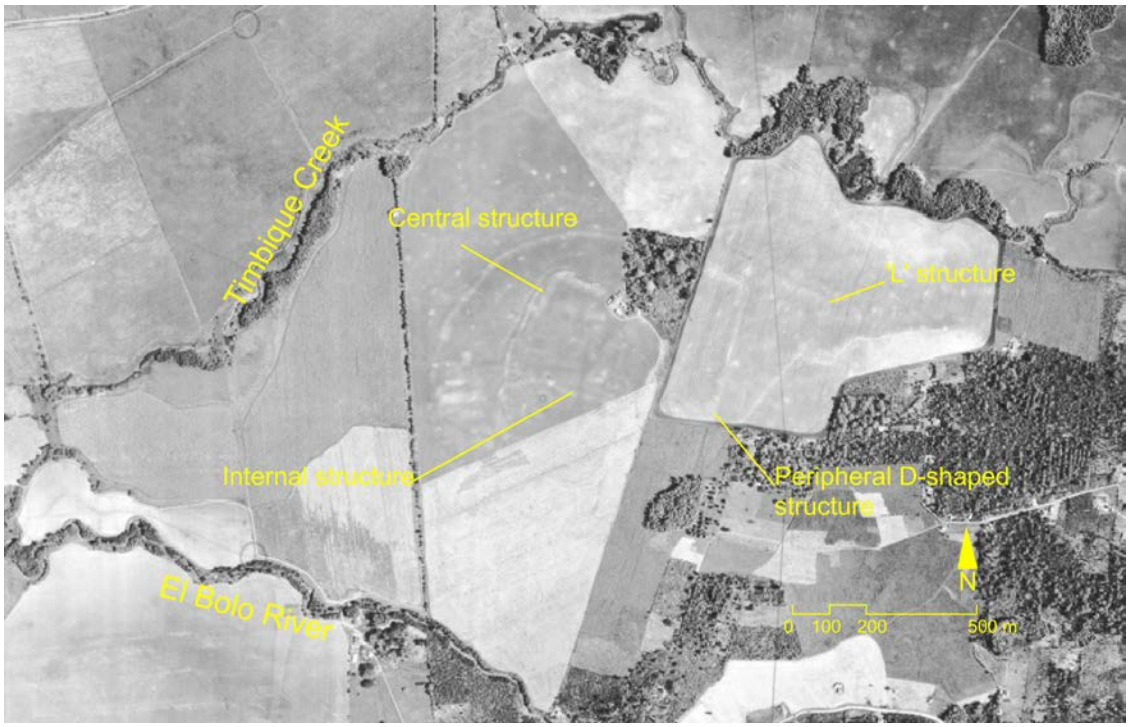

Figure 1-3 1953 air photograph of the archaeological site of Malagana showing the earthworks. Courtesy of IGAC Palmira.

Among the varied patterns of chiefly organization thus far documented for southwestern Colombia then, prestige based on belief systems and purely social concerns figures much more strongly than either conflict and military affairs or economic control and wealth accumulation. Malagana therefore stands out strongly within its context as a site where military affairs and economic control may have played a much more prominent developmental role—at least based on tentative suggestions from current archaeological evidence. If there were more direct and convincing evidence to support such a reconstruction, this difference between Malagana and neighboring societies would offer an opportunity to understand better the social dynamics involved.

1.3 ANALIZYNG POWER STRATEGIES IN THE ARCHAEOLOGICAL RECORD FROM MALAGANA

The principal goal of this research is to evaluate what sources of power (*sensu* Earle 1997) were used by leaders in the Malagana community, how they were interwoven, and how they changed through time. Pursuit of this goal will not take the form of simply identifying the sources of power at Malagana as an either/or choice among several possibilities. Rather, it will consist of weighing the importance of different mechanisms from each source of power, based on the strength of the archaeological evidence for their utilization so as to delineate how multiple sources may have combined. Accordingly, the research questions are:

1. How much intra-community economic differentiation (that is, variation in standards of living) was present at Malagana and how did it change through time?

2. How much specialization characterized craft production at Malagana? How closely was production associated with elites? How did these patterns change through time?

3. To what extent were ritual activities at Malagana associated with elites, and how did this change through time?

4. To what degree were elites at Malagana engaged in the social consumption of food and drink?

5. How much inter-group conflict occurred at Malagana? How did this change through time?

In order to know what unique combinations of power strategies were successfully employed by leaders at Malagana, it is first necessary to identify which sources of power were used. However, because each individual source of power encompasses multiple types of behaviors and relationships, a complete identification of all possible activities used by leaders to obtain political advantage is outside the scope of this research project. A list of the most commonly cited power sources in the literature on complex chiefdoms is thus provided below, along with procedures used to identify them in the archaeological record:

a) *Accumulation of economic wealth* may be identified through variability in wealth-related artifact assemblages among different areas of the settlement. Such variability is measured by the proportions of exotic objects (greenstone, obsidian, shell and gold), and by high proportions of decorated ceramics.

b) *Specialization in craft production* is identified through the existence of variability in: 1) tool assemblages used for the production of crafts such as textiles (spindle whorls), metallurgy (gold crucibles, hammers), and pottery (flat polished stones and kilns); 2) the residuals of craft production activities such as metallurgy (trimmed gold off-cuts) and lithic production (cores and

debitage); or 3) in raw materials as blocks of greenstone, rock crystal, obsidian or other types of lithics.

c) *Ritual activities* may be identified either by variability in the locations of artifacts with important religious meanings, such as those observed in mortuary contexts (rock crystal beads, figurines, *alcarrazas* fragments), or by the identification of open plazas for public ceremonies.

d) *Feasting* activities are identified by differential ratios of cooking versus serving vessels.

e) *Military might is* inferred from 1) evidence of inter-group-conflict, which is observed by the presence of weapons such as projectile points; 2) the identification of defensive architecture; 3) human remains with evidence of trauma caused by malevolent action; or 4) artistic representations of warriors, prisoners, or battles.

Identification of the presence of these artifacts and features, as well as their spatial variability, is only the first step in the reconstruction of power strategies at Malagana. Spatial variability in the presence or percentages of certain types of objects may be an indication that activities and privileges were either restricted or monopolized by specific groups within the community, but they do not necessarily indicate that these particular objects were used by leaders to achieve their political objectives. Proper identification of specific power sources were used by leaders at Malagana for political gain derives from the spatial connections between concentrations of different artifact types and elite residences. Spatial proximity between certain groups of domestic units and particular kinds of activities is currently the best archaeological evidence to determine whether specific activities were either carried out or controlled by the people residing in those houses.

One element absent in the present research is an acknowledgement of the different sets of activities categorized as 'control over the production of subsistence goods', specifically those linked to agricultural activities. Evidence of such activities at the level of the household is usually observed through differences in the storage capacities of various households (e.g. Peterson and Shelach 2012). Agricultural products may be stored in pits, architectural facilities, or containers of ceramic or other materials. Unfortunately, several problems exist regarding archaeological identification of agricultural storage areas. Pits and architectural facilities can only be identified through excavation, assuming that they have not already been damaged by modern agricultural practices. Additionally, ceramic finds from the systematic survey have so far failed to yield any fragments that may be identified as vessels used exclusively for agricultural storage. Therefore, as a result of the problematic identification of storage areas at Malagana the degree of control over the production of subsistence goods by minority groups could not be evaluated by this research.

1.4 PLAN OF THIS DISSERTATION

Chapter 2 outlines the methodology used for collecting research data and establishes the chronological parameters used to date material obtained from surface collections. It also includes a discussion of the results from the stratigraphic excavations at Malagana. This chapter will also include a discussion regarding how modern anthropic transformations of the landscape could affect the visibility and distribution of artifacts on the surface. Population estimates are provided as a means of contextualizing the scale of the particular sociopolitical phenomena being analyzed. The following chapters present the results one by one and discuss the distribution of

artifacts related to production activities and the consumption of goods indicative of specific sources of power. Chapter 3 thus provides results for the distribution of artifacts considered to be wealth-markers throughout the settlement and evaluate any changes from the Early El Bolo period to the Late El Bolo period. In Chapter 4, evidence for the distribution of objects related to the production of different kinds of crafts is presented along with their relationship to elite residences. In Chapter 5, the spatial distribution of wealthy graves and open spaces for public ceremonies is discussed in relation to the wealthiest households. Evidence for the distribution of some potentially important religious objects is also presented and discussed. Chapter 6 outlines the places where feasts were enacted and discusses their association with elite areas. Chapter 7 presents local and regional evidence for warfare based on four standard identification markers: iconography, defensive architecture, skeletal trauma, and weaponry. Special attention is here paid to the function of the concentric earth structures, which includes consideration of changes in population distribution relative to these structures over time. Chapter 8 addresses the five research questions outlined earlier and delineates the strategies of power employed by leaders at Malagana during the EEB and LEB periods as well as any changes. This final chapter also compares the results of this research with the most complete social complexity models currently known for Southwestern Colombia and makes recommendations for subsequent research intended to strength the results presented in this investigation.

2.0 METHODOLOGY

Information on intra-communal differentiation in wealth, craft production, feasting activities and religious ideology was based on surface material systematically collected from similarly-sized collection units spaced 25 m. The limits of the survey area were established from a pilot survey completed by the author in 2010 and chosen based on differences in surface material densities from an original area of 250 ha.

Abundant ceramic material belonging to both the Early El Bolo (EEB) and Late El Bolo (LEB) periods was documented from surface scatter observed during the pilot survey in 2010. Ceramic material from the EEB period is usually divided into the Ilama and Malagana periods, although differences between them are minimal (see below), while the LEB period is also known as the Bolo-Quebrada Seca period (Rodríguez Cuenca et al. 2007). The abundance and range of ceramic material identified during the pilot survey indicated that modern plowing in the region brings to the surface substantial samples from all periods of occupation. Raw greenstone and other materials related to craft production were also encountered. Clusters of artifacts in individual sugar cane plots appear to represent individual, or even small groups of, domestic units, so mechanized cultivation does not seem to have moved surface materials around extensively (see below). Varying densities of occupation in different sectors of the Malagana community were also evident. Whereas a great part of the 250 ha surveyed in 2010 lacked cultural materials, three notable areas presented artifact densities greater than three artifacts per

square meter. Of these three areas, only one, located inside the sector defined by the banks and ditches (Figure 2-1) surface densities greater than eight artifacts per square meter. These results demonstrated that considerable information regarding the distribution of activities in the ancient Malagana community could be recovered from the surface.

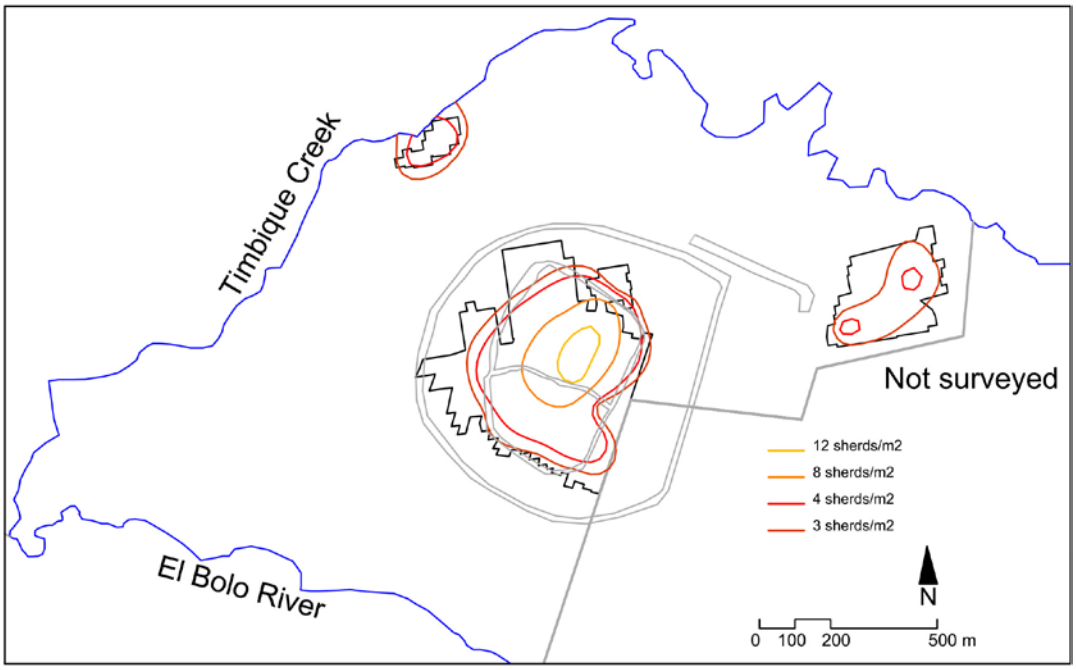

Figure 2-1 Sherd densities in the study area according to the 2010 systematic survey. Black lines indicate the limits of the intensive surface survey carried out in 2012.

2.1 SURFACE COLLECTION

In total, the 2010 pilot survey delineated an area of 28.7 ha with a density of cultural material greater than four artifacts per square meter (Figure 2-1). Given the considerable size of the delineated area and the abundance of surface artifacts located within it, collecting all of the

artifacts within the original unit remained outside the limits of this particular research project. A sampling strategy was therefore designed to collect material within units of uniform size as a means of providing reliable information on the spatial variation in artifact assemblages across the known habitation zone. Artifacts were collected from rectangular units of 2 m x 4 m, following modern cultivation furrows. Collection units were then raked to a depth of approximately 5 cm to ensure adequate and comparable surface visibility.

A sample of 40 artifacts was sought for each 2 m x 4 m collection unit to ensure that estimates of artifact proportions for each collection unit would have error ranges of ±10% at an 80% confidence level (Drennan 1996:142-44). In cases were the total number of artifacts surpassed the minimum number required, all cultural material was collected. Since surface densities in this area averaged over three artifacts per square meter however, the yield from a 2 m x 4 m collection unit was not expected to be 40 artifacts in all cases. Therefore, when one unit failed to provide the desired minimum of 40 artifacts, material from an additional 2 m x 4 m collection unit adjacent to the original was collected until 40 artifacts were recovered. If in the two 2 m x 4 m collection units 40 artifacts were not recovered, an additional and final collection was made of artifacts in a unit identical in size and adjacent to the others.

Collection units were placed at 25 m intervals, so there was one collection unit in each 25 m x 25 m square (collection lot), thus providing a level of spatial resolution close to the domestic unit level (Flannery 2009; Menzies 2009). In total some 460 collection lots were thus required to cover the 28.7 ha of occupation delineated by the original survey. By the end of the fieldwork portion of the project however, 1050 collection units from 497 collection lots were surveyed, covering an area of 33.9 ha. The coordinates of each collection unit were recorded with GPS.

2.1.1 Identification of residential areas

Identifying the extent and density of residential occupation, as well as the locations of individual domestic units, without extensive stratigraphic excavation designed to reveal house structures is an archeological practice supported by extensive studies worldwide. Steinberg (1996) accomplished it by screening already-disturbed plow-zone soil at Bronze-Age sites in Thy, Denmark. Peterson (2006) also successfully created similar surface disturbance by raking and hoeing at the Late Neolithic site of Fushanzhuang in northeastern China, while systematic collection of artifacts directly from the unmodified surface revealed domestic unit locations in considerable detail to Hawkins (1998) at the Late Prehistoric Horseshoe Johnson site in Ohio. Costion (2009) detailed inter-household activity variation at the Huaracane settlement of Yahuay Alta in the Moquegua Valley of southern Peru with an artifact sample obtained by intensive surface collection. At El Hatillo, in central Panama, Menzies (2009) collected artifacts directly from the surface where vegetation permitted, and excavated small shovel tests as a substitute where vegetation did not permit surface collection. Boada (2007) also used surface collections to map out residential locations at El Venado, in the Muisca area of central Colombia. The benefit of surface collection is that it allows for the collection of larger, more representative samples than single small shovel tests. At a number of sites in Colombia however, shovel tests have proven to be a very effective strategy for acquiring artifact samples and studying patterns of variation across residential areas within settlements at a number of sites in Colombia (Blick 1993; González 2007; Jaramillo 1996; Kruschek 2003; Henderson and Ostler 2005). Blick (1993), Boada (2007), Jaramillo (1996), Locascio (2010), and Menzies (2009) all confirmed with stratigraphic excavations that domestic unit locations corresponded to areas of higher artifact

densities separated by lower-density buffers, all of which were originally revealed by regularly-spaced shovel tests or surface collections.

Areas of the individual domestic units identified in these and other studies in Colombia are often about 25 m across, a size which corresponds to relevant ethnographic information (e.g. Drennan and Boada 2006; Killion 1992). Surface collections made at such an interval may thus be relied upon on to provide a sample of the inter-domestic artifact assemblage variability across a residential area. It must be emphasized however, that sampling the inter-domestic artifact variability across a residential area in this way does not depend on the assumption that each unit of surface collection represents a single domestic unit. Certainly, in some cases, one surface collection unit will correspond to one domestic unit, while in others it may represent two or three adjacent domestic units.

2.2 STRATIGRAPHIC EXCAVATIONS

Four 2 m x 1m stratigraphic excavations units were made in proximity to the area where of the systematic surface survey in order to obtain material for the refinement of the current regional ceramic chronology, particularly for the Early El Bolo period. However, due to the fact that the occupancy during the Early El Bolo period was restricted to the internal area of the earth structures – a fact known after the analysis of the ceramic material, the material recovered belonged almost entirely to the early part of the Late El Bolo period. Excavations were made outside of the borders of the systematic surface survey because permissions for digging within the survey limits were not given. Excavations were therefore located according to the availability of permissions, the potential for archaeological material to be found by shovel tests (40 cm x 40

cm), and the degree of soil disturbance (Figure 2-2). Units were excavated by artificial levels of 10 cm. Recovered artifacts were stored in plastic bags for subsequent washing and analysis. Characteristics of both the soil stratigraphy and the archaeological finds were very similar between all units.

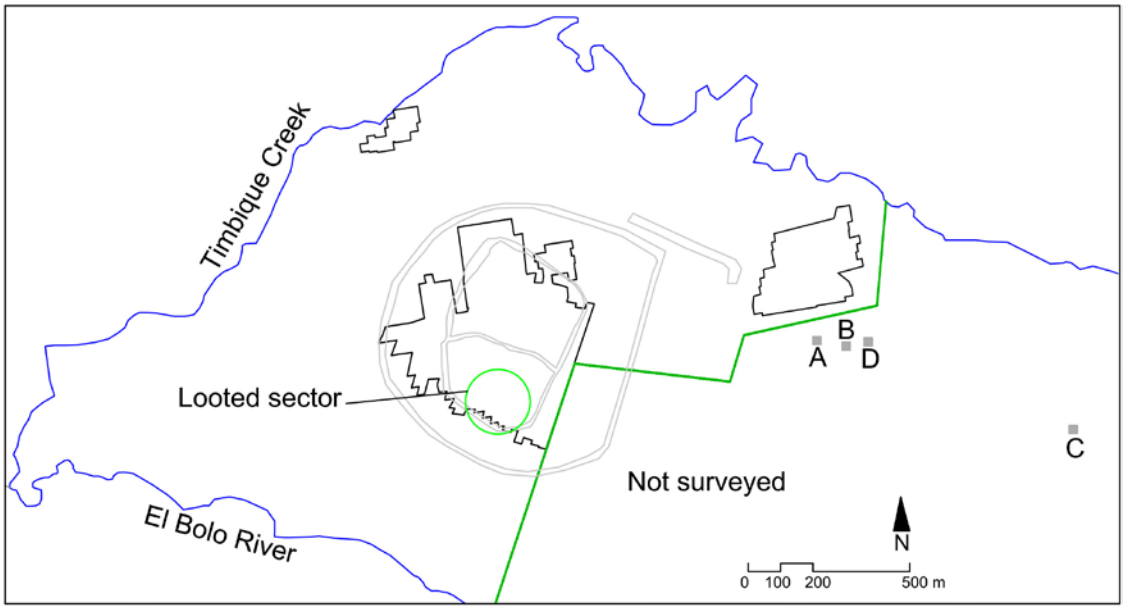

Figure 2-2 Locations of the stratigraphic excavation areas A, B, C and D.

2.2.1 Excavation A

Excavation area A was dug, 90 m south of the eastern survey area. Cultural material was found to a depth of 90 cm. The unit was excavated in a midden that contained 484 ceramic sherds (268.8 sherds/m^3), 20 rocks with no evidence to indicate that they were artifacts or residues of production, and more than 26 iron (Fe) nodules. No special features were observed. Three strata were clearly identifiable (Figure 2-3):

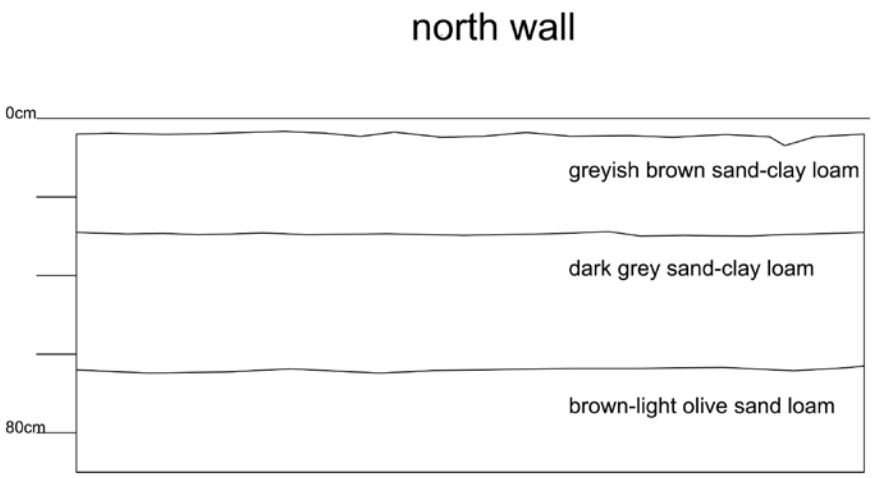

Figure 2-3 Excavation unit A. Profile of the north wall.

Layer 0-30 cm: It was characterized by a brown greyish, sand-clay loam soil to a depth of 29 cm. Overall, the amount of cultural material was low and the size of the sherds did not exceed 4 cm long. The low amount of cultural material is the result of prospecting activities by landowners, which brings sherds located at deeper strata to the upper layers. These activities also explain the discovery of modern material, like tacks, within 30 cm of the surface. The 16 ceramic sherds collected from this layer represent 3.3% of the total amount of sherds collected from this excavation unit.

Layer 30-60: At 29 cm from the surface, a very dark gray buried soil is easily recognizable. This soil had a higher proportion of clay than the soil of the previous level. The amount of sherds in level 30-40 cm was only 11, but this number increased in level 40-60 cm to 101. Small orange nodules are found in this stratum, but in a small quantity. These nodules have been interpreted as fired clay by other archaeologists in the area, but they are, in fact, Fe nodules, which are very common throughout the area below a depth of 70 cm. The amount of sherds for this layer represents 42% of the sherds from this excavation unit.

Layer 60-90 cm: This is a brown-light olive sandy loam (B horizon), which is sandier at the deepest level, and continues until the water table is reached at 150 cm. The Fe nodules are more common here than in previous layers, but smaller red and gray dots are observed as a result of the different oxidation and reduction processes. Level 60-70 cm had the most amount of material (n=143), but it decreased enormously in level 80-90 cm (n=14). Fifty four percent of all of the material from the excavation unit was found in this layer.

2.2.2 Excavation B

Excavation area B corresponds to another midden located less than 100 m west of Excavation unit A in the middle of a non-mechanized agricultural field. At 10 m there was a small irrigation channel, so this excavation proceeded in the area less affected by prospecting pits. The unit was excavated to a depth of 110 cm, where cultural material was absent and the water table appeared (Figure 2-4).

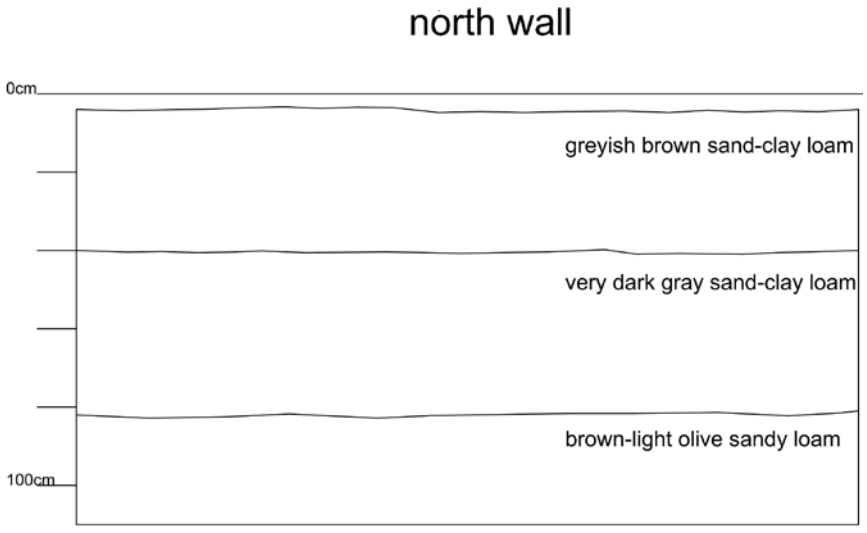

Figure 2-4 Excavation unit B. Profile of the north wall.

Layer 0-40 cm: This is a gray-brown sand-clay-loam soil with sub-angular blocks, firm when dry, but friable when wet. Seven percent of the total amount of ceramic material from this unit was collected from this layer (n=58). Some of this material likely originated in deeper levels, but was probably moved by thick roots found in two of the excavation units.

Layer 40-80 cm: This is a very dark grey sand-clay loam cultural layer with a prismatic structure. Its consistency is extremely hard when dry due to the presence of clay. The amount of sherds increases at the deepest levels: 46 sherds in level 40-50 cm; 49 in level 50-60 cm, 301 in level 60-70 cm, and 245 in the deepest 10 cm strip. Seventy eight percent of the ceramic material from the excavation unit came from this layer.

Layer 80-110 cm: This is a brown-light olive sandy loam horizon, where Fe and magnesium (Mg) nodules were common. At the 80-90 cm level, there were significant differences in the distribution of material when excavation units were compared at similar depths. In the east unit only 21 sherds were collected, while in the west unit the amount of sherds was 98. This difference is not the result of any visible characteristics in the stratigraphy, but may represent the limit of the midden. At 90 cm the water table was located and no additional archaeological material was observed, yet there were no stratigraphic differences between levels 80-90 cm and 90-100 cm that would suggest an abrupt change in the amount of sherds by level. At 110 cm the soil had a higher proportion of sand than other levels.

2.2.3 Excavation C

This excavation area was located close to Timbique creek and is the farthest from the area of the systematic surface survey. Proximity to the creek resulted in a soil with sandier characteristics. The excavation was located in a secondary forest of modern origin, but the vegetation does not

appear to have affected the area of excavation. Some disturbance may have been created by small fauna, since the cranium of a small mammal was found in the upper levels of the excavation unit.

Layer 0-40 cm: This is a brown sand-clay horizon without notable cultural material (n=2). This horizon is the result of sediments brought by the floods of Timbique creek. It was in this horizon that the cranium of a small, unidentified mammal was found (Figure 2-5).

Layer 40-60 cm: This is a C horizon formed by alluvial sediments. Fifteen sherds were collected in the deepest part of this stratum. These fragments belong to a single vessel that was buried in the deeper level and broke as a result of its friable characteristics. Originally, the broken vessel was left in the lowest level with a portion of it still exposed above the surface. However, the exposed portion of the pot was eventually buried by alluvial sediments in what appears to be a rapid process caused by the high instability of the creek (Figure 2-6).

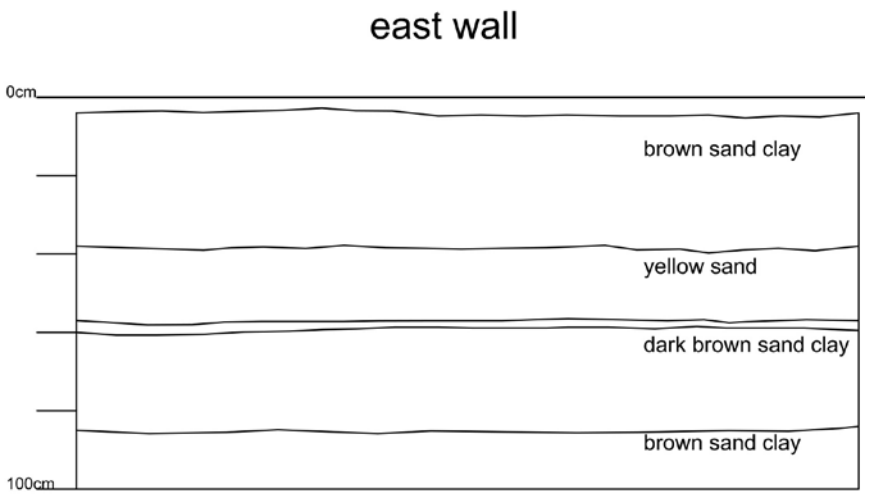

Figure 2-5 Excavation unit C. Profile of the east wall.

Layer 60-80 cm: This horizon corresponds to a dark brown, sandy-clay cultural layer where most of the ceramic material was collected (75%; n=266). Level 60-70 cm was particularly rich in material culture. Above this layer there was a small, gray, very sandy layer 1 to 5 cm wide. This layer is part of the superior horizon but is formed by bigger particles that could not penetrate the lowest layer. This thin layer was also visible in excavation unit D.

Figure 2-6 Detail of the east wall profile from excavation C, with a visible potsherd between the yellow, sandy horizon formed by alluvial sediments and the buried, dark brown sand-clay soil.

Layer 80-100 cm: At a depth of approximately 85 cm from the surface, a brown sandy-clay B horizon is distinguishable. In this B horizon, the amount of cultural material decreases until it is absent at the 90-100 cm level. In the 80-90 cm level, 57 sherds were collected, while in

the 90-100 cm level the amount decreased to 16. The only important characteristic of this level is the gray and red dots in the soil produced by processes of oxidation and reduction.

2.2.4 Excavation D

This excavation area corresponds to the other midden excavated for this project, but is smaller in its extents, with no cultural material located beyond 1 m in any direction. The only characteristic that makes this excavation unit different from the others is the unevenness of the buried soil. The excavation was conducted in an agricultural field with the same characteristics as excavation B, but with minimal biological disturbance. There were no other anthropic features besides the concentration of ceramics (Figure 2-7).

Layer 0-50 cm: The uppermost horizon is formed by a greyish brown fine sandy-loam layer with an angular structure and a firm consistency when dry. Only 19 sherds were collected.

Layer 50-80 cm: Most of the ceramic sherds (88%) were collected from this layer, with the majority concentrated in the 70-80 cm level. Finds, however, were not distributed uniformly among the individual units. The south unit of level 70-80 cm had 18 sherds, while in the north unit the number of sherds recovered was 139. This layer is a very dark grey sandy-clay soil with a prismatic structure and reddish dots resulting from iron oxidation. Above this layer there is a fine sandy layer no wider than 3 cm.

Layer 80-110 cm. This is a brown-light olive, fine sandy loam (B horizon), but with dark reddish brown inclusions. Nine out of the 10 ceramic sherds recovered from this layer came from the 80-90 cm level, so the presence of material in this level is likely the result of the downward displacement of material from the later soil.

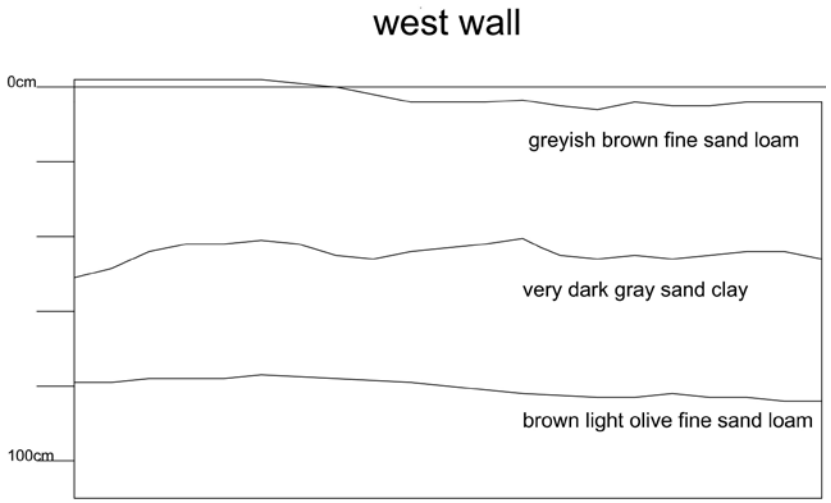

Figure 2-7 Excavation unit D. Profile of the west wall.

2.2.5 Summary of the excavations

The principal goal of these four excavations was to provide material for refining the ceramic chronology of the area. In order to achieve that goal, the material from each of the 10 cm levels was classified according to the different attributes or combinations of attributes that could be useful for determining the production period for each ceramic sherd collected from the systematic surface survey. Therefore, attributes could not be those observed in only a minor proportion of the sherds (like the shape), or those that could give information regarding spatial issues (like inclusions), but those that could be easily distinguished from any collected ceramic artifact. These attributes were thus determined to be the color of the paste, the finishing of the surface, and the type of decoration.

Despite different attempts to establish an intra- and inter-site ceramic sequence at Malagana, it was determined that the percentages of the different types of ceramics per levels did not follow a clear pattern (i.e. a battleship shape) in each excavation unit to draw any solid

conclusions. The principal reason for this rationale was that the entire assemblage of material culture belonged to only one period. In excavation C, decorated material from later periods (i.e. *escobillado* decoration type) was recovered from the 50-60 cm to 90-100 cm levels, encompassing the entire cultural layer. Taking into account that the stratigraphy of the area was similar for all four excavations, it is highly probable that the ceramic material from the other excavations was also from the same period. Decorated material however, was not very common in any of the excavations, representing only 1% of the 2,024 pottery sherds recovered. With the exception of one red and white decorated sherd found in layer 70-80 cm of excavation B however, none of the decorated sherds could be securely dated to the earlier period of occupation at the site. Post-analysis, it is reasonable to assume that this material belonged to the last part of occupation sequence at Malagana because occupation during the Early El Bolo period was spatially restricted to within the earth structures (Chapter 7).

Despite evident difficulties in refining the ceramic chronology for the area on the basis of these excavations, the following aspects are important for understanding the occupancy of the sector:

a. Most of the ceramic material recovered was located in a cultural layer under a thick layer of fine sand from an alluvial origin, which affected the population of the Late El Bolo period. These alluvial depositions may have contributed to the abandonment of the site.

b. There was no evidence of a volcanic ash layer that could have affected the occupancy of the sector, as has been suggested (Anthropologist José Rodríguez Cuenca, personal communication 2012).

c. The decorated ceramic material of Late El Bolo period shared common characteristics with each other as well as with the rest of the ceramics excavated in their surface treatment

(coarse textures, with the intrusions easily seen on the surface) and paste, which included brown, dark gray, reddish yellow, light brown and reddish brown colors.

Taking into account these aspects, information from other investigations with non-funerary contexts was used to provide a chronological control for the material collected from the surface survey (Bray et al. 2005; Cardale et al. 1999; Rodríguez Cuenca et al. 2007).

2.3 CHRONOLOGY

2.3.1 Ceramic typologies

The possibility for archaeological researchers to describe patterns of consumption of goods consumption and other activities for any one period is based heavily on their ability to date material recovered from the surface in a reliable manner. While some elements are easier to date than others, it was expected that the entire assemblage of artifacts could be dated to either one period or another. The periods of occupation for each 25 x 25 m collection lot were determined principally by the characteristics of their recovered ceramic assemblage.

The ceramic chronology used for this research is based mainly on the research carried out by Bray et al. (2005) at Malagana, as well as that of Blanco et al. (2004), Herrera et al. (2007), Patiño et al. (2010), Cubillos (1984), and Rodríguez and Bedoya (1999) on sites near the Malagana site, albeit with some modifications. Bray et al. (2005) have built a four-period ceramic chronology for Malagana, although differences between the ceramics styles are not always clear, at least for the first three periods of occupation. The first period, which is referred to as Pro-Ilama or Ilama-related, is separated from the second by a thick layer of alluvial

sediments almost 1 m in depth. Uncalibrated radiocarbon dates for both occupations however, are practically the same (300 ± 50 BC and 250 ± 110 BC for the former and 290 ± 60 BC for the latter [Cardale et al. 1999: 7]). This highlights the problem as to whether the radiocarbon dates are contaminated because the process to produce such a thick layer of sedimentation would likely take centuries (Botero 1999). Until now this issue has not been resolved.

The ceramic assemblage of the Proto-Ilama period resembles the period that follows, which is known as the Ilama period. According to Bray et al. (2005) the principal difference between these two ceramic is the absence in the Proto-Ilama assemblage of a characteristic essential to the Ilama style - "incised decoration combined with panels of colour" (Bray et al. 2005: 197). Bray et al. (2005) also claim that differences exist between the groups in the shape of flaring jar rims, since Proto-Ilama ones "are similar but not identical to Ilama ones" (Bray et al. 2005:197), but this does not say much. In this instance then, there is no clear ceramic identification that would allow for the classification of one type of rim from another. However, since the only differences between these ceramics are based on the absence of characteristics common to one group but not the other, distinguishing Proto-Ilama ceramics from Ilama ceramics is arguably impossible.

Bray et al.'s (2005) third ceramic period is the Malagana period. In stratigraphic profiles, this period is not separated from the Ilama, which indicates continuity. According to Bray et al. (2005:176-9) the Malagana period ceramics can be divided into two wares - coarse and fine. Coarse wares are "buff to reddish in colour and usually undecorated" (Bray et al. 2005: 176), while the finer ware can be further divided into ceramics covered by a polished red or white slip. Decoration is easily recognizable for the annular impressions, modeled human and animal figures, and geometric incisions added to the vessel surface. With minor differences, this

characterization resembles ceramics made for the Calima region. In Calima, Yotoco ceramics can be divided into groups of coarse, brown undecorated large vessels, fine, polished vessels with red slip and incisions, bowls, *alcarrazas*, coups, and globular vessels (Rodríguez Cuenca et al. 2007: 50-1). Nevertheless, differences between Malagana and Ilama ceramics are often difficult to distinguish from most complete vessels, let alone vessel fragments. Both ceramic groups share fine polished surfaces with incised decoration, red slip, and red colors. Yet some scholars have suggested that differences between the types of incised decoration may be used as markers for distinguishing one group from another (Herrera and Cardale 2003: 282). Taking into account that only 0.22% of the early period sherds recovered from the surface surveys have incised decoration, it is futile to use that characteristic for assigning ceramics to any particular period.

Considering that the ceramic groups for the three earliest periods of occupation (Proto-Ilama, Ilama and Malagana) share similar characteristics in both fine and coarse ware, it is possible to combine the ceramics of those groups into a single period. New groups may be categorized as follows: 1) Polished surfaces with or without red or white slip or other type of decoration; 2) smooth surfaces with annular or incised decoration and red, white, orange or black paint; and 3) coarse surfaces with reddish brown, reddish grey, brown, greyish brown, beige, darkish brown and reddish yellow surfaces (Blanco and González 2003; Rodríguez and Bedoya 1999).

In clear contrast, the ceramic typology of the last period, also known as the Bolo-Quebrada Seca or Sonsoid period, can be easily distinguished from the ceramics of the previous period in both the decorated and undecorated sherds. Decorated sherds usually have unpolished, coarse surfaces with thick walls (Gähwiler 2005), or corrugated, brushed (*escobillado*), and

digital- and nail- pressure decoration (Cubillos 1984; Rodríguez and Bedoya 1999; Patiño 2010). Although red paint and red slip are also present in the ceramics of this period, they are generally associated with coarse surfaces. Undecorated ceramics are characterized by a friable surface, coarser than the sherd surfaces of the previous period. Unlike the previous period however, surface colors of the undecorated ceramics range from light brown to light red with paste colors ranging from reddish yellow to dark brown.

To summarize, the principal characteristic differentiating early from late ceramics is the type of surface finish (polished/smooth/compact versus coarse/friable). As Herrera et al. (2007) have shown in the Coronado cemetery however, neither are all polished/smooth/compact ceramics are from early occupations, nor are all coarse/friable ceramics from late pottery assemblages. Nevertheless, when other diagnostic characteristics such as decoration type, clear surface color or diagnostic forms are absent, surface finishing can provide a reliable approximation of the ceramic period.

2.3.2 Radiocarbon dates

As mentioned above, determining the older chronological limits of the occupation at Malagana presents difficulties due to the stratigraphic incoherence of the charcoal dates presented by Cardale et al. (1999). This is particularly the case with what Bray et al. (2005) have termed the Proto-Ilama and Ilama periods of occupation at the Malagana site. Here the Proto-Ilama occupation is separated from the Ilama occupation by different layers of sediments devoid of cultural remains. This lack of anthropic material, together with clear differences in the horizons between the two occupations, suggests that the deepest archaeological material cannot be explained by natural process of alluviation, although biological activity has been reported

(Botero 1999: 99). The recognition of two separate periods of occupation thus appears a valid interpretation of the evidence. What becomes intriguing however, is the similarity of the dates taken from the two occupations, which both correspond to approximately the 4th century BC. According to the excavation report by Botero (1999), successive horizons can take between 500 to 1000 years to form (c.f. Bray et al. 2005). Consequently, this would imply that at least one dated charcoal sample is an error which could have significant implications for the demographic estimates. Other interpretations however, are possible.

The horizons between Proto-Ilama and Ilama occupations are classified as C horizons, formed by alluvial sediments from both the Cauca and El Bolo Rivers. In the floodplains, sediment accretion can increase at very high rates depending on different factors. Rapid land use change in Coon Creek, Wisconsin, for example, allowed the aggrading of the floodplain by more than 3 m in 126 years, with a rate of 15 cm year^{-1} at its peak (Trimble 1981). It is thus possible that anthropic deforestation processes could have increased the rate of sediment at Malagana. The Malagana excavation report indicates that there was evidence for the disappearance of the forest, which turned the environment into a marsh. However, this evidence does not come from the horizon immediately above the Proto-Ilama occupation, and there is evidence for forest recovery before the formation of other alluvial horizons, suggesting a slow process of soil formation. Large flood events can also account for rapid accretion of the floodplain (Brown 1997), but the absence of gravel in the Malagana horizons negates the possibility of discrete catastrophic events.

Although rapid accretion processes may sound like a plausible explanation for the C horizons between Proto-Ilama and Ilama occupations at Malagana, the similarity of the radiocarbon dates indicates a probable contamination of one of the samples. Research on

radiocarbon analysis at the Nauwalabila I site, Australia, by Bird et al. (2002) has shown that charcoal alteration can be caused by high water tables in tropical environments. Seasonal oscillations in the water table at Nauwalabila I, which could have reached the surface, replaced the charcoal with a mixture of iron and aluminium oxy-hydroxydes that affected the reliability of radiocarbon dates by decreasing their age estimates (Bird et al. 2002: 1074). At the Malagana site, the dates from the deepest deposit came from charcoal approximately 1 m below the modern water table, as well as from below a horizon indicative of marshy environmental conditions. Even if the specific characteristics of the sedimentation process at Malagana must be checked in detail before presenting a strong conclusion regarding charcoal alteration, the parallel with the Australian case is fairly convincing. It therefore seems clear that the Proto-Ilama ceramic assemblage at Malagana is much older than originally thought, although that is not a problem for a site-specific ceramic chronology.

Certainly there is not a reliable date for the Proto-Ilama occupation, but the depth at which material from that period is found does not make it likely that samples from this period would be obtained from the surface (see discussion on site formation process below). If the activities performed by the people from the Proto-Ilama period were separated by hundreds of years from those carried out by people of the Ilama period, irrespective of how similar their ceramic assemblages are, it would not be possible to talk about a continuous trajectory of social development from the Proto-Ilama to the Ilama periods at the Malagana site. On the other hand, the two older calibrated dates for the Ilama/Malagana occupations coincide with the beginning of the 4th century BC. Considering that the Early El Bolo period encompasses the Ilama/Malagana occupations, the 4th century BC may thus be considered the start of the Early El Bolo occupation.

As shown in Figure 2-8, the temporal separation between the Ilama/Malagana and Bolo-Quebrada Seca ceramic assemblages seems clear. That there is continuity in certain ceramic forms from one period to the another, that there are no clear soil horizons separating the Malagana and Bolo-Quebrada Seca ceramic assemblages, and that there is continuity in the occupation of certain settlements indicate that the lack of radiocarbon dates for the period between 600 AD and 800 AD is more likely the result of sampling issues than a real gap (depopulation) in the occupation of the region. In the nearby Calima region, where more research has been carried out, there are at least ten uncalibrated dates ranging from 500 AD to 800 AD. Additionally, if the dates from the area between the Calima and Malagana regions are taken into account, the number of radiocarbon dates increases to 15.

A similar argument that there are problems with the accuracy of the radiocarbon dates could also be made for the later periods at Malagana. It seems that occupation of the region ended at some point around 1350 AD; although this date might also be affected by sampling issues, since Spanish chronicles state that the region was occupied at the moment of the Conquest. Evidence of abandonment of the Malagana site around the end of the 14th century AD as a result of periodic flooding episodes is provided for material culture from excavation C. In this excavation area, potsherds with the *escobillado* (parallel incisions) type of decoration were recovered just below the layer of alluvial sediments (Figure 2-6). *Escobillado* decoration has been related to the early part of the Late El Bolo period, before the 14th century AD (Giraldo 2013; Patiño 2010), although the precise chronological position of *escobillado* decoration remains tentative.

The gaps in the chronology of the region between early and late ceramic styles result more from the paucity of archaeological research in the area than abrupt historical social processes involving mobility and depopulation. The question thus became where to draw the line that divides the two periods of the ceramic sequence. Blanco and González (2002) and Rodríguez (2002) believe that 500 AD should be the latest limit for the Malagana culture, although Rodríguez (2007) extends the limit to 800-900 AD based on radiocarbon dates taken from sites more than 45 km away from Malagana, most of which are from areas up in the mountain range. For Rodríguez (2007), the period of the Bolo-Quebrada Seca ceramics would thus have started at the beginning (or shortly before) 800 AD. This time division, even based on uncalibrated dates, appears to coincide with the information graphed in Figure 2-8, where the mean date for the two extremes (560 AD and 980 AD) is 770 AD.

Accordingly, we can construct a clear periodization for the region based on the characteristics of the ceramics and the existing radiocarbon dates for the area. The Early El Bolo Period may thus be considered to begin around 400 BC and it end around 800 AD, while the Late El Bolo Period begins around 800 AD and ends with the Spanish conquest around 1550 AD.

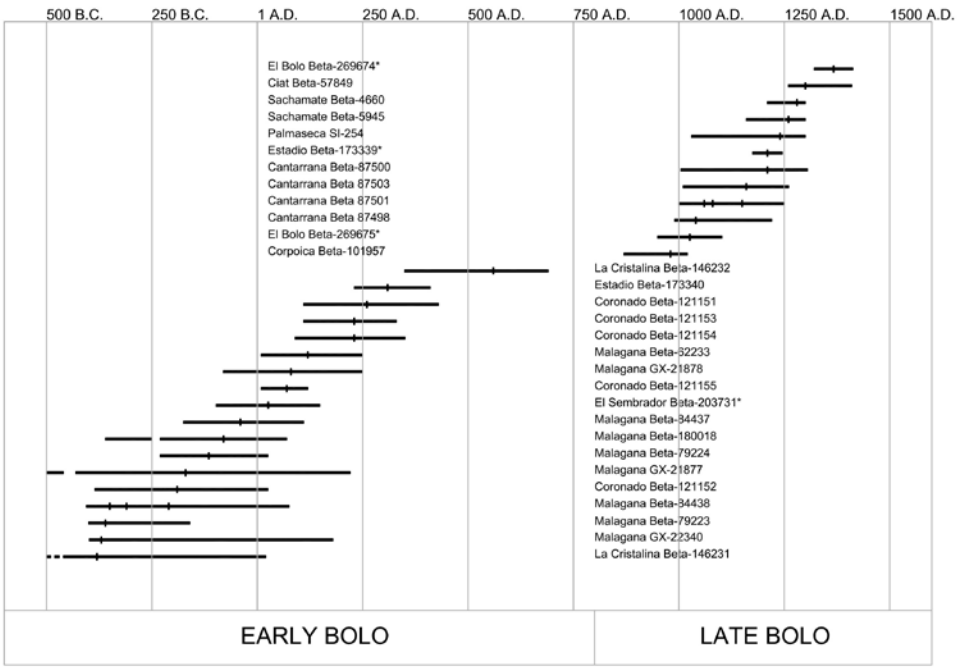

Figure 2-8 Radiocarbon dates from the sites in the flat valley of the Cauca River, 20 km around the Malagana site.

2.3.3 Chronology for non-ceramic material

Ceramic artifacts can be easily dated through stylistic analysis, but non-ceramic material cannot often be dated in the same way. Three aspects were therefore taken into account to locate these artifacts chronologically. First, non-ceramic material recovered from collection units yielding ceramics either entirely or almost entirely of one period may be dated to the same period of ceramics. This approach has been successfully utilized by a number of the studies already cited that analyzed the artifact assemblages of different residential areas without stratigraphic excavation (Costion 2009; González 2007; Menzies 2009). It is worth noting that dating lithic artifacts from stratigraphic excavations also depends on reducing the sample to only those contexts where lithics are associated with "pure" (or relatively pure) ceramic assemblages dating

to a single period. Second, non-ceramic material may be dated to the same period in which similar non-ceramic material recovered from other archaeological excavations has been dated. Certain non-ceramic materials have been found only in contexts belonging to one of the periods analyzed (like greenstone, rock crystal, and high quality gold with the EEB period), so their association with specific ceramic assemblages for dating purposes is unnecessary. A third strategy, in the event that none of the other strategies are useful for dating non-ceramic material, relies on calculating the differential proportion of ceramics for each period in the collection lots where non-ceramic material is found.

2.4 PROCESSES OF SITE FORMATION

Due to the fact that the site has been affected by looting activities and mechanized agriculture, the first objective before carrying out this research was to evaluate the degree of disturbance of such activities in the archaeological record. It must be clear that the degree of 'disturbance' is relevant according to the expectations of the material that is thought to be collected (Binford 1981); in this case it is to recover material from surface that could come from one or some domestic units spatially related. Although it is impossible to determine how much the material has been displaced, some expectations were considered in regards to the possible effects of the different C-transforms (*sensu* Schiffer 1987) that could alter the terrain.

In Malagana it is well known that the terrain has been leveled through the removal of the soil of the surface of the areas with bigger slopes, that the agricultural machinery penetrates 60-80 cm into the soil and that there have been recurrent looting activities. The possible damage that

such activities can cause in the way the material is distributed for the goals of this research can be evaluated critically or empirically.

2.4.1 Soil leveling

The leveling of the terrain implies that the earth and the material on it above a determinate height are removed. This removed material can be left in lower parts or it can be put in some place out of the area of the agricultural fields. For Malagana it is not possible to establish how uneven was the terrain, but it is known that before 1992 there were earth structures 2 or 3 m high surrounding the site. These structures were ‘reduced’, that is, that the earth these structures were made of was scattered for filling the adjacent ditches and leveling the low areas. That is, the cultural material with the highest probability of being removed was that contained within or on the surface of the earth structures. To establish what kind of anthropic material was inside these structures is impossible, but the most plausible interpretations of the function of these structures (defensive, see Chapter 7) do not include occupation or disposal of garbage (Bray et al. 2005).

This is not the only type of leveling mentioned in the area by the researchers. Cardale et al. (1995) assume that in the interior of the site (the space surrounded by the embankments) the terrain was also leveled. They do not indicate that the material was mixed but that the earth was left in other sectors of the site and for that reason, the material of the last occupation, that they call sonsoide, was not well represented (Cardale et al. 1995: 61) (even when they indicate that they recovered domestic material from that period from the surface). One logical observation is that the lack of material of a period is not an indication that it was removed, because this would imply a previous knowledge that such material was there. The lack of material in the particular area where archaeological material of the last period was not found can be a simple indication

that that zone was unoccupied in that period; in the same manner that Cardale et al. (1999) argue that there was no Malagana (EEB) occupation in the J area of their excavations. This explanation does not reject Cardale et al.'s hypothesis, but it provides a different alternative that should be evaluated.

The 2010 pilot survey and the 2012 intensive surface survey showed that Late El Bolo period ceramics were found in huge amounts inside the Malagana site, even in sectors next to those excavated by Cardale et al. (1995). According to the map of distribution of ceramics for the LEB period (see Chapter 6), the area excavated by Cardale et al. (1999) presented very low densities of ceramics for that period, and such low density is observed immediately adjacent to the central earth embankment along both sides. In addition, the density of material from the LEB period is higher than the densities of EEB ceramics in the Malagana site. This scenario indicates that ceramics for the last period of occupation were not moved in huge amounts from the site to other places because material for that period was found in similar or higher amounts in the site than ceramics for the earlier period; and that the location of low quantities of late ceramics in the site excavated by Cardale et al. (1999) is consistent with the location of other areas with low quantities of that material. So, it is possible to indicate that the low density of material of that period is more the result of low intensity occupancy than leveling activities.

2.4.2 Agricultural machinery

The principal agricultural activities in the area have been the production of rice (until a few decades ago) and sugar cane (at present). The preparation of the soil for this latter crop implies plowing 80 cm deep. This type of agricultural activity a) allows that buried material appears in surface; b) that such material is bigger in size than the one in the sub-soil; and c) it can create a

horizontal movement of the material creating a clinal distribution. The information gathered from the 250 ha 2010 pilot survey allows evaluating the possibility that agricultural activities had produced substantial movement of material on the surface. This can be accomplished by analyzing the behavior of the archaeological material inside of each of the agricultural fields into which the surveyed area is divided. One reason for this is that the different fields are separated by roads impeding the movement of material from one sector to the other. However, due to the fact that the 54 agricultural fields found in the area have changed their size in the past decades (according to 1976 maps and modern air photographs) they were grouped into eight sectors whose limits have not changed in the last four decades. The expectation is that the distribution of the material in each of these eight sectors was very homogenous if the agricultural activities were a decisive factor in the distribution of the artifacts, because the use of the soil has been the same.

The results, observed in Figure 2-9, show that the cultural material is not homogeneously distributed even in the smallest fields, but concentrated in small sectors, and these concentrations coincide with a more general pattern of distribution focused in the central sector of Malagana. This does not mean that agricultural activities did not move material, but that this movement was restricted: instead of hundreds of meters some material could have moved tens of meters, at most. This restricted movement of material is not enough ‘distortion’ for the goals pursued by this research. Other elements suggesting limited movement of the archaeological material are the characteristics of the agricultural furrows, which are arranged across the fields (along their shortest side), and the spatial concentrations of material of the same kind in small sectors.

Figure 2-9 Contour map of the densities of archaeological material and the pieces of agricultural land which limits have not sufferer modifications in the last four decades.

2.4.3 Looting activities

The activities of looters represent one of the factors most mentioned by archaeologists as affecting the distribution of material in Malagana. This type of activity does not imply a significant horizontal displacement, although it has been observed that some looters take bags of earth towards the nearest irrigation channel, but such minor material movements are not beyond 30 m. This movement is usually limited to the area next to the wealthiest tombs. The more significant movement is vertical, bringing to the surface material that the plows cannot reach; but the opposite is also possible: some surface material is buried when the holes made by the looters are filled. This type of activity could bias demographic calculations by providing more archaeological material in the more looted areas than the areas not looted or where plundering

was less intense. If this were true, a higher density of archaeological material should be expected in the areas more severely looted.

For the local inhabitants the more severely looted sectors had their own names. ‘San Andresito’ and ‘Esmeraldas’ are the more continuously visited places by looters, but not the only ones. The principal activities of plundering are found in and around these sites, in the southern part of the central area of Malagana. In order to evaluate the hypothesis that looting activities bring to the surface a higher quantity of archaeological material, the central area was divided into 1 ha squares. The number of collection units carried out inside of each collection lot was averaged out for each 1 ha square. The averages were divided into four intervals: high (1-1.49), medium-high (1.5, 1.99); medium-low (2-2.49); and low (2.5-3). The high interval means that the average number of collection units made in each collection for each 1 ha square was minimal, so the density of material was high. Figure 2-10 shows the different averages of collection units by collection lots in each 1 ha square. It is clearly visible that the most looted area, to the south, was not the one that produced more cultural material. Thus the looting activities in the area have not produced very significant bias in the amount of quantities of archaeological material recovered in the surface survey.

Another way that looting activities can affect the nature of the archaeological record for the objectives of this research is the collection of certain artifacts on surface that could bias the results about certain type of activities carried out by the pre-hispanic occupants. Among the sort of artifacts collected on surface by looters are greenstone and rock crystal beads and stone tools. This practice can create some bias because these ‘special’ artifacts are collected principally in one area of the settlement, specifically the south-central area, but not in the northern or eastern sectors outside of the banks and ditches, where the surveillance by sugar cane companies is

stricter. In other words, the absence of certain type of artifacts in the central area of the settlement might be the result of looting activities instead of the absence of the activities represented by such artifacts. There is not a manner to solve such a difficulty. However, this bias can be taken into account in the interpretation of the activities made in different sectors. An example: while in the east zone some finished stone artifacts were found, in the central area that number is minimal. At the same time greenstone and rock crystal artifacts were not found in the east area. So, even if it is not possible to assert that there were important differences between the residents of these two areas in the use of finished stone tools, it can be said with high a degree of confidence that the consumption of greenstone and rock crystal beads was different, because these sorts of artifacts have been collected by looters in the central area but not in the east one. Their absence on surface collections on the east is an indication that artifacts of that kind were not consumed in that sector.

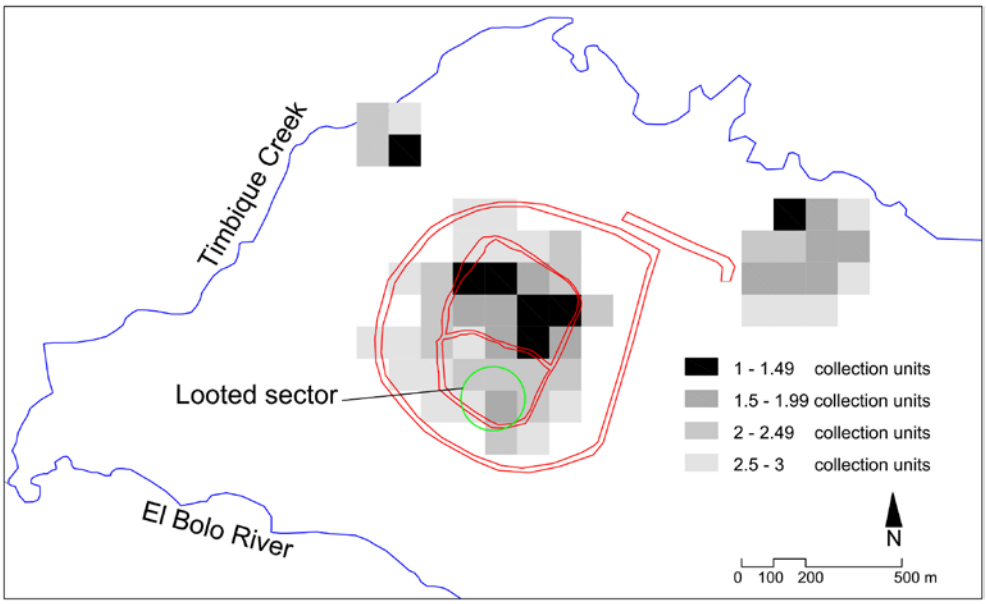

Figure 2-10 Average number of collection units by collection lots in 1 Ha squares. The lower average of collection units indicates a higher density of archaeological material.

2.5 DEMOGRAPHY

The population size of a political unit by itself or in regards to the available resources is important in an anthropological tradition emphasizing the role of the size of the population in political, economic, and social processes. Some believe that the creation of more complex forms of sociopolitical organizations is tied with the surpassing of certain population thresholds to deal with internal social stress (Bandy 2004), as a way to deal with a higher information flow (Spencer 1987), or even as a part of our primate origin (Kosse 2001). For others, the relationship of the population with the available resources, instead of demographic growth *per se*, is a more appropriate avenue for understanding processes of social complexity. Carneiro (1970, 1981), for example, has insisted that the increase of population in areas with limited resources creates enough social pressure to promote conquest wars resulting in the development of regional political units with a clear social stratification. Others observe that complexity does not increase with conquest but with the construction, by ambitious leaders, of defensive settlements in conflict for resources in the contexts of population pressure (Allen 2008). Others, without implying conflict support the idea of the great human creativity to solve the pressure on resources by creating new productive technologies (Boserup 1965). These are only some of the models emphasizing, mechanically, the development of more complex organizations after demographic growth. Alternative models implying demographic growth invert the directionality of the process: population growth is the result of the strategies followed by the elites to increase their wealth through tribute, in order to use such wealth in the finance of other sources of power (Earle 1997).

Independently of the theoretical framework tying sociopolitical complexity and demographic changes, some clear correlations between the size of the population of a society and the type of political structure have been observed (Feinman and Neizel 1984; Spencer 1987). Although these analyses do not indicate the degree of interaction between the members of these societies (which can vary from compact communities in fortified settlements to communities which members live in dispersed settlements) the scale of analysis is relevant to understand the nature of the phenomena it is dealing with. Communities of a hundred persons are quite different from those surpassing the thousands, because the effort required for ambitious leaders to create and maintain social inequalities is different. The scale is fundamental to understand the success or failure of the strategies pursued by leaders for their political goals.

The next step is to know how to calculate the population living in a given sector based on the material collected on surface. As has been mentioned, different programs of investigation in the Intermediate Area have identified successfully residential areas, based on shovel tests and on surface collections, as sectors of high ceramic density forming rings around the residences. These ceramic rings tend to spread in 25 m ratios, although the area of dispersion of material can increase according to the time of occupancy (Drennan and Boada 2006). Although it is not correct to indicate that the dispersion area of ceramic middens in other regions of the Intermediate Area is similar to the one at Malagana, they can represent a good approximation for demographic calculations due to their consistence. The intensive surface survey collected archaeological material every 25 m in order to have material from every domestic unit without missing one. However, this does not indicate that every lot where archaeological material was collected represents one and only one domestic unit. It is perfectly possible that the material collected from two adjacent collection lots comes from the same domestic unit; and conversely,

that the material collected from one single collection lot comes from two or three domestic units spatially related. Due to the inherent difficulty to solve this problem it is useful to think, in very conservative terms, that the material from one collection unit represents the residues of only one domestic unit.

In very extensive periods, like the ones involved in this research, it is perfectly possible that some residences were not permanently occupied. Some could be occupied for long periods of time, whereas others could be of a more temporary character. The differences in time of occupancy not only provide variation in the extent of the ceramic middens but also in the amount of material discarded. It is logical to consider that the areas of low ceramic density of one period can be considered as sectors where the occupancy was not for the entire period but for a fraction of it. The problem resides in defining the density of ceramic sherds by square meter that can be considered as 'low density'. One way to do this is by establishing the mean of densities of sherds by square meter for all the collection lots by period and to establish the error ranges at 99% confidence level. Those collection lots with the densities below the inferior limit of these error ranges can be indicative of residences occupied temporarily. Evidently, this threshold is arbitrary, but it can provide some numbers that can be helpful for easier comparison between periods.

For the Early El Bolo Period (EEB) 458 collection lots had at least one sherd of that period. The mean of densities of sherds by collection lot is 1.5 sherds/m^2 ±0.2, at 99% confidence level. This indicates that those collection lots with densities below the 1.3 sherds/m^2 can be considered as temporary occupancy and won't be taken into account for the calculations of the population. 294 out of 458 (64%) had densities below this threshold; and 164 above it.

As has been mentioned, it is possible that two or more residences concentrated inside the 625 m² of each collection lot, but also that the residues of one domestic unit extended in such way that two adjacent collections lots had material from the same residential unit. By taking each collection lot with sherd densities above 1.3 sherds/m² as a permanent domestic unit, comparisons of the size of a population from one period to the other can be carried out. These estimates can be considered as conservative because they exclude a huge amount of collection lots with very low densities; but also because some domestic units can concentrate very close to each other. If every domestic unit is formed by 5 to 7 persons, as it has been the common practice in population estimations with similar methodologies, it can be indicated that the Malagana community was occupied by 820 to 1148 inhabitants during the EEB period.

Following the methodology presented above it is possible to calculate the population for the last period of the sequence (LEB) and to indicate changes in it. For the last period, 485 lots had at least one sherd of the LEB style. The mean for the densities of LEB ceramics by lot was 2 ±0.2 sherds/m², at a 99% confidence level. This means that the lower limit can be put at 1.8 sherds/m². 281 lots presented densities below this number and 204 above it. According to the postulate of 5 to 7 individuals per lot, the population for the Late Bolo Period would range between 1,020 and 1,428 individuals; that is an increase of 24.4% in the population from one period to the other. Despite the trimming strategy to reduce the impact of temporary occupations in the sector, this strategy fails to take into account the differences in the length of the two periods, after all what it measures is how many sherds, on average, are consumed by each domestic unit during an average time of occupation. Even the disparity in length of periods, and the probable the result indicates that there was an increase in the intensity of occupation of the site from one period to another.

There are other ways to calculate population, like the one used by Linares and Sheets (1980: 53) for the Volcan Barú region, Panamá. In that case, the total of occupied space from one period is divided by the area occupied by a domestic unit (in this case it is calculated in 2,500 m² instead of the 625 m² used in this research) and then the result is again divided by four (as a measure to determine the number of houses occupied at the same time). According to this perspective, the total number of inhabitants for the Malagana site in the Early El Bolo period would be 143-200 inhabitants and 151-212 inhabitants for the Late El Bolo period. These estimates are far from those produce by the first methodology and can be considered very conservative since they are based on the actual distance (50 m) between dwellings of a large village composed by dispersed domestic structures (Linares and Sheet 1980: 47). Therefore, this methodology cannot be appropriated for population calculations for a compact village like Malagana, especially in the Early Bolo period. It is also important to highlight that the refuse between dwellings in the BU-17 site (the site used by Linares and Sheets to make the demographic calculations) was, in many spots, missing. That is not the case in the Malagana site. Using the same methodology but using the 625 m² area as the space occupied by a dwelling, the numbers change dramatically from 572-801 inhabitants for the Early Bolo to 606-843 inhabitants in the Late Bolo. This methodology also fails to take into account the differences in length of different periods.

The estimates mentioned above use different strategies to make demographic calculations based on different principles: number of sherds (or densities) and occupied area. These methods to calculate population can be more useful as relative instead of absolute estimates of population. But even in that case, it has been more appropriate to use the raw data than trimming in it with

arbitrary mechanisms. Figure 2-11 and Table 1 show the total number of lots, area total, total number of sherds and total number of sherds by century by period.

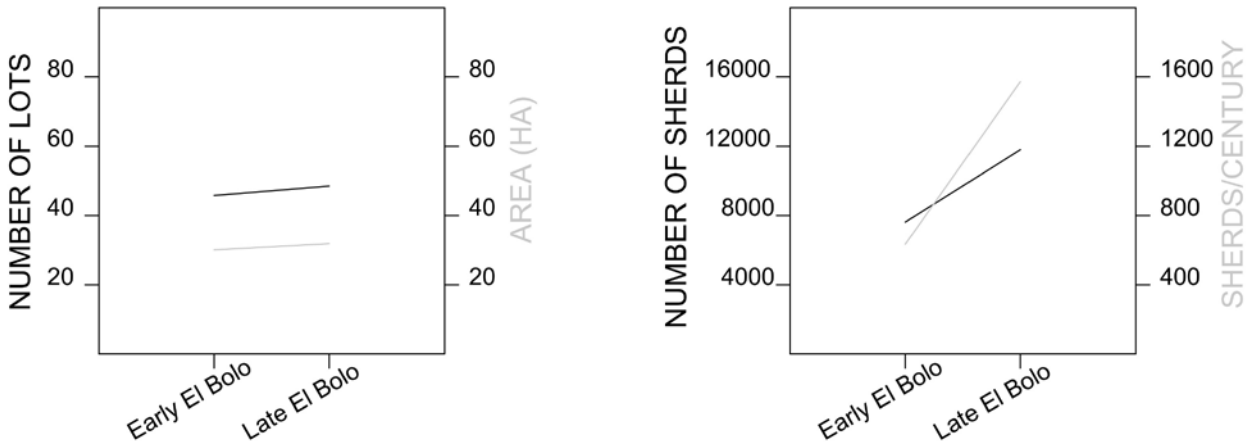

Figure 2-11 Changes in number of lots, occupied area, number of sherds and sherds by century from the EEB period to the LEB period.

According to the four ways to calculate relative estimates of population (number of lots; total area occupied; total number of sherds; and total number of sherds by century) there is an increase in the population from Early Bolo period to Late Bolo period; although the slope was not the same in the four cases. There is a slight increase in the number of lots and area occupied categories but a steep increase in regards to the number of sherds. The similarity between the number of lots and the total area occupied is due to the fact that the area occupied is the same for each lot where collections units were carried out (625m²). In the case of number of sherds, the steepest line (in gray) indicates the heavy impact on the estimates when the length of a period is taken in consideration. Independently of how big is the change recorded by different

methodologies, the similarity in the results indicates that the increase in population is not the result of simple vagaries in the sample.

Table 1 Changes in number of lots, occupied area, number of sherds and sherds by century from the EEB period to the LEB period.

	EARLY EL BOLO	LATE EL BOLO
Number of Sherds	7,642	11,798
Sherds by Century	636.8	1,573
Number of Collection Lots	458	485
Collection Lots by Century	38.1	64.66
Area (Ha)	29.83	31.61
Area by Century (Ha)	2.48	4.21
DAI	45.51	66.09
DAI/C	3.79	8.81

One alternative for calculating changes in population in relative terms is combining both measurements (occupied area and number of sherds) to provide a more powerful and systematic result. The Density/Area Index by century (DAI/C) is one way to deal with both methodologies taking into account the length of the periods while avoiding the problems related to the differences in the size of the sites or collection units and with spatial differences in visibility on surface of the material record (Drennan et al. 2003). The procedure involves calculating the proportion of the sherds that belongs to each period in each collection lot, multiplying these proportions by the density of sherds in their respective collection units and multiplying the result by the total area of the collection lot. The result is the DAI. This number is then divided by the number of centuries of the period. Although this methodology has been designed for regional scale analysis it has been used for calculating relative demographic estimates at the community scale (Menzies 2009). Figure 2-12 and Table 1 presents the results of DAI and DAI/C, showing,

obviously, the same pattern of increase of population observed in the other analysis, but closer to the results of the total number of sherds.

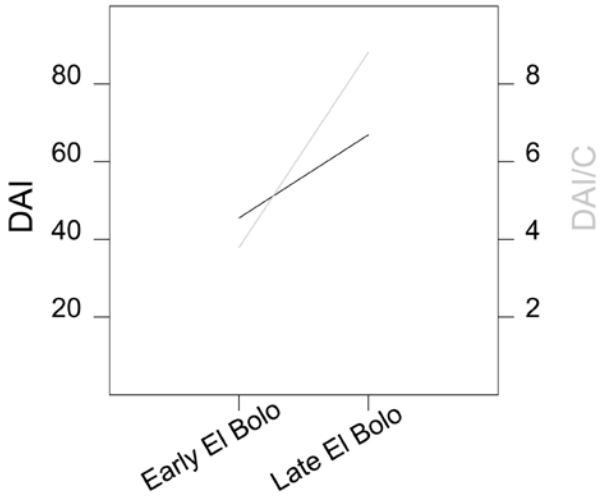

Figure 2-12 Changes in the DAI and DAI/C between periods.

DAI/C analysis has not only been used for relative demographic estimates, but for absolute estimates of population (Drennan et al. 2003; Haller 2008). In this sense, absolute population estimates are calculated by identifying the number of people required to produce densities of 1 sherd/m² in 1 ha during a century (Drennan et al. 2003: 160-1); and this can be achieved by using information from excavated villages.

This index can be calculated by using information from excavated areas of residences in nearby areas. In the nearby Calima region, at northwest of the Malagana settlement, Salgado et al. (1993) excavated six to seven domestic units structures of different sizes located on two artificially flattened platforms over the Cabo de la Vela hill. These flattened platforms are part of a group of 24 artificial platforms with evidence of occupation from different periods. Although

not all domestic unit structures were completely excavated the data from that research can provide relevant information for the goal of calculating average sherd refuse by person/m².

In platform 4 one domestic structure was excavated with sherds belonging to Yotoco and Sonso periods. Next to it there was another platform (4A) also with material from these periods, but it is not clear if the post holes found there belong to another house or to a different structure used by the residents of platform 4. Salgado et al. (1993) think that much of the material in platform 4A has been moved from platform 4 by natural action. There is not any information of the quantity of surface material in these contiguous platforms or the amount of sherds by layer but it is possible to make an approximation.

There is not information of the size of the domestic structure, but 5 persons per domestic unit can be a good estimate for pre-hispanic societies in this area. The total area excavated from both platforms 4 and 4A sums almost 104 m² or 0.0104 ha. The total amount of sherds belonging to the Sonso period is 525 (316 from platform 4 and 209 from platform 4A). Therefore, in general terms, the density of sherds per ha per person is 10096.1 ([525/0.0104]/5). Since the Sonso period extends in this area from 500 A.D. to 1550 A.D. (Rodríguez 2002), the index of density sherds per person per ha per century is 961.5. This index is for the total of the excavated site, but not for material on surface. Surface material can be conceptualized as the material located from the surface to 5 cm deep (as was the material collected in the Malagana site). Again, there is not information for the amount of ceramic material by layer in any Cabo de la Vela platforms, but it is known that deposits were, on average, 40 cm deep. So dividing the index by eight can produce the amount of sherds in a block 5 cm deep. This would imply that 120.19 persons produce surface remains averaging 1 sherd/m² across an area of 1 ha in a century. This number can be then multiplied by the DAI/C obtained for the latest period (since Sonso and Late

El Bolo Period are contemporaneous) at Malagana. In this case the absolute estimation of population for the Late El Bolo period is 1,058 inhabitants.

The same exercise can be done for the earlier period Yotoco. In this period the amount of sherds is 227 for both platforms, and the length of the period ranges from 500 to 800 years (Rodríguez 2002, 2007). Taking into account these numbers the new index for the earliest period ranges from 68.2 to 109. This would imply an estimate of 258 to 413 persons in the Early El Bolo period. However, taking information from only one house can be misleading; therefore, the greater quantity of information from other sites is better. The excavations by Salgado et al. (1993) in the top of the Cabo de la Vela hill can be helpful in that sense.

In the largest excavation (227 m^2) they found evidence of five residences of different sizes, but they only excavated three of them completely. The five structures are located in the south part of the excavation, but in the north side there was a great amount of sherds, and it is not possible to know if they are part of the refuse of the nearest residence or part of the refuse of the entire set of houses, after all, these structures are separated by less than 1 m one from the other. *Vivienda* 1 (House 1), the one not occupied in the previous Yotoco period, will be used for the analysis. The refuse of the north side will be divided proportionally between the five residences according to total amount of sherds found in each structure. Accordingly, 70 of the 405 sherds found in the north side will be assigned to *vivienda* 1 (it has 317 of the 1830 sherds collected in the excavations of the five residences, or 17.3%), so the total amount of sherds for this structure will be 387. The north side of the excavation comprise 72 m^2 and the *vivienda* 1 is around 12 m^2, denoting 84 m^2 for *vivienda* 1. Using the same methodology presented above, the number of people needed to produce 1 sherd/m^2 in 1 ha by century for the Sonso period would be 109.7

([(387/0.0084)/5]/[10.5*8]), no so different to the maximum index for the Yotoco period seen in Platforms 4 and 4A.

The same procedure can be done for *vivienda* 5, located in the same platform where *vivienda* 1 was found, which belongs to the Yotoco period. This structure had an area of approximately 11 m², and it has 54.7% (n=109) of the Yotoco period sherd assemblage recovered from the excavations of the domestic unit structures in the artificial platform. So the area total will be 83 m² and the total amount of sherds 125 (109 plus 54.7% of the 30 sherds from the Yotoco period recovered from the north side of the platform). The total area can be reduced to 41 m² because is not possible that 42 m² of the north side of the platform has a single sherd if there was at least 1 sherd per m². So the index of people producing a single sherd/m² by ha by century ranges from 95 to 152 ([(125/0.0041)/5]/[5 or 8*8]), a little higher than the calculation for platforms 4 and 4A.

These indexes provide a source to make rough absolute estimates of population for both Early El Bolo and Late El Bolo periods. For the Early El Bolo period the range 68.2-152 persons by 1 sherd/m²/ha/century for the Yotoco period is a good approximation, while the range 109.7-120.19 for the Sonso period seems suitable for the Late El Bolo period. The absolute estimates of population are the result of multiplying these indexes by the DAI/C of each period. The results are presented in the Table 2.

The results indicate different estimates for the population at Malagana. These estimates, at least in the Early El Bolo, don't overlap each other, and differences are quite large. However, as has been discussed above, clear failures are present in most of these estimates because they concentrate only on the area occupied without paying attention to differences in sherd accumulation or in the temporal length of each period. The estimates provided by DAI/C solve

the three problems inherent to the other methodologies for calculating population. It also must be noticed that these estimates can be considered low if the periods of occupancy where shorter than expected.

Table 2 Absolute estimates of population at Malagana using different methodologies.

ABSOLUTE ESTIMATES OF POPULATION	EARLY EL BOLO	LATE EL BOLO
Average sherd densities and number of collection lots	820-1,148	1,020-1,428
Domestic structures each 50 m (sensu Linares and Sheets 1980)	143-200	151-212
Domestic structures each 2 5m	572-801	606-843
DAI/C	258-576	966-1,059

3.0 INTRA-COMMUNITY ECONOMIC DIFFERENTIATION

Social inequalities at Malagana are clearly expressed in the differential treatment of individuals at death through the placing of valuable goods in their graves, but the extent to which such objects reflected individual possessions as opposed to tokens of esteem placed by relatives is unknown. Such valuable goods included gold masks, earspools, breastplates and pendants, fancy pottery, and emerald objects among others (Bray et al. 2005).

If the numerous elaborate offerings buried with some individuals at Malagana indicate that elite position was based on the accumulation of economic wealth, as opposed to social prestige, then substantial differences between households in standard of living would be the reflection of that wealth in daily life. Such differences have been recognized readily by previous researchers from both house size and elaboration (Hirth 1993; Blanton 1994) and artifact assemblages (Smith 1987). For this research, however, physical characteristics of houses are not considered because they are not visible on the surface. It is thought that houses were built entirely of perishable materials, especially wood, instead of more durable elements, like stone (Bray et al. 2005). Even in the broad open excavations made at Malagana plans of houses are hardly distinguishable, although some post holes have been reported. So, even if there were permissions to excavate in Malagana the chances to identify differences in house size and elaboration in a disturbed zone are not high. Therefore, the analysis of artifact assemblages

provides a more useful and practical way to observe intra-community variability in the consumption of wealth in the Malagana site.

Although wealth is a relative concept, in the sense that it is culturally constructed, there are some general principles that allow inferring differences in wealth between different households for different kind of societies, independently of their cultural background. The most important principle is that the higher input of energy for producing one artifact the higher its value when compared to other artifacts of the same kind. Elaborate decorated and/or better made pottery can be easily recognized as items of status and wealth instead of the less costly, plain utilitarian ceramic vessels (Boada 2007; Smith 1987; Upham et al. 1981). The same principle applies to other kind of items, like high quality lithic artifacts (González 2007; Costion 2009), clothing, ornaments and furniture (Smith 2007).

Another principle for identifying luxury objects as measure of wealth is also related to differential energy costs, but in terms of transportation. Exotic artifacts (finished or raw material) can be assumed as wealth objects because the costs for their procurement (time trip, risk) are higher than the costs of similar objects produced locally (Douglass 2002). Symbolic associations embedded in exotic artifacts can also provide a higher demand (and value) for these objects (Helms 1992). Upham et al. (1981) have observed that exotic items usually have a similar distribution to ceramic vessels which require a high input of energy for their production; reinforcing mutually the high value of exotic and labor intensive produced objects as items of wealth. Accordingly, the accumulation of economic wealth as a base of social-political inequalities can be identified in the form of elevated proportions of luxury goods between households due to their scarcity, higher cost of production or procurement. Luxury goods are not, for obvious reasons, abandoned or discarded easily in domestic contexts; therefore, the chances

to recover them archaeologically seem to be limited. In order to identify what kind of wealth-related artifacts could be recovered from surface collections, a pilot survey was carried out in 2010.

The preliminary survey at Malagana in 2010, combined with information from workers of the fields, documented that even scarce luxury goods, like greenstone beads and even small gold beads are occasionally found on the surface. The presence of such rare items, then, along with the proportions of much more common preferred and more expensive goods recovered from surface collections, such as high quality/exotic ceramic and lithic artifacts, were used to identify the locations of domestic units or groups of domestic units that enjoyed higher-than-average standards of living. If economic differentiation played a major role in distinguishing elites from commoners at Malagana, then such differences should be clear in the patterns of consumption between households. On the contrary, the lack of much variability in these indicators across the residential zone would indicate that any distinctions between elites and commoners that existed had little reflection in different standards of living and presumably little basis in economic control and wealth accumulation on the part of elites (Drennan 2000; Trigger 1990).

In order to respond to these theoretical questions some methodological aspects must be clarified. It can be argued that material recovered from collection lots cannot certainly be attributed to specific domestic units, and that is a perfectly valid statement. After all, it is possible that residents of a few neighboring domestic units decided to deposit their garbage in a common area. It is well known from ethnoarchaeological research that secondary refuse accumulations can be related to specific social groups, especially to one family group (Beck and Hill 2004). But this possibility cannot be taken for granted either. Although the ideal is to observe differences in the artifact assemblage between specific domestic units, in this research,

material recovered from particular collection lots is taken to belong to one or various spatially related domestic units. This perspective will not affect the principal empirical objective of this research: to observe variation (or lack of it) between domestic units throughout the community.

The data gathered from the systematic surface survey and the spatial characteristics of the site provides the opportunity to compare information not only from domestic units but also from larger social groups. Although their specific date of construction is not known, the defensive earthworks built in the Early El Bolo period at Malagana also functioned as physical barriers dividing the population of the community (see Chapter 7) (see Figure 3-1). Members of the households inside each physically bounded sector could have more intensive face-to-face interaction than individuals from households located on different sides of the physical divides. It could be that the set of households inside of each one of these physically bounded sectors formed a sort of corporate group, and that there were important socioeconomic differences between them. In fact, most of the wealthiest burials looted in Malagana were located in one of these discrete sectors, raising the possibility that social inequalities were not only differences between households but also between these hypothetical corporate institutions. The comparison of analysis between larger multi-dwelling areas and individual collection lots (representing one or few spatially linked domestic units) will increase the understanding about the role of group and individual mechanisms at Malagana for the formation and maintenance of social and economic differences observed in the burial record.

Taking into account these considerations, the analysis of intra-community differentiation was carried out at two scales, individual domestic units (or a small set of spatially related domestic units) and supra-domestic units, by analyzing differences between collection lots, for the former, and by dividing and analyzing the surveyed area in ‘Sectors’, for the latter. By doing

this, the interpretation of intra-community differences (or the lack of them) in wealth becomes more robust.

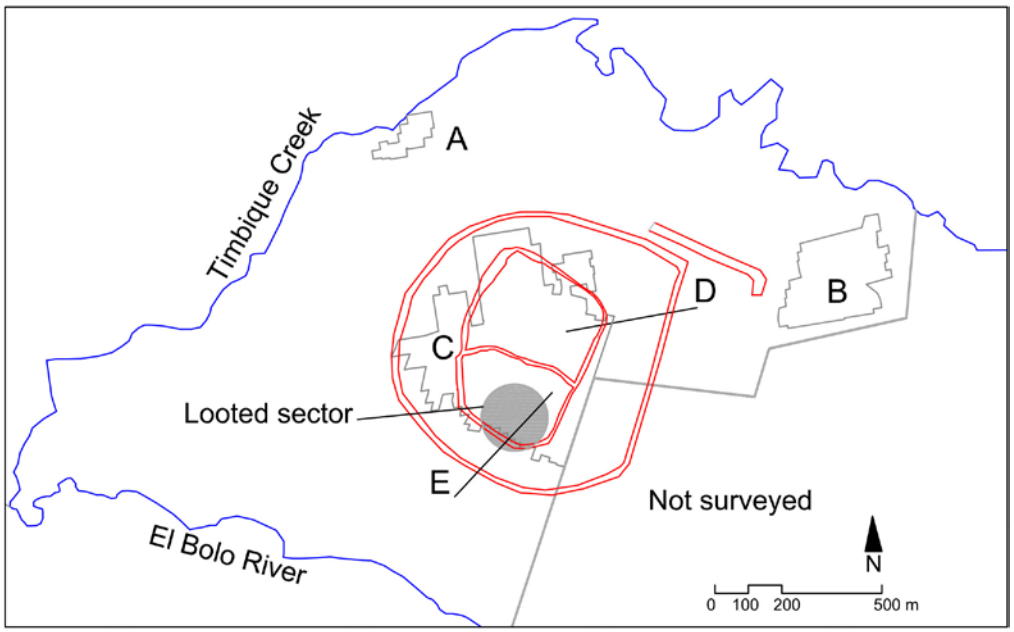

Figure 3-1 Map of the limits of the area systematically surveyed in relation with the earth structures showing the sectors discussed in the text. The area labeled as 'not surveyed' is the area where permissions could neither be obtained for the pilot survey in 2010 nor for the systematic surface survey in 2012.

Sectors in this research are spatial divisions of a settlement system (like a village) easily recognizable because they are bounded by physical features, such as earth structures, interrupting intense face-to-face interactions. In that sense, Sectors present social significance for their occupants. Sectors in this case resemble what Smith (2010) calls 'neighborhoods' for non-urban settlements, like large villages. Taking this into account, the Malagana community is divided into five sectors based on the location of the earth structures and on the distances between the clusters of collection lots with high density of artifacts (Figure 3-1). Although useful, the division of

these socio-spatial units presents one problem: the physical boundaries marking the sectors are not visible on the terrain due to agricultural practices. Therefore, the precise assignment of the collection lots to specific sectors is not exact, especially for those collection lots located next to the borders of these sectors. Therefore, material obtained from border areas is treated with caution.

Two types of artifacts recovered from the intensive survey provided the core of the analysis for intra-communal wealth differentiation at Malagana: ceramics and greenstone beads. The number of specimens for these two items was not similar, and not all of them were present in the two periods. While the number of potsherds was close to 20,000, the number of greenstone beads was 34.

In regards to ceramics, in order to establish whether there were important differences in standard of living between domestic units and between sectors, the percentages of decorated sherds (independent of the type of decoration) for each collection lot from the same period were calculated. However, observing only percentages without paying attention to the frequencies of sherds can be misleading, because it is possible that many collection lots have 100% of their ceramic assemblage decorated but with samples of only one or two sherds. In order to avoid this problem the collection lots with a density less than 1.66 sherds/m^2 are excluded from the analysis. This threshold corresponds to the density of sherds for a collection lot with 40 sherds recovered from three contiguous collection units (40 sherds from 3 collection units of 8 m^2, 40/24=1.66).

3.1 ARTIFACT ASSEMBLAGE ANALYSIS EARLY EL BOLO PERIOD

For the Early El Bolo period, 458 of 497 surveyed collection lots had at least one sherd belonging to that period. However, the distribution of the population, as indicated by the differential densities of sherds throughout the site, was not homogeneous. As will be indicated in Chapter 7, the population during the Early El Bolo period was concentrated inside the inner enclosure of Malagana, indicating a defensive function for the banks and ditches. Most of the population was not homogeneously spread over each sector either but some differences in standard of living were clearly defined.

3.1.1 Decorated ceramics

145 out of 458 collection lots (or 31.6%) had the minimum ceramic density required, and none of the collection lots of the areas located outside of the earth structures had a density of potsherds similar to or higher than 1.66 sherds/m². The average percentage of decorated ceramics in collection lots with ceramic material similar or above this threshold was of 62.4%. This high percentage indicates that, on average, the standard of living of the people in the Malagana community was relatively high, if only the percentage of decorated ceramic is taken in account. However, certain differences can be observed between different sectors of the population when a closer examination of the distribution of artifacts is carried out.

At the level of sectors, the southern sector of the area surrounded by the central bank and ditch (Sector E) has the highest proportion of decorated sherds in the settlement, and these differences are highly significant (Figure 3-2). This result points out to a clear spatial association between the high consumption of decorated ceramics and wealthy graves. However, despite the

fact that the differences in the proportions of decorated ceramics between sectors are highly significant the size of these differences is moderate, indicating that, in general, the discrepancies in the consumption of decorated ceramics between sectors are not very extensive.

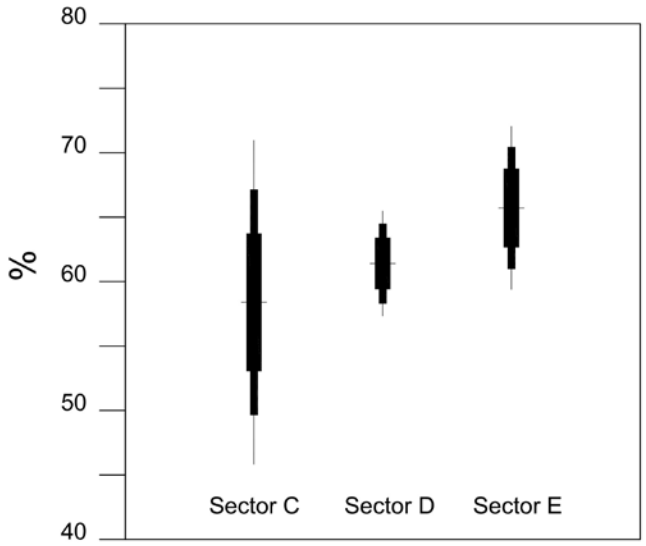

Figure 3-2 Mean proportion of decorated sherds by sector at 80, 95 and 99% confidence level for the Early El Bolo Period.

Analysis of this kind has the problem of 'leveling' domestic units with different levels of wealth in the same group. It is not possible to determine whether domestic units in Sector E were, in general, wealthier than those in Sector D, or whether the slightly higher proportion of decorated ceramics in Sector E is the result of the presence of few very wealthy houses in an otherwise no-so-rich sector. Table 3 shows the number of collection lots by sector distributed at different intervals in their proportion of decorated ceramics. 27% of the collection lots in Sector E presented proportions of decorated sherds above the 75% in their ceramic assemblage; while only 17% of the collection lots in Sector D did so; and only 10% of the collection lots in Sector

C had proportions of decorated ceramics in the 75-100% interval. These differences reinforce the spatial association between wealth consumption and the richly endowed graves of Malagana. Therefore, at the scale of sectors, levels of wealth (expressed in the consumption of decorated ceramics) were not homogenously distributed throughout the settlement. A high percentage of domestic units represented by the collection lots in Sector E enjoyed higher levels of wealth than domestic units from other sectors. However, this is not an indication that there were not wealthy domestic units in other sectors. In order to know how wealthy the domestic units in the Malagana settlement were and how they were related spatially with each other it is necessary to look at a smaller scale.

Table 3 Number and percentage of collection lots by sector distributed at different intervals in their proportion of decorated ceramics during the EEB period.

	<25%	25%-49.9%	50%-74.9%	>75%	Total
# Collection lots Sector C (%)	0 (0%)	3 (30%)	6 (60%)	1 (10%)	10
# Collection lots Sector D (%)	1 (1%)	21 (23%)	56 (59%)	16 (17%)	94
# Collection lots Sector E (%)	1 (2%)	3 (8%)	26 (63%)	11 (27%)	41

A stem-and-leaf graph of the proportion of decorated ceramics by collection lot for the entire settlement provides a better picture in this regard. The stem-and-leaf graph shows that most of the collection lots have a proportion of decorated ceramics in the 50-77% interval (Figure 3-3). More important, three collection lots (10B9, 11A8 and 11C3) stand out for their high proportion of decorated sherds. More than 94% of the ceramics collected from each of these collection lots was decorated. This percentage of decorated ceramics is huge when compared to the mean proportion of decorated ceramics by collection lot for the entire settlement (62%). These three collection lots were located at different points inside the innermost bank and ditch:

one in Sector E and two in Sector D. Thus, despite the higher levels of wealth in the Sector E, very wealthy domestic units were also located in the contiguous Sector D. Figure 3-4 shows the location of the three collection lots with the highest proportion of decorated ceramics and the collection lots with proportions of decorated ceramics above 75% of their ceramic assemblage. A simple look at that graph indicates that the wealthy population at Malagana was not concentrated in one single area within each sector, although some groups of wealthy domestic units are formed.

Decorated ceramics were consumed extensively for most domestic units, although in different proportions. The dissimilarities in consumption of decorated ceramics in different domestic units and sectors can be explained in two ways: 1) that different domestic units had different economic capabilities to acquire these goods; or 2) elites distributed wealth goods as a political strategy to obtain and maintain followers. This last alternative would imply centralization of the production of decorated ceramics by the elite, a type of evidence that was not obtained in this research.

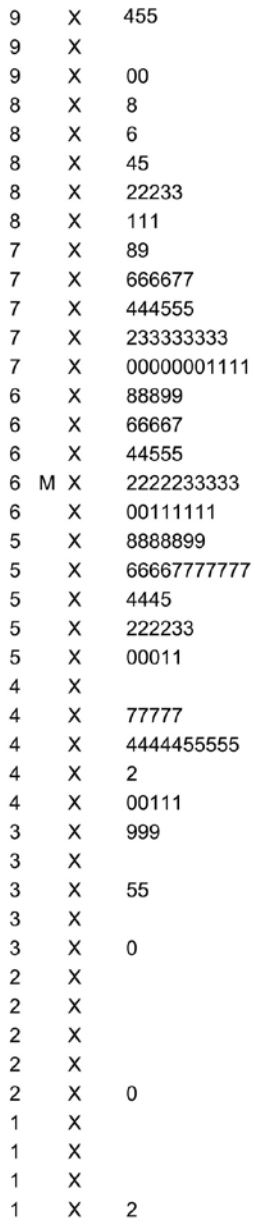

Figure 3-3 Stem-and-leaf graph of the percentage of decorated ceramics by collection lot during the EEB period. Three very high values (collection units with about 95% decorated sherds, at the top of the graph) represent unusual concentrations of decorated ceramics.

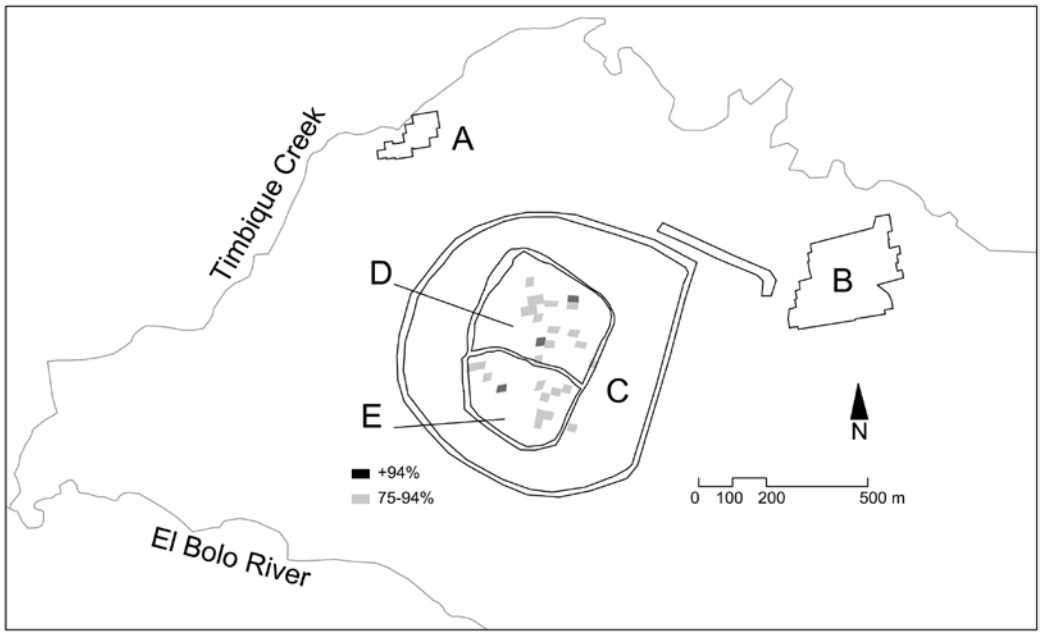

Figure 3-4 Location of the collection lots with high proportion of decorated ceramics.

3.1.2 Greenstone beads

The small amount of greenstone beads collected in the systematic surface survey is an indication that greenstone artifacts were more restricted than ceramics. Sources of greenstone were not local (Bray et al. 2005), which provides an additional value to this material. 34 greenstone beads were recovered from the systematic surface survey. They had a disc-shaped form, with a diameter between 4 and 6 mm (Figure 3-5). The distribution of the greenstone beads was limited to the Central Area of the Malagana site (sectors C, D and E), indicating that the residents outside of the set of banks and ditches did not have the ability to amass wealth in the same way that as internal counterparts or that the occupation of these areas was insignificant during the EEB period.

Figure 3-5 A greenstone recovered from the systematic surface survey.

The distribution of the greenstone beads inside the Central Area was not homogeneous: 12% of the collection lots in Sector E yielded greenstone beads, whereas only 6% of the collection lots in Sector C did so, and only 5% of the collection lots in Sector D (Table 4). These percentages mirror the results obtained in the analysis of distribution of decorated ceramics, strengthening a pattern of wealth accumulation in one sector of Malagana.

Table 4 Distribution of collection lots with EEB ceramic and distribution of greenstone beads.

	Sector A	Sector B	Sector C	Sector D	Sector E	Total
N° Collect. Lots	19	68	110	153	108	458
N° Collect. Lots w/ Greenstone Beads	0	0	7	8	13	28
% Collect. Lots w/ Greenstone Beads	0	0	6%	5%	12%	6%

The important differences between the sectors in terms of the percentages of collection lots with evidence of consumption of greenstone beads say little about the variability in the consumption of greenstone among domestic units. The 34 greenstone beads were collected from 28 collection lots. 25 collection lots yielded one greenstone bead; in other two collection lots (12C13 and 10D9) two greenstone beads were recovered, and in only one collection lot (11C12) five greenstone beads were collected. Due to the small number of greenstone beads and the differences in the number of sherds in each collection lot, the frequencies of greenstone beads can be standardized by dividing them by the total quantity of sherds of the EEB period collected from the same collection lots. The result can be multiplied by 100 in order to obtain a ratio of greenstone beads by 100 sherds (Peterson 2006:166). The results are plotted in a stem-and-leaf graph in order to show the differences in consumption of greenstone ornaments between the collection lots (Figure 3-6).

```
3   X   3
2   X
2   X
1   X   66
1   X   01
0 M X   5555556688
0   X   122222233334
```

Figure 3-6 Stem-and-leaf of greenstone beads per 100 sherd ratios by collection lot during the EEB period.

The stem-and-leaf graph clearly shows one collection lot standing out from the rest (collection lot 5B3) and another four (12C12, 11C12, 12C13 and 9A9) with usually high greenstone beads to sherd ratios (above 9 greenstone beads per 100 sherds). Four of these

collection lots are located in Sector C, and all of them yielded very low amounts of sherds (less than 17 sherds) (Figure 3-7). The collection lots with greenstone beads from Sector C were located at different extremes of this sector and all adjacent to sectors D and E, in spots where the most central embankments should have been. This can raise the question whether the beads recovered from these collection lots came from sectors D and E but moved by modern agricultural machinery. This possibility is reinforced by the fact that they were placed in the same agricultural plots where collection lots from sectors D and E where located (see Chapter 2).

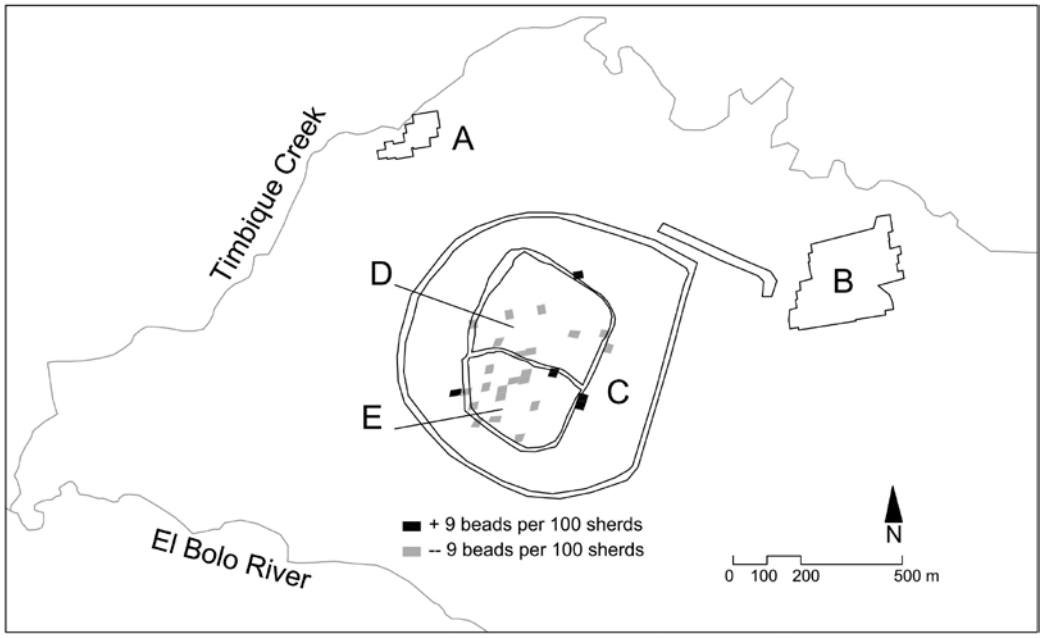

Figure 3-7 Location of the collection lots with presence of greenstone beads.

Greenstone beads were not concentrated in only one area in the settlement or in only one area inside each sector, although there was a cluster of five collection lots with greenstone beads in Sector E (Figure 3-7). Only in one collection lot (10B9) with a high proportion of decorated ceramics a greenstone bead was recovered. The collection lot 10B9, located in Sector E, has 95%

of its ceramic assemblage decorated; the highest percentage of decorated sherds for a collection lot in the settlement.

On the other hand, the lack of correspondence of both variables of wealth in the same collection lots does not indicate that there was no spatial association between these two lines of evidence of wealth. Spatial patterns of wealth accumulation are better observed when both variables are merged together in one map (Figure 3-8).

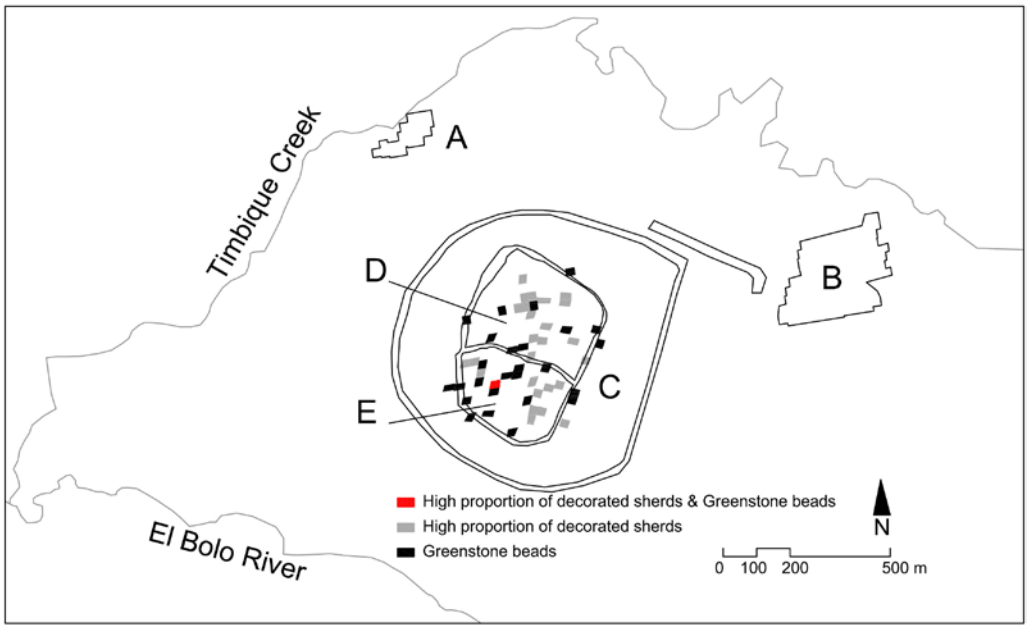

Figure 3-8 Location of the collection lots with markers of wealth during the EEB. Collection lot 10B9 is in red.

According to Figure 3-8, 70% of the collection lots with high indexes of wealth were adjacent to other collection lot with the same characteristics. In some cases, clusters of three or more adjacent collection lots were formed, creating different spatial arrangements of wealth distribution (Figure 3-9):

1) As already mentioned, a great concentration of collection lots with greenstone beads is spatially associated with the collection lot with the highest proportion of decorated sherds. This particular spatial configuration places this cluster of collection lots as the wealthiest in Malagana, because this cluster is formed by a type of wealth good that was less accessible for the rest of the population. This group is located at the north-center of Sector E, formed by collection lots 10B9, 10B10, 10C9, 10D8 and 10D9.

2) An especially great concentration of collection lots with high proportions of decorated sherds is located in the same place where a collection lot with a greenstone bead was found, forming the largest cluster of collection lots with wealth indexes in the settlement. This concentration of wealthy collection lots is formed by collection lots 11A3, 10D1, 4C8, 4C9, 4A9, 4B8 and 4B9, in the north-central area of Sector D.

3) Several small concentrations of collection lots show both high proportions of decorated sherds and greenstone beads. Two are particularly relevant due to the number of collection lots involved: one located in the northwest of Sector E, forming a 'ไ' (9B6, 9C6, 9D6, 9D7 and 9D8); and the other in the southeast of Sector E, forming a 'λ' (11B16, 11D17, 11C18 and 11C17; and possibly 11C15).

These spatial concentrations of domestic units represented by collection lots sharing certain levels of wealth above the rest of the community (Figure 3-9) are relevant for the establishment of the relationships between the accumulation of wealth and some economic activities, specifically the production of wealth goods. The existence of such a relationship will suggest not only the mechanism through which wealth was built (craft production), but the involvement of economic elites in other strategies to get power according to their location in regard with ceremonial and better defended places, analyzed in the subsequent chapters.

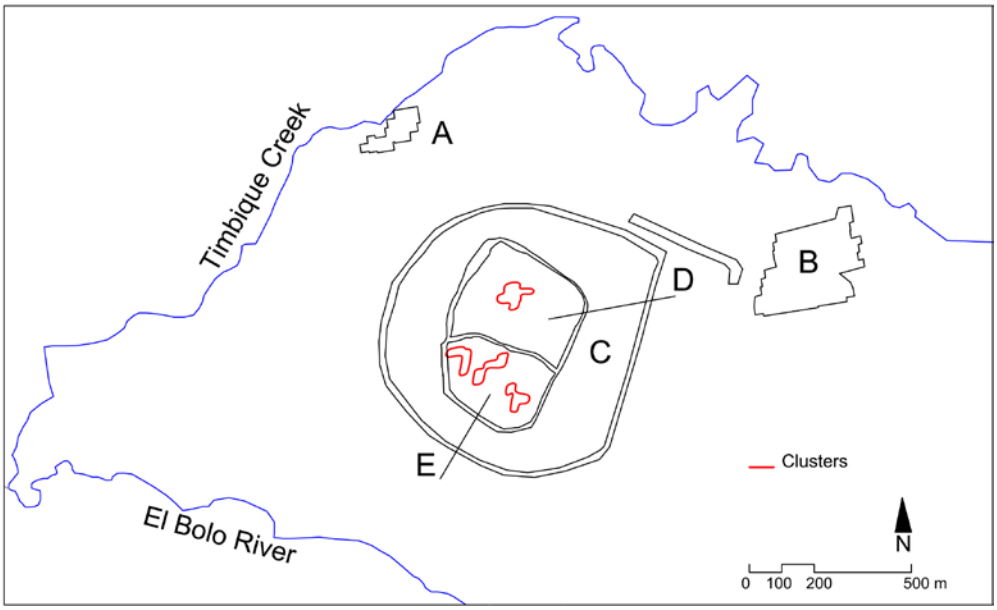

Figure 3-9 Clusters of collection lots with high levels of wealth.

Not all collection lots with high indexes of wealth formed clusters. There are some 'isolated' collection lots with high indexes of wealth that cannot be ignored. As mentioned above, this distribution in the consumption of greenstone ornaments (and decorated ceramics) could be indicative that wealth could have been accumulated independently by each domestic unit (or set of domestic units), or that wealth objects were produced by an elite and distributed strategically for their political goals. Again, this would imply certain control over the production of greenstone ornaments for the elite, and there is clear evidence of it (see Chapter 4).

Summarizing, wealth differentiation in Malagana during the Early El Bolo period was not simply between one small, super wealthy area versus a large, very poor set of domestic units, as seems to be the case for the burial contexts. However, there was a clear intra-community variability in the access to luxury material resources in the site at both sector and household levels. This variability is reflected in the restricted access to a certain type of luxury artifacts,

specifically the greenstone beads; but also to the great differences in the proportion of decorated ceramics between domestic units, as the stem-and-leaf graphs and the tables of distribution of luxury objects demonstrate. At the scale of sectors, there were important differences in wealth between the Sector E, where the richly endowed tombs were found, and the other two occupied sectors, especially with Sector C.

Differences in wealth were more gradual than categorical, but it is notorious that the most restricted element of wealth (greenstone beads) was principally associated with Sector E, suggesting that individuals buried in that sector (or their mourners) enjoyed, on average, higher standards of living than the inhabitants of the other sectors in the settlement. This suggests that the luxury objects buried in the richly endowed tombs were not only tokens of esteem, but statements of the levels of wealth that the individuals buried in them (or their mourners) had in life. This picture turns more complex when the distribution of wealth objects is examined at the household scale. Wealthy domestic units were not all located in one or two discrete areas; instead, they were spread across the Central Area of the settlement, suggesting that the accumulation of wealth did not fit exclusively with one of the sectors physically bounded by banks and ditches.

Certainly, some wealthy domestic units were spatially linked, forming a sort of supra-domestic units (although there is no evidence of the nature of the relationship between these domestic units, except their shared levels of wealth). The largest clusters of wealthy domestic units had both greenstone beads and high proportions of decorated ceramics, although they were located in different sectors of the central area of the settlement. In addition to these clusters of domestic units, there were isolated domestic units having either one greenstone bead or high proportion of decorated ceramics. This variability points to gradual differences in wealth among

domestic units, with the domestic unit or set of domestic units represented by the collection lot 10B9 at the top (not only due to the co-occurrence of both wealth markers on it, but because it had the highest proportion of decorated ceramics in the entire settlement, and it was surrounded by other wealthy collection lots), and tens of domestic units with very low indexes of richness at the bottom. This distribution of wealth goods can be explained in two manners: a) as the result of the differential abilities of the households for producing/obtaining wealth for their own; or b) as the result of the distribution of items of wealth which production was controlled by the elite. These two scenarios are evaluated in the next chapter.

3.2 ARTIFACT ASSEMBLAGE ANALYSIS LATE EL BOLO PERIOD

485 of 497 surveyed collection lots had at least one sherd belonging to the Late El Bolo period. 215 (44.3%) had a ceramic density similar to or higher than 1.66 sherds/m². 223 of 7657 sherds collected from these 215 collection lots were decorated. This is only 2.9% of the ceramic assemblage decorated, an abrupt change from the EEB period. The change is not only notable in the proportion of decorated ceramics, but in their quality (see Chapter 2) and in the location of the wealthiest sector. At the level of Sectors, Sector A shows very significant differences in the proportion of decorated ceramics at the 80% confidence level (Figure 3-10). It is also remarkable that Sector E, the one with the highest proportion of decorated ceramics in the EEB period, is now the one with the lowest proportion of decorated ceramics. However, although highly significant, the strength of these differences is very low.

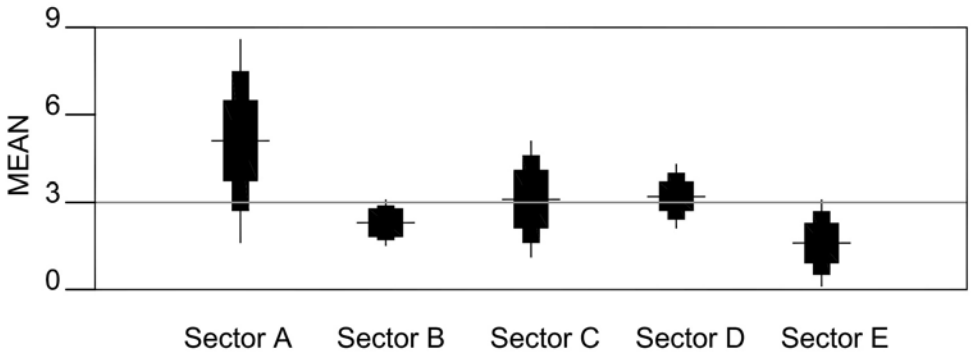

Figure 3-10 Mean proportion of decorated sherds by sector at 80, 95 and 99% confidence level for the Late El Bolo Period. The gray line indicates the mean of the mean proportions.

In order to observe internal variability among sectors the proportion of collection lots in each sector with different proportions of decorated ceramics was calculated. The results are shown in Table 5. It is clear that the high levels of wealth of Sector A observed in Figure 3.10 respond more to the lack of collection lots with undecorated ceramics rather than a high proportion of collection lots with very high proportion of decorated sherds. In this regard, Sector D was the only sector that yielded collections lots with very high proportions of decorated ceramics.

Table 5 Number and percentage of collection lots by sector distributed at different intervals in their proportion of decorated ceramics during the LEB period.

	0%	<5%	5%-9.9%	10%-14.9%	15%-20%	Total
# C. lots Sector A (%)	0 (0%)	4 (50%)	3 (38%)	1 (12%)	0 (0%)	8
# C. lots Sector B (%)	26 (43%)	25 (41%)	10 (16%)	0 (0%)	0 (0%)	61
# C. lots Sector C (%)	8 (35%)	11 (48%)	3 (13%)	1 (4%)	0 (0%)	23
# C. lots Sector D (%)	44 (45%)	23 (23%)	27 (28%)	2 (2%)	2 (2%)	98
# C. lots Sector E (%)	17 (68%)	4 (16%)	4 (16%)	0 (0%)	0 (0%)	25

Intra-community variability in wealth at the level of sectors is not too high, but this does not mean that there were no differences in wealth among domestic units. The Figure 3-11 shows a stem-and-leaf graph of the proportions of decorated sherds by collection lot, taking into account only the collection lots with densities similar to or higher than the threshold, mentioned above. Figure 3-11 presents three groups of collection lots according the proportion of decorated sherds in their ceramic assemblage: one formed by the collection lots without decorated ceramics (n=95 or 44% of the sample); another group of collection lots with less than 10% of their ceramic assemblage decorated (n=115 or 53% of the sample); and another group with more than 10% of their ceramic assemblage decorated (n=6 or 3% of the sample), with one collection lot standing alone with 20% of its ceramic assemblage decorated.

The difference in the proportion of decorated ceramics between the two collection lots with the highest proportion of decorated ceramics in the LEB period is higher than the one seen between the two collection lots with the highest proportion of decorated ceramics in the previous period, suggesting that the level of inequality could be higher. However, there are other elements that can indicate the opposite: 1) the difference in the proportion of decorated ceramics between the collection lot with the highest percentage of decorated ceramics and the mean of the same variable for the entire settlement is smaller in the LEB period than the EEB period (17% vs. 33%); 2) the quality of the decorated ceramics during the LEB period was poor when compared to the fine decorated pottery of the EEB period (a large percentage of the decoration consisted of incisions and pressures on otherwise rough surfaces, and the paste was not so fine) (see Chapter 2); and 3) the collection lot with the highest proportion of decorated ceramics during the LEB period, 11C6, only had three decorated sherds, one of which has a simple incision. In addition, other material manifestations of wealth, like ornaments made of non-local materials, are absent

in the archaeological record for this last period. It seems plausible that wealth differentiation was instead, less during the LEB period than in the previous one.

The distribution of the collection lots with higher proportions of decorated ceramics is shown in the Figure 3-12. In total, 53 collection lots are plotted, and they are differentiated into the three intervals with the highest proportion of decorated ceramics according to the categories shown in the Table 5. Although the proportion of isolated collection lots with high proportions of decorated ceramics increased during the LEB period (43% vs. 30% during the EEB period), clusters of wealthy domestic units were much larger: one with 10 collection lots distributed as a sinuous line, in the northwest of Sector D; and another formed by eight collection lots in a straighter line, in the east of Sector D (Figure 3-12). This last cluster had the two collection lots with the highest proportion of decorated ceramics in the entire settlement, and they were very close to another cluster formed by four collection lots. The location of these clusters did not match with the distribution of the clusters of wealthy domestic groups in the previous period (Figure 3-12), indicating low continuity of occupation of the wealthiest domestic units from one period to the other.

```
20  X   0
19  X
19  X
18  X
18  X
17  X
17  X
16  X
16  X
15  X
15  X   3
14  X   8
14  X
13  X
13  X   03
12  X
12  X
11  X
11  X
10  X
10  X   0
9   X   55
9   X   00
8   X   589
8   X   03
7   X   6666
7   X   113
6   X   566688
6   X   0222224
5   X   555567888888
5   X   011124
4   X   55667778
4   X   0111133
3   X   5677778
3   X   000111112233334
2   X   557789
2  MX   000112222223344444
1   X   56889
1   X   4
0   X
0   X   000000000000000000000000000000000000000000000.....
```

Figure 3-11 Stem-and-leaf of percentage of decorated sherds by collection lot during the LEB period. The amount of collection lots without decorated ceramics has been reduced for visual purposes (n=95).

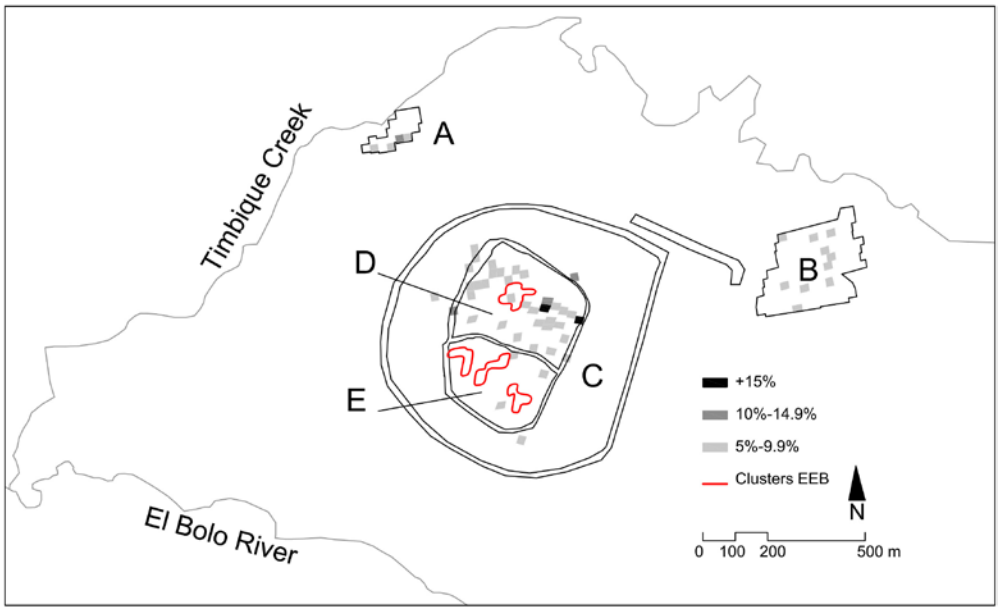

Figure 3-12 Location of the collection lots with high proportion of decorated ceramics during the LEB period, showing the clusters of wealthy domestic units of the previous period.

3.3 CHANGES IN INTRA-COMMUNITY WEALTH DIFFERENTIATION IN MALAGANA

Important economic differences in consumption of luxury goods existed between domestic units during the two periods of occupation in the Malagana settlement, especially during the EEB period. Although these differences were more gradual than discontinuous, they allow recognizing groups of domestic units sharing high levels of wealth. In both periods at least one cluster of domestic units can be put at the top of the rank of wealth due to its special combination of characteristics of consumption of luxuries. During the EEB period a cluster was formed by a great concentration of greenstone beads and the highest proportion of decorated sherds; whereas in the LEB period a cluster was formed by the collection lots with the highest proportion of decorated sherds. Most of the clusters of wealthy domestic units during the EEB period, including the one already mentioned, were associated spatially with the tombs lavishly furnished with luxury goods, suggesting that the accumulation of wealth (and concomitant economic power) played an important role in the emergence and development of social inequalities in Malagana.

As mentioned, economic differences in the consumption of wealth were notorious at both sector and household levels, but different interpretations can be raised for explaining such distributions of artifacts. By looking only patterns of consumption at the larger scale (the sectors) during the EEB period, it could be stated that the areas where more luxury pottery was consumed more greenstone ornaments were worn. At this scale then, it is possible to assert that wealth was more accumulated in Sector E. As will be demonstrated in the next chapter, the production of greenstone ornaments was centralized in Sector E; therefore, the distribution of such goods in the settlement could be tied to political strategies used by the elite to keep followers through gifts,

and as a payment for goods and labor that could be used for financing further elite activities. Although there is no evidence of centralization of the production of fine ceramics (or ceramics in general), it is probable that they were controlled by the elite in the same way as greenstone artifacts. Certainly, some domestic units in other sectors also enjoyed high standards of living, especially in terms of possession of decorated ceramics, sometimes forming important residential associations. Such associations of domestic units in the non-elite sector seem to indicate a) that those households were favored in the distribution of wealth goods by the elite or b) that complementary strategies could have been used to obtain wealth below the elite groups in Sector E. A plausible answer, based on intensive feasting activities, is provided in Chapter 6.

During the LEB period there were some important changes in economic differentiation. Even though at the larger scale better economic indicators are seen for Sector A as whole, a more detailed observation indicates that wealthiest domestic units were linked to Sector D. During the LEB period differences between sectors, although significant, are misleading, because variability in economic issues is less between the spaces surrounded by banks and ditches than between the domestic units settled *inside* these spaces. However, analysis at different scales provided some relevant aspects in changes in economic differentiation from one period to the other. From a large scale, there was an 'impoverishment' of the inhabitants that occupied the sector where the opulent graves of the EEB period were located. From a smaller scale, there was not spatial continuity in the location of wealthiest domestic units from one period to the other: less than 8% of the 53 collection lots with high indexes of wealth in the LEB period were among the richest in the previous period.

The consumption of decorated pottery during the last period of occupation was more restricted than in the earlier period: only 4% of collection lots with EEB ceramics did not have decorated fragments in their ceramic assemblage, against 44% of the LEB period. But the poor quality in elaboration of the decorated fragments of ceramics, the lack of other wealth markers (including lack of differences in mortuary contexts) and the low percentage of decorated ceramics of the wealthiest domestic units when compared to the ones of the previous period, suggest that wealth differentiation was smaller among Malagana's population during the LEB period. In fact, the lack of clear differences in wealth in both domestic and funerary contexts seems to indicate that social inequalities diminished from one period to the other, despite the increase in the size of population.

4.0 CRAFT PRODUCTION

The analysis of production and consumption of prestige and utilitarian goods has been an essential part of the debate on the development of social complexity in southwest Colombia. In this context the analysis of the production and consumption of gold artifacts has been highlighted. Gold artifacts have been understood as both the evidence for identifying elites in the archaeological record and the evidence of the type of political stratagem used by the elite to hold their power. Gnecco (1996a), for example, states that gold artifacts are the material manifestation of esoteric knowledge from distant places and evidence for exchange networks between elite groups. On the other hand, Langebaek (2003) indicates that highly elaborated gold artifacts found in graves in the early periods of social inequalities (before 1000 AD) are "[…] consistent with a social context in which power was highly personalized and noninstitutionalized affair […]" (Langebaek 2003:249). This changed in the subsequent period (1000 AD- 1550 AD): gold-work did not have the same high quality, it was consumed by a large non-elite population, elite graves were not so conspicuously rich, production of crafts (ceramics, gold or whatever type of object) was more specialized, and the labor force was more directed to the construction of earthworks for the production of food (Langebaek 2003: 267). This set of aspects is seen as evidence of "[…] more institutionalized political organizations in which power relied on the control of labor and resources […]" (Langebaek 2003:249). Langebaek's scheme is based on archaeological information from the San Agustín and Calima cultural areas.

However, there is little evidence of social differentiation in the archaeological record after 1000 AD in some of the societies analyzed by Langebaek, especially in the Calima area, the closest archaeological region to the Malagana site: there was not clear social differentiation in the funerary contexts, or at least, not in the same degree as in the previous period. In addition, there is little information on social differences from domestic contexts (Rodríguez 2007: 140-2). Langebaek (2003: 256) asserts that the transformation of the landscape for agricultural purposes in the form of long platforms, is also evidence of the ability of leaders to mobilize labor, but some have interpreted such modifications as part of communal projects without central direction (Gnecco 1996b). The lack of strong archaeological evidence of profound social inequalities after 1000 AD in the societies analyzed by Langebaek, when compared to the same societies before 1000 AD, contradicts his model of a development from non-institutionalized to institutionalized political organization (Earle 1987; Flannery 1998).

A second problem in Langebaek's model relies on the differences in economic inequalities between the societies analyzed before 1000 AD. In San Agustín, the findings of gold and other luxury goods are rare in the architecturally elaborate tombs, so the leadership and hierarchy have been rightly interpreted as being founded on religious matters instead of on the control of political economy or the accumulation of wealth (Drennan 2008: 385). In Calima, gold artifacts and other luxury goods (like highly decorated ceramics, greenstone ornaments and exotic items) are numerous, and of high quality. This means that the logic used for categorizing San Agustin societies as highly personalized and noninstitutionalized organizations, hardly can be used in Malagana and in the Calima region due to the outstanding amount of objects of wealth, including highly elaborated gold artifacts, found in pre-1000 AD period tombs. If the lack of important quantities of wealth/status goods in elite-monumental tombs in San Agustín is

what prevents, at first glance, to suggest that there was not significant involvement of elites in the control of economic activities, the outstanding differences in quantity and quality in luxuries found in Malagana and Calima tombs should imply the contrary.

Luxury goods, made of gold or from other kinds of material, could have implied high production costs that few could afford. In addition, due to the fact that these goods were ritually destroyed by placing them in tombs, there was a continuous reinvestment of economic capital required to produce new luxuries. Therefore, the wealthiest graves in Malagana and Calima could indicate certain control over economic affairs by the elite. Although other explanations for this phenomenon can be raised, the important issue is that the ideological components associated with the possession and display of these luxury artifacts do not preclude centralization in economic activities as Langebaek's model suggests. The acknowledgment that the accumulation of wealth and the control of certain economic activities during the pre-1000 AD period could have played a role in the development of social inequalities in the zone threatens the aspiration of a homogeneous sequence of social development for a macro-regional area of Colombia implicit in Langebaek's model.

An additional problem with Langebaek's model is in how social change is explained. Langebaek asserts that the change in quality of gold objects and their massive consumption after 1000 AD is due to an increase in the number of potential consumers (Langeabek 2003:267). Although the quantity and quality of gold objects found in graves reduced from one period to the other, and the population seems to have increased in the Calima region (although no demographic-oriented research has been conducted in the area) there is not necessarily a causal link between the two things. If elite power during the post-1000 AD period was based on 'distributing' gold artifacts (among other things) to a higher number of potential consumers

(Langebaek 2003: 267) there is no reason elites decreased the quality of gold artifacts for their own consumption. In fact, this could be interpreted better as evidence of the decrease on economic power of the elite. Some (Saenz et al. 2007) even think that the production of gold artifacts before 1000 AD, at least in the Malagana site, was not an activity attached to the elite, as Langebaek proposes, but an independent activity. This would indicate that gold production was not a mechanism through which elites searched for power.

Although many elements in Langebaek's interpretation of the development of social inequalities in the area can be disputed, it provides a starting point to investigate the role of production and consumption of gold and other goods in Malagana for the development and maintenance of social inequalities. Some of his arguments are based on indirect evidence for some areas: there is no clear evidence on the centralization of production of luxury goods for any period in Malagana or Calima, so the relationship between elites and craft production is still to be established (but see Saenz et al. 2007).

Therefore, if wealth accumulation was important to the creation and maintenance of elite position at Malagana, then the question arises about how control of some kind over the economic apparatus was exerted (Earle 1987; Friedman and Rowlands 1977; Gilman 1991). As mentioned, this may be accomplished by elites who organize and control the specialized production of various kinds of craft goods. If this served as a basis of elite power at Malagana, then we would expect there to be archaeological evidence of some degree of specialization of production, and that evidence should be spatially associated with elite sectors of the settlement (Brumfiel and Earle 1987; Costin 1991; Welch 1996). The degree to which production of craft goods was specialized will be identified by observing the degree to which evidence of craft production is concentrated in a small number of locations. The evidence includes spindle whorls for textile

work, cores, debitage and unused tools for stone tool production, crucibles and hammers or other tools for gold production, and unmodified raw material and production debris of greenstone and quartz. The association between any concentration of such materials and elite residential areas is, of course, a question of spatial proximity: the materials that evidence craft production should be found in or close to the materials that identify elite areas. The artifact samples from the surface collections at Malagana, then, will reflect concentration of materials related to craft production in certain residential sectors, on a scale ranging from no concentration at all up to very strong concentration, and, if there are concentrations, their locations with respect to elite residential sectors, identified in the previous chapter, will be revealed.

4.1 CRAFT PRODUCTION DURING THE EARLY EL BOLO PERIOD

4.1.1 Gold production and consumption at Malagana and its surrounding area during the EEB period

It has been indicated that the gold artifacts from the EEB period found at Malagana are, in essence, luxury, non-utilitarian objects, even if some can be used for practical purposes (like flutes or tweezers). Gold objects at Malagana were elements of ostentation whose principal function was to provide information of the wealth, esoteric knowledge and status of the bearer in the social structure. Some motifs replicate, in very general terms, the themes observed in pottery: animals, plants and people, both in realistic and schematic forms (Bray 2000). Very few figures present a mixing of human and animal characteristics, marking a difference with contemporaneous styles in the nearby west foothills of the Cauca River valley (Bray 2005).

Despite the lack of representations of unnatural creatures in objects it would not be a mistake to consider the motifs expressed in the gold artifacts as part of the religious sphere (Drennan 2008). If so, the union between design and metal becomes the expression of the relationship between status/wealth and the supernatural world.

The consumption of gold artifacts was clearly restricted. From a sample of 263 tombs excavated archaeologically in the flat valley of the Cauca River, belonging to the EEB period, only 9 or 3.4% contained gold artifacts (Blanco 2011). Although these numbers are not consistent with other reports (e.g. Herrera et al. 2007) the number of tombs with gold objects as part of the grave goods is minimal. A more detailed view of the graves provides better information on demand for this kind of goods: In the Coronado Cemetery, 10 km north of the Malagana settlement, four tombs contained gold objects: Tomb No. 3, an infant, had 14 gold beads, in the form of a caiman, plus 6 rock crystal beads forming a necklace. The grave also contained an *alcarraza* (see Chapter 5) and a broken bowl (Herrera et al. 2007: 105). Tomb No. 14, a young adult woman, had a ring of *tumbaga* (an alloy of gold and copper) plus an *alcarraza*, two bowls and a fragment of slate (Herrera et al. 2007: 107). Tomb No. 32, a young adult man, had a small gold sheet (trimming residue?), a greenstone bead and two rock crystal beads (Herrera et al. 2007: 111). Tomb No. 60, a young adult man, had a nose ornament, but no further information on the grave is provided (Rodríguez Cuenca et al. 2007: 101). In the cemetery of Santa Bárbara, 5 km north of the Malagana settlement, one grave (No. 17) presented two tiny rock beads covered by gold (Blanco and González 2002: 16). No further information on the grave is provided. In the Malagana settlement, only one tomb (No.17) had gold artifacts. It consists of a necklace with one bird and 100 beads. This grave also contained 12 greenstone and 3 rock crystals beads (Correal et al. 2003). Although the remains of a badly preserved skull were

associated with these objects there is not even tentative information on the sex or age of the individual buried. Blanco (2011) mentions gold objects of the same time period in the cemeteries of Altamira and Estadio del Deportivo Cali (hereafter Estadio), but such information does not appear in the partial reports of the excavations of those cemeteries (Lopez 2009; Blanco et al. 2004).

Independent of the mistakes in the collection of data for other cemeteries, it seems that even in the tombs with gold objects these artifacts were not placed in the tombs in huge quantities. There were only two exceptions: one grave at Malagana and one in Coronado, which were associated with other elements of high value. These two graves represent less than the 1% of the graves of the EEB period archaeologically excavated so far. Only one of these two 'rich' tombs has levels of wealth comparable to the graves looted in the southern area of the Malagana settlement (Archila 1996; Bray 2000; Bray et al. 2005). Herrera et al. (1994) tried to reconstruct the content of the tombs plundered by looters in the southern area of the Malagana settlement by using information from witnesses of the looting event. Even if that information is unverifiable it provides a glimpse of the nature of the findings. For example, Tomb No. 6 had two gold diadems; three gold masks, a skillfully made gold bead in the form of a flower, gold nose ornaments, gold sheet beads, gold solid beads, and a gold sheet in the form of a maize cob. Other objects not of gold included a *Spondylus* shell, greenstone beads and rock crystal beads (Herrera et al. 1994: 165). 13 out of 29 tombs from the southern sector of Malagana reconstructed from information of witnesses and looters had gold artifacts as grave goods (Herrera et al. 1994). Such a concentration of prestige goods is additional evidence of leadership based on the accumulation of wealth, as indicated in Chapter 3, contrary to the 'ideology only' model of Langebaek.

Evidently, gold artifacts in the flat valley of the Cauca River are not the type of objects produced for 'a general market of potential consumers' (Costin 1991:11); instead their distribution was constrained to a small group of persons on a regional scale, and they were used to communicate status and wealth and to indicate connections with the supernatural world (Gnecco 1996a). But, how much evidence is available on the production of these meaningful artifacts? Could they be produced for other, foreign communities and exchanged for some products, until now unknown, made in Malagana? At this point it is important to check the evidence available for metal production in the flat valley of the Cauca River and that recovered from the intensive systematic surface survey at Malagana.

Until now, the most comprehensive study of gold production for the Upper/Middle Cauca River valley has been carried out by Saenz et al. (2007). They describe tools for gold-working, chemical composition of minerals adhering to the tools, processes of gold production and spatial distribution of tools and 'workshops', among other aspects. Saenz et al. (2007) divide the metallurgical process in two: smelting (including casting) and subsequent processes. For the smelting process they describe crucibles, a stone tool, and a mold as the only evidence of gold production recovered at the present time. According to Saenz et al. (2007) two crucibles have been recovered from the Malagana settlement and another from the Coronado cemetery. One of the crucibles found in Malagana was not obtained by the archaeologists, so its exact location in the Malagana settlement is unknown (Saenz et al. 2007: 367). It was only 3 cm diameter and it is the only one found complete. The other crucible was found in a midden during the archaeological excavations carried out in 2001, in the Malagana settlement, near or in the central-eastern side of the inner ditch. At that point three sectors, C, D and E, converge; so its assignment to sector is not clear. The location of this crucible, the absence of workshops, and the

presence of some sheet gold cutoffs in domestic middens, whose specific place(s) of recovery is (are) not mentioned in any publication (although Bray [2000: 99] mentions them as taken from the wealthy tombs at south), led the authors to think that gold production was not a specialized, attached activity, but an independent, household-based activity (Saenz et al. 2007: 91). There is also one mold recovered from Malagana, but not by archaeologists, so its location is unknown.

Besides these artifacts, there is a triangular stone with a hole in the middle, also triangular, recovered from the archaeological excavations in the northern sector of the Central Area of Malagana, in Sector D, which was used, without any doubt, for some smelting process. A small fragment of slag adhering to this artifact was examined by electron microprobe providing an anomalous result in its chemical composition: 60% copper; 36% silver and 4.4% gold (Saenz et al. 2007: 405). The result is anomalous because such a combination of elements has not been reported for metal artifacts in the Cauca River valley during the EEB period. Similar 'anomalous' compositions have been found by Rodríguez (2007) in metal artifacts found in the LEB period cemetery of La Margarita, 30 km north of Malagana, by using XRF techniques. Another artifact that has been associated with gold production is a carved bone with some designs in high relief to which gold sheets could be pressed to recreate the designs on the bone (Bray et al. 2005: 161). Further information on tools (chisels, kilns, carved stone molds, and stone polishers) for metalwork is absent. Summarizing, the evidence for smelting, casting and other processes for metal production is scanty and the specific place(s) where they were carried out are not very well determined.

During the course of this research some local inhabitants from El Bolo-San Isidro, the name of the administrative territory where the Malagana settlement is located, were willing to comment and show some of the objects that they have found in their walks through the Malagana

settlement. Among the artifacts collected by them, there were eight small crucibles and 19 polished stones of different sizes and different degrees of polishing that could be used for smoothing the gold pieces; although they also could have been used like hammers or anvils. Two had a sharp edge that could be used also as trimming tools (chisels). Three carved bones and two carved stones found by locals also could be used for making beads, as has been mentioned by Bray (2000), although some of the bone artifacts seem better to have been used as staff heads. The origin of these artifacts is not verifiable, but it seems that locals' walks are restricted to the southern sector of the site, where the wealthy tombs were found. This would indicate that the processes of metallurgical production (excepting extraction) were carried out in the elite area.

The intensive systematic surface survey provided direct and indirect evidence of gold production during the EEB period. Direct evidence gold production is represented by artifacts used in the smelting process, specifically crucibles, and indirect evidence is based on artifacts used for subsequent processes and possible productive residues. The location of these artifacts would indicate the involvement of the elite in such production if it is assumed that the place(s) where these tools were found is (are) not far from the location where they were used. Taking this into account, four small fragments of ceramics, resembling the crucibles found by locals and the ones reported by Saenz et al. (2007), were found very close to one another (Figure 4-1). Three fragments of crucibles were found in collection lot 10B9 and the other in collection lot 10A10 (Figure 4-2). Both collection lots were located in Sector E. The fragments have a gray color and fine texture, and the one from the 10A10 collection lot had traces of burning. There is not any particle of gold adhering to the internal surface of these objects that is visible to the naked eye. The relatively large number of sherds from the EEB period found in these two collection lots indicates that these crucibles belong to the EEB period. The total number of sherds in collection

lot 10A10 is too small for making reliable conclusions on the level of wealth for that unit, but collection lot 10B9 is the collection lot with the highest proportion of decorated ceramics in the entire community (95.2%). This collection lot also has one of the 34 greenstone beads recovered from the systematic surface survey and it was in the center of the wealthiest cluster of domestic units of the EEB period, discussed in the previous chapter.

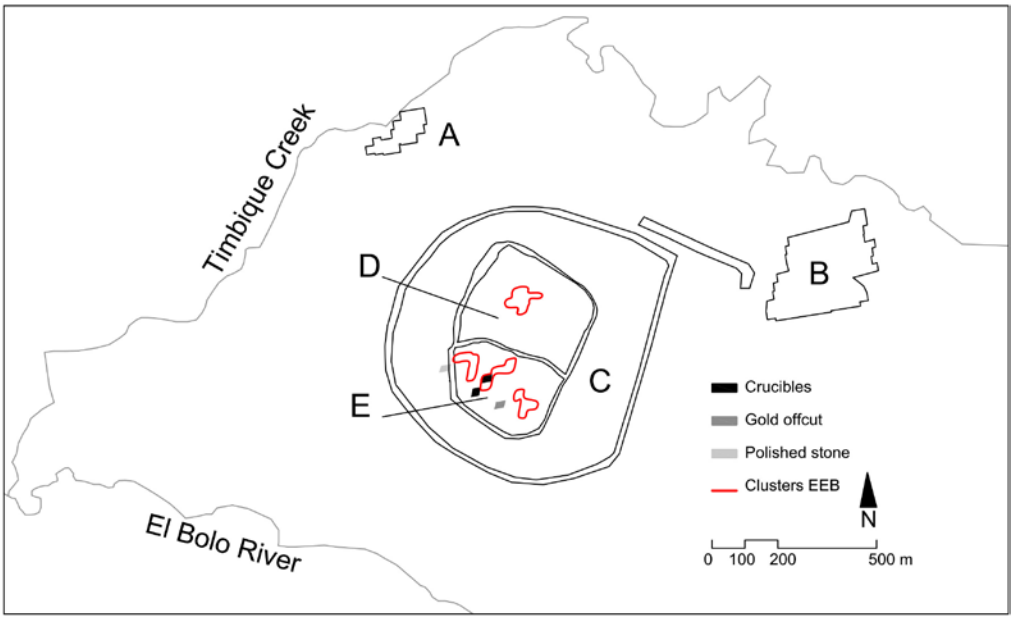

Figure 4-1 Distribution of evidence of gold production and clusters of wealthy domestic units during the EEB period.

One polished stone with the shape of an irregular polyhedron was found in collection lot 9A7, Sector E, associated with EEB contexts (Figure 4-3). This collection lot does not have any important index of wealth: the proportion of decorated sherds is one standard deviation lower than the mean for the settlement and no greenstone beads were found there. Polished stones like this could be used for smoothing gold surfaces, although this evidence is inconclusive since it may also have been used for other tasks.

Figure 4-2 Crucible found in collection lot 10B9.

Figure 4-3 Polished stone (left) and gold sheet (right) from Sector E.

Finally, there was a tiny gold sheet, very similar in size to other gold pieces found in wealthy tombs and on the surface near wealthy tombs, which have been interpreted as sheet-metal offcuts (Bray 2000). There is, however, an important difference between these offcuts and the sheet collected in the systematic survey: offcuts present a well-defined, straight cut area, while this characteristic is not present in the sheet recovered from the survey (Figure 4-3). One possible explanation is that this gold sheet is not an offcut but part of larger piece of gold damaged during looting activities. The small metal piece was recovered from collection lot

10D14 in the south of Sector E, just 15 m north of one of the wealthiest (or the wealthiest) tombs. In this collection lot, however, the amount of LEB potsherds was five times the amount of EEB ceramic fragments, which would suggest that this metal piece belongs, chronologically, to the LEB period instead of the previous one. The spatial proximity of this piece of gold to one of the wealthiest (or the wealthiest) tombs is what suggests its chronological position in the EEB period.

The gold sheet and the polishing stone, therefore, are very weak evidence of gold production in the Malagana settlement during the EEB period; however, it is perfectly clear that part of the process of gold production (smelting) took place only in the Sector E, where the lavishly furnished graves with luxury goods were located. Also, the particular location of the crucibles within Sector E, in or spatially linked to the cluster of the wealthiest domestic units during the EEB period, provides the most compelling evidence of the control over the production of gold artifacts by the elite during the EEB period in the flat valley of the Cauca River valley.

Summarizing, the demand for gold artifacts during the EEB period was very restricted at a regional scale, and most of the 'consumers' were located without doubt in Sector E of the Malagana settlement. Such restriction implied that there was not a broad market for independent producers (contra Saenz et al. 2007: 391); instead, it was a special activity sponsored by a small number of consumers. Production was carried out either by attached specialists or by the elites themselves. The distribution of the evidence of production of gold artifacts indicates that, at the sector scale, gold production was spatially tied exclusively with the area of the richly endowed tombs. Therefore, from a very general perspective, the high levels of wealth observed in Sector E are associated with the production of gold artifacts for the elites' own consumption and, probably, for short distance exchange (as some regional similarities in style seem to suggest). At

the domestic unit scale, the evidence of smelting processes suggests that the activities of gold production were carried out in the cluster of the wealthiest domestic units in the settlement. This indicates the direct involvement of the elites in the production of symbolic artifacts used for the materialization of chiefly religious ideology and the legitimization of chiefly power.

Even though the proximity of metalwork and elite households is usually understood as evidence of attached specialists (Brumfiel and Earle 1987), it is very probable that the elite itself also produced the prestige goods for their own consumption, as has been reported in other areas of Colombia (Martinez in Langebaek 2003). The four small fragments of crucibles found in the systematic surface survey were associated with the wealthiest cluster of domestic units during the EEB period (Figure 4-1); and most of them were located in the wealthiest domestic unit(s) in the settlement (collection lot 10B9). Therefore, the activities of gold production (at least of smelting) were under the direct supervision of the elite group, or made by them. An 'embedded production', that is, when the specialized production is part of the roles of the elite (Ames 1995), could explain better not only the spatial association between gold production tools and the wealthiest members of the settlement, but it also could explain the restricted access of gold artifacts for most of the population during the EEB period. This type of production would have allowed the elites to have the monopoly of the objects necessary for displaying in important public events, in rituals, as markers of status, and for short distant exchange; that is, for the economic and social reproduction of the group they belong to.

How could elites monopolize gold artifact production? This is more speculative terrain, but there are some clues to the processes involved. Gnecco (1996a: 191) mentions two possibilities: a) by restricting access to the sources of the raw materials or b) by controlling the techniques to produce them. Restricting access to alluvial sources would have been impossible

due to the fact that the closest source of alluvial gold is located more than 50 km to the southeast of Malagana; although in a context of warfare (see Chapter 7), the risks involved could have prevented many from leaving the settlement for extracting gold (Burton 1984). In such a case, parties of armed individuals could have reduced the risks. If that was the case, the procurement of gold was a collective activity that implied the ability to mobilize large numbers of people, through coercive means or through some form of economic compensation.

The amount of gold extracted from alluvial sources with traditional methods in modern communities in the Upper Cauca River valley ranges between 15 and 18 gr of gold per week per person (or between 2.1 and 2.5 gr per person per day) (Anthropologist Victoria E. Buitrago, personal communication 2013), but the amount varies according to the distance to the mountains where the gold veins are located. This range is useful for calculating the amount of labor employed in the extraction of gold needed for the production of the artifacts found in the wealthiest grave in Malagana. There is no exact information on the amount of items found there (except an old photograph), but one inhabitant of the community with direct information on the nature of this find indicates that gold artifacts weighted almost 90 pounds (Nelson Triviño, personal communication 2012). This number could be an exaggeration. If one tenth of that number is taken as a more reliable figure (or 4500 gr) (a more plausible number according to the amount of gold objects observed in the mentioned photograph) it would have taken 1800-2142 person days to extract all the gold used for the elaboration of the gold artifacts buried in that grave. As comparison, the largest platform found in the nearby mountains of the Calima cultural area, El Billar, which is considered as the biggest work of engineering during the Sonso period (contemporaneous to the LEB period), required moving around 3700 m^3 of earth (Bray in Rodríguez 2007:141). According to the experimentally-derived calculations by Hard et al. (1999)

on the time required to construct a terrace (1.9 person-hours/m^3), the terrace of El Billar would have taken 1400 person days (of 5 hours) to be finished. These rough calculations exemplify the degree of the ability of Malagana leaders to mobilize labor for personal projects (no communal-directed projects as the Calima terraces or the earthworks discussed in Chapter 7) and the prohibitive costs of the procurement of the material needed in the political religious arena for competitors (if there were any). In this case, it is not restriction of the sources that seems pivotal for the monopolization of gold production, but the wealth needed to compensate the people needed to extract the volume of gold needed for their elaboration.

Control over the techniques of gold production is another possible way to monopolize the production of gold artifacts, and this could be seen as complementary to the scheme mentioned above. Some have suggested that the 'know-how' could be also part of the esoteric knowledge acquired by the elite through their connections with elites from distant places (Gnecco 1996a; Helms 1992). This entails that elites, rather than attached specialists sponsored by the elites, are the ones who made the gold products. This possibility is demonstrated by the absence of direct evidence of gold production or tools for their production in other sectors of the settlement. In addition, the construction of an additional bank and ditch dividing the settlement in two (discussed in the Chapter 7) could have facilitated secrecy in the productive process of gold artifacts by impeding direct observation of elite activities by a great part of the population.

These, however, are not the only mechanisms through which elites could monopolize gold production. The control of exchange networks could have played a role in the procurement of raw material (e.g. Frankenstein and Rowlands 1978), although there is no evidence of the movement of gold nuggets as elements of exchange. If exchange, rather than direct exploitation of the raw material, was the mechanism of procurement of gold, it also would have implied a

considerable level of wealth of the local elite for exchanging gold for a product or raw material (not identified yet) that had an equivalent labor cost.

4.1.2 Greenstone artifacts production

Greenstone was used in Malagana and surroundings as a raw material for the making of personal ornaments, in the form of beads, and for some artifacts used for rituals, with a tubular shape (see Chapter 5). According to Cardale et al. (1999: 49) stones with a green color found in Malagana correspond to six different types of stones: green chert, emerald, green volcanic stone, jadeite, green slate and malachite, each one with different ranges of opacity and brightness. Those with less opacity and more brightness, like emerald and green volcanic stone, are the rarest to find in the archaeological record. The sources of these two raw materials are very far from the settlement (probably more than 150 km), suggesting that some form of exchange was involved in obtaining them. These sorts of stones were associated with wealthy burials; that is, those that contained gold and other highly valuable objects. The other green rocks are not easy to differentiate without the help of modern equipment, but pieces made of green chert seem to be the most common (Bray et al. 2005: 192). Sources of these rocks can be found in the Western Mountain Range 45 km to the west of the Malagana site (Cardale et al. 1999: 51), as well as in the Central Mountain Range, around 40 km to the east of the settlement (Geologist Alvaro Nivia, personal communication 2012). This indicates that the more translucent and shinier the stone, and the more distant its source, the higher its value. In order to avoid confusion, artifacts made of green chert, jadeite, green shale and malachite stones are going to be called greenstone artifacts, although most of the greenstone beads recovered from the systematic surface survey present a great opacity and lack of brightness.

Greenstone beads are prestige goods like gold artifacts, and some think that also have important religious meanings attached to their materiality (Cardale et al. 1999). Although the possession of symbolic religious meanings cannot be ruled out, their form (a bead) and their location in graves indicate that they were used principally as personal ornaments, as symbols of wealth. In the previous chapter it was indicated that around the 6% of the collection lots with ceramic material from the EEB period had at least one greenstone bead, and that they were consumed principally in the sector where the wealthiest tombs of the community were found. Some collection lots with greenstone beads were adjacent to each other or to collection lots with high proportions of decorated ceramics. In fact, the greatest concentration of greenstone beads in the settlement was associated with the highest proportion of decorated ceramics. Although most of the consumption of greenstone beads was in the sector where the wealthiest tombs were found, there is evidence of consumption of greenstone beads in households from other sectors, suggesting that their acquisition was more open than gold artifacts.

Regional consumption of greenstone beads can only be evaluated by observing their distribution in graves. According to Blanco (2011), from a sample of 143 graves of the EEB period excavated archaeologically in the flat valley of the Cauca River, 13.2% (n=19) contained greenstone beads (Blanco 2011: 182). Many of the greenstone artifacts found in graves were associated with gold objects, showing their relative importance as indicators of wealth. Both types of information, local and regional, point to the use of greenstone beads as a symbol of wealth due to their limited distribution in the population and to their spatial association with other high status goods in graves. However, there was a slightly higher demand (more burials and collection lots) for greenstone beads than for gold artifacts. The fact that more people could

have had access to this kind of good indicates that the meaning, use and economic relations tied to it were not similar to those associated to gold production and distribution.

In the previous chapter it was asserted that the distribution of greenstone beads in different sectors of the settlement could be interpreted in two ways: 1) each household acquired them autonomously; that is, they could produce them or exchange them; or 2) elites centralized their production and distributed them among the population as a political strategy for gaining or maintaining supporters. In the first scenario, each household made, independently, the greenstone beads for their own consumption. This would imply evidence of production in or next to the places where greenstone beads were found. Alternatively, independent specialists could also supply the demand for greenstone ornaments; so differences between households in the amount (or just possession) of this kind of artifact can be tied to differences in their 'purchasing power', with elites accumulating more (Halperin et al. 2009). In such case, the locus of production is not necessarily the same as the locus of consumption, and evidence of production would be more centralized, but not related to elite spaces. A clear problem with this variation of the autonomous acquisition of greenstone beads by each household is that the amount of beads found in the systematic survey or in graves is very small for the type of specialization involved. Independent specialists respond to the demands of the market, and this means that they produce for a very large number of consumers or, at least, larger than 6% of the population (Lewis 1996, Earle and Brumfiel 1987; Costin 1991). An additional aspect is that the types of goods produced by independent specialists are utilitarian, rather than expensive, prestige goods since they seek a more predictable demand (Lewis 1996: 365).

In the other scenario, in which greenstone beads were distributed by the elite to other members of the community as a mechanism to create reciprocal debt relations or to pay for services (e.g. Halperin et al 2009; Hayden and Villeneuve 2010), the activities related to the production of greenstone artifacts would be concentrated in elite contexts. If true, the variability in wealth between households in Malagana would have also been associated with control over the production and distribution of non-utilitarian, luxury greenstone artifacts.

Evidence of production of greenstone artifacts in Malagana can be inferred from concentrations of raw material, either worked or not. Tools used for their production have not been identified yet. In the excavations carried out by Cardale et al. (1999) in the northern extreme of Sector D, a deep pit containing very small fragments of greenstone (smaller than 2 cm) were found. Although such fragments could be considered as evidence of production, the excavators denied this possibility due to the lack of cores, unfinished artifacts, or beads associated with these chips (Cardale et al. 1999: 53). A more compelling argument against the interpretation of these greenstone chips as evidence of greenstone production is the context of their discovery: a hole excavated under the bottom of another, larger pit. Caches of symbolic objects, like rock crystal beads and anthropomorphic vessels, are not rare in Malagana. This could be considered as evidence of the symbolic relevance of greenstone by itself, but it is well-known that the social and ideological value of an object is increased through modifications that allow it to be identified as an object of prestige (Lewis 1996: 365).

From the intensive systematic surface survey 36 pieces of greenstone debitage were recovered in the collection units, and another 18 were recovered outside them (which are not used in describing greenstone production). 69.4% (n=25) of the flakes were less than 1 cm long, and 5.7% were larger than 2 cm (n=2). The entire set of greenstone debitage was found in the

Central Area of Malagana, principally in sectors C and E; collection lots 2A9, 8B1, 8B2, 10C2, 10C9, 11A12 and 12D11. At the scale of sectors, there are no huge differences in the proportion of collection lots with evidence of greenstone debitage, although there are enormous differences in the amount of greenstone debitage by sector, indicating high concentration of greenstone in one area and centralization of productive activities in the Sector E (Table 6).

Table 6 Distribution of greenstone debitage during the EEB period by sector. Above, number and percentage of collection lots with evidence of greenstone debitage. Below, number of greenstone debitage pieces (GSD) and of GDS per 100 collection lots.

	Sector A	Sector B	Sector C	Sector D	Sector E	Total
# Collection lots (%)	0 (0%)	0 (0%)	4 (3.6%)	1 (0.6%)	2 (1.8%)	7 (1.5%)
# GSD (#GSD per 100cl)	0 (0)	0 (0)	4 (3.6)	1 (0.6)	31 (29)	36 (8)

Greenstone debitage was not evenly distributed among collection lots either. 77.7% of the flakes (n=28) were recovered in collection lot 10C9, Sector E. This collection lot also had one greenstone bead, a high percentage of decorated ceramics (although the density of ceramics from the EEB period is very low in this collection lot), and it was contiguous to collection lot 10B9, one of the wealthiest in the settlement. The other collection lots had one flake, except 8B2, with two. Because the number of sherds for each one of these collection lots differs enormously a debitage per 100 sherds ratio was calculated. The results are shown in the form of a stem-and-leaf graph (Figure 4-4).

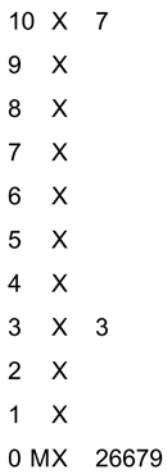

Figure 4-4 Stem-and-leaf of greenstone debitage per 100 sherds ratios.

The stem-and-leaf graph shows clearly one collection lot (10C9) with a very high ratio of greenstone debitage per 100 sherds, indicating that in that area the production of greenstone ornaments was more intensive than in other collection lots in the settlement. The other 18 debitage pieces found outside of the 2 m x 4 m collection units were also found in collection lot 10C9, emphasizing the character of the centralization of the production of greenstone in that area. This high centralization in the production of greenstone artifact is also observed when differences in consumption and production are taken into account: while 78% of debitage is concentrated in one collection lot, the collection lot with the highest proportion of greenstone beads has less than 15% of the beads recovered in the systematic surface survey; and these were not the same two collection lots. These figures stress that the production of greenstone artifacts was more intensive in the southern, elite zone and concentrated in only one spot, the one that accumulated more wealth (Figure 4-5).

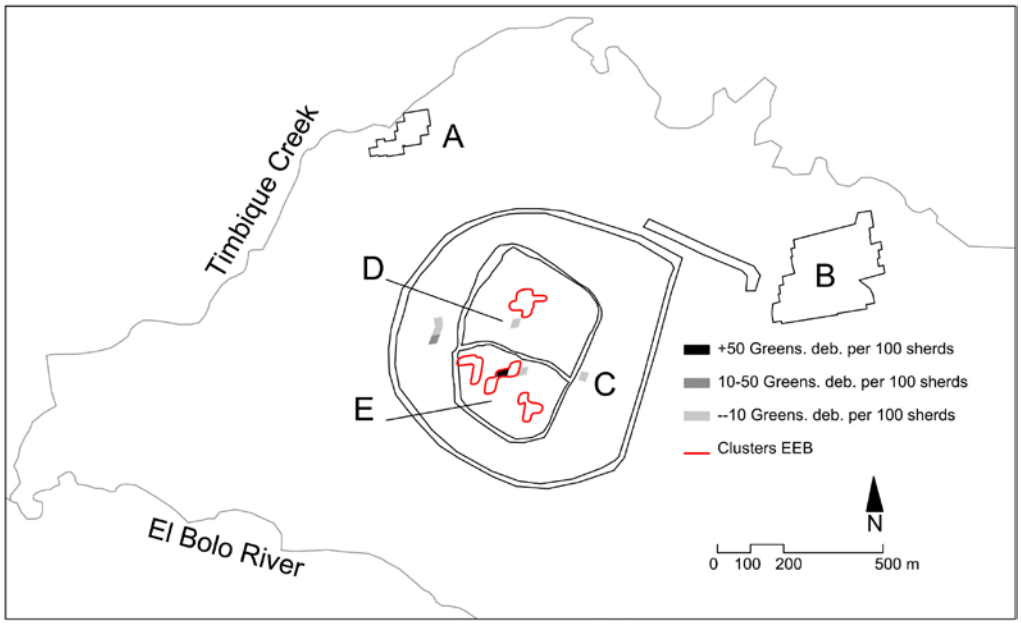

Figure 4-5 Distribution of collection lots with evidence of debitage in regards to the wealthiest clusters in the EEB period, indicating the greenstone debitage per 100 sherds ratio.

This highly centralized production of greenstone artifacts and the broader distribution of finished products (but not obtained by everyone), coincide with the archaeological expectation of economic control over the production and distribution of luxury objects by the elite during the EEB period as a political strategy to reinforce social differentiation, but also as mechanism to compensate followers and pay for services.

4.1.3 Slate Production

Other evidence of production of prestige goods is observed in pieces of debitage of exogenous gray slate recovered in the systematic surface survey. Gray slate artifacts are not very common in the archaeological record or, at least, not as common as those made of greenstone. Some pieces of unworked slate have been found exclusively in tombs belonging to the EEB period (Herrera et

al. 2007), and finely elaborated slate artifacts were obtained by looters from tombs. No slate artifacts were recovered from the systematic surface survey.

Evidence of gray slate has been recovered in similar quantities and, interestingly, with a very similar spatial pattern of distribution as greenstone debitage (Figure 4-6). 44 slate pieces were recovered from the systematic surface survey from nine collection lots: 9D5 (1), 9B8 (3), 9A9 (1), 8B6 (1), 8B3 (1), 10C9 (31), 10C8 (4), 10C10 (1), and 11B18 (1). Although there are not differences in the proportion of collection lots with evidence of slate debitage by sector, most of the slate pieces were found in Sector E (Table 7). As in the case of greenstone pieces, gray slate ones were highly concentrated in one collection lot, 10C9, which had almost 70% of all the gray slate pieces found in the surface survey. This is the same collection lot that had the highest proportion of greenstone pieces for the entire settlement. Another 11% was recovered from two collection lots, which were adjacent to collection lot 10C9. In addition, 10 slate pieces were found outside the limits of the collection units, 9 of them in collection lot 10C9.

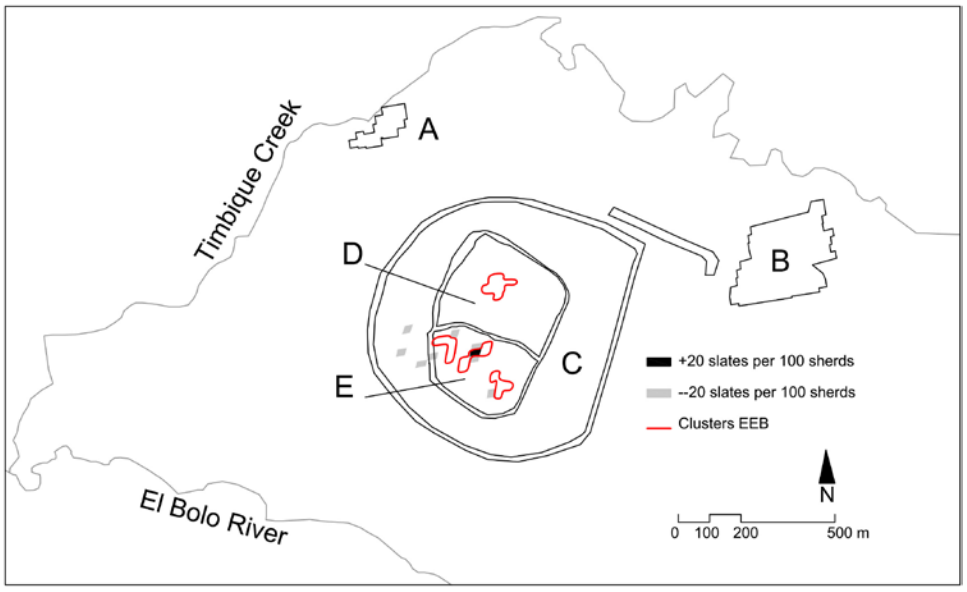

Figure 4-6 Distribution of gray slate during the EEB period.

Due to the fact that the number of sherds for each one of these collection lots differs enormously, a ratio of slate debitage per 100 sherds was calculated. A stem-and-leaf graph of these ratios shows huge differences between collection lots, with collection 10C9 at the top (Figure 4-7). The collection lot with the disproportionate ratio of slate pieces per 100 sherds is also located in the cluster of wealthy domestic units. This high concentration of gray slate is analogous to the centralization of the production of greenstone artifacts, reinforcing the pattern of control of production of wealth goods by the elite.

Table 7 Distribution of slate pieces during the EEB period by sectors. Above, number and percentage of collection lots with evidence of slate pieces. Below, number of slate piece (SLP) and of SLP per 100 collection lots.

	Sector A	Sector B	Sector C	Sector D	Sector E	Total
# Collection lots (%)	0 (0%)	0 (0%)	3 (2.7%)	0 (0%)	6 (5.5%)	9 (2%)
# SLP (#SLP per 100cl)	0 (0)	0 (0)	3 (2.7)	0 (0)	41 (38)	44 (8)

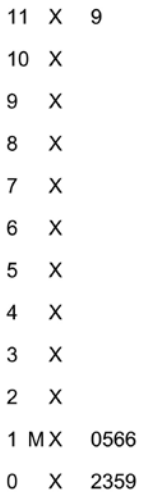

Figure 4-7 Stem-and-leaf graph of slate pieces per 100 sherds by collection lot.

4.1.4 Utilitarian local stone tools

The systematic surface survey not only obtained evidence of production of prestige artifacts, evidence of debitage and cores of local rocks used for making utilitarian tools for domestic use was also collected. However, finished products made of local stone collected from the systematic surface survey were all associated to the LEB period.

For the EEB period 12 pieces of debitage and one core were recovered. 5.5% of the collection lots in Sector E had evidence of local stone production, whereas the 3% in Sector D did so. Stone debitage was not collected from the other sectors. A stem-and-leaf graph of the amount of debitage per 100 sherds ratios for each collection lot shows some differences between collection lots, with one collection lot, in Sector D, 5A3, at the top (Figure 4-8). However, such differences are not of the same order of magnitude as the ones observed between the collection lots for greenstone or slate debitage per 100 sherds.

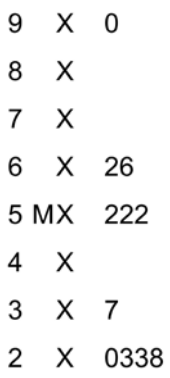

Figure 4-8 Stem-and-leaf of debitage per 100 sherd ratio by collection lot during the EEB period.

Most of the collection lots with evidence of local stone production (58%) were located in or close to the four clusters of wealthy domestic units (Figure 4-9). However, the distribution of residues of local stone production does not show a strong concentration in one collection lot, as was the case with the production of greenstone, slate and gold artifacts. The collection lot with the most pieces of debitage in the settlement, 9B6, only had 16% (n=2) of the local stone debitage assemblage. Despite the fact that almost 60% of the collection lots with evidence of this sort of production were located in or next to the clusters of wealthy domestic units, the production of artifacts made from local stone was not centralized as strongly as the slate and greenstone cases. The broad distribution of evidence of this activity throughout the settlement points more to an decentralized, domestic production for household consumption.

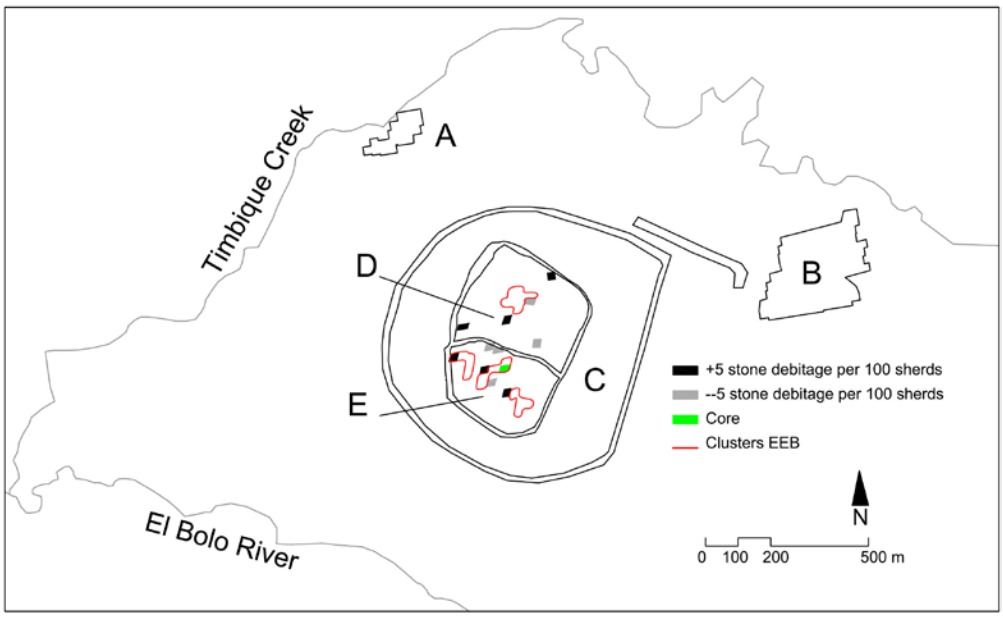

Figure 4-9 Distribution of evidence for local stone artifact production for the EEB period.

4.2 CRAFT PRODUCTION DURING THE LATE EL BOLO PERIOD

4.2.1 Gold production and consumption at Malagana and its surrounding area during the LEB period

Evidence of gold consumption and production for the LEB period is scantier in the region than in the previous period. Not one of the 13 tombs excavated in the sites near the Malagana settlement or in the east foothills of the Cauca River valley contained gold artifacts (Rodríguez Cuenca et al. 2007). In another 42 tombs of the LEB, located more than 20 km south of the Malagana site, there was no evidence of gold artifacts; although three gold nose rings were found by looters (Ford 1944). This scenario contrasts with the northern Sonso/Quimbaya Tardío societies, in which evidence of gold offerings/ornaments has been found in tombs (Rodríguez Cuenca et al. 2007). The lack of gold objects in archaeological contexts around Malagana is inconsistent with Langebaek's observation on a widespread consumption of gold artifacts during the last period in the Sonso societies.

There is only one object that can be associated with gold production recovered from the systematic surface survey for the last period: one polished stone (Figure 4-10). This polished stone was found in the collection lot 30B8 in a context belonging clearly to the LEB period (Figure 4-11). Polished stones with a similar shape have been suggested to be used for hammering (e.g. Shimada and Griffin 1994; Carcedo 1998), rather than for smoothing surfaces. For this latter task polished stones with flat surfaces would be more appropriate. Similar artifacts have been interpreted as 'polishers' for smoothing surfaces of ceramics (e.g. Pinto and Llanos 1997), but the spherical shape of the polished stone is not suitable for that activity (archaeologist K. Allen personal communication 2013). Some small holes in the surface could be a signal of its

use for hammering with a fine, thin tool, although it is more probable that hammering was done directly on the gold ingot.

Some 16th century Spanish accounts describe similar tools for the Támara Indians, in eastern Colombia: "[...] and they have forges, anvils and hammers, which are all strong stones; they say that some are made of a black metal, akin to the emeries. The hammers are as big as eggs or smaller, and the anvils are so big as Majorcan cheese, made of very strong rocks [...]" (Fernández de Oviedo in Carcedo 1998: 247). This polished stone also could be used as a base for making small, spherical bowls in gold. However, the rounded polished stone could also have another function, more related to defense. A similar stone in terms of shape and size, but not well polished, was found south of the polished one (Figure 4-11). The characteristics of these two stones resemble stones used as projectiles in other regions (York and York 2011). Evidently, stones are not usually polished to such a degree to be used as munitions, but in a case of impending attack, tools used for other different activities than warfare could be used as weapons. This subject is discussed in Chapter 7.

Figure 4-10 Rounded polished stone found in the systematic surface survey.

Collection lot 30B8, where the polished stone was found, has a high proportion of decorated sherds for that period (6.25%), one standard deviation above the mean for the entire settlement. Collection lot 30B8 is also part of one small cluster of wealthy domestic units, although the levels of wealth of the collection lots of this cluster are below those of the collection lots of the clusters of wealthy domestic units in sectors A and D.

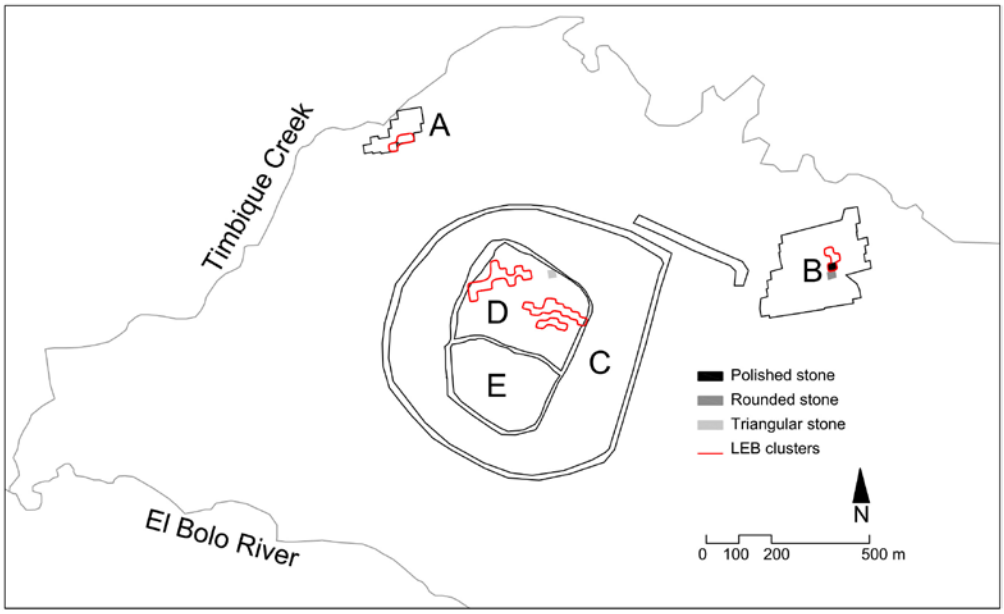

Figure 4-11 Location of collection lots where rounded stones were found.

This polished stone is not the only artifact associated with metal production for the LEB period in Malagana. At the beginning of this chapter a triangular stone used for smelting, excavated by Bray et al. (2005), was mentioned. The slag adhering to it had a composition compatible with other metal objects from the LEB period. The location of this tool, in Sector D, was not related to any cluster of wealthy domestic units (Figure 4-11). The collection lot where it was most probably found, 5A3, did not present any decorated potsherd. The places where the

polished stone and the triangular stone for smelting were found mark a change in the relationship between wealth and gold production for the last period. It seems that the wealthiest members of the community, those located in the clusters of sectors A and D, were not directly involved in the production of gold artifacts, as had been the case in the previous period.

Some archaeologists have suggested that during the last period of occupation in this area of the Cauca River valley there was a 'democratization' of the consumption of gold artifacts (Herrera 2007; Langebaek 2003). Additionally, they suggest that the economic power of the elites during the LEB was based on the control of the production of different crafts, including gold ornaments. Therefore, it should be expected that gold production was spatially associated with the elite residences. Patterns of consumption and production of gold artifacts in and around Malagana, however, do not fit with that interpretation. The low consumption of gold artifacts and lack of direct observation of the production of gold by the wealthiest residences in Malagana, suggest to a different scenario of the social relations behind gold production during the LEB period than the one suggested by Langebaek (2003), at least in this region.

In the first place, metal artifacts were produced for the elite by attached specialists, indicating that elites lost control over the techniques of gold production. However, archaeological evidence of local consumption of gold artifacts by wealthy individuals is absent.

In the second place, gold production was carried out by independent specialists for external demand. But where is evidence of external consumption? To the north, more than 60 km from Malagana, gold objects were consumed in abundance, although not on the same scale as in Malagana during the EEB period; therefore, people from these communities could be potential 'clients' for gold products (Herrera 2007; Saenz et al. 2007; Uribe 1991). Potential consumers can also be found to the south, where the three nose rings reported by Ford (1944) were obtained.

In this scenario the motivation for producing gold artifacts is more economic than political; therefore, the intensity of production would depend on the demand for the product. If the consumers of small gold ornaments were located outside of the community of Malagana, as is proposed here, the production and trade of gold artifacts depended not only on the demand for the product, but on the potential risks to the safety of the trader (Lewis 1996: 369). A more peaceful context would have allowed more dynamic patterns of exchange between the communities of the flat valley of the Cauca River during the LEB period, an issue discussed in Chapter 7.

The decrease in quantity, quality and weight of gold artifacts, their low stylistic diversity (mostly plain nose rings), and the probable scenario of independent specialists creating goods for a general, external market, suggest that there was not an elite powerful enough to mobilize people for obtaining gold from alluvial sources in the same quantities as in the previous period. This last interpretation contrasts with what is ethnohistorically known for some societies in the region during the last centuries before the Conquest (Herrera 2007; Rodríguez 2002; Trimborn 2005). However, it must remembered that the social processes documented for the LEB period in Malagana could have ended some centuries before the ones reported in the ethnohistoric sources.

The information obtained from the systematic surface survey and from previous archaeological reports, indicates that the wealthiest domestic households during the LEB period did not support their economic privileges through the production of gold artifacts, even if some producers could obtain some moderate levels of wealth. There is no evidence indicating that the wealthiest residential groups or other less wealthy ones were the principal consumers of these goods. This marks a relevant difference with the EEB period. Although in the two periods some

households had the power to accumulate wealth, during the LEB period the power over the production of very valuable metal objects vanished.

4.2.2 Textile production

Indirect evidence of use of clothes or other textiles have been reported for the nearby western foothills of the Cauca River valley before 1 BC. On some pots women are represented wearing skirts and belts, although the number of pots with this kind of representation is minimal when compared to naked human representations (Cardale 2005). For the next seven centuries information about textile production is also scanty. Some gold figurines represent men wearing elaborate loincloths, but as in previous times such representations were not very common (Bray 2005). This reduced representation of the use of clothes in iconography, and the virtual invisibility of tools for textile production in the archaeological record suggest that textile production was not much developed during the 400 BC-750 AD period.

For the site of Malagana and nearby cemeteries from the EEB period the evidence of textile production is minimal and controversial. In one grave at Malagana, Correal et al. (2003) found a broken bone fragment of an artifact that they call needle (*aguja*) or awl (*punzón*). The lack of a terminal hole indicates that this artifact was not a needle (e.g. Ramis and Alcover 2001), but could be used for other tasks different to textile production. The other object recovered by controlled excavations corresponds to a spindle whorl with the shape of a disc made of green chert. It was found in a relatively wealthy grave in the cemetery of Coronado (Herrera et al. 2007). The same piece is shown in another book by the same authors indicating that it was obtained from the Malagana Hacienda (Bray et al. 2005: 179), and with a different diameter: 7.3 cm instead of the less than 5 cm indicated in the Herrera et al. (2007) report. There

is no other spindle whorl of similar characteristics (shape or raw material) found in Malagana or other settlements in the Upper/Middle Cauca River valley. It is plausible that this green chert disc was also the principal ornament of a necklace. Evidence of textile production is observed, again, only in a small number of figurines made of gold. In them, some men, wearing different ornaments, seem to use a loincloth (e.g. Bray et al. 2005: 170; fig IV.38). Other ceramic and gold figurines found in Malagana show men and women naked. Therefore, and like the nearby foothills societies to the west, textiles (in the case that loincloths were made from fabrics and not of gold, as was the case of belts, breastplates and helmets) were reserved for a very small proportion of the population.

This lack of evidence for textile tools and iconography has not been understood as an indication of weakly developed textile production by some archaeologists, who instead suggest that spindle whorls in the EEB period were made of wood, a material that is very seldom preserved in the environmental conditions of southern Colombia (Bray et al. 2005:179). Such a statement assumes that there must be spindle whorls even if the evidence of textiles for the EEB period is scanty, at best. Undoubtedly, even if spindle whorls are good evidence of textile production, textiles can be made without spindle whorls (Barber 1991). However, the quantity and quality of yarns produced without spindle whorls are low when compared to the production of yarn using spindle whorls (Alt 1999). The rise in textile production inferred from the increased use of spindle whorls is interpreted as an increase of the demand for textiles in the context of the political economy of complex societies (Alt 1991; Boada 2009). That explanation can apply for the significant increase in (or appearance of) textile production during the LEB period to the communities culturally related to the Malagana site, as demonstrated by the presence of spindle whorls in the archaeological record and in 16th century Spanish reports.

Curiously, many ceramic figurines of the LEB period are modeled naked. Due to the lack of evidence for textile production in the EEB period the following discussion is centered in the LEB period.

For the last 500 years prior to the Spanish conquest, the production of textiles expanded exponentially. Many ceramic spindle whorls, and some cotton fabrics and seeds have been found in archaeological excavations in household middens and in tombs (Rodríguez 2002). Due to the high acidity of soils in the Cauca River valley, preservation of textiles is very limited, but the presence of spindle whorls provides the best evidence of textile production for both foothills and flat valley populations (Rodríguez 2002). Thus far, the only analysis made of ceramic spindle whorls in the Upper/Middle Cauca River valley was focused on describing their decoration (Rodríguez and Jaramillo 1993). In that research, centered on the spindle whorls of the 1000 AD-1300 AD period, Rodríguez and Jaramillo (1993) found a high heterogeneity of designs, although the form of the bases was reduced to circles and square-like shapes.

The archaeological evidence for textile production during the LEB period for communities culturally related to the Malagana site is based on findings of spindle whorls in the sites of Campoalegre (n=2) (Rodríguez et al. 2008); La Ruiza (n=12?) (Rodríguez Cuenca et al. 2007); Valle 8 (n=4), Valle 9 (n=1), Valle 11 (n=1), Cauca 4 (n=3), Cauca 2 (n=87) and Cauca 10 (n=2) (Ford 1944); and in El Bolo (n=4) (Patiño 2010), among others. Many of these spindle whorls present incised decoration; others are decorated with a red slip and others are plain. The incised decoration of these artifacts does not present the same symmetry as those from the northern communities of the same valley (Rodríguez Cuenca et al. 2007; Rodríguez and Jaramillo 1993); and they do not show the same variety in shapes seen in the spindle whorls of Muisca societies of central Colombia (Boada 2009). Shapes are reduced to conic and discoid

forms. Although there is no precise information on sizes of spindle whorls recovered so far, information obtained from the drawings of some reports indicates that the ratio of diameter to height was low (between 1.7 and 2.5). These ratios are interpreted as an indication of use of the spindle whorls for the production of fine thread (Boada 2009: 292-3). Spanish 16th century reports indicate that both men and women used cotton textiles for clothing in villages near the Malagana settlement (Cieza de León 1984; Robledo 1993); and it is possible, following the same reports, that cotton was exchanged for gold objects or salt (Trimborn 2005).

In the intensive surface survey only one spindle whorl was found. It is 5 cm in diameter and 2.5 in height, with a central hole of 1.2 cm (Figure 4-12). The shape was of a convex cone. The texture was friable, with an orange color on the entire surface. The body does not present any decoration, but the base does. It consists of four incised triangles with their bases toward the central hole and filled by punctations. It was recovered from collection lot 29B6, Sector B, a collection lot with a very high number of LEB ceramics when compared to EEB ones, indicating that it is highly probable that this spindle whorl belongs to the LEB period (Figure 4-13). Collection lot 29B6 is not particularly wealthy, although it was between two collections that were among the 25% wealthiest during that period; one of them, collection lot 29B5, was 12th in the rank of highest proportion of decorated ceramics.

As mentioned in Chapter 2, there is a bias against the presence of 'special' artifacts in the Central Area of Malagana; therefore, it is not possible to know if the lack of spindle whorls in that area is due to looting activities or a lack of textile production. It is important to indicate that some local inhabitants have recovered some spindle whorls from the Central Area, but it is not possible to determine from where exactly they were obtained and the period of time they were used. However, it is meaningful to indicate that a relatively wealthy sector during the LEB

period (Sector A), which has not been a focal point of looting activities, does not have any spindle whorl. This could be a sign that, during the LEB period, the accumulation of wealth was not associated necessarily to the production of textiles, because the clusters of wealthiest domestic units did not produce evidence of textile production. But if most of the wealthiest domestic units in Malagana did not obtain wealth through the production of textiles, the production of textiles could have allowed the acquisition of wealth for some producers (Alt 1999), as the spatial association between the collection lot where the spindle whorl was found and the collection lot with one of the highest proportion of decorated ceramics suggests.

Figure 4-12 The spindle whorl found in the systematic surface survey.

In the nearby Muisca societies of central Colombia, *mantas* (blankets) were given as tribute/gift to chiefs by commoners, without direct observation of the production by the elite (Langebaek 1987). However, Muisca elites were also actively involved in the production of mantas, producing high concentrations of spindle whorls in their residences (Boada 2009). The absence of spindle whorls in the wealthiest clusters of domestic units in sectors A and D, shows a different pattern to the one recorded for the Muisca societies. The groups of the wealthiest domestic units of the Malagana community were not actively involved in the production of

textiles, a valuable good that could reinforce their social rank (Alt 1999). In addition, the evidence collected does not indicate that the textiles were produced in a domestic base for tribute, in which case a widespread distribution of spindle whorls would have been expected. How does this spindle whorl fit into the economy of Malagana? One plausible explanation is that textiles were produced by independent specialists for intra- or inter-site exchange, in a similar fashion as was proposed for the production of gold items for this period. After all, there is some ethnohistoric information supporting such scenarios (Trimborn 2005). What is clear, based on regional information, is that there was a change in the technology for spinning, allowing increasing the amount of yarn produced per unit of time, and this probably was linked with the production of clothes beyond domestic consumption (Alt 1999).

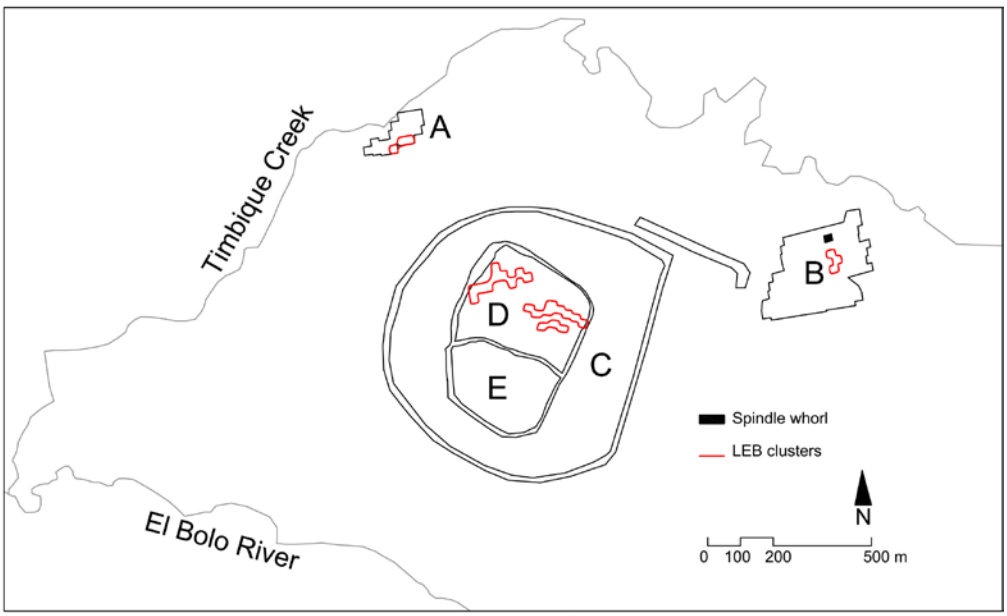

Figure 4-13 Location of the spindle whorl collected in the systematic surface survey.

4.2.3 Utilitarian local stone tools

For the LEB period some changes occurred in the spatial distribution of evidence of local stone tool production, although they are not associated with the concentration of productive activities in any cluster of domestic units. 23 pieces of debitage and one core were collected from the systematic surface survey. 16% of collection lots in Sector A had evidence of local stone tool production, a high percentage compared with 8% of Sector C, 3% of Sector D and around 2% for sectors B and E. While important differences at the level of sectors can signal some centralization in the production of local stone artifacts in Malagana, differences between collection lots are much smaller than in the previous period (Figure 4-14). No collection lots from Sector A were in the small group of collection lots with the highest number of debitage per 100 sherds.

8 X 035
7 X
6 X 2
5 X 8
4 X 01337
3 MX 112
2 X 0038
1 X 569

Figure 4-14 Stem-and-leaf of local stone debitage per 100 sherds ratio by collection lot during the LEB period.

The distribution of local stone debitage in the settlement during this period was less associated with the clusters of wealthiest domestic units than in the EEB period: only 35% of the collection lots with evidence of production of local stone artifacts were in or next to these clusters (Figure 4-15). Even if there is a spatial association between collection lots with evidence of local stone production and the cluster of wealthiest domestic units in the Sector A, there is no concentration of such production at the levels observed for the production of luxury goods in the EEB period. In the same way as in the previous period, the broad spatial distribution and low levels of concentration of debitage suggest that the production of local stone artifacts during the LEB period was by each household for its own use, and was not a special source of wealth for their producers.

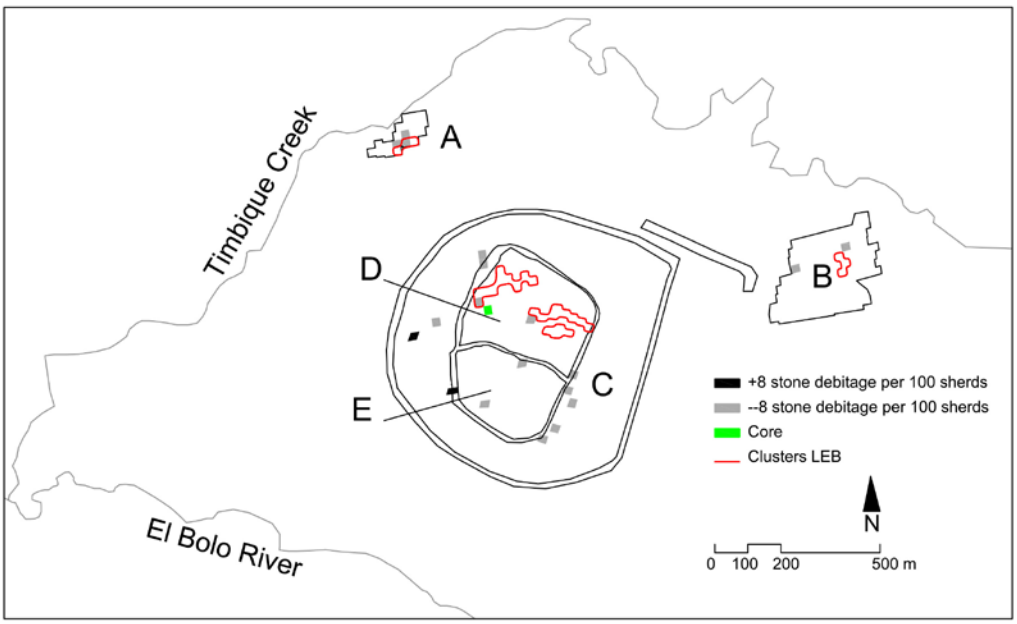

Figure 4-15 Distribution of evidence for local stone artifact production for the LEB period. Collection lot 3B9, which had the highest debitage per 100 sherds ratio, is the same collection lot where the only core was found (in green).

4.3 OTHER ARTIFACTS

Besides gold, greenstone, slate and local stone artifacts, other kinds of artifacts were obtained in the systematic surface survey, but the evidence of the loci of their production is scanty or null. One of them is pottery. Some (Herrera et al. 2007) have indicated that concentrations of orange soil particles found in archaeological excavations and on the surface can be interpreted as concretions of fired clay. According to Herrera et al. (2007) these clay concretions represent the raw material used for making ceramics, but also 'firing *in situ*' (Herrera et al. 2007: 185). However, there is another explanation for these amalgamations. Similar concretions were found in the four excavations carried out for this research. According to Miguel Beltrán, agronomist from the *Universidad Nacional de Colombia*, these fine concretions are ferro-manganese nodules, which are the result of the weathering process of the soil (Miguel Beltrán, personal communication 2012). In regards to clay sources, Bray et al. (2005) signal that some studies of clays of certain ceramics from Malagana have shown that they are local or, at least, they have the composition expected for clays extracted from or near the El Bolo River; but there is no clear information on what type of ceramics were analyzed. Such a lack of clear places for production of pottery is usually interpreted as evidence of household production (Feinman in Arnold and Santley 2003: 228-9), even if some of the pottery produced is not necessarily for household consumption. On the other hand, if the sources of clay were local, the production of ceramics would be difficult to monopolize (Earle 1997), but the costs of production for highly decorated ceramics, like the ones of the EEB period, could have demanded high investments of time, skills and the procurement of non-local ceramic supplies, such as pigments (DeBoer and Lathrap 1979; Silva 2008) that few could afford. Evidence of production of pottery and its association with elite is, then, still elusive.

Another type of artifact found during the systematic surface survey is rock crystal artifacts. The distribution of rock crystal beads in the Malagana site and in the region is discussed in the next chapter. At the present time, the only evidence of production of rock crystal objects is based on one block of rock crystal found by looters in one grave, suggesting that rock crystal beads could also be produced in Malagana, rather than imported. The lack of the proper context of recovery for this block however makes it impossible to determine to what social group this block can be associated.

4.4 CRAFT PRODUCTION AS A SOURCE OF POWER IN MALAGANA

Clear differences in the production of luxury items were observed between the EEB and LEB periods, and between luxuries versus utilitarian artifacts, in both periods. Such differences, along with the loci of production of these goods, indicate the changing role of craft production in the political economy of the Malagana society through time. In this research it was assumed that the concentration of evidence for the production of a certain good implied the centralization of the production of that good, and if such concentration of productive activities was spatially associated with the clusters of wealthy domestic units, it was inferred that the wealth of these households was supported, in part, through such economic activities (e.g. Welch 1991).

During the EEB period there was a consistent pattern for the production of valuable goods, although patterns of consumption were not similar. Highly elaborated gold artifacts were made exclusively for the use of elites, and greenstone beads were distributed to a wider part of population, but their access was still restricted. The production of these goods was limited to only one area of Malagana, the one in which the richly furnished graves were found. But such

evidence of production of valuable objects was not widely spread throughout that sector; instead an overwhelmingly great concentration of such production was connected with the cluster of the wealthiest domestic units for that period, located in the center of Sector E. Such centralization of production is an indication that elites had the power to accumulate wealth by their control over the production of such goods. And control over the production also implied control in their distribution and consumption. These luxury goods were restricted from most of the population, although to different degrees. Evidence of the consumption of greenstone was more open to the population than gold, as observed in a regional scale, in both domestic middens and burials, but hardly open to all. Non-utilitarian luxury objects like the ones produced in Malagana were a source of power for the elite because they facilitated certain types of relationships with elites from other communities through exchange, because they could be used as a type of payment or gift for services (as could be the case for greenstone ornaments, due to their wider distribution), and because they could be a direct indication of the link between the consumer and the supernatural world, as seems the case for goldwork.

As mentioned, the production of these goods was not only concentrated in certain locations but these locations were in or adjacent to the cluster of the wealthiest domestic units for the EEB period. Such a spatial arrangement suggests that productive activities were carried out principally for the elite themselves. This could have guaranteed control of the production of these goods, better than by commissioning production of an external specialist. How exactly the elite prevented the rest of the community from producing these valuable and desired goods is not completely clear, but some hypotheses can be suggested with the information available. Sources of greenstone and slate were not local and, in a context of warfare (Chapter 7), their acquisition (and trade of finished products outside the community) could be costly for everyone. Direct

exploitation of sources would have required the ability not only to mobilize people for their extraction but also to defend them from potential attacks. Alternatively, control over greenstone and slate production could be accomplished by monopolizing the networks of exchange. The evidence of debitage in other areas of the settlement, although in small quantities, could indicate that such control was not always completely effective or that some production was opportunistic, based on sporadic finds of greenstone and slate in the banks of the nearby rivers.

Similar hypotheses can be suggested for gold production if the alluvial gold sources were not close to the settlement, as some have indicated (Saenz et al. 2007). However, if sources of alluvial gold were close (although no source has been identified less than 20 km from Malagana) it is improbable that direct access to those sources were restricted to the entire community. Certainly, in many non-state societies there are claims of corporate ownership for specific locations of natural resources (Hayden 1995), but in such cases every corporate group has access to the natural resources, especially when they extend for large areas (like access to rivers or mineral deposits). Therefore, access to rivers for gold extraction would be impossible to control. The most probable way to prevent access by the population to gold objects then was by controlling knowledge of the process (or part of the process) of gold production. The esoteric knowledge involved in the process of gold production could provide more value to the object by enfolding it in an aura of mystery (Helms 1992). This would explain why evidence of gold production was completely restricted to one area of the community, in contrast to greenstone or slate production that, even though highly centralized, was not limited to only one group of residential units.

One element usually not mentioned regarding gold production in the area is the amount of energy invested, measured in days of labor, for obtaining the gold necessary for producing some of the huge pieces or the total amount of gold artifacts found in some graves. If the estimated of 2 to 2.5 grams of gold per day/person is correct, the total labor days for obtaining the gold for all the objects found in some graves can be counted in the hundreds, and in excess of the labor spent for making the large-scale 'works of engineering' of the following period.

The abrupt change from the highly elaborated and large pieces of gold in the EEB period to the small gold ornaments of the LEB period cannot be explained only by a process of 'democratization' of the consumption (or production) of gold artifacts in the LEB period. The large amounts of gold objects during the EEB period are evidence of the ability to mobilize labor by the elite on a scale that could not be reached by those who tried to accumulate some wealth in the following period. This marks a great difference in the nature of social fabric between the two periods.

Gold objects during the LEB period in the area had very reduced sizes and weights, had lower quality (a lower percentage of gold) and the quantity of these objects found together was minor when compared to the EEB period. Gold objects during the LEB period thus were not very impressive. The evidence of production of gold as well as of textiles was scanty and they were not related to the cluster of the wealthiest domestic units of the period. The evidence for the production of these two types of goods suggests that production of gold artifacts and textiles was not controlled directly by the elite; rather it seems more a domestic enterprise for either internal or external demand.

The EEB and LEB periods coincide in the mode of production of one sort of artifact, although with some minor differences: local stone tools. There is no evidence of concentration of

residues of production at the level of domestic units; and the distribution of such residues at the scale of sectors was much more even than the production of luxury goods. This pattern of production is more coincident with a non-specialized, domestic production for own consumption (Costin 1991), than a type of specialized production through which wealth is built. This particular pattern of production also reinforces the idea that the control of production of the prestige goods during the EEB period was influenced by the costs of procurement of the raw material from exogenous sources that few could afford due to intense regional conflict; local stone artifact production was more difficult to monopolize due to the accessibility of the resources.

Summarizing, the evidence of craft production during the EEB period is consistent with specialized, small scale production of luxury goods sponsored by the elite under their direct surveillance or made by themselves as part of their political strategies to obtain wealth and power. Control of production was based on the difficulty of procuring raw material or on the possession of the knowledge required for production. The context of the specialized production of luxury goods changed in the LEB period to a more independent specialized production. Although some economic benefits were obtained by these independent specialists, the households presenting the highest levels of wealth in this period were not involved directly in the production of gold artifacts or textiles, and they were not able to centralize the production of utilitarian stone tools.

5.0 RELIGIOUS IDEOLOGY

Religion and ideology are two different things, although some academics present religion as subsumed to ideology (e.g. Demarest 1992). Ideology can be defined as the set of ideas through which "[…] interest groups present their views and justify them so as to manipulate and control others" (Gilman in Demarest 1992: 3), while religion can be understood as the set of beliefs concerned with supernatural beings, powers, and forces that can affect human lives (Wallace 1966; Flannery and Marcus 1993). But when religious beliefs are used intentionally by one group of people to dominate or take advantage of other group, they become ideological.

Showing religion as part of ideology is an over simplification of the role of religion in society. Religion gives an explanation about the world, promotes social solidarity, and helps in the creation of individual and group identity, among other social 'functions' (Aldenderfer 2010). By understanding that not all aspects of religion are embedded in politics, the task for distinguishing which religious phenomena are ideological and which are not can turn problematic. However, archaeologists have been able to distinguish points of intersection between the two realms, what have allowed them to recognize the role of religion as a powerful strategy to legitimize existing social differences, by presenting inequalities as natural (DeMarrais et al. 1996; Helms 1992), or to break leveling mechanisms and form sociopolitical inequalities (e.g., Kantner 2010; Potter 2000). These points of intersection are what can be called religious ideology. The relevance of religious ideology in comparison to other types of ideology resides in

that in non-state societies religion "[…] cannot be easily disaggregated from other aspects of the cultural practice" (Aldenderfer 2010:77; Fogelin 2007), which makes it more suitable for manipulation.

The strength of an ideology, religious or not, to be used as a source of power relies in its ability to be spread to a wider public and to suffocate rival ideologies. Both things can be achieved by its materialization in physical objects (Earle 1997). The materialization of ideas certainly facilitates that particular views can be shared broadly as well as connected easily with specific interest groups. But turning ideas to material things is not enough for religious ideology to be a relevant source of power, unless the costs to produce or obtain these material things are prohibitive to most of the population. Such costs imply large mobilization of labor, scarcity of raw material for their production and restricted networks of exchange, among others. Therefore, elite religious ideology can be transmitted effectively through its materialization in objects, structures, ceremonial events and landscapes if the resources mobilized in their production/obtaining cannot be afforded by competitors (DeMarrais et al. 1996).

Symbolic objects can, for example, be elaborated so as to express a relationship between the owner and the supernatural sphere. Helms (1992) has argued that items obtained from distant places in the Intermediate Area were often charged with such supernatural symbolism, and that others, by their high elaboration, usually linked with the "supernatural" skills of craftsmen, can have also a powerful religious meaning.

Gold artifacts found in the looted, wealthy graves in Malagana are usually interpreted in this way (Gnecco 1996a; Langebaek 2003). Gnecco (1996a), for example, indicates that gold objects found in the Colombian southwest are thought to represent a widespread shamanic complex, which religious elites could control by restricting commoners from either access to the

raw material or to the knowledge of the techniques to produce them (Gnecco 1996a:191). Therefore, metallic objects were the expression of the possession of esoteric knowledge from the bearer. These symbolic goods were part of an exchange network involving only the elites manifesting "[…] the restricted access to knowledge allowing the monopoly, and at the same time, the legitimization of power [by the elite]" (Gnecco 1996a: 187). As indicated in Chapter 4, evidence of gold production for the Early El Bolo period is concentrated in a small zone of Sector E, related to the wealthiest households in the community and the wealthiest tombs. According to this evidence, it seems plausible that elites in Malagana got control over the production of gold goods by having the knowledge of the complex techniques necessary for their production, rather than by control of the sources of raw material, which are unknown at the present time. This control over the production of metal artifacts could be enhanced by the construction of the earth structure dividing the community in two halves, which increased the levels of secrecy in the production of these symbolic objects.

The production of symbolically charged artifacts was not the only religious issue exclusive to the Sector E. The tombs containing large quantities of highly elaborated items, probably taking the form of mounds (Botiva and Forero 1993), could also be interpreted as graves of important ancestors to which physical access was not allowed for everyone (except on certain occasions, see below). Direct visual and physical accesses to the ancestors, located in Sector E, was impeded by the dividing earth structure.

These two elements, control of the production and use of symbolically charged artifacts and direct access to important community ancestors, are enough evidence to indicate that elites concentrated efforts in the control of religious symbols and sacred spaces pivotal for their representation as intermediaries between the cosmological and the social orders. Certainly,

differential access to gold artifacts and to important ancestors does not indicate the degree of involvement of the elites in the manipulation of religious beliefs at the scale of commoners' daily life, the scale at which the messages of elite power are resisted, accepted or negotiated. In order to observe the degree of control of elites on religious affairs in the community other kinds of religious manifestations that could be carried out by the non-elite population are analyzed.

Some artifacts excavated from burials and caches at Malagana have the potential to be symbolic objects that could be manipulated by the elite to justify and maintain inequality. Elaborate pottery jars in the form of kneeling-woman and other figurines are interpreted as items used in healing ceremonies (Cardale et al. 1999); rock crystal beads have also been associated with fertility, energy and curative powers because of their special location in the mouth and pelvis regions as observed in some burials (Bray et al. 2005; Herrera 2007). Double bridge-spout vessels, called *alcarrazas*, have been found exclusively associated with burial contexts, especially with wealthy graves; they are usually highly decorated and represent beings from nature or the supernatural world (Bray 2005). Fragments of kneeling-woman jars/figurines, fragments of *alcarrazas* and rock crystal beads have been found on the surface by local workers and during the preliminary survey carried out in 2010. The spatial association between any concentration of such materials and elite residential areas provides strong evidence of elite religious ideology materialized in symbolic objects (see below for more specific archaeological correlates for each sort of object).

Religious ideologies are not only materialized in portable objects. The construction of temples, burial monuments and plazas for ritual performances could imply the mobilization of labor that few could afford. Elites could reinforce their association with supernatural forces not only by constructing these structures but by living in close proximity to them and by limiting

access for most of the population (Earle 1997; Flannery and Marcus 2012; Hayden and Villeneuve 2010; Peterson 2006). These religious structures are inextricably linked to ceremonial events in which large shares of food, drinks and intoxicants are provided, and where elite religious ideology is displayed to large audiences in the form of dances, theatrical performances and speeches. Feasting is a theme treated in more detail in Chapter 6. Other types of structures not directly connected with religious ideology are discussed in Chapter 7.

The impressive burials at Malagana probably were visible as monuments on the surface in the form of mounds (Botiva y Forero 1993; Bray et al. 2005). Although specific religious meanings associated to these burial mounds are impossible to decode, cross-cultural studies indicate that 1) they could be permanent symbols of the wealth and power of the lineage of the people buried (due to the labor invested in their construction as well as the quantity and quality of the grave goods), 2) they could have given legitimacy to the authority of new rulers and the possibility to extend it to other groups, and 3) they could have provided legitimacy to territorial claims (Dillehay 1995; Parker Pearson 2000). These sociopolitical 'functions' could be immersed in cyclical rituals that joined the living and the dead at these sites. Proximity of elite residence areas to the site of these burials suggests a connection between eliteness, ancestors, and burial rituals. As it was mentioned in Chapter 3, the sector with the highest levels of wealth during the EEB period was spatially associated to the areas where the rich graves were found (Sector E). Such association indicates that elite households used their ancestors as a means to justify ideologically their own position in the society.

In addition to burial mounds other structures can provide information on the involvement of the elites with ritual activities, like open plazas. Open plazas are relevant for the development and maintenance of social inequalities because on them elite religious ideology can be more

efficiently spread to large audiences through ritual performances in which symbolic objects (like gold artifacts) are displayed, communicating messages linking the elite with supernatural forces. The importance of plazas as spaces for spreading elite religious ideology relies on their spatial associations with elite residential sectors; for example, the central plazas in the fortified site of Tunánmarca, in the highlands of Peru, were connected with two elite residences (Earle 1997: 185). Open plazas, however, can be found in most of the prehistoric societies (Fraser 1968), occupying a very central location in the settlements to which many residents have direct access. One singularity of the Malagana site is that the earth structure dividing the site in two halves prevents the presence of central open plazas, so open spaces for public ceremonies could be found associated to one or both sectors inside the internal earth structures.

No open plaza-like spaces for ceremonial, ritual activities are discernible on the surface today at Malagana, but such features have sometimes been discovered through systematic intensive mapping of the distributions of surface materials (Peterson 2006). In this sense the intensive surface collection can document the presence or absence of one or more potential open public spaces with little occupational debris within the residential zone, permitting an assessment of how elite residential sectors relate spatially to any such places as well as to the looted elite cemetery.

Taking into account the explanatory scenarios related to burial monuments, this chapter will focus on symbolic objects and on the identification of open public spaces. The analysis is based principally on the EEB period due to the lack of material related to religious practices recovered for the LEB period (although see below). This lack of symbolic objects for the last period is, in fact, very important information for itself.

5.1 DISTRIBUTION OF SYMBOLIC OBJECTS DURING THE EARLY EL BOLO PERIOD

As mentioned above, three categories of objects can be considered as 'religiously-charged' in nature: Rock crystal beads, *alcarrazas* and kneeling-woman jars. Their status as elements connected to the supernatural world derives principally from their association with death rituals, as observed in Malagana and other nearby cemeteries of the same cultural affiliation, and in ritual caches. However, the recovery of objects from graves is not a sufficient reason for categorizing them as part of the religious realm. Different types of objects have been found in graves, including lithics, ceramic vessels of different sizes and animal bones. All of them have practical, secular functions for their users in daily life, and some objects like rock crystal beads could not be an exception. Due to their shape (a bead) they could also be used as ornaments, in the same fashion as greenstone beads. For many types of objects, like common, domestic ceramic vessels, the daily function is not necessarily altered in funerary contexts. In the case of domestic ceramic vessels, they still keep their container function, although the contents were for the 'use' of the dead. Other objects used in daily life, however, could change their secular meaning in rites of passage like funerary rituals.

Rock crystal beads in burial contexts were used in most of the cases in a way different than ornamentation, as observed in their location with respect to human remains. They were located in the mouth (Herrera et al. 2007), resembling the Latin *viaticum* or Greek 'Charon's *obol*' traditions of placing coins in the mouth of the deceased; but in contrast, coins in Latin graves still kept their 'monetary' function (to pay the 'ferryman') (Morris 1992). Rock crystal beads then, hold a kind of functional ambiguity, but they are strongly charged with symbolic meaning.

Placing rock crystals in the mouth was not a widespread practice, in the sense that this practice was not observed in all Early El Bolo period cemeteries (Blanco 2011). Archaeological reports do not provide an exact number of burials in which this practice was carried out, but around 16% of all the individuals exhumed from EEB period cemeteries had objects placed in their mouths. This practice was observed in both sexes and in individuals with different amounts of grave goods (Blanco 2011).

Rock crystal beads also were recovered in caches in huge quantities (Cardale et al. 1999). Although it is possible that these caches can be interpreted as storage deposits for future use, in the same vein that has been suggested for some lithic tools observed in other societies (Hranicky 2002), it is more probable that they were used for ritual purposes. The clearest evidence for this is the excavation of other caches containing figurines very close to the caches of rock crystal beads. Some of these figurines were placed very carefully, indicating that the caches were deliberately their final location (Rodríguez et al. 1994). Besides, some of these figurines contained rock crystal beads. One important concern with rock crystal beads is their chronological location. Even if the intense use of this kind of material during the EEB period seems obvious, some seem have been found in LEB contexts (Patiño 2010).

Rock crystal beads are good candidates for being objects utilized as part of an elite religious ideology because they were made from non-local raw material (Bray et al. 2005). The procurement of rock crystal and its production into beads could therefore be controlled by the elite similar to other objects made of non-local raw material (see Chapter 4). A small, rectangular, piece of unworked rock crystal has been recovered by looters in Sector E (Nelson Triviño personal communication 2012; Bray et al. 2005), signaling that the production of these artifacts ocurred in Malagana. This would signal some resemblance with the Helms model for

social complexity based on access to symbolic objects from distant distances (Helms 1992). In this case, the raw material was embedded with religious meaning enhanced with its transformation into beads by skillful producers. If rock crystal was, in fact, a symbolic ideological element distributed by the elite, then we would expect to see beads of this material distributed throughout the settlement.

From the intensive surface survey however, only three rock crystal beads were recovered, showing variability in size: 0.7; 1.4 and 2.2 cm in diameter (Figure 5-1). Two were associated with EEB contexts: one located in collection lot 10B7 and another in collection lot 10B12, both from Sector E. The third rock crystal bead was found in the collection lot 8C8, from Sector C, where all the sherds date to the LEB period (Figure 5-2).

The two collection lots from the EEB period do not have any important elements of wealth in their material assemblage, but they are contiguous to collection lots related to production of luxuries. Collection lot 10B7 is contiguous to collection lot 10C9, the one with outstanding evidence of greenstone and slate artifacts production, which is also part of the wealthiest cluster of domestic units in the settlement. Collection lot 10B12 is next to collection lot 10B13, that has a greenstone bead, and to collection lot 10A10, with evidence of gold production, although it was not adjacent to the wealthiest cluster just mentioned.

The small sample size of the crystal beads found in the intensive surface survey is not helpful for providing strong evidence of the use of these elements as part of the elite religious ideology, even if the two EEB rock crystal beads were located next to wealthy households. The distribution of these beads in or next to wealthiest contexts only reinforces the use of symbolic objects by the elite for their own use. Moreover, as it has mentioned above, there is the possibility that these beads were used also for personal ornamentation. If so, they would only

strengthen the level of wealth of certain sectors inside of Sector E, instead of providing evidence for materialization of elite ideology.

Figure 5-1 Rock crystal bead recovered from the systematic surface survey.

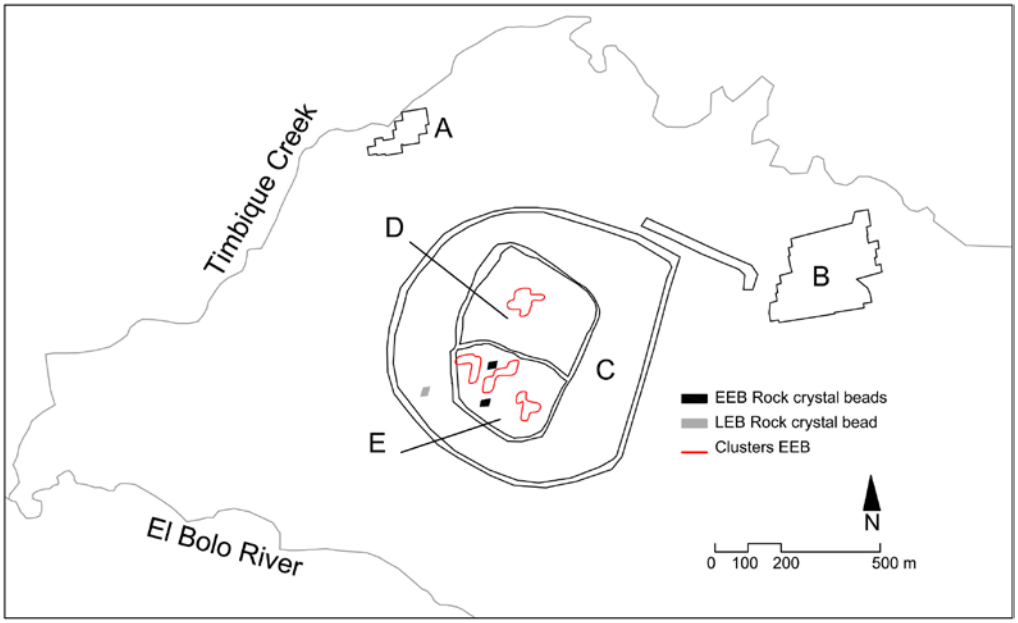

Figure 5-2 Distribution of Rock crystal beads for EEB and LEB periods.

Kneeling-woman jars were one of the most outstanding findings in the archaeological excavations carried out in Malagana (Cardale et al. 1999). The principal element of the vessels is their anthropomorphic representations, instead of their practical use as containers. This is corroborated by other figurines with the same scene (a kneeling individual) found by looters but without a container; although they present a double set of spouts and a bridge, just like *alcarrazas*. In most of the cases in which kneeling-woman jars were found, the vessel had one or two rock crystal beads in its interior (Cardale et al. 1999). The kneeling-woman jars excavated in Malagana by Rodríguez et al. (1994) were found in caches. The nine complete and three incomplete figurines recovered by Rodríguez et al. (1994) in excavations have some minor differences between them, enough to indicate that they were not made using a mold. The differences reside in the presence and color of painting (red, white, black), shape of the eyes (semicircular, triangular, linear) and size (between 10 and 15 cm tall) (Figure 5-3). The similarity in the design can express a basic religious scheme that should be reproduced (Cardale et al. 1999), but more important is that it can be indicative that their distribution was more the result of a supra-household network of exchange than from a domestic mode of production (e.g. Halperin et al. 2009). In this respect information about the origin of the figurines is relevant.

Figurines were excavated at the northern extreme of Sector D, concentrated in five spots. These ‘spots’ were 5 to 12 m apart approximately, with 20 m as the longest distance between the most separated figurines (Cardale et al. 1999: 23; figure 9). Although the distances were not too extreme to indicate that they could belong to many households, other similar figurines were looted in other sectors of the settlement, in large quantities (Cardale et al. 1999).

Figure 5-3 Kneeling-woman jars stored in the Calima Archaeological Museum, Colombia.

It has been indicated that production of certain items like this at the domestic scale could result in the distribution of more heterogeneous styles when the assemblages of different households are compared, contrary to a more homogeneous style distribution if these artifacts were obtained via a centralized exchange (Halperin et al. 2009). The fact that similar figurines were found in different sectors of the settlement is an indication that they were obtained from a more centralized exchange network. But, how centralized was the exchange network of the figurines in Malagana, in what way they were exchanged and in what degree elites were involved in these exchanges are questions more difficult to answer. Some have mentioned that exchange networks of such artifacts can occur at the level of corporate groups or neighborhoods independent of elite control, in order to reinforce corporate or ethnic divisions (Janusek 1999). A simple mapping of the distribution of figurines in Malagana would indicate if they were exchanged only in a reduced sector of the settlement (a single corporate exchange network) or if they were exchanged throughout the entire settlement (a centralized exchange network). Due to the fact that kneeling-woman jars were recovered archaeologically in the northern extreme of the Sector D (Figure 5-4), in a non-elite space (in or next to the collection lot 5A3) a centralized exchange network for figurines should be expected at least if they were used as part of an elite

religious ideology. But the identification of a centralized exchange network is not sufficient for establishing a direct involvement by the elite in the distribution of figurines.

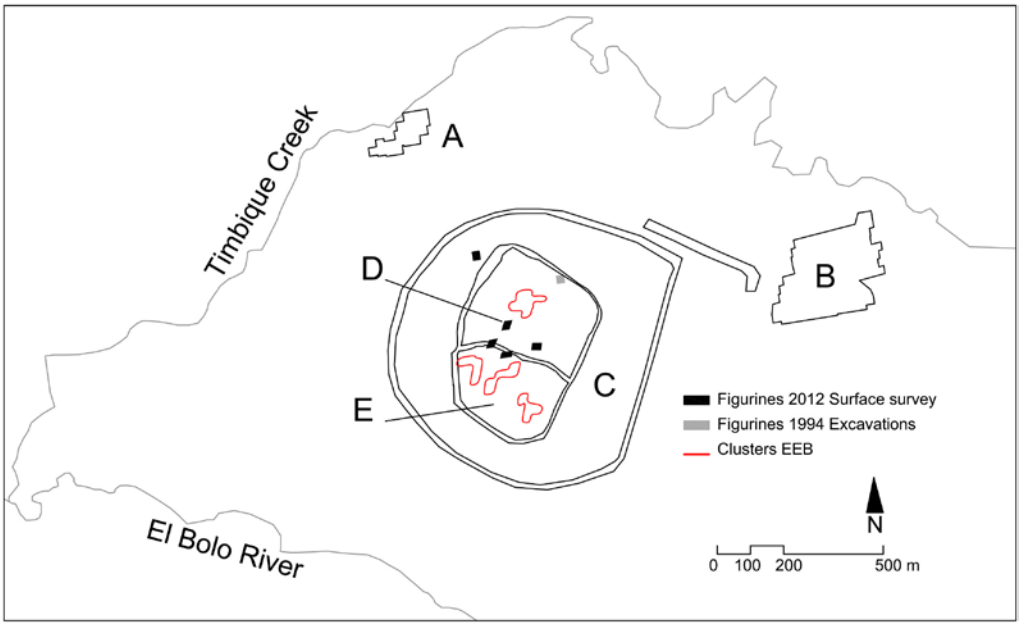

Figure 5-4 Distribution of figurines recovered from the systematic surface survey and the location of the figurines excavated by Rodríguez et al. (1994).

How the system of exchange worked for figurines can provide some clues about the involvement of the elites in the distribution of them for religious rituals. According to the information obtained from locals, the number of figurines excavated by looters could be easily in the hundreds (Nelson Triviño, personal communication 2012; see Cardale et al. 1999), and the density of them was high in non-elite contexts, as observed in the excavations carried out by Cardale et al. (1999). High numbers of special, quasi-standardized artifacts in non-elite areas could be the result of markets or of centralized redistribution exchanges (Halperin et al. 2009). In

both types of exchanges the distribution of objects obtained through these systems could be homogeneous in low and high status households (however see Hirth 1998).

In market exchange systems the distribution of similar objects is explained by open access to the products by every social group, although the elite should have a higher amount of these items due to their higher purchasing power. Market exchange systems are common in archaic states (Smith 2004), although their existence in early chiefdom-like societies is a more debated issue, in part due to the great influence of the work of Sahlins (1972) and Service (1975) on linking chiefdom societies with redistributive exchange systems (e.g. Steponaitis 1981). However, markets have been reported for Muisca chiefdom societies in central Colombia during the 16th century AD (Langebaek 1987) and for Pasto societies, in southern Colombia, during the same century (Salomon 1987). However, these markets seem to fit more with the concept of 'border market' (Blanton 1993) in which markets were placed between strongly segmented regions and where social separation impeded free movement. In these 'border markets' the products exchanged were principally goods from different environmental settings (e.g. cotton, coca, and salt from foothill societies to the Muisca highlands). The kneeling-woman jars found in Malagana are not the type of goods that fit these characteristics. Besides, they have not been found in contexts other than in the Malagana settlement, although some figurines modeled in the same style (kneeling individuals), but not in the form of a jar, have been excavated in the nearby Coronado cemetery (Rodríguez Cuenca et al. 2007). Therefore, the distribution of these figurines is more a local activity, not related to markets.

Centralized redistribution exchanges imply that the goods are acquired and distributed by the elite to the rest of the community producing a pattern of distribution of artifacts similar to those of the market exchange systems (Halperin et al. 2009). Due to the restricted spatial

distribution of the kneeling-woman jar figurines (only inside the Malagana settlement) and their high number even in non-elite domestic contexts, a centralized redistribution exchange seems a plausible explanation for the homogeneous distribution of this kind of artifact, again, in the case that there was involvement of the elite. Kneeling-woman jars could be made by specialists attached to the elites (or by the elites themselves) and then redistributed to the rest of the population in important public ceremonies in order to connect themselves with supernatural forces, to gain prestige and to produce social debt (Spielmann 2002).

However, there is always a different alternative. It is probable that these ritual objects were made by one or a small number of specialists commissioned by different sectors of the society for their own use without the involvement of elites (e.g. Spielmann 1998). Both types of scenarios could produce different material results. If knelling women jars were part of a 'ritual mode of production' attached to elites for their own political goal of manipulating religious ideology, it should be expected that figurines were distributed throughout the settlement but more concentrated in the elite areas. Absence of distribution of these figurines in the already identified elite areas or concentration of them in other sector different to elite areas would be an indication that these ritual objects were not utilized for an elite religious ideology.

As mentioned above, kneeling-woman jars seem to be very similar to other type of anthropomorphic figurines, and proper identification of them with only small fragments is problematic. Only five ceramic fragments that can be related to figurines were collected from the surface survey (Figure 5-4), and it is highly probable that they do not belong to kneeling-woman jars. For example, the fragment of a figurine from the collection lot 11B10 corresponds to a foot, but this foot is clearly from a figurine that is standing, not kneeling (Figure 5-5). The ceramic fragment of the collection lot 3A3 represents a hand, but hands in the ceramic assemblage of

kneeling-woman jars are not represented in that way (Figure 5-5). Ceramic fragments from collection lots 10C6, 10B2 and 10A4 can be parts of a knee, foot and arm, respectively, but it is not possible to be very confident in that regard. Even if all five ceramic fragments of figurines correspond to kneeling-woman jars, it is clear that the sample is so small that it is not possible indicate that the ritual of burying kneeling-woman jars was widespread in the entire settlement.

Certainly, the ceramic fragments of figurines were recovered from the three sectors of the Central Area (C, D, and E), suggesting that the their use was not confined to only one sector of the settlement, again in the case that all five items belonged to kneeling woman jars. More relevant is the fact that none of the collection lots where fragments of figurines were recovered had much indication of wealth, although some were adjacent to collection lots with one greenstone bead (10C6 and 10A4) or to collection lots with high proportions of decorated ceramics (10A4). None of these were associated to the wealthiest clusters of domestic units. Following the expectations indicated above, it seems that kneeling-woman jars were not produced or redistributed by elites to the rest of the population as part of an elite religious ideology.

Figure 5-5 Fragments of figurines found in the systematic surface survey. Leg (left), hand (right).

Finely elaborated double spouted ceramic vessels with a bridge handle, called locally *alcarrazas*, are another type of artifact with a deep religious meaning. Most of them are modeled in the shape of human figures, animals, imaginary creatures, houses and some plants; and they are usually decorated with red, black and white paint (Bray 2005). Although some have indicated that their function was to hold some kind of liquid (Cardale 2005: 48), their place of recovery (tombs) indicates clearly that they belong to a religious sphere. *Alcarrazas* differ from kneeling-woman jars in that the former are ritually destroyed in funerary rituals by placing them in tombs as grave goods, they show a great diversity in designs, and they are not restricted to the Malagana settlement: *alcarrazas* were distributed throughout the southern flat Upper/Middle valley of the Cauca River and in its adjacent foothills, extending linearly for more than 150 km (Cardale 2005; Bray 2005). *Alcarrazas* are a material manifestation of a shared regional system of beliefs in regards to the death.

According to Cardale (2005) *alcarrazas* have been found in the western foothills of the Upper/Middle Cauca River valley since 1000 BC. Therefore, the beliefs associated with this sort of artifact have a very deep time roots. The meaning(s) of the *alcarrazas* is unknown, but after rock crystal artifacts it seems it was the object most used as grave good in the flat valley of the Cauca River (Blanco 2011): out of 263 EEB tombs excavated archaeologically so far in the flat valley of Cauca River 16% (n=43) have at least one *alcarraza* as a grave good. Unlike Rock crystal beads *alcarrazas* were made only for ritual purposes. Although there are many reasons for including or not including goods with important religious meaning in the tombs, the economic capacity for acquire them plays a very important role in it (Bray 2001). It is no coincidence that *alcarrazas* are related to the wealthiest tombs in the cemetery of Coronado, the biggest EEB period cemetery excavated by archaeologists up to the present (Herrera et al. 2007). One *alcarraza* was also found in one of the wealthiest tombs looted in Malagana, which contained 120 *metates*, among other items (Botiva and Forero 1993). But they were not exclusive to the wealthiest people. In a few tombs excavated in the cemetery of Coronado an *alcarraza* was the only grave good (Herrera et al. 2007). It is clear then that access to *alcarrazas* was more associated to the wealthiest individuals, although some non-wealthy individuals could be buried with them.

If *alcarrazas* were part of a religious system shared by both commoners and non-commoners, and if they were ideologically portrayed as appropriate and desirable elements for funerary rites, great political benefits could be obtained by those who controlled the production and distribution of these symbolic objects. There is no evidence for production of any type of ceramic object in Malagana, but the elaboration of *alcarrazas* implies a certain degree of specialization that could be centralized and controlled by the elite.

Archaeological expectations in regards to the success of the elite in spreading its religious ideology using *alcarrazas* are, therefore different from those of the kneeling-woman jars. In the latter case it was known that the non-elite population used locally made kneeling-woman jars for their rituals, but little was known about their use by the elite. In the case of *alcarrazas* it is known that they were used as grave goods in tombs of the wealthiest individuals of nearby communities (although they were not as wealthy as the elites from the Malagana community), and for at least four very wealthy tombs in Malagana (Herrera et al. 1994). Due to the fact that *alcarrazas* were not the type of material displayed in life, but made for specific unexpected religious events, it is plausible that they were not accumulated. Therefore, it is not necessary that there was a higher proportion of them in the elite households (e.g. Smith 1987). The success of the elite at spreading their ideology through these symbolic artifacts could be observed in the widespread distribution of these artifacts throughout the entire Malagana community. A discrete distribution of these artifacts in only one spot of the settlement will be an indication of a very limited penetration of elite religious ideology concerning these objects in the non-elite sectors. Because emphasis is placed on the distribution of *alcarrazas* and not on differences in their amounts between households, the analysis involves all the collection lots with material from the EEB period.

Alcarrazas are identified easily from the ceramic assemblage collected by the two elements that define them: spouts and curved, flat handles (Figure 5-7). In total 32 fragments of handles and 13 fragments of spouts were recovered from the intensive surface survey from 44 collection lots (Figure 5-8). Evidence of *alcarrazas* was found in different parts of the site, with the highest proportion of collection lots with evidence of *alcarrazas* located in Sector D, followed by Sector E and then Sector C (Table 8).

Figure 5-6 *Alcarraza*. Palmira Archaeological Museum.

Figure 5-7 Fragments of *alcarrazas*. Spout (left); handle (right).

This wide distribution of *alcarrazas* throughout the site, instead of being concentrated in only one sector, signals that *alcarrazas* were not restricted to a small group of people. This distribution also supports the hypothesis of the successful penetration of elite religious ideologies regarding the afterworld by the other inhabitants of Malagana. Whatever the religious meanings associated with these objects might have been, non-elite households were willing to establish a

link between such meanings and their dead relatives. By appropriating symbolically-charged elite objects, non-elite households accepted (in different degrees, of course) elite ideologies presented as part of the cosmological order.

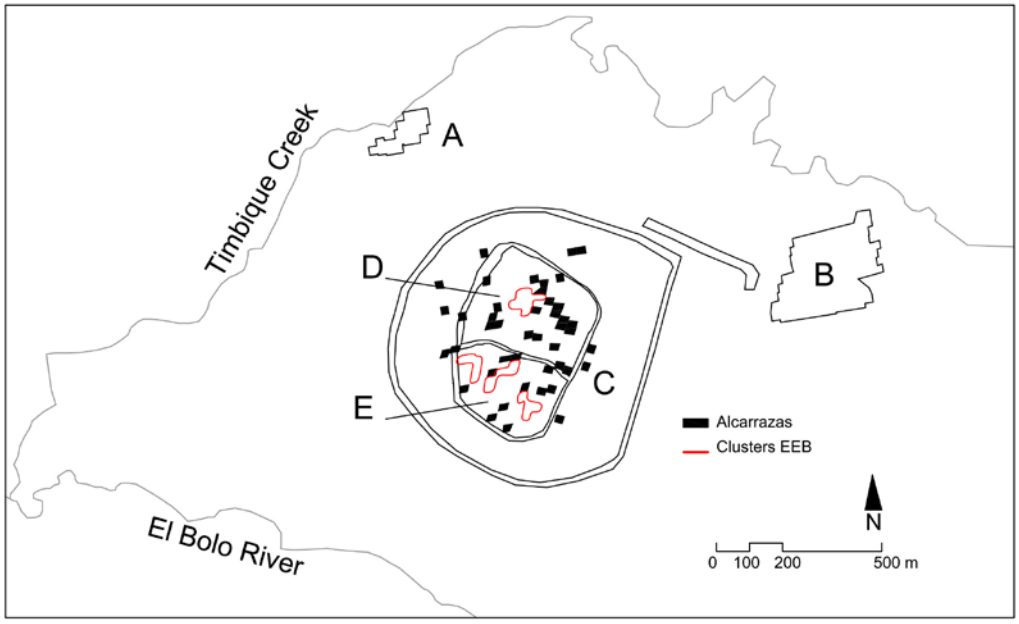

Figure 5-8 Distribution of collection lots with evidence of *alcarrazas* for the EEB period.

Table 8 Proportion of collection lots with evidence of *alcarrazas* by sector during the EEB period.

	Sector A	Sector B	Sector C	Sector D	Sector E	Total
N° (%) *Alcarrazas*	0 (0%)	0 (0%)	9 (8%)	24 (15%)	11 (10%)	44

Besides *alcarrazas*, rock crystal beads and kneeling-woman jars, there are other objects that could have played a role in the religious fabric of the society of Malagana that could be potentially exploited by elite for their own political goals. They include ocarinas, exotic shells

and cylindrical greenstone artifacts (Herrera et al. 2007; Bray et al. 2005). The intensive surface survey found evidence only of two cylindrical greenstone pieces. These pieces are small cylindrical rocks of no more than 2.1 cm long (Figure 5-9). Due to their diameter (0.65 cm on average) it can be thought that they were the raw material from which greenstone beads were made; however, as the excavations in Malagana (Rodríguez et al. 1994) and in the cemetery of Coronado (Herrera et al. 2007) have shown, these pieces were buried in caches and graves pointing out that they are finished products.

Figure 5-9 A cylindrical greenstone artifact found during the systematic surface survey.

One of the cylindrical greenstone pieces recovered from the systematic surface survey was located in the north area of Sector D (collection lot 3D7); while the other was found in the center of Sector E (Collection lot 10C10). The first was not associated spatially to wealthy households, but the latter was. Like rock crystal beads, the amount of cylindrical greenstone objects is so small that no significant conclusion can be made about their distribution. But in contrast to rock crystal beads, cylindrical greenstone artifacts were not associated exclusively with the elite.

So far, some artifacts with clear religious associations in Malagana were analyzed in order to establish the role that they could have played in the dissemination of an elite religious ideology. Rock crystal beads, kneeling-woman jars and cylindrical greenstone artifacts are well known by their association to rituals made by non-elite population in Malagana and other nearby sites. Their distribution does not indicate any important concentration of them in elite sectors, although some were collected very close to the wealthy cluster of domestic units centered in collection lot 10B9. It is possible that these artifacts, especially kneeling woman jars, were commissioned to certain specialists for special ceremonies; but it is very probable that the production and distribution of cylindrical greenstone and rock crystal artifacts, made of non-local raw material (Cardale et al. 1999), could be controlled by the elite (e.g. Earle 1997); after all, evidence of production and consumption of these greenstone artifacts and objects of other non-local materials were spatially associated with wealthiest households (Chapter 4).

On the other hand, elite-related religious artifacts, *alcarrazas*, were found throughout the settlement, indicating a widespread penetration of the elite religious ideology embedded in these artifacts. It could be argued that the non-elite population could acquire these artifacts as a strategy for displaying success by emulating elite practices without necessarily accepting elite ideology. But the fact that these objects were not used for daily ostentation (as clothes or ornaments) but for unexpected emotional events tips the scales in favor of the appropriation of elite religious ideology by commoners. It should be clear then that the elite religious ideology was not restricted to death rituals, instead *alcarrazas* are only a manifestation of the acceptance of such ideology that could embrace other domains of cultural practice (Aldenderfer 2010) enabling the elite to justify and legitimize their wealth.

5.2 OPEN PUBLIC SPACES

Plazas are places where public events and ceremonies are celebrated that can be used by the elite to establish, confirm and manipulate power relations. Through public events, elites can materialize their ideology by communicating their view of the cosmological and social order to large audiences in public spaces like plazas in the form of dances, theatrical performances and speeches. Spatial links between the locations of important public rituals and elite houses creates an ideological connection between the character of ritual performances and elites themselves, which is necessary for the maintenance of power relations within society (Payne 2000). There are no visible plazas in Malagana today, but they may be identified as spaces with very low densities of archaeological material inside the residential zones of the site (e.g. Peterson 2006). A surface map of ceramic densities by period facilitates the identification of spaces with very low densities of ceramic material, which could have used as open places for public ceremonies. The particular location of clusters of the wealthiest domestic units in relation to these spaces would indicate the degree of elite involvement in public religious performances. Since the objective is to locate areas with very low densities of ceramic material, densities below 2 sherds/m² were graphed. Surface maps of densities of ceramics were made by SURFER software.

For the EEB period spaces of low sherds densities can be easily recognizable at the south and west areas of Sector E (Figure 5-10). One is located between two clusters of wealthy domestic units; while the other is located east of the cluster of wealthiest domestic units for that period, in a very central location within the sector. This last space of low occupational debris extends south, where the wealthiest graves were found. In Sector D there were no clear spaces with low sherd densities, except the area adjacent to the embankment, at the north. Such space is neither centrally located nor spatially linked with wealthy domestic units. Thus, the two spaces

that could be used as open plazas, in Sector E, are spatially linked to the wealthiest households in Malagana; providing some support for use of public spaces during religiously charged performances as a mechanism for defining and transmitting social roles by the elite.

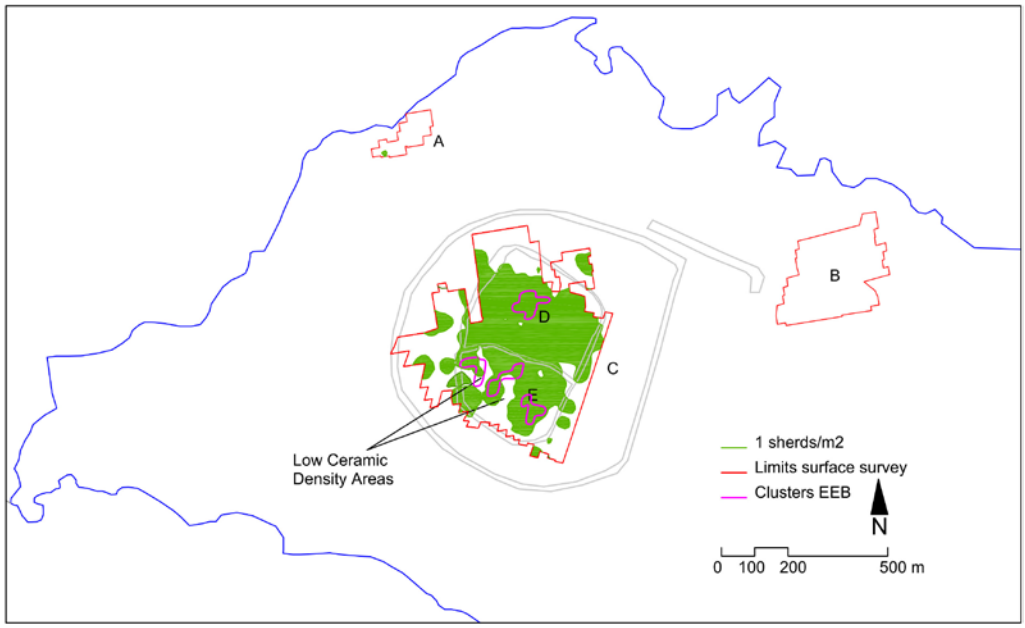

Figure 5-10 Contour map of sherd densities during the EEB period showing two spaces with very low sherd densities in the Sector E.

During the LEB period some areas outside the external bank and ditch were occupied. One spot of low residential debris is clearly visible at northwest of Sector B, but not associated with the only cluster of wealthy domestic units in that sector (Figure 5-11). The distribution of ceramic densities in the Central Area of Malagana during the LEB period was not very different to the one of the previous period. However, spaces with low densities of ceramic debris were larger in Sector E, indicating that they were either active plazas or the result of a reduction in occupation for that area. In Sector D, where the wealthiest clusters of domestic units were

located, there were two spots of low ceramic density. One is a small area at the center of the sector, but not adjacent to the clusters of wealthiest domestic units at that time. The other space without high densities of sherds is the area next to the earthen structure, at the north, in the same low sherd density spot observed for the past period. The exact function of the open plaza area for this sector is not clear due to their lack of spatial centrality, which is a characteristic commonly observed in different communities in other areas of the world (Roos and Nolan 2012; Lewis et al. 1998). According to the surface map, this empty space extends at least to the center of the earthen structure, an area that could be an entrance to the innermost part of the village (see Chapter 7). One long cluster of wealthy domestic units is spatially connected to this space, but the character of the open plaza is not clear, for these reasons.

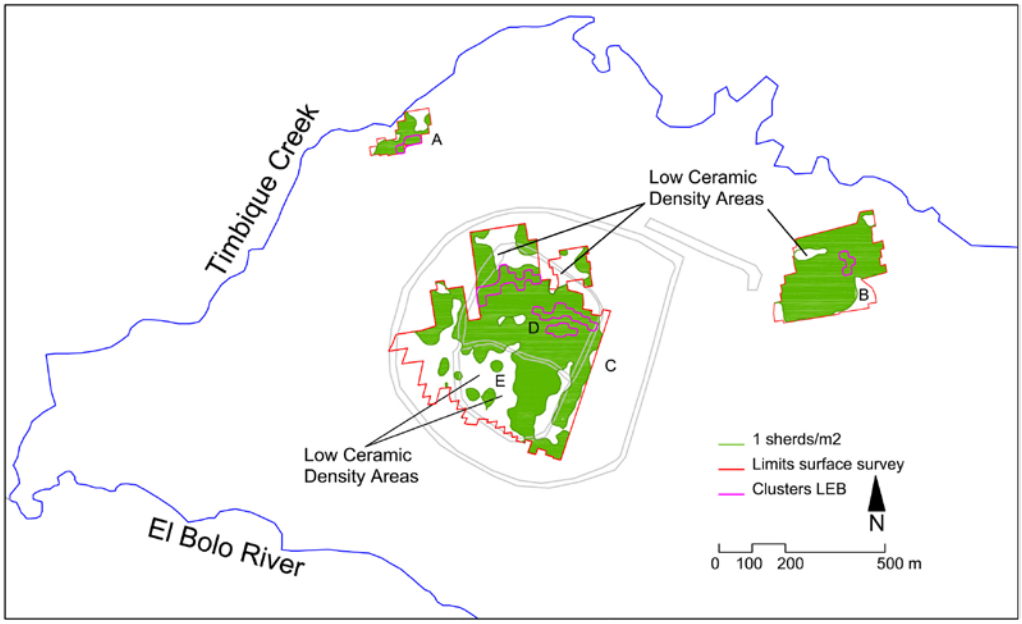

Figure 5-11 Contour map of sherd densities during the LEB period showing areas with very low densities of sherds. In the center of Sector D there is a small spot devoid of ceramics (not-marked).

Communal ceremonies could have been carried out in the same open plaza(s) of the previous period, located in Sector E, due to its (their) relatively clean surface; but other ceremonies, probably of lesser size could have been made in the small area in the center of Sector D. This would therefore suggest that the association of elites and control of public ceremonies is not as well established for the Late Period as it was for the Early Period.

5.3 RELIGIOUS IDEOLOGY AS A SOURCE OF POWER IN MALAGANA

Religious ideologies can be materialized in objects, structures and performances. And very often all these resources are used together to legitimize and naturalize the elite position, presenting social inequalities as part of the cosmological and social order. The symbolic character of the objects found in Malagana is based on their atypical location in graves (rock crystal beads), their exclusive association with graves (*alcarrazas*), and their ritual location in caches (kneeling-woman vessels, cylindrical greenstone and rock crystal beads). In Malagana, evidence for symbolic objects and structures for public performances during the EEB period indicates that the involvement of the elites with the religious sphere was an important element of elite control, adopted in certain degree for non-elite groups; although the evidence also indicates aspects of the communal religious experience not manipulated by the elite. This does not indicate that the Malagana elites were the 'very source of ritual knowledge' whereas the commoners were 'cultural dupes', easily fooled by the powerful (Lohse 2007:6), rather, it emphasizes the relevance religious beliefs could have had for both elite and non-elite populations. Acceptance of elite religious ideology by commoners does not mean that they were unaware of the ongoing processes of manipulation of material symbols and sacred spaces by the elite; on the contrary, it

indicates that despite such acknowledgement, some non-elite members considered such behaviors as appropriate for their own religious needs. In this way beliefs and social relations based on them, can be more easily guided by the elite religious leaders.

The acceptance of elite religious ideology by commoners is inferred in the widespread practice (but not by everyone) of burying the deceased with symbolically charged objects associated with the elite, like *alcarrazas* and rock crystal beads. Elite manipulation of community beliefs in this case is associated at least with control over the production of these artifacts (including cylindrical greenstone pieces) or over access to the raw materials of which these artifacts are made; a sort of control over the religious economy of the settlement. A no less active involvement of the elite in the manipulation of religious beliefs was the use of open spaces/plazas for theatrical performances, in which the leaders presented themselves as legitimate intermediaries between the cosmological and social orders. In these rituals sacred and costly goods, like gold artifacts, were displayed. One of the two areas that could be used as plazas was not only spatially connected with the cluster of the wealthiest domestic units, but it also was spatially linked with the zone where the richly endowed burial mounds were located, increasing the dramatic quality of the performances that took place in this area. The relevance of the association between public open plazas and elite households as a mechanism for the manipulation of communal beliefs is enhanced by the lack of open spaces in other areas of the settlement. Despite this control of the spaces for the re-creation of the cosmological and social order, and the control of the religious economy, the non-elite part of the community developed less centralized rituals which included the ritual interment of ceramic figurines. There is no evidence connecting this practice to the wealthiest domestic units in the Sector E. Although the elaboration of the kneeling-woman jars could imply a certain level of skill in their production

(but not similar to that of the *alcarrazas*), raw materials were local (clay), and thus their production could not have been easy to monopolize.

The direct involvement of the elites in the communal religious experiences as part of their strategies to create and maintain political inequalities during the EEB period did not continue in the next period. Not only were symbolic objects invisible in the archaeological record, but open spaces that could have worked as plazas for public performances were not linked to the richest households. Therefore, the religious life of the community of Malagana during the LEB period seems have relied less on material permanent symbols that could have been manipulated by the elite than the preceding period. Social inequalities during this last period thus were not based strongly on religious, ideological mechanisms.

6.0 FEASTING

Feasting is another avenue for obtaining prestige, gaining political and economic capital and maintaining and legitimizing social inequalities. The use of commensal hospitality as a strategy for manipulating social relationships comes from the capability of sponsors to create reciprocal obligations through gifts of material goods, food and drink (Clark and Blake 1994; Hayden 1996). By holding such events, hosts can augment their prestige and acquire economic advantages which can be re-invested in obtaining more symbolic capital (higher reputation) and power (Dietler 1996). Feasting can be identified in diverse ways: by high proportions of vessels for the formal presentation of food, as compared to cooking ceramics; unusual numbers and sizes of serving and preparing vessels; and use of prestige serving vessels and special locations (Clarke 2001; Hayden 2001). The use of feasting as source of power by the elite can be inferred from the spatial association of these high proportions of serving vessels with elite areas.

The artifact samples from the surface collections at Malagana, then, will show the extent to which high proportions of artifacts related to the formal presentation of food are concentrated in certain residential sectors, and of the extent to which such sectors, if present, also show high proportions of artifacts related to elite status. This approach has been taken in much research in northern South America. Taylor (2011), analyzing artifacts from small shovel tests, found highly significant differences in the proportion of serving vessels between the elite residential sectors 3 and 4 (68%) and the non-elite sector 2 (30%), in El Dornajo community, Ecuador, during the

Early Regional Development Period. From this she concludes that, through feasting, the elites in El Dornajo community expressed and maintained their status. Conversely, at Mesitas, González (2007) found that the proportion of serving vessels diminished from 16% in Formative 3 residential areas to 7% in the Regional Classic period, when social differentiation was expressed much more clearly in mortuary rituals. This was interpreted as a decrease in the importance of communal gatherings for the maintaining of the Mesitas elite.

The ceramic sherds obtained from the systematic surface survey were classified in three types: bowls and plates, for serving vessels; and *ollas*, for preparation/cooking vessels. The proper identification of the ceramic sherds in one of these types is based on two criteria: first, the descriptions of complete vessels carried out by previous research in the region (especially Herrera et al. [2007]); and second, the rim angle, measured from horizontal. In the last case, the typology made by González (2007:39) is followed: angles less than 60° represent a plate, angles between 60 and 120° represent a bowl, and angles above the 120° represent an *olla* (called jar by González). This decision is based on the fact that few rims recovered from the surface survey could be classified according to the shapes described in previous archaeological work in the area. Although bowls and *olla*s are vessels that can be used for different purposes (*olla*s can also be used for storing) their principal use is for serving and preparing foods, respectively (Clarke 2001; Taylor 2011). In total 955 diagnostic sherds were analyzed: 551 bowls, 272 *olla*s, 124 plates and 8 ceramic sherds that could not be identified (the fragments were too small to measure their orientation). It is important to highlight that cups, another form of vessel identified in the area, could be subsumed in the category of 'bowls', because their rim angles are similar. Due to the fact that bowls and coups are types of vessels used for serving both food and drinks their mix is not problematic for the purposes of this research. Only ceramic material from collection lots with

ceramic densities above the threshold (discussed in Chapter 3) is analyzed for calculating proportions of each type of vessel. The reason is simple, collection lots with one bowl rim and only one or two sherds can bias the results strongly.

6.1 FEASTING DURING THE EARLY EL BOLO PERIOD

The diagnostic ceramic assemblage for the EEB period consists in 367 bowls, 92 *olla*s, 63 plates and 4 sherds with unidentifiable shape. Even just these totals show a remarkably high ratio of serving vessels to preparing vessels (4.6), which can be indicative of cooking for a large number of people at once, as is the case for feasting activities (González 2007). A similarly high ratio is obtained for only diagnostic material from collection lots with high densities (216 bowls + 37 plates/56 *olla*s= 4.5). This is not simply an indication that feasting was carried out in this period. As a universal phenomenon, feasting activities were organized for every single community around the world (Twiss 2008), but a ratio this high indicates that the organization of commensal hospitality during the EEB period was very intense. Just as a point of comparison, during the Formative 3 period (300 BC - 1 AD), in the Mesitas community, in southwestern Colombia, the ratio bowls to *olla*s was almost 2.6 (plates were not included); and this was the period of the highest intensity in the organization of feasts for that community. This ratio in Malagana was 3.9 or 3.8, depending on the sample chosen (that is, including or not including plates). Of course, there can be other technological and social reasons for producing such a high ratio, like larger bowls in the Malagana community than those from Mesitas. However, other things being equal it seems that the bulk of the demand for ceramic production in Malagana was focused on making vessels for serving for the celebration of feasts. This is clearer in the bimodal distribution of the

size of two types of serving vessels (Figure 6-1). Bimodality or multimodality in the *olla* size distribution is a strong indicator of systematic occurrence of feasting due to the utilization of unusually large vessels for special events involving a great number of people (Clarke 2001; Hayden 2001). The question is to know if the organization of feasts was a generalized practice or if it was monopolized by one sector of the community, and what were the possible goals of that sector for arranging these events.

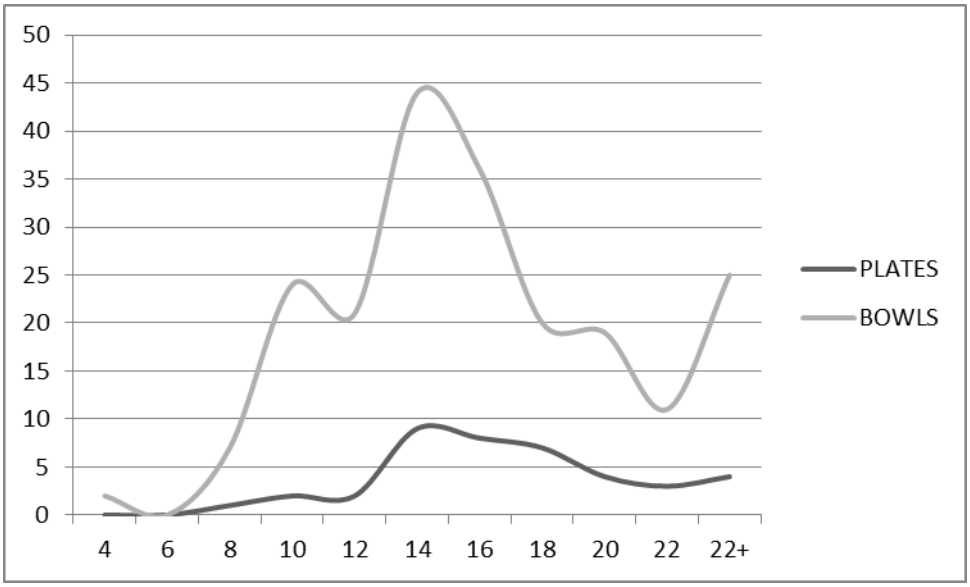

Figure 6-1 Histogram of the distribution by size of bowls and plates (diameters in cm).

In order to establish the political use of feasting activities we should find a spatial association between elite households, identified in Chapter 3, and evidence of high intensity of feasting, measured in the form of serving/cooking ratios. Unfortunately, the number of serving vessels and cooking vessels in each collection lot is too low for making relevant comparisons between collection lots. For example, some collection lots have one sherd of a bowl, but they don't have sherds of *olla*s. In this case the ratio of serving to cooking vessels cannot be

determined. Such collection lots could be excluded from analysis, but it would bias the results strongly, because the collection lots affected are those with likely evidence of serving activities, instead of those which lack such evidence. A more fruitful strategy is comparing the ratios at the scale of sectors.

It was suggested in Chapter 5 that certain activities involving special food and drinks could have been carried out next to the wealthiest graves as a mechanism employed by elites to link them with important ancestors. As the location of wealthy graves is known (in Sector E) feasting would be expected to be more intense in that sector that in others. Other results (higher serving/cooking ratios in other sectors or similar ratios between sectors) would suggest that feasting was not necessarily a very important mechanism used by the elites, or at least, that they could not control the organization of such activities. Taking only the collection lots with densities above the threshold of ceramic densities discussed in previous chapters, it is clear that feasting activities were more intense in Sector D than E. Ratios for Sector C cannot be calculated for the lack of *olla*s rims in the samples collected (Table 9). Similar less intense feasting activities in Sector E were observed when all collection lots are used in the analysis (C=6.4; D=5.2; E=3.3). This indicates that even if some special feasting events were carried out near to the wealthy tombs as a way for linking individuals or groups to specific important dead individuals, they were not of the same magnitude that the ones carried out far from the ancestors' tombs. This is particularly striking taking into account the lack of open plazas in Sector D, where communal gatherings would have been larger and easier to organize.

Table 9 Distribution of serving and preparing vessels by sector during the EEB period.

	BOWLS		PLATES		*OLLA*S		RATIO
SECTOR	#	%	#	%	#	%	
C	5	83.3	1	16.6	0	0	N.D.
D	145	72.2	24	11.9	32	15.9	5.1
E	66	64.8	12	11.7	24	23.5	3.25

The analysis at the sector scale shows that more intensive feasting was not carried out in the same area where the remarkable tombs were found, but it does not indicates at what level wealthy households were involved in these activities. As mentioned above, analysis at the level of collection lots is not possible due to the scarcity of rims; but it is possible to analyze how intensive feasting was in the set of collection lots classified as wealthy by their consumption of greenstone beads and decorated ceramics, and to compare the results with those of the settlement as a whole. This procedure will indicate how wealthy households were, in general, involved in feasting activities. The sample, in this case, is formed by 55 collection lots (roughly 12% of the collection lots of the EEB period): 28 with evidence of greenstone beads and 27 of the 28 collection lots with the highest proportion of decorated ceramics (the remaining collection lot is included in the set of collection lots with greenstone beads). The number of bowls, plates and *olla*s for this sample is 82, 9, and 11, respectively. The serving vessels to cooking vessels ratio for these 55 collection lots is 8.2; 1.8 times higher than the same ratio for the entire settlement. This difference between the wealthiest domestic units and the non-wealthiest domestic units with respect to the proportions of serving rims and cooking rims is highly significant ($\chi 2 = 5.54$, $.02 > p > .01$). A quick reading of the data will indicate that the wealthiest households were more involved in feasting activities than non-elite households. This observation is not particularly

surprising when one considers that the wealthiest households had greater resources that enabled them to afford larger and more frequent feasts (Adams 2004; Hayden and Villeneuve 2010).

However, not all collection lots with high indexes of wealth were located in the same spot. By putting all collection lots with a high index of wealth in the same group, as if they were spatially connected, it is implicitly suggested that feasting was similarly effective (or ineffective) as a mechanism for the creation of socioeconomic differentiation for all the wealthy households. One way to deal with this is by calculating the serving vessels to cooking vessels ratios for the groups of contiguous collection lots that have high indexes of wealth. In Chapter 3 four congregations of collection lots with these characteristics were identified. The four clusters had information on both variables of serving and cooking vessel rims. One group, located in Sector D and formed by collection lots 11A3, 10D1, 4C8, 4C9, 4A9, 4B8 and 4B9 presented 11 bowls, 1 plate and 1 *olla*, creating a serving/cooking ratio of 12. The central and wealthiest cluster of domestic units of Sector E, formed by collection lots 10B9, 10B10, 10C9, 10D8 and 10D9 presented 10 bowls, 2 plates and 4 *olla*s, producing a serving/cooking ratio of 3. The western cluster of Sector E, formed by collection lots 9B6, 9C6, 9D6, 9D7 and 9D8 had 6 bowls, no plates and 1 *olla*, producing a serving/cooking ratio of 6. Finally, the southeastern neighborhood of Sector E, formed by collection lots 11B16, 11D17, 11C18 and 11C17 had 3 bowls, 2 plates and 2 *olla*s, producing a serving vessel to cooking vessel ratio of 2.5. If the collection lot 11C15 is added to this cluster, due that is adjacent to collection lot 11B16, the ratio would increase to 4 (3 bowl rims are added) (see Figure 6-2).

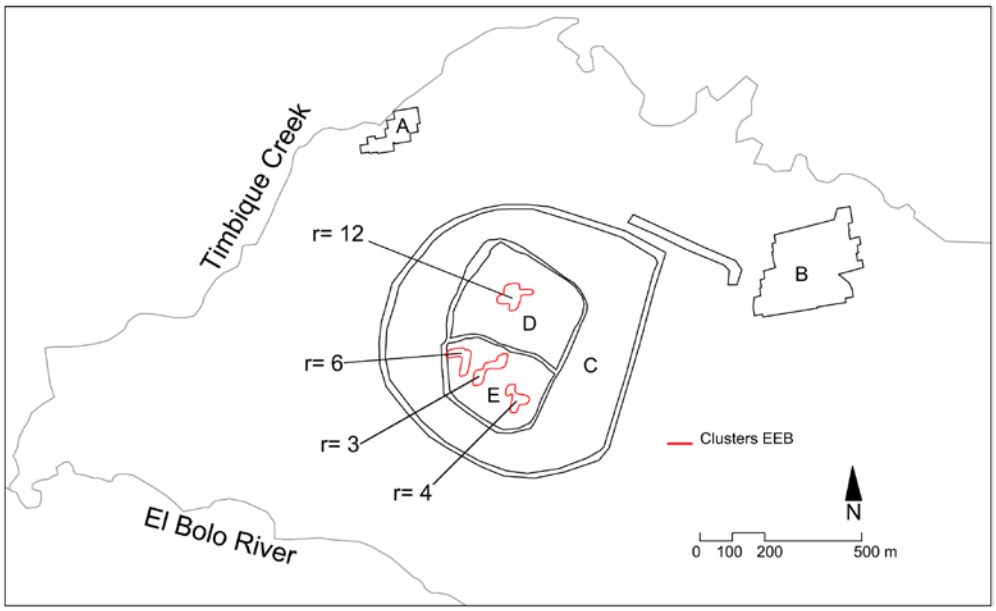

Figure 6-2 Serving/cooking ratios in the wealthiest clusters of collection lots in the EEB period.

These results indicate clear differences between the wealthiest groups of households in terms of organization of feasting activities. Although the serving vessel to cooking vessel ratios for the three clusters from the Sector E are relatively high (again, based on the comparison on ratios from the community of Mesitas), they are two to four times smaller than the cluster of the wealthiest households located in Sector D, and some have smaller ratios than the ratio for the settlement as a whole. However, the difference between the wealthiest cluster of domestic units in Sector E and the one in Sector D with respect to the proportions of serving rims and cooking rims is not very significant ($\chi 2 = 1.52$, $.50 > p > .20$). The fact that the different clusters of wealthy domestic units were involved in sponsoring feasts suggests that feasting was not exclusively a prerogative (or obligation) of the wealthiest cluster of domestic units, and that other wealthy clusters of domestic units organized feasting as an alternative strategy for obtaining wealth and prestige since they were not involved in other strategies for obtaining

power (production of crafts goods or religious affairs). In this scenario, feasting was a means through which different groups could negotiate their status below the elite households (see Dietler 1996).

6.2 FEASTING DURING LATE EL BOLO PERIOD

For the LEB period abrupt changes took place in Malagana. The diagnostic ceramic assemblage compromised 184 bowls, 180 *olla*s, 61 plates and 4 unidentified vessels. The ratio of serving vessels to preparing/cooking vessels reduced from 4.6 to 1.3, indicating that the preparation and serving of food was directed to smaller groups. A smaller ratio is obtained when only the diagnostic ceramics from collection lots above the density threshold are taken into account (121 bowls + 38 plates/126 *olla*s= 1.2). This could be interpreted as a reduction of the average number of members of a household, but it is more likely due to a dramatic decrease in the organization of competitive feasting. Differences in the rim size for both bowls and plates indicate that unusually large vessels for special events involving a great number of people were still used during the LEB period (Figure 6-3).

For the LEB period, the population occupied more intensely (or started to occupy) areas outside of the two concentric earthworks, therefore analysis of the distribution of artifacts can be made on the five sectors, taking into account the collection lots with sherd densities above the threshold. Differences between sectors are smaller than during the EEB period. In fact, the only sector with a different serving vessel to cooking vessel ratio, Sector A, presents a very small sample of sherds (Table 10). This suggests that feasting activities were not organized principally in one single discrete area.

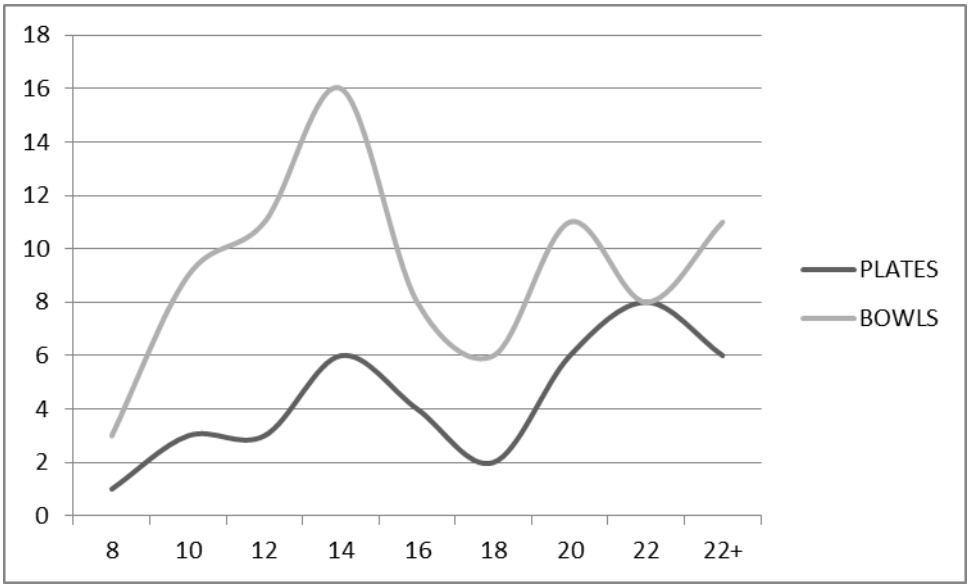

Figure 6-3 Histogram of the distribution by size of bowls and plates (diameter in cm).

Table 10 Proportion of serving and preparing vessels by sector during the LEB period.

	BOWLS		PLATES		*OLLA*S		RATIO
SECTOR	#	%	#	%	#	%	
A	7	58.4	1	8.3	4	33.3	2
B	29	42.6	8	11.8	31	45.6	1.1
C	14	35.9	4	10.2	21	53.9	0.8
D	39	33.3	22	18.8	56	47.9	1.0
E	12	41.4	3	10.3	14	48.3	1.0

As mentioned for the previous period, the analysis at the sector level has the problem of grouping together information on material from collection lots that are not contiguous, and it does not provide information on the relationship between feasting and wealthy households. In order to solve the later point, the serving vessel to cooking vessel ratios for the collection lots with the highest proportion of decorated ceramics, the only marker of wealth for the LEB period,

are calculated. The sample included 33 bowls, 12 plates and 36 *olla*s, forming a serving to cooking vessels ratio of 1.2, similar to the ratio for the entire settlement, and almost seven times smaller than the one for the previous period. Like the calculation made at the sector scale, this analysis groups together collection lots located far one from each other. A better procedure was to calculate serving to cooking vessels ratios for the collection lots representing wealthy households spatially connected. The largest cluster, located in the northwest of Sector D, formed by collection lots 3A8, 3A7, 3B7, 3C7, 3D6, 3D5, 4A6, 4B7, 4C6 and 4D6, had 5 bowls, 3 plates and 4 *olla*s, so its ratio was 2. The wealthiest cluster in the settlement, located at the center of the Sector D, formed by collection lots 11A5, 11B6, 11C5, 11C6, 11D5, 12A3, 12B4 and 12C4, presented 2 bowls, 2 plates and 5 *olla*s; its ratio is 0.8. The small cluster south of the last one, formed by collection lots 11C8, 11D6 and 12A5, has 3 bowls and 1 *olla*; its ratio was 3. The cluster of the wealthiest domestic units in Sector A, collection lots 40A4, 40B5 and 40B6, had 3 bowls, 1 plate and 3 *olla*s; its ratio was 1.2. And finally, collection lots 30D7, 30C8 and 30B8 from Sector B had 2 bowls and only one *olla* rim, so its ratio is 2 (Figure 6-4).

Independent of the type of analysis made, all coincide in presenting very low serving to cooking vessel ratios. This marks a departure from what it was seen in the EEB period. It can be concluded that feasting activities during the LEB period were not only less intensive than in the previous period; but that the wealthiest households were neither very interested in sponsoring them nor were they able to carry out large and frequent feasts, indicating that their wealth was not particularly linked to this mechanism.

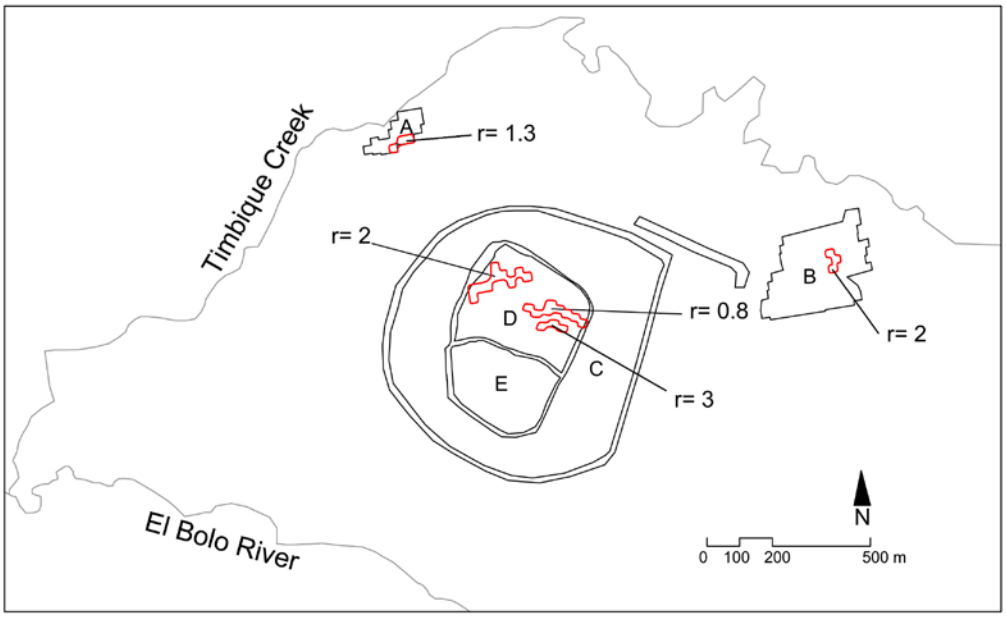

Figure 6-4 Serving/cooking ratios in the wealthiest clusters of collection lots in the EEB period.

6.3 FEASTING AS A SOURCE OF POWER IN MALAGANA

The ethnographic literature abundantly documents the effects of feasting for strengthening intra-group solidarity as well as for defining status and legitimizing relations of inequality. Some scholars have emphasized the practical benefits of the organization of feasts for the host, principally to get wealth, mates, and create social obligations that can result in a hierarchical re-accommodation of society (Hayden 2001). Although it is impossible to indicate the specific objectives of each feast celebrated in Malagana, the place(s) where they were carried out and the nature of the technology involved in their preparation provide some clues about their role in creating, maintaining or challenging power relations.

The EEB period was characterized by an intensive organization of feasting observed in a disproportionate serving to cooking vessels ratio. These feasts certainly displayed luxury serving

vessels indicating that they were carried out for more than simply strengthening group solidarity. This very intensive emphasis on feasting activities happened in different areas of the settlement, a pattern expected for competitive scenarios. These events were not focused in the area where the wealthiest tombs were found, as would be the case if funeral feasts were the most important social mechanism for reaffirming the economic success of the hosts, or for demonstrating the ability of the sponsor to mobilize labor and create alliances, or for guaranteeing political succession. Instead, feasts were carried out for different sectors of the Malagana community, especially, but not surprisingly, the wealthiest households. It is remarkable that the group of wealthy households centered in the production of luxuries, was not involved in feasting activities with more intensity than the rest of the inhabitants of the settlement. One plausible explanation for this particular situation is that the mechanisms for creating wealth in that cluster of domestic units were connected principally to other productive activities that they could control. Feasting, like the production of local stone tools, was not the kind of activity that could be easily monopolized; therefore, the relevance of sponsoring feasts for this group of wealthy domestic units for creating or maintaining their privileged position was minor. In contrast, the wealthiest clusters of domestic units in Sector D and the one at the west in Sector E, invested with similar or greater intensity in the organization of such events as the wealthiest cluster of domestic units of the entire settlement.

Therefore, feasting was the only mechanism through which the households that were not involved in the production of crafts or in ritual or military activities could obtain wealth, besides some redistribution of wealth by the elite. Such an interpretation can explain the high serving to cooking ratios for the entire settlement. Archaeologists focused on social theory could be more prone to interpret these feasts as settings where status and prestige were negotiated (even at

lower socio-economic levels), or where the power could be challenged, instead of as activities providing economic benefits to elites (Dietler 1996). Due to the fact that levels of wealth in the central cluster of domestic units in Sector E were than the rest of clusters, feasting may have been a strategy for lower ranked but ambitious groups to obtain wealth and negotiate their status. The data thus suggest that feasting was a useful venue to gain wealth for some households in the northern part of the central area, but not in the same way as for the wealthiest households of the southern sector.

For the LEB period feasting did not have the same connotation as in the previous period, and there were almost no differences in how it was organized in the different sectors of the community of Malagana. Moreover, wealthy clusters of domestic units were not involved in commensal hospitality at higher levels than the rest of community. Therefore, feasting was not directed to maintain any privileged position of authority or leadership, a situation that contrast with other complex societies of the Intermediate Area (Boada 2007; Langebaek 1995).

7.0 INTER-GROUP CONFLICT

Warfare has been an effective mechanism used by leaders to obtain and increase their power. It can create temporary local inequalities (Redmond 1998) and supralocal polities (Carneiro 1981, Spencer et al. 1994), but also it has been seen as a deterrent force in the formation of hierarchical social systems (Allen 2006; Arkush 2011). According to 16th century ethnohistoric accounts, powerful chiefs in the Cauca River valley based part of their authority on their success at war (Jaramillo 1995; Trimborn 2005). But to what extent warfare was present during the development of social inequalities in Malagana is still unknown. Some researchers have suggested that warfare in that area developed later, exacerbated by the Spanish conquest (Pineda 1987). Although these researches recognize that some forms of inter-group violence could have taken place in the Cauca River valley, they reject the endemic warfare state portrayed in the Spanish *crónicas*, especially for the period before the European invasion (Rodríguez Cuenca 2005). This change in the perception of inter-group conflict in the Cauca River valley is not necessarily caused by the lack of evidence of warfare, but by a common process called by Keeley (1996) 'the pacification of past'. The 'pacification of the past' concept contends that there is a tendency to dismiss evidence of prehistoric warfare, portraying a picture of a harmonious and peaceful human past before the rise of (or conquest by) civilized societies. This process is better observed in the Malagana settlement, where the most plausible evidence of warfare has been recovered in the form of a pair of concentric ditches with interior

embankments, resembling defensive constructions seen in other parts of the world (Erickson 2010; Webster 1998). After the first excavations in the banks and ditches in 2001, archaeologists observed the similarities between Malagana's earthworks and defensive constructions made by Guarani indigenous populations in Paraguay, as drawn by Ulrich Schmidl in the 16th century (Herrera et al. 2007). This similarity was the basis for classifying Malagana's earthworks as essentially defensive. Some years later, the hypothesis that the ditches were made for diverting runoff water took hold, although no additional evidence from excavations was provided (Herrera et al. 2007). Almost at the same time, the defensive character of the earthworks was dismissed due, primarily, to the lack of similar structures in other parts of the region (Bray et al. 2005). Finally, the newly opened (2012) Museum of Archaeology in Palmira depicts Malagana as a peaceful community, where members worked together for the construction of the ditches for protection against seasonal floods.

This pacification of the past has clear consequences for how the development of social inequalities is understood. When warfare is excluded from evolutionary explanations of social inequality, the comprehension of sociopolitical phenomena remains incomplete. This does not mean that social inequalities are always tied to inter-group conflict, but ethnographic and ethnohistoric information has shown the powerful effect of warfare in structuring communal and individual decisions in regards to leadership, and in the allocation of resources and rights to unequal access to goods and people (Carneiro 1998; Haas 2001; Keeley 1996; Redmond 1994a; Redmond and Spencer 2012).

Because clear social and economic inequalities were in place in Malagana since the EEB period, determining the role of warfare in the shaping of these inequalities depends on the effective recognition of warfare in the archaeological record. Although the presence of the two

concentric rings of ditches and interior banks could be considered as enough evidence of warfare, the alternative hypothesis of their use as a technology for diverting runoff away from the settlement should be considered. In the following sections, then there is a discussion of the evidence for each hypothesis, a compendium of additional evidence for warfare in terms of other classic markers for inter-group conflict (osteological data, weaponry, and iconography) and a consideration of the significance of this evidence for the type of warfare fought in Malagana.

7.1 ICONOGRAPHY

Iconography probably is one of the weakest mechanisms for identifying warfare (Keeley 2001:340). As has been indicated by Wileman (2009: 29) prehistoric art is immersed in high degrees of subjectivity at different levels: identifying the artistic representation, the codes of meaning embedded in the representation, composition of the image, time and place of the individuals and events represented, etc. However, some representations are so accurate that it is difficult to believe that they were not inspired by real events. On the other hand, the lack of iconographic representations of warfare in the stylistic assemblage of a society is not necessarily a demonstration of the absence of conflict. For example, Vencl (1984) has shown that in some cases warfare iconography decreases as real conflict intensifies. Warrior iconography can be better seen (but not exclusively) as an ideological mechanism used by leaders and aggrandizers as self-promoting propaganda (Spencer and Redmond 2000). The presence or absence of war iconography in Malagana can provide a view of the use of war as an ideological mechanism by the elite in Malagana rather than evidence of warfare itself.

No complete figurines or depictions of war scenes in pottery were collected from the surface survey, so the evaluation of the use of artistic media as an ideological vehicle is made from drawings and pictures from previous archaeological publications. Realistic representations of human beings, plants and animals in Malagana were modeled in ceramic, bone and gold artifacts principally; although other less naturalistic motifs were sculptured in shells and in greenstone. Representations of living beings were very accurate, especially those of animals, allowing their proper identification with species of the region (Legast 1995). Human beings also were represented but it seems that they were not as profuse as their zoomorphic counterpart. Among the human figures, ceramic kneeling-woman jars, mentioned in Chapter 5, are the most abundant motif found in Malagana (Cardale et al. 1999). Other ceramic human representations include less realistic styles, exaggerating proportions of arms and legs or modeling flat faces. No ceramic human figurines were represented with weapons, but gold human figurines were. They were small gold pendants no larger than 5 cm. Two of them were depicted in Bray (2000; figure 5.7:10 and 16), and there is a photograph of another on display in the *Fundacion Cultural Malagana*.

One figurine represents a complete standing individual with a head-dress and four sticks resembling lances: one in one hand and the other three in the other. The other figurine represents a complete standing individual wearing a luxury nose-ring, a head-dress and a loincloth. In his/her right hand he/she bears a lance, and in the other hand she/he holds an object that can be interpreted as an animal with a long tail; although a similar feature from a very similar pendant found in the Western mountain range has been interpreted as a shield (Bray 2005). The third gold pendant is very similar to those just mentioned, but it differs in that the person represented lacks luxury ornaments on his head (Figure 7-1). Bray et al. (2005) report another gold pendant of a

standing individual with a head-dress and holding two short sticks, one in each hand. The identification of these sticks as lances is less clear.

Figure 7-1 Gold pendant representing a warrior/hunter. Courtesy *Fundación Cultural Malagana*.

The identification of this small sample of figurines as warriors is problematic because they can also be interpreted as hunters. But even if this problem could be solved, it is notable that these motifs were materialized in such a way that most of the population could not have direct visual access to them, and consequently to the meaning associated with them. Gold pendants, like other artifacts of that material, were constrained to a minority group, thus the ideological connotations embedded in these figurines, independently if they were intended to praise warriors or hunters, were restricted to the elite. The material dearth of public materialized ideologies of warriors, only indicates that the self-representation of the elite as successful war leaders in artistic media was not among their ideological strategies for keeping social inequalities working.

7.2 WEAPONRY

There is no warfare without weapons. But the identification of certain artifacts as weapons rather than tools for other uses is not always easy in the archaeological record of prehistoric societies (Chapman 1999; Wileman 2009). The principal reason is that most weapons can be used for other tasks besides killing other human beings, like hunting or woodworking. Most of the weapons used in the Cauca River valley during the 16th century had this ambiguous functionality. For example, spears, darts, spear throwers, bows and (poisoned) arrows (Trimborn 2005) were projectile weapons that could be used perfectly well in hunting. However, blunt-force weapons, such as maces or clubs, are so specialized that they were used not likely for other thing purposes than war (Keeley 1996: 50). Even when weapons can be differentiated from other types of tools, they are often poorly preserved due to the material they were made of: wood. Some weapons found in tombs in the nearby Calima area were frequently made wood, but whether they were used for hunting or attacking people is not well established (Herrera 2005).

Some stone and bone artifacts recovered in the Malagana settlement by the *Fundación Cultural Malagana* resemble projectile points. The heavy weight and dimensions of the stone points are, however, inconsistent with the expectation for functional weapons. Due to the fact that they were recovered from tombs they may instead be political statements regarding the abilities of their individual carriers in life, rather than real weapons. Information on the place of recovery and chronological location of these artifacts is lacking.

No wooden weapons were recovered from the intensive surface survey; but two rounded stones located in Sector B could have been used as slingstones. One of them was polished, which could be an indication that it was used for other more specialized tasks than for attacking (see Chapter 4). The polished stone measured 6 cm x 5.5 cm; while the other pebble was 7.1 cm x 6.5

cm, just in the size range of slingstones found in other parts of the world (York and York 2011). These were not the only stones that could be classified as slingstones found in Malagana, but they were the only ones that were intentionally rounded. The archaeological excavation carried out by Cardale et al. (1999) at the north of Malagana found a pit with a 'large' deposit of cobblestones from the river. Their size was around 5 cm ('the size of an egg' [Cardale et al. 1999:30]); but there is no information on the actual number of stones or on the range of variation in their measurements. There is no interpretation on the location of these stones in the pit either. Because there is no mention of variability in the dimensions of these stones, it seems that size was a major criterion in their selection, a characteristic that coincides with other places where piles of slingstones have been found (Topic 1989). However, the argument that they were a pile of sligstones is not very strong due to the characteristics of the context where they were found: 1.5 m below the surface and below of a set of bowls and special vessels with rock crystal beads.

The slingstone status of the two rounded pebbles found in the intensive surface survey can also be disputed. If the pebbles were used as slingstones for defending the site from the earthen banks, we would expect them to be located within the casting distance known for that kind such a weapon. An experimental study by Brown-Vega and Craig (2009) showed that 130 m was the longest distance between the casting point and the impact point for such projectiles. Longer distances have been mentioned for such weapons (Keeley 1996), but in this case their lethal power reduces significantly. The two rounded stones were found almost at the same distance from the outermost earth structure: 530 m. The smaller L-shaped earth structure located outside of the two concentric embankments was approximately 275 m from the point of collection of the two rounded stones (Figure 4-11). This distance considerably exceeds the maximum distance found by Brown-Vega and Craig.

The best evidence of weapons of war comes from the effects of their use. As will be discussed in the next section of this chapter, there is evidence of two individuals with traumas caused by two different types of weapons during the EEB period. One of them, from La Cristalina cemetery, was injured by a blunt-force weapon, probably a mace (Rodríguez Cuenca et al. 2005). Blunt-force weapons, in contrast to projectile weapons, are designed and used principally for war (Keeley 1996). This gives support to the existence of warfare during the EEB.

Summarizing: 1) The kinds of weapons used by native warriors in the Cauca River valley, described in Spanish 16th century accounts, are seldom preserved in archaeological contexts because they were made of perishable materials. 2) There is some decontextualized evidence of very well made stone and bone lance points, but they could be more ornamental than utilitarian artifacts. In the unlikely case that these very well made lance points were used, it is not possible to classify them securely as weapons of war. 3) Pebbles were piled in pits *inside* the innermost earth structure, and some, rounded, were collected outside the structure. They could be interpreted as slingstones; although the distances between the probable casting and impact points are too great, making their identification as munitions doubtful. 4) Archaeological evidence of weaponry during both EEB and LEB periods is weak, but osteological remains indicate that they were used (see below).

7.3 PHYSICAL VIOLENCE

Human skeletal trauma is the most direct source of information on the type and level of violence exerted during inter-group conflict (Walker 2001). The Cauca River valley seems to be a region where patterns of warfare can be easily reconstructed through the analysis of human remains,

due to its well-known high levels of violence (including cannibalism, trophy-head customs and other violence-related rituals) depicted in 16th century Spanish chronicles (Carneiro 1990; Eckert 2002, Redmond 1994a; Trimborn 2005), but this is far from true. Although archaeologists and historians agree with the high level of violence during and prior to the Spanish conquest, there is not a single piece of evidence of interpersonal violence in human skeletal remains for this period (Rodríguez Cuenca 2006). This conclusion is not derived from a poor sample. Although there is no specific compilation of the number of individual burials excavated throughout the Cauca River valley, they can be counted in the hundreds (Rodríguez 2007). The only evidence for interpersonal violence from the archaeological record is circumstantial: high young-adult male mortality and collective burials. But other interpretations can explain these patterns since they were buried with different goods (Rodríguez et al. 2006).

For the EEB period the scenario is different. There are two cases of injuries in skeletal remains which can be interpreted as the result of interpersonal violence. In the cemetery of La Cristalina, 25 km north of Malagana, Rodríguez Cuenca (2006) reports a male individual with multiple injuries caused by a blunt-force weapon: craniofacial trauma, tooth loss, arm trauma, left forearm fracture and multiple fractures of the ribs. In the cemetery of Coronado, 9 km north of Malagana, the skeletal remains of an adult woman have evidence of a skull fracture, probably caused by a long straight object (Herrera et al. 2007: 37).

No other skeletal remains presented traumas, but there are other cases that can be interpreted as the result of violent conflict, although the evidence is circumstantial. Research in El Estadio cemetery, a site located less than 7 km west of Malagana, provided two unusual burial contexts that could be related to warfare. They were collective burials with skeletal remains disarticulated and dismembered without any grave goods. There was clear evidence that the

skeletal remains were exposed to fire. The report does not indicate the exact number of individuals in the graves, or the sex and age of the individuals buried (Blanco et al. 2007). Excavators of the site indicate that one of the graves is a primary burial, but the other one is a secondary interment because long bones are absent (Blanco et al. 2007: 68-9). Whatever the case, they represent a different and more dishonored treatment of bodies than the rest of the individuals buried in the cemetery, a pattern fitting with the burial of war prisoners (Verano 2008). Additional circumstantial evidence of violent death in Malagana is a tomb of an adult male found with a bone object, 7 cm long, located in the thorax. This object has been interpreted as a needle (Correal et al. 2003), although it lacks a terminal hole. Unfortunately, the report does not indicate in what part of the thorax the object was found (above, inside, below) that could give clues in regards to whether it was the head of a weapon embedded in the body of the deceased or not.

Besides skeletal traumas, collective interments of individuals without proper ritual, and a body with a possible weapon embedded in his thorax, there are other special features in the EEB burial record that could suggest warfare, but evidence, again, is inconclusive: the taking of human parts as a trophy. Evidence of taking human parts came from the cemeteries of Coronado, El Estadio and Malagana. In five graves only the skull was found, three in Coronado and two in Malagana. In another case, in Coronado, only the postcranial remains of a young adult female were recovered. Another tomb, in Malagana, had a complete individual, but with the lower mandible belonging to another individual (Correal et al. 2003: 207). In El Estadio cemetery, a tomb had eight artifacts made of human bone as grave goods (Blanco et al. 2004). In addition, around 42 fragments of human bones and teeth were collected from other contexts near the burials in Malagana, including 18 fragments of skulls. The random distribution of these remains

could have been caused by prehistoric disturbance of the graves, instead of by original intent (Correal et al. 2003).

The mention of the tombs with only skulls or fragments of skulls (or the lack of them) is relevant for identifying and understanding warfare, due to the associations of the Cauca River valley societies with the practice of taking and displaying human body parts as trophies in the 16th century accounts (Chacon and Dye 2007; Kelekna 1998; Trimborn 2005). According to these accounts, it was common practice for warriors to cut off the heads of killed enemies and to display them on stakes in front of their houses, in public plazas or on the stakes of defensive palisades (Redmond 1994a). Heads, however, were not the only human body part displayed by Cauca River valley warriors. Trophies included hands, feet, flayed skins and drums with human skin (Eckert 2002). The Liles, the closest group to the Malagana site, had the most diverse set of practices related to taking and displaying human parts (Trimborn 2005). However, not all taking of human body parts seems to have been related to warfare. Some accounts mention the worship, in the houses of the members of the Pozo society, of wooden 'idols' which had human skulls in the place of the heads (Eckert 2002). These practices could be associated with ancestors worship rather than warfare.

This brief description of 16th century practices is not intended to project social behavior from one period to another, but due to the fact that there is a spatial link between one society, the Liles, which practiced the taking of human heads in a context of warfare, and another, the Malagana, which seems to take human heads for certain rituals the possibility exists that there was continuity from one period to the next in the practice of taking human heads. However, even if there was continuity in this practice the reasons for it could be different.

The evidence obtained so far from these isolated skulls in Malagana and in the Coronado cemetery does not support the idea of the taking of trophy heads; instead it seems more related to taphonomic processes and other sorts of activities. Among the burials excavated in Malagana, 10 presented poor bone preservation, including the two burials with only fragments of skulls (Correal et al. 2003). The skulls in these two tombs were identified only by small fragments. Therefore, taphonomic processes associated with the acidity of soils could explain to some degree why complete postcranial bones were not well-preserved. This can also explain similar finds in Coronado, especially in regards to the remains of infants. For example, in Tomb 11 only the cranium of a child was reported, but the dimensions of the grave imply that a complete person was buried, not just a cranium (Cardale et al. 2007). Another element to take into account is that three of the graves with skulls had very high-quality grave goods: two had gold artifacts and the other had a fancy *alcarraza.* Such luxury objects as offerings are not consistent with the usual treatment of an enemy (Berryman 2007; Ross-Stallings 2007; Verano 2008). In addition, there are no unhealed cut marks on the vertebrae reported for any of the skeletal remains, a classic method for identifying the removing of a head from a living or recently dead individual (Mensforth 2007; Ross-Stallings 2007). Besides, the fact that three of the cases are infants does not support the idea of trophies obtained from enemies (Chacon and Dye 2007).

In regards to the individual without head found in the *Coronado* site, archaeologists agree that it was caused by the (accidental?) destruction of the grave in prehistoric times rather than the burial of a decapitated individual (Herrera et al. 2007). Accidental damage of skeletal remains does not seem unusual during the EEB period. In three Malagana burials there is clear evidence of prehispanic disturbance of the graves (soil had a different color where damage was caused) (Cardale et al. 1999). Finally, the individual with a mandible belonging to another person is a

more puzzling issue. If the mandible was taken when the individual was alive or recently deceased his cranium would present some cut marks next to the temporomandibular joints. No cut marks were reported, and this makes one suspect that none were no observed. The taking of the mandible as a war trophy is thus not conclusive, because of the lack of detail in the report (no close photographs, no clear explanation of why the mandible does not belong to the individual, no indication if cut marks were observed). In addition, it should be noted that mandibles do not necessarily appear to fit very well with the cranium in all the cases (Physical anthropologist Margaret Judd, personal communication 2013), and the similarity of pathologies in the superior maxilla and the mandible (Correal et al. 2003) seems to indicate that they were more probably of the same individual.

If skulls were not taken as trophy items from war, there are other human body parts that could have been used for that purpose. Tomb 7, in the cemetery of El Estadio, 9 km east of Malagana, has eight tools made of human long bones as grave goods (Blanco et al. 2004: 16-7). These tools had one sharp edge and the medullar channel open, which suggests they could be used for bleeding out hunted animals (or enemies) quickly. These objects were neither the only ones found in the grave nor the only ones made of bone; but they are the only ones made of human bone in EEB contexts. The practice of turning human bones from enemies into utensils was widespread in prehispanic America as a symbolic mechanism for denigrating a fallen rival (e.g. Jacobi 2007).

Evidence of warfare in skeletal remains during the EEB period is, then, in most of the cases, very circumstantial; some of the archaeological reports are not very exhaustive in some key analyses; and poor preservation of bones makes the task of identifying possible traumas difficult. This has led to some to think that warfare was nonexistent during most of the social

trajectory in the Cauca River valley, and that the endemic warfare and warrior practices reported by 16th century accounts were mere discursive devices to support the brutal European conquest (Rodríguez Cuenca 2005). However, the evidence of violent action in Malagana and in other sites culturally linked to it gathered until now suggests the contrary.

7.4 EARTHWORKS

Sugar cane fields are cover the place where the Malagana community was once settled. Land was leveled in order to maximize agricultural production, destroying the massive (when compared to other earth structures in southwestern Colombia) earthworks. Earthen structures are known from old air photographs, oral accounts of local inhabitants from the El Bolo-San Isidro community and some archaeological excavations carried out at the turn of this century by Herrera et al. (2007). The earthworks include at least three structures clearly distinguishable in air photographs: 1. A central rectangular-shaped structure; 2. a D-shaped structure surrounding the central one; and 3. a sort of L-inverted embankment at the northeast of the D-shaped structure (Figure 1-3). Herrera et al. (2007) distinguish other possible elevations that could be part of earthworks built by Malagana inhabitants but they are not so distinctly observable in the air photographs. It should be noted that Herrera et al. (2007) make some of their interpretations on the earthen structures based on a 1978 air photograph instead of the 1953 air photograph shown here. During the quarter-century between the two photographs some damage to the structures is evident.

The central rectangular-shaped structure is a formed by a bank and a ditch, with the bank on the internal side. This structure encloses approximately 19 ha. The internal space is split in

two by an additional bank and ditch, with the bank on the southern side. This internal bank and ditch is less than 400 m long and divides the central structure into two spaces of different sizes. The southern area, where the lavish graves were looted, also called Sector E in this research, was smaller than the northern area. It covered around 7.5 ha, while the northern sector covered around 11 ha. Although old air photographs do not have very high resolution, there is no clear gap in the bank that could imply an entrance to either of the two areas enclosed by the central structure, or allow for passage between them. One possible exception is observed at the northwest of the structure, where it seems that there is a path separating two long, parallel earth structures. It is also possible that the walkway was located in the north, in a space where a modern construction (demolished some decades ago), interrupts the earthworks. This possibility is especially worthy of consideration since modern builders might have located the structure in a space where costs of construction were smaller. If there was not a gap in that spot, modern builders would have needed to fill the ditch and remove the bank despite the fact that there were easier places to build the structure.

About 765 m² have been excavated along and across the ditches that form the structures (three excavations: 90 m x 5-15 m; 70 m x 2 m; and 35 m x 5 m). This has made it possible to measure the width of both banks and ditches. According to Herrera et al. (2007) the base of the banks ranges from 7 to 30 m (2007: 19), although the illustrations of their excavations seem to indicate a smaller range (between 21 and 29 m) (Herrera et al. 2007: 18-22; figures 6 and 22). The smallest measurement seems to be based on photointerpretation, but it did not take erosion into account. Based on the same figures, the ditches were approximately 9 to 11 m wide. The internal bank and ditch were narrower: between 18 and 22 m for the former and 8 m for the latter. The height of the banks is not possible to determine, although Herrera et al. (2007)

consider that 1 m is an educated guess, based on photointerpretation. Evidently the original height should be greater due to the effects of erosion. The depth of the ditch was approximately 4 m, but the excavators have not published a profile of their trench that shows the shape of the ditch, a characteristic that could shed light on its function (e.g. Keeley et al. 2007).

The peripheral D-shaped bank and ditch had more modest dimensions than the central ones. The bank was probably 6-7 m wide and the exterior ditch 4 m. The ditch was also shallower than its central counterpart; probably 1.8 m deep (Herrera et al. 2007: 23). The height of the bank was estimated in 1.5 m. This peripheral structure covers 56 ha approximately, including the 18.5 ha of the central earthworks. If the structure was fully closed it would be 2.8 km in length. Herrera et al. (2007: 20) see a discontinuity in the southwestern sector in which banks blend toward the interior, forming an 'entry'. The probable promontories that form an entrance are also observable in the 1953 air photographs. There is not any information on the third, L-shaped structure.

The excavations could not determine whether palisades were present, since agricultural machinery had destroyed their summits. There were no stratigraphic comparisons of different sides of the ditches that would have identified water flooding or pooling in some sectors. In summary, the extensive archaeological excavations already carried out on the ditches and embankments have failed to provide conclusive evidence of their function. However, this has not discouraged archaeologists from suggesting or rejecting hypotheses on the probable use of the earth structures. As mentioned above, some archaeologists doubt that the embankments and ditches were defensive, since similar structures are absent in other nearby contemporaneous sites (Bray et al. 2005). They see the earthworks as channels for diverting heavy runoff away from the settlement to protect it from flooding (Herrera et al. 2007). However, the closed circular shape of

the structures argues against runoff diversion, which would be highly directional, and the lack of obvious channels connecting the ditches with nearby streams, as Herrera et al. (2005) suggest, argues against a water canalization function in general. In addition, the internal ditch, that divides the central area in two, was not connected with the central ditch surrounding the site (Herrera et al 2007: 18, figure 6); therefore, its function as a drainage channel can be discarded.

The assertion that the lack of sites with similar characteristics in the region supports a non-defensive function for the embankments can be easily ruled out for several reasons. 1) It assumes a specific type of conflict in which all settlements must be similarly defended. Arkush (2011) has shown that in some centralized chiefdoms, where warfare is principally aimed at political control (rather than for predation), political centers become the primary target for attacks, instead of subsidiary communities. For that reason, the political centers, where the rulers reside, are more fortified than their politically dependent sites or are the only fortified settlements in the regional polity. 2) Contemporaneous settlements are known principally (and some, exclusively) from archaeological excavations of burial contexts. Little research has been carried out to establish the size, boundaries or other characteristics of these sites that might indicate whether they were protected by defensive structures. Thus, even if other EEB settlements did not have similar earth structures observable in air photographs it cannot be concluded that they were defenseless. 3) It assumes that the parties involved in conflict pursued the same objectives and had similar roles. It is possible that the position of Malagana inhabitants was more defensive than offensive, or that their attackers had a less complex form of social structure which prevented them from constructing similar strong defensive structures. Unequal defensive-offensive relations have been reported for different societies, such as the Iroquois, in northeastern North America (Snow 2007). 4) Although it is not explicit, it assumes that the

probable attackers of the Malagana community are culturally affiliated with Malagana (people from the Coronado, El Estadio, and Santa Barbara sites, for example). This might not be the case. In fact, the archaeological literature is full of cases where the enemy groups do not share cultural markers (Arkush 2011; Hodder 1979; Wilson 1988) (however, see below). 5) Some drainage channels excavated by archaeologists in the region are not similar to the specific pattern observed in Malagana. They are directional channels, which do not have the same dimensions of the ditches of Malagana nor do they have embankments. Therefore, to refer to the lack of similar earth structures in the region as evidence of the non-defensive purpose of the earthworks in Malagana poses the same problem for the advocates of the drainage channels hypothesis.

These objections to the Bray et al. (2005) perspective on the non-defensive function of the earth structures in Malagana do not provide more evidence for their defensiveness. While the drainage channels hypothesis can be discarded, the defensive structures hypothesis must be reinforced with additional evidence. The analysis of the distribution of occupation through the different periods at Malagana can contribute new information relevant to the resolution of this issue. If the ditches at Malagana were defensive, they should bound and delimit the principal occupied area of the settlement, and population should be concentrated within them (cf. Otterbein 1970; Solometo 2006). On the contrary, if the ditches functioned to drain a low-lying easily inundated area (Herrera et al. 2007) then there is no reason people should live on either side of them in particular. If occupation is neatly bounded by the ditches during some period in the sequence, then that is presumably the period when they are most likely to have served a defensive function. If that is also a period when elite residential areas become more strongly evident, then the evidence would be consistent with the notion that warfare was relevant to the development of social inequalities at Malagana. This proposition can be objected to on the basis

that there are many examples of fortified sites in which all or part of the population lived outside the defensive structures (Arkush and Stanish 2005; Wilson 1988). Thus evidence of population living on both sides of or outside the external embankments and ditches in Malagana would not necessarily give more support to the idea of a drainage function for the ditches; but the idea that most of the population lived inside the earthworks provides support for the defensive character of the earth structures.

The first evidence of the distribution of population in Malagana came from the pilot survey carried out in 2010. Nearly 250 ha were surveyed in order to establish boundaries of the site. Three areas presented high densities of artifacts that indicated the loci of occupation of Malagana inhabitants during the two periods into which their trajectory of development has been divided (Figure 2-1). Two areas were located outside of the earth structures (sectors A and B) and the other was enclosed within the earth structures (sectors C, D and E). The pilot survey did not provide information on the density of material by period. During the dissertation fieldwork the three areas were surveyed and the chronological location of archaeological material was established. As shown in Figure 7-2, during the EEB period most of the population occupied the Central Area of the settlement, while in the next period population settled both inside and outside of the earth structures (Figure 7-3). This particular distribution of population across the site indicates clearly that defense was an important concern during the EEB period for the inhabitants of the Malagana site, but not for the LEB period. If warfare was part of the social dynamics of this last period it was of less intensity than in the previous period.

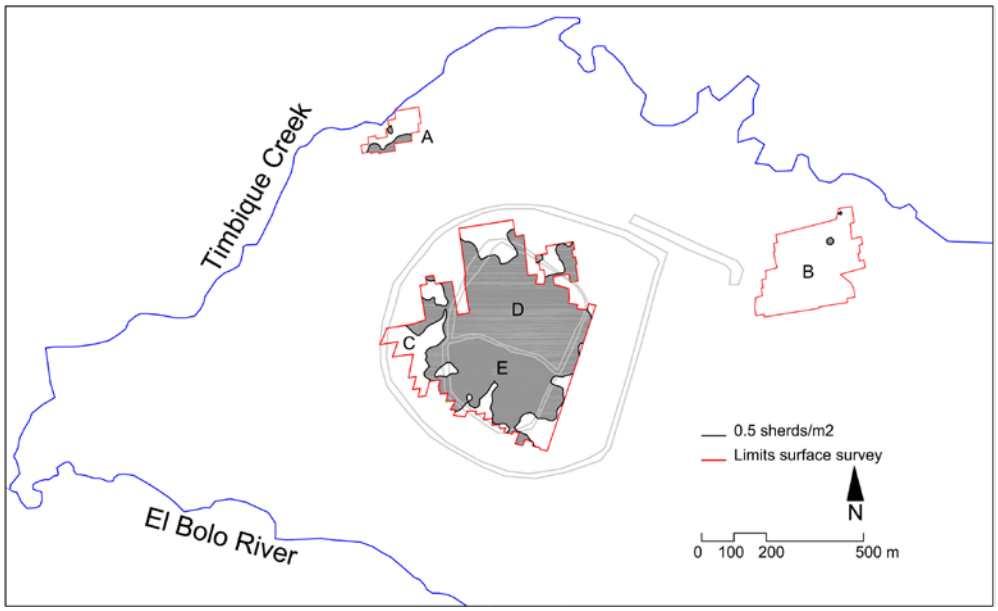

Figure 7-2 Map of distribution of densities of sherds above the 0.5 sherds/m² during the Early El Bolo Period.

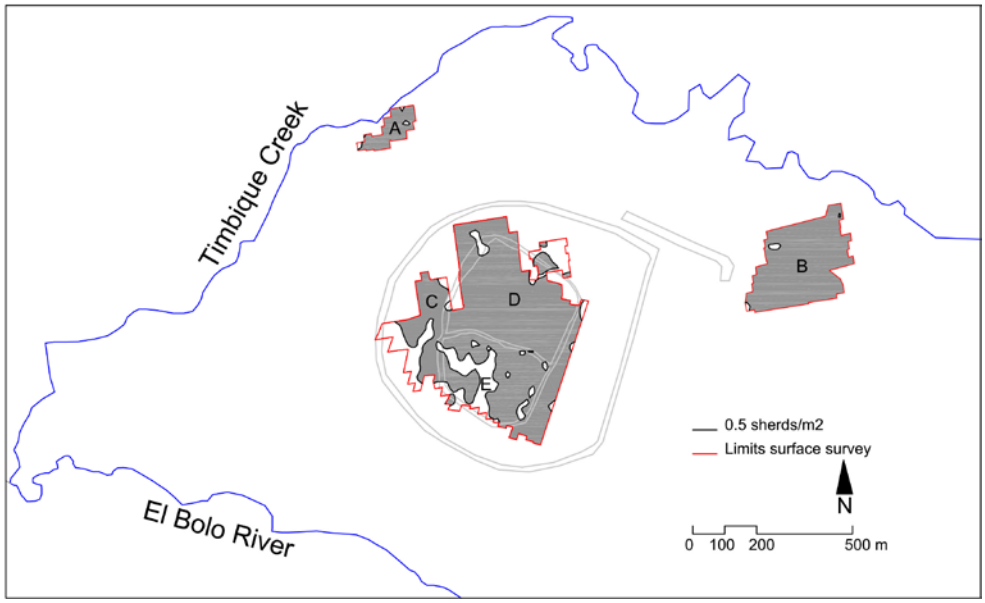

Figure 7-3 Map of distribution of densities of sherds above the 0.5 sherds/m² during the Late El Bolo Period.

An additional element supporting the defensive character of the earthworks resides in the particular 'grammar' of the banks and ditches in Malagana (internal bank and external ditch). Although there are some archaeological examples where defensive structures include an exterior bank and an internal ditch (e.g. the small defensive settlements in the Rewa delta, Fiji [Parry 1977]), a more efficient defensive arrangement involves an internal bank and an external ditch. A comparative analysis of defensive structures by Keeley et al. (2007) indicates the military benefits of each feature. In synthesis, banks: 1) allow defenders to hide their strength and movements; 2) increase the force of the weapons used by the defenders because they use the gravity in their favor; and 3) block the movement of the attackers through the defended area. Ditches would improve the defensiveness provided by the embankments by making it more difficult to climb the bank, by reducing the speed of the attackers and exposing them to the fire of the defenders, forming 'killing zones' (Keeley 1996). An inverse arrangement would make more difficult the task of the defenders. Thus a ditch 4 m deep, like the one in Malagana, would have been a deterrent for attackers even if the internal companion bank was only 1 m high, depending of the slope of the internal side of the ditch. The same can be said for the shallower ditch of the peripheral structure.

The arrangement of the bank and ditch that split the central area in two provided additional defensive advantages. According to the excavation report by Herrera et al. (2007) the bank is located facing the south (Sector E); while the ditch is located to the north (Sector D). The dividing ditch was interrupted on its eastern side by the central bank, undermining even more the idea of a continuous channel for diverting runoff away from the settlement. The dividing bank and ditch create an additional means of defense: it would obligate attackers to divide their forces and simultaneously attack both sides of the settlement (once they penetrated the peripheral line

of defense) or to focus on attacking on only one side. In the latter case, attackers would find themselves confined (or their retreat lines severed) and their chances to escape reduced (for a similar case of the functionally of a bank and ditch dissecting a settlement see Roscoe [2008]). But the internal bank and ditch involve more than defensiveness.

The particular arrangement of the internal bank and ditch gives a glimpse of the differential power of decision-making between the inhabitants of the sectors divided by the earth structures because one of the two sectors is better defended than the other. Due to the fact that Sector E presents a more defensive location than Sector D (in terms of the manner that the bank and ditch that divide the Central area were arranged) it can be deduced that the spheres of power were stronger in the sector where the wealthiest graves and the wealthiest neighborhood were located, because they had the ability to reorganize the landscape in such a way that it would better serve their interests.

It is not possible to know if the dividing bank and ditch were built at the same time or after the central earth structures were raised, although it is clear that the dividing earth structure depended on the location of the rectangular central embankment for its construction. Moreover there is no information that indicates whether the peripheral structures were built later than the central ones. However, the low density of archaeological material in Sector C, the one located between the central and the peripheral embankments, could be an indication that its occupation was a later event than the occupation of the central area. The late occupation of Sector C could be the result of the natural growth of the population or due to the attraction that a large and wealthy community could create in foreign populations. Whatever the case, the peripheral earth structures could have been built after the central structures as a measure of protection for these later occupants. By constructing an additional set of defensive features, the wealthiest members

of the community not only increased their protection against external attacks (both in the form of physical structures and by putting low status families in the first line of attack) but they reinforced their high location in the social structure of the community.

The internal bank and ditch were not only a material manifestation of the differential importance of the households in Malagana; they were also a means through which power relations were structured. The internal bank and ditch restricted the access of a great part of the population to the monumental tombs of important village ancestors and to the spaces where public ceremonies were performed, located in Sector E (Chapter 5). The earth features also created some secrecy in the mundane activities carried out by the individuals living in Sector E, including the making of religiously charged objects, like gold tokens (Chapter 4). The physical and visual restriction of the ritual-related activities carried out by household members in Sector E facilitated the 'monopolization of communal spirits' by them (Meillasoux in Gnecco 1996a), reinforcing their position as mediators between the social and the cosmological order. The question is, therefore, how could the elite do that?

It is well known in the ethnographic literature that in war times otherwise egalitarian communities cede authority, although temporarily, to individuals showing the skills for leading successful attacks or for commanding defense (Redmond 1998, 2002). Although the conceded authority is temporary, leaders can take decisions compromising the life of the members of their communities (when and where they should move, when they should attack, etc.). Among these decisions leaders can coordinate the construction of defensive structures (Allen 2006). In Malagana, the ability to mobilize labor for defensive purposes by leaders was strategically used for manipulating architectural spaces, which then allowed them to control sacred spaces (tombs of ancestors and open spaces for public ceremonies) that further legitimized their social position

by representing elites as essential components of the social and cosmological order. The mobilization of labor for defensive purposes in Malagana, then, played an important role for creating and maintaining social inequalities.

This signals a different path followed by warrior leaders for obtaining power than the one suggested by Redmond (1994a, 1998) for other chiefdoms of the Intermediate Area. She has suggested that leadership based exclusively on warrior skills is weak in the long term: leaders are often deposed by younger and more skillful warriors, unless they can transmit their position to their heirs (Redmond 1994a, 1998). Redmond has hypothesized that the intentional escalation of conflict by ambitious leaders could increase their power and lead to the institutionalization of the chief position (Redmond 1994a). That scenario, however, does not prevent leaders from being removed from their position by other skillful warriors at the time conflict is becoming more intense. The construction of the defensive structures certainly indicates that warfare was intense (Solometo 2006) during the EEB period in Malagana, but warrior leaders in Malagana secured their position through the strategic use of their power to mobilize labor for defensive purposes in other activities beyond warfare: this allowed them to create spatial arrangements that permited them to monopolize sensitive aspects of the symbolic world of the Malagana inhabitants.

The constructed landscape became a political and ideological artifice both to mask and to create relationships of inequality by making seem quite natural the internal disposition of structures (which reflects a natural and inevitable hierarchy) when experienced continually for the members of community in daily life. By arranging the earth structures in the way they were, three social layers were formed. First, the wealthiest members of the community lived in Sector E, the most protected sector of the settlement. The embankments not only provided defense against external attacks, but they also prevented any internal uprising and restricted access to the

wealthiest tombs and communal ancestors. Second were the households occupying Sector D. And third, at the bottom, were the households of Sector C only protected by the peripheral structures.

The concentric earth structures in Malagana thus functioned not only for warfare during the EEB period, but they were the materialization of an ideology that highlighted social differences between the different groups inside the settlement and the manifestation of the ability of leaders to mobilize communal labor. Because these huge features required coordination and finance (*sensu* Earle 1997), and because they were part of the everyday landscape for all members of the community, they actively helped in the development and maintenance of political leadership in Malagana.

7.4.1 Labor mobilization in Malagana

Calculations of the labor force used for building the earth structures in Malagana provide a glimpse of the capability of leaders to mobilize labor for defensive purposes. Since the amount of voluntary work for communal labor projects seldom amounts to more than 50 days per person per year (Arkush 2011: 153), a complete set of defensive structures requiring more labor than that would imply either mandatory work (through coercion) or paid work (through wealth). A 'complete set' of defensive structures is the minimal number of finished structures that could provide proper defense; for instance, the central ditch, earth embankment and wooden palisade of the settlement excluding the embankments dividing the settlement in two.

Calculations of labor force are based on the number of cubic meters of earth dug for the ditches, the number of trees used for the palisades and the energy needed for setting the posts, the amount of space that should be cleared of trees in order to build the ditches and

embankments, and the spaced cleared of trees outside the ditch (around 100 m), which are used to see and fire upon the advancing enemy (Erickson 2010:628).

The volume of earth excavated is based on the length of the ditch multiplied by the area of its cross-section. Unfortunately no profile of the ditches has been published, but an educated guess would be a triangle, as Keeley et al. (2007) have shown this shape as well suited to defensive purposes. Other shapes would increase the amount of labor needed for the excavation of ditches. Labor investments for digging the ditches are based on 2.6 m^3 of earth/person/day according to experiments made by Erasmus (1965).

The peripheral D-shaped ditch is approximately 2,750 m long, 1.8 m deep and 4 m wide. The central ditch is approximately 1640 m long, 4 m deep and 10 m wide. The internal ditch dividing the site in two halves is 360 m long, 4 m deep and 8 m wide (Herrera et al 2007). The volume of earth dug is provided in Table 11.

Table 11 Raw data for the calculation of labor for the digging of ditches and construction of palisades.

	Volume of excavation-ditches	Number of trees (25 cm diameter)	Volume of excavation for the palisade	Area cleared (ha) (+100 m)
Peripheral	11,000 m^3	11,000	825 m^3	82
Central	32,800 m^3	6,560	492 m^3	32.6
Internal	5,760 m^3	1,440	108 m^3	-
TOTAL	49,560 m^3	19,000	1425 m^3	

Calculations of labor are based on two scenarios: a) population living in the sector before conflict; and b) population moving to that sector due to conflict. There are two important differences between the two scenarios. In the first case, a great part of the forest has been cleared

for cultivation (maize, beans) and location of residential and communal areas, so little clearance of forest was needed for the construction of the structures and the 'buffer zone' for surveillance of the advance of enemy (Erickson 2010). In the second case, all these areas must be cleared at the same time, implying more labor at once.

7.4.1.1 People living in the sector before conflict

Calculation of the labor for obtaining the trees for the palisades of the three sectors is based on the size (diameter) of the trees and the number required for each enterprise. If inhabitants of the settlement occupied the site many years before conflict it is probable that the nearby trees were from a secondary forest. They could have, on average, a diameter at breast height (DBH) of 25 cm (e.g. Erickson 2010). Calculations for felling trees are based on experiments made by Coles (1973) using stone axes. Coles (1973) calculates 30 minutes/person cutting and trimming a tree, and approximately 40 minutes hauling and placing a single post, in more temperate areas. Total number of labor days is based on the demographic estimates calculated according the DAI/C for the EEB period (Chapter 2). Labor force is based on two adults from each family unit of five (Arkush 2011). Results are provided in Table 12.

Table 12 Labor calculated for construction of defensive structures in person-days (days of 5 hours of work) according to Coles' (1973) estimates for cutting trees and associated tasks after cutting the trees; and total days of construction according to DAI/C population estimates for the EEB period.

	Cutting and trimming a tree	Post hauling and placement	Excavation for placing the post	Ditch digging	Total Labor days	Total Labor days for construction*
Peripheral	1,100	1,467	317	4,231	7,115	31-69
Central	656	875	189	12,612	14,332	62-139
Internal	144	192	42	2.215	2593	11-25
TOTAL	1900	2534	548	19.058	24040	104-233

*Total days of labor based on a work force of 103-230 individuals, according to DAI/C estimates for the EEB period.

7.4.1.2 Population moving to that sector due to conflict

If population moved to the site due to conflict three scenarios are proposed:

1) A small population settled in the site and built the central structure first and then, after some years, built the second, peripheral structure.

2) A small population settled in the site and built both structures at the same time.

3) A population of 500 or more settled in the site.

The size of the population in each scenario is based on the maximum number of people sustained by the area cleared of forest needed for the construction of a complete set of defensive structures. In the first two cases, the number of people sustained by 32.6 ha of land needed for the construction of the central defensive structure is around 200. This number is based on Liendo's (2002) estimates of 6 persons sustained by one cultivated hectare of maize. In the third case, a population of 500 would need around the same area for cultivation as that needed for the entire set of structures including the 100 m 'buffer zone' of the peripheral structure mentioned above. Work force for the two first cases is 80 persons and for the third 200 persons. Clearance of 1 ha of tropical forest can be done by a single person with a stone axe in 356 days (estimates

derived from Carneiro [1979]). Because it is not very probable that the entire cleared area was cultivated, the estimates of total labor days must be considered low. The results are shown in Table 13.

Table 13 Labor calculated for construction of defensive structures in person-days (days of 5 hours of work) according to the size of population sustained by the area needed for the construction of defensive structures.

	Labor of forest clearance person-days	Digging for ditches and digging, hauling and placement of post person-days	TOTAL person-days	Available workers	Total labor days according to number of workers
Central & internal	11,605	18,089	29,694	80	371
All structures	29,192	24,040	53,232	80	665
Population on 500	29,192	24,040	53,232	200	266

The construction of defensive structures, like those observed in Malagana, is usually correlated to inter-group conflict of high intensity, that is, when attacks occur one or more times per year (Solometo 2006: 30). This should imply that the construction of the smallest set of defensive structures must have been fast. The construction of such structures implied the labor of a great proportion of the population of the settlement at once. In the different estimates of labor days spent in the construction of defensive structures of Malagana there was a total investment of labor beyond the 50 days at year, thought to be the maximum span of time spent for voluntary communal projects (Arkush 2011; Bernardini 2004), even for only the central structure, at the lowest estimate. These results suggest that the building of the defensive structures required the use of coercive methods or the use of wealth to compensate the mobilization of people for works

of such magnitude. The scale of the mobilization of labor for the construction of these earthworks was also impressive when compared to the labor invested in building the terraces for agricultural production in the nearby region of Calima during the LEB period. The largest terrace, which is assumed to be the clearest evidence of labor mobilization by powerful leaders during the LEB period (Langebaek 2003), implied between 17 and 37 times less labor than the earthworks of Malagana (see Chapter 4).

7.5 WARFARE AS A SOURCE OF POWER IN MALAGANA

At community and regional levels, evidence of warfare in the Cauca River valley seems minimal when compared to the abundant accounts of the high intensity of inter-group conflict in the area at the end of the trajectory of social development. The absence of direct evidence of warfare during the LEB period can be explained by the abandonment of the site centuries before the Spanish conquest, if it is assumed that the Spanish invasion triggered inter-community violence in the region (Pineda 1987).

For the EEB period, direct evidence of warfare is observed in the form of skeletal trauma by blunt-force and projectile weapons in sites near Malagana and in the construction of monumental defensive structures in the Malagana site. The scarcity of more individuals with trauma by malevolent action and the absence of weaponry in the archaeological record can be explained by the poor preservation of osteological remains and wooden weapons. Other types of evidence for warfare are circumstantial in the best of the cases, but they present some coherence when they are put together and seen under the warfare paradigm.

The defensive structures are not only the best evidence of warfare in the region during the EEB period, they are the manifestation of the intensity of conflict, the coercive power of the leaders and the strategic use of labor by leaders for other uses besides defense. Some have argued that similar structures could be more symbolic devices created to make "[…] an illusion of impregnability and invincibility in the early stages of the formation of a political hierarchy of settlements" (Tringham in Wileman 2009: 20). Although this can be true, such symbolic messages conveyed by the earth structures do not conflict with their defensive character. As Otterbein (in Solometo 2006) has demonstrated, the construction of defensive structures and the location of the habitation spaces inside of them is a clear expression of a conflict of high intensity (many attacks per year), as both variables are correlated in ethnographically known societies. The human occupation inside the defensive structures is a clear indication that people were the target of the attacks.

Earthworks are also a manifestation of the power of leaders to mobilize and coordinate large numbers of people for public works. The earth structures were of such magnitude that coercive force was probably used for their construction. Even if the earthworks were built in several stages, the minimal set of earth structures needed for providing defense implied more days of labor than the maximum number of days that people are willing to provide voluntarily for communal projects, as observed in ethnographic cases (Bernardini 2004).

Despite considerable military power of political leaders in Malagana, artistic manifestations of this on ceramic or gold were practically invisible, despite the plastic mastery of the craftsmen. This particular combination of huge investments in defensive facilities and low visibility in other material markers of warfare in Malagana resembles the Wanka case (after 800 AD), in the Central Andes. In that case, warfare was "[…] to defend territory rather than to

conquer new revenue" (Earle 1997: 121). This defensive focus was exemplified in the change from personal, offensive weapons in the archaeological assemblage to the construction of defensive structures. According to Earle (1997: 196) Wanka fortifications not only worked for community defense, but they built a group ideology that legitimized indirectly the position of the war leaders by assuming that their survival as community depended on the organizational defensive skills of these chief warriors. In addition, despite that the power of the Wanka chiefs rested on their warrior skills, the 'symbols of power' in these societies were not associated with the magnification of the role of the chiefs as successful *cinchekona*; rather, they represented both 'female powers' and 'male leadership' (Earle 1997:191).

Although there are many differences between the Malagana and the Wanka cases, this latter is helpful for interpreting the nature of warfare in Malagana and its role in the maintenance and development of social inequalities, taking into account the similarities in the particular combination of archaeological markers of warfare. Warfare, at least for the EEB period, seems to have been directed principally to defensive endeavors. The organization of defense implied the construction of defensive facilities that were centrally planned and managed. The construction of the banks and ditches not only helped to defend and create a sense of community (us vs. the enemy), but, and in contrast to the Wanka case, it created a permanent social separation between the members of the community. This social division was achieved by physically splitting the community in two halves by an additional bank and ditch; the southern one associated with the wealthiest tombs, the spaces for public rituals and the production of luxury items. The internal bank and ditch made clearer the social, political, economic and religious differences between the inhabitants of the settlement, at the same time that they reaffirmed them. Therefore, warfare not

only created the conditions for some to obtain and consolidate coercive power but also allowed leaders to manipulate architectural space in order to reinforce and augment social inequalities.

What were the communities at war? Identification of fighting sides at this point can only be speculative, but a hypothesis can be raised. Recent research by Rodríguez-Flórez and Colantonio (2013) indicates that the five communities (excluding the sites of Altamira and El Sembrador) of the EEB period can be clearly separated in two groups, in terms of biological differences (dental variability): one formed by the people from the Malagana, El Estadio and La Cristalina sites; and the other by people of the settlements of Santa Bárbara and Coronado. If it is assumed that 1) warfare is more probably fought between communities with weak or without social ties; 2) exogamic intermarriage practices were one important way in which communities created and reinforced inter-site alliances; and 3) biological differences between communities are small when exogamic intermarriage practices are frequent between the groups, it could be hypothesized that the biological differences observed between the EEB communities delineate rival groups. The high similarity in material culture between two sites whose populations are presented as different in biological terms, Malagana and Coronado, however argues against this notion.

8.0 CONCLUSIONS

Social differentiation in the Malagana community as observed in the outstanding variability of luxury grave goods recovered from early tombs highlights a deviation from the general pattern noted in the Intermediate Area of the Americas, in which social inequalities were created and maintained principally via religious strategies, but without important connections with the economy. While differences in burial patterns clearly indicate the existence of social inequalities at Malagana, existing archaeological evidence does not indicate precisely which strategies local leaders used accomplish their political goals. That burial differences at Malagana relied on the quantity and quality of grave goods not observed in nearby contemporary chiefdoms such as those of the Alto Magdalena or highlands of central Colombia further suggests that economic mechanisms could have played an important role in defining the political structure of the Upper/Middle Cauca River valley societies from the first centuries BC.

Although some academics have discussed the relative importance of economic mechanisms for the development of social inequalities for societies in the region around Malagana (e.g. Rodríguez 2002; Rodríguez et al. 2007), little archaeological evidence beyond funerary contexts have so far been provided to support their claims. Similar objections may be raised regarding to other possible methods for obtaining power, including the significance of religious beliefs. Some academics have relied on 16th century Spanish accounts as a source of information for mapping prehispanic sociopolitical dynamics in the region, but others have been

reluctant to use such ethnohistorical accounts since these accounts contradict the scholars' personal views of a peaceful, prehistoric past. 16th century Spanish chronicles depicted prehispanic societies in the Cauca River valley as immersed in endemic warfare.

The research presented in this dissertation was thus designed to address different sources of social, political and economic differentiation by observing intra-communal variability in the consumption of wealth goods, the production of utilitarian and non-utilitarian goods, the distribution of symbolic objects, the locations of places were feasting activities were performed, the locations of plazas, and the distribution of the population relative to the earth structures, that defined the limits of the settlement. Believing that the spatial connection between wealthy burials and the production and consumption of goods is indicative of the social forces behind the development of the social inequalities observed in the funerary record, the sets of variables related to wealth accumulation, craft production, feasting, religious ideology, and warfare were thus mapped and compared to the locations of the richly endowed tombs from the EEB period.

Spatial links however, were not only between spatially distinct large areas called 'sectors', but also between the collection lots from which the artifacts were sampled. Collection lots provided samples of artifacts for comparisons of consumption and production activities between domestic units. Although each collection lot did not necessarily represent a single domestic unit, the collection lots provided information that allowed for the establishment of intra-communal economic and social variability at a higher resolution.

Mapping the trajectory of change at Malagana was also helpful for evaluating different models of sociopolitical change in northern South America. Some models of sociopolitical change emphasize a change from individualizing, religiously-charged, non-institutionalized chiefdoms to more economic, institutionalized and group oriented social organizations (Gnecco

1996a; Langebaek 2003), while others highlight the relevance (or lack thereof) of warfare in the formation of complex sociopolitical organizations (Carneiro 1990; Redmond 1998; Rodríguez Cuenca 2005). This dissertation therefore provides information that complements, clarifies or rejects the generalizing nature of each these models, but it also proposes future research to improve understanding of the evolution of social dynamics at Malagana. However, before summarizing the conclusions regarding dynamics of economic and sociopolitical change at Malagana and addressing how similar they are to previous theoretical models regarding the development of social inequalities in the area, it is first necessary to answer the original research questions outlined for this project.

8.1 RESEARCH QUESTIONS

8.1.1 How much intra-community economic differentiation (that is, variation in standards of living) was present at Malagana and how did it change through time?

During the EEB, two material markers for wealth consumption were identified from the systematic surface survey - decorated ceramics and greenstone beads. Consumption dynamics for each of these objects however, were different since differences in decorated ceramics between domestic units were gradual (most of the collection lots had high proportions of decorated ceramics) and differences in greenstone ornaments were categorical (only 6% of collection lots had greenstone artifacts). Higher levels of domestic wealth were spatially associated with the sector in which the wealthier tombs were found, thus providing support for the idea that differences in funerary wealth reflected some degree of economic differentiation in daily life.

The correlation between the spatial distributions of domestic wealth and funerary wealth was not, however, a perfect one. Distribution of decorated ceramics and greenstone bead wealth markers was not concentrated exclusively or almost exclusively in only one of the five subsectors in which the study area was divided; instead they were also consumed in other sectors. Some wealthy domestic units even formed clusters, one in particular stands out for it comparatively high levels of wealth, evidenced by the unusually high rate of greenstone bead consumption across the groups and the observation that one of the domestic units belonging to this group had the highest proportion of decorated ceramics from the entire settlement. This special cluster of wealthy domestic units was also directly involved in the production of luxury artifacts.

The spatial distribution of wealth markers in both individual domestic units and domestic clusters during the EEB thus suggests that wealth was obtained through a small number of methods monopolized by a few households, then distributed in the form of gifts or payments for services as part of the power strategy for elite households. This would help explain the observed wealth in households not directly involved in any activities designed for wealth acquisition as craft production within the settlement. Thus, in such a scenario, the strategies of some domestic units for acquiring wealth were based on personal links with the wealthiest members of the community rather than direct involvement in wealth-producing activities.

From the EEB to LEB periods, there were significant changes in the accumulation of wealth at Malagana. Among the standard makers of wealth at Malagana, there was a noticeable decrease in both the quantity and the quality of the objects. Decorated ceramics of the LEB period consist of simple incisions or coarse slips suggestive of lower labor inputs when compared to the polished, fine-paste, red-slipped ceramics of the EEB period. Additionally, objects made of non-local material were no longer part of household consumption patterns.

During the LEB period, the highest levels of wealth were concentrated in a group of spatially-related domestic units, although in a very different location than the wealthiest group from domestic units of the previous period. Archaeological evidence thus points to a decline in social and economic inequalities that are not coherent with a scenario of institutionalized leadership as others have suggested for the LEB period.

8.1.2 How much specialization characterized craft production at Malagana? How closely associated with elites was it? How did these patterns change through time?

One of the most outstanding findings from this research was evidence for the centralization of different production activities, particularly the making of luxury artifacts. These artifacts are luxuries either in the sense that they were made from non-local raw materials (greenstone or slate), or that they required a high amount of labor investment in their extraction and production (gold). Centralization of non-utilitarian artifacts production at Malagana therefore does not only suggest that artifacts from different raw materials were crafted in discrete areas, but that they were also produced in association with the wealthiest cluster of domestic units. Clearly, this spatial link indicates the control elites had over the production of these goods for their own political goals. Although some objects (decorated ceramics) appear to have been distributed amongst the general population, these were probably either some form of payment for services or gifts intended to create social debts. Other objects, particularly gold artifacts, were used for promoting supra-local alliances with external groups and demonstrating symbolic associations between elites and the supernatural world (Gnecco 1996a). Evidence of the former may be observed in the outstanding stylistic similarities between several complex gold pieces found at Malagana and the Calima area, 50 km to the northwest. Although the most of gold artifact styles

in southwest Colombia has been found in the Malagana area (Archila 1996), suggesting that it was a probable regional production center for gold objects, toolkits for gold production during the EEB have also been found in the Calima region.

Unlike gold artifacts, the production of greenstone and slate (and probably also rock crystal) beads did not require a high degree of skill, so control over their production is unlikely to have been based solely on knowledge of manufacturing processes. How non-local resources, otherwise easily attainable, could be prohibitive for most of the population is a more intriguing question. Some scholars have noted that during periods of inter-group warfare such as that which existed at Malagana in the EEB period, the value of artifacts made from non-local raw materials increases (Cobb 1996). In the context of regional warfare, risk involved in the procurement of non-local raw materials increase, making obtaining them directly less desirable for many individuals. In precisely such cases however, the benefits of exploiting non-local resources and producing goods would also be high since fewer individuals would be likely to risk abandoning the safety of the defensive settlement. Nevertheless, as more people involve themselves in such an enterprise, the payoffs once again diminish as the overall amount of goods increases in a competitive competence. Certainly, some households took the risk, which became the wealthiest households at Malagana. For the rest of the population an easier, and arguably safer, way to get such goods was therefore by providing services in the form of labor or other goods, to the producers, thus maintaining an asymmetrical socioeconomic system.

Elites at Malagana were thus able either to obtain directly raw material for themselves or through other methods not accessible to the rest of the community. In the former case, parties of many men could reduce the risks associated with quarrying in zones away from the settlement during periods of warfare. However, this scenario is most suitable if parties were composed from

the same household or other large social group, or if households were formed from multiple domestic units, as is suggested for the wealthiest cluster of domestic units. Yet this scenario does not explain why parties from other large households or social groups did not also take the risk of venturing to outside areas. One explanation may be that if weapons were monopolized by the same social group to which the warrior leaders belonged, as exemplified by previous ethnographically-known studies of societies in the Intermediate Area (Redmond 1994a: 46). In the case of the procurement of raw materials by methods not accessible to the rest of the community, raw materials could be acquired via exchange with communities living closer to the sources. Currently, it is not possible to suggest which of good(s) Malagana producers would have given in exchange to the communities locates near the raw material sources, but they might have included finished luxury items made of materials their trade partners could not obtain directly. Yet, if raw materials were part of the supra-local exchanges networks for luxury items or even gold, then not only were the raw materials for luxury items controlled, but also the networks through which other valuable materials, labor, and ritual knowledge could be obtained (Frankestein and Rowlands 1978; Gnecco 1996a).

Production of gold artifacts however, may not be explained in the same way as other luxury goods since gold production is more varied and complex than other technical procedures. Given this complexity, having but not sharing the technical knowledge necessary to produce gold objects, allows for the exclusion of others in processes of their production, even if gold sources were easily accessible (Gnecco 1996a). In fact, as Helms (1992) has indicated, the ability of some religious leaders to produce impressive gold artifacts may be taken as an expression of their mystical powers. Although esoteric knowledge based on metallurgical production is difficult to evaluate, the concentration of smelting tools in the wealthiest cluster of domestic

units signals that elites not only centralized the production of such goods, but also successfully restricted access to the technical knowledge required for their production.

Scholars have argued that sources of alluvial gold were very distant to inhabitants of Malagana and therefore difficult to obtain (Saenz et al. 2007), but exploitation of alluvial gold is known to have been practiced along the banks of some rivers, including the Cauca River, to the south of the settlement, in both colonial and modern times (Taussig 1977; Anthropologist Victoria Buitrago, personal communication 2013). Alluvial sources are not easily controllable resources, especially if they are found in territories belonging to other communities. Therefore, those who controlled access to external networks or had a monopoly on coercive power were likely to obtain access to riverbanks for gold extraction more easily than those who did not. But if the risks of warfare, lack of technical knowledge regarding gold production, and weak external networks are not enough to account for the restricted access of non-elites to alluvial gold sources, then there is an additional element to consider, which is the amount of gold needed for the elaboration of gold pieces used for public rituals. If estimates regarding gold extraction are correct (two to three grams of gold per day per person), then the gold pieces found in the Malagana burials imply a very high labor investment that few would have been able to afford.

Additional evidence indicating that non-local goods at Malagana were restricted because of the risks and costs of their procurement, may be observed in the production of more utilitarian goods, specifically those made from local sources, such as stone tools. Local stone production was not centralized. On the contrary, the widespread distribution of local stone debitage from the settlement indicates that each household made local-stone artifacts for their own personal use. Therefore, the reason production of local stone, utilitarian artifacts was not controlled by the same sector producing prestige goods was because stones can be easily obtained from the banks

of the El Bolo river, and access to the sources of the raw materials necessary for production of utilitarian objects could not be as easily restricted as those for prestige goods.

For the LEB period, important changes were observed in the production of goods, indicating that production in textiles, and probably gold artifacts of a lesser quality were not controlled by the wealthiest members of the community. Instead, the evidence signals that the production of these goods was made by independent specialists probably for some as yet, unspecified external demand. Therefore, the obvious question is why did such a change occur?

Centralized production at Malagana during the EEB period clearly resembles patterns of emergent hierarchies in other parts of the world, in which the networks of exchange and the goods exchanged are controlled by the elites (Gnecco 1996a; Håkansson 1998). Lack of control over the accessibility of these valuables is usually associated to highly competitive and acephalous political organizations (Håkansson 1998). Part of the control over exchange or alliance networks and production activities was therefore possible due to ongoing regional warfare, which increased the procurement costs of non-local raw material and forced defensive alliances between warrior leaders, who were thus able to for exchanging knowledge, goods and people. The distribution of population during the LEB period however, shows less concern with threats of warfare. Therefore, with the decrease in conflicts during the LEB period, the risk associated with the procurement of non-local material decreases, as does control over those resources.

8.1.3 To what extent were ritual activities at Malagana associated with elites, and how did this change through time?

While elites during the EEB period were able to control certain production activities derived from economic inequalities, legitimization of these economic inequalities relied on other methods. A growing literature regarding prehispanic gold production suggests that the production of gold items was not a purely economic activity (Langebaek 2003; Reichel 2005). Gold artifacts were embedded with powerful symbolic meanings, which emphasized elite associations with spiritual and supernatural powers. The ability to transform gold nuggets into impressive objects has thus been interpreted as a material manifestation of the links between goldsmiths and these mystical forces (e.g. Helms 1992). Although the reasons why such associations were created remain unknown, monopolization of gold production allowed elites to control ritual power and hence legitimize the socioeconomic inequalities observed in the archaeological record. The special, sacred character of gold artifacts as compared to other objects is better understood when the consumption of gold artifacts is analyzed. Gold objects were not consumed by a large portion of the population, even at a regional scale, because gold objects were not used as gifts or payment for services inside the community. An additional link tying gold artifacts to ritual power is the observation that gold objects are the most conspicuous type of object found in the elite graves located in the sector where gold objects were made. These gold objects were therefore not merely ornaments, but a special class of objects, like masks, which could be used in public ceremonies. Open spaces devoid of sherds, which may be confidently interpreted as plazas, were found in association with these elite graves, as well as with the wealthiest cluster of domestic units. These plazas thus connected the elite residences and the wealthy graves, visible at that time as mounds facilitating the association between the living

elites and their wealthy ancestors. In this way, spatial associations increased the dramatic qualities of the public ceremonies carried out in such plazas.

Nevertheless, even if elites controlled religious public ceremonies, it is not possible to know how much of their ideology was transmitted and accepted by the rest of the community during these communal events. Acceptance of some of elite religious ideology by commoners is observed in the widespread consumption of special grave goods (*alcarrazas*), which are associated with wealthy individuals in other cemeteries culturally linked to the Malagana settlement. However, not all religious activities and objects were monopolized by the elite. Figurines and kneeling-woman jars appears to be special in that regard. These objects were the materialization of a set of beliefs not associated with wealthy individuals, although it is impossible to know whether they were part of a subtle mechanism utilized by non-elites to resist the unbalanced distribution of power.

Remarkably, there is currently no evidence to indicate the existence of a religious ideology made manifest in objects during the following LEB period. Open spaces remained in the same locations as the previous period, but the areas associated with these sectors were not as densely occupied as they had been in the previous period. In fact, during the LEB period, the wealthiest domestic units were now located at the other side of the internal bank and ditch dividing the settlement. During the LEB period, elites were unable to restrict the access to gold sources and monopolize the production of gold objects. This meant the decline of a political economy based on the display of gold artifacts and affected the bases of the centralization of the ritual power.

8.1.4 To what degree were elites at Malagana engaged in the social consumption of food and drink?

Feasting activities at Malagana were very intense throughout the entire settlement during the first period of occupation at Malagana. Elite households provided food and intoxicants to both local inhabitants and external elites as a means of strengthening alliances and facilitating the exchange of goods and, perhaps, people. However, it is interesting to note that the wealthiest cluster of domestic units at Malagana do not have neither the highest ratio of serving to cooking vessels for the entire settlement, nor for the other clusters located in the same discrete sector. Instead, the highest ratios were observed in the opposite the wealthiest domestic units in the northern area of the community, although differences in these ratios between these groups of domestic units are not very significant. This finding is interesting due to the absence of open spaces near to these northern wealthiest households that could have functioned as loci for communal meetings. A plausible explanation for this phenomenon would be that as result of the successful monopolization of both the political economy and the religious apparatus by the elite, feasting was the only avenue through which non-elite individuals could compete for wealth and negotiate their status below the elite group.

Feasting however, was not a particularly good strategy for obtaining wealth during the following LEB period. Not only was the intensity of feasting reduced, but differences between sectors and groups of wealthy households were minimal.

8.1.5 How much inter-group conflict occurred at Malagana? How did this change through time?

Warfare (or the threat of warfare) was an extremely important issue in the lives of the inhabitants of Malagana during the EEB period. This concern with warfare however, was not represented in ceramics as other social activities. Although there is no particular reason why themes of warfare should appear in the Malagana's art, their absence may be attributed to the possibility that warfare was considered defensive, rather than offensive, to members of the Malagana community. In other words, individuals at Malagana were most often on the receiving end of violent attacks rather than the perpetrators of these events. Although evidence of warfare is scant at Malagana, injuries in some of the skeletal remains in the region are suggestive of violent action. Arguments regarding the possibility of violent conflict in the region are also strengthened by the presence of collective burials in areas culturally-related to Malagana where individuals are arranged in very unusual positions without any associated grave goods.

At Malagana, the community's high concern in warfare is clearly expressed by the construction of massive defensive barriers that help to define the site. The high risk of external attacks is evident from the location of the population in relation to these defensive structures. With the population located securely within the defensive structures, clearly the barriers were not just a temporary refuge in case of attack; they were the protective boundaries for the entire community. Serving ideological as well as defensive purposes, these earthen monuments conveyed powerful meanings regarding the ability of leaders to mobilize labor and defend the site. Additionally, these structures served as a reminder of the external dangers awaiting those who traveled beyond the boundaries of the community, as well as of the clear differences between the wealth, status, and power of various sectors of the community.

Mirroring the dual functionality of the external defensive earth structures, the internal earthwork features at Malagana served a combination of defensive and ideological purposes. Specifically designed to separate elite from non-elite sectors, the relationship of these areas to an internal earth embankment and companion ditch in the middle of the settlement as a secondary line of defense, signified the relative importance of each social group within the community with a clear reminder of which group deserved a stronger defense. The internal earth embankment and its companion ditch, which divided the community into two halves, provided an extra layer of secrecy between the elite and not-elite sectors that gave elites tighter control over gold production processes as well as special access to the communal plaza and important ancestors. Therefore, while the specific causes of warfare at Malagana during the EEB period are currently unknown, they clearly provided the opportunity for some individuals to exercise the authority required to mobilize labor, pivotal for the legitimization of social inequalities.

For the LEB period however, the evidence for warfare is even poorer. At a regional level, there is evidence for collective burials, but unlike those from the previous period, tombs were endowed with grave goods, indicating some respect for the deceased. Furthermore, there is no evidence of violent trauma in the skeletal remains of the individuals found in the collective burials. Indications that concerns regarding warfare diminished during the LEB period may also be observed from the expansion of the Malagana population beyond the protection of the original defensive earthworks. This expansion is particularly astonishing once one takes into account the 16th century Spanish narratives regarding the highly intense dynamics of conflict in the Cauca River valley.

One possibility for the seeming contradiction between Spanish accounts and archaeological evidence may be explained by the idea that warfare was a consequence of the

Spanish invasion, at least in its most violent manifestations (Pineda 1987). The Spanish entrance to the area could have triggered violence through the introduction of certain goods, causing a chain reaction that affected very distant regions, analogous to the processes described by Ferguson (1992) for the current societies in the northeast of the continent.

Another explanation for the contradiction between Spanish accounts and archaeological evidence, although not necessarily contradictory to the previous one, may be that occupancy of the Malagana settlement ended some time before the Spanish Conquest. The set of units excavated for this research shows that sediments from seasonal flooding of the El Bolo River and Timbiqui creek buried the soil of the last period of occupation. There is evidence that abandonment of the site by flooding happened centuries before European contact. This evidence is based on the remains of a vessel projecting from the buried soil to the layer of sediments in excavation C decorated with lines of parallel incisions, called *escobillado*. Radiocarbon dates associated with similar types of decoration (Patiño 2010) and ceramic sequences in the region (Giraldo 2013) indicate that *escobillado*-type ceramics were probably in use probably until the 14th century AD. This suggests that the site of Malagana was not occupied until the 16th century and that its abandonment was possibly due to environmental factors associated with the instability of the water streams. Taking into account the possibility that Malagana was abandoned prior to the beginning of the Spanish Conquest the, conflict dynamics as described in ethnohistorical accounts would not be evident at the site, regardless of the role warfare played in the region during the 16th century.

The lack of inter-group conflict during the LEB period, or rather the part of the period in which the Malagana settlement was occupied, was the most important factor in the demise of the political economy that characterized Malagana society during the EEB period. Without warfare

preventing people from exploiting the sources of raw materials used in the elaboration of wealth objects, prestige items lost their value as elite 'currency' capable of maintaining asymmetrical relationships of power within of the community.

8.2 SOURCES OF POWER AND THE DEVELOPMENT OF SOCIOPOLITICAL COMPLEXITY AT MALAGANA

This research evaluated four different sources of power (religious ideology, control over the production of goods, warfare, and feasting) relevant to the development and maintenance of social inequalities in the largest known community of the flat valley of the Upper/Middle Cauca River valley. The relative success of elites at Malagana during the EEB period results from the combined use of all these power sources, which allowed them to concentrate wealth and power. Yet despite highly centralized control by elites over all of the different sources of socio-economic power, there were external factor that were difficult to control locally – namely inter-group conflict. When warfare stopped, the political and economic possibilities that the conflict had created vanished, along with control of the mechanisms employed to generate wealth and social inequalities. Although some inequalities were observed during the last period of occupation at Malagana, they were not the same degree of magnitude when compared to those observed from the previous period. Therefore, instead of a continued change towards the institutionalization of social hierarchies (Langebaek 2003), the Malagana community experienced the fragmentation of its political structure.

Different sources of power were employed by leaders at Malagana, but how they were intertwined is what marks the differences in their prolonged success when compared to societies

with potentially similar social and environmental conditions. Reconstruction of the social dynamics that lead to the evolution of hierarchical relationships during the EEB period can be strengthened with a detailed analysis of the construction of the earthworks and the appearance of gold production in the area. So far, an interpretative exercise has been provided that accounts for all of the evidence currently available. A sketch of the way these factors were intertwined is summarized in Figure 8-1.

Sources for the production of luxury objects were difficult to monopolize at Malagana because they were not spatially concentrated and could be extracted by anyone with enough ambition to venture and exploit them. This, however, changed with the appearance of warfare. Warfare was pivotal not only for obtaining temporary power since leaders could be selected based on merit to organize communal defensive affairs, but also for increasing the costs of resource procurement through the restriction of resource exploitation. At the same time, and for the same reasons, warfare also increased the value of objects made with these (greenstone, gold, and rock crystal) materials. Inter-group conflict, therefore, provided the means by which some aspects of the political economy, which was based on the production and distribution of luxury goods made of non-local sources, could be controlled. However, this was not the only effect of warfare. Leadership based on the coordination of defense allowed leaders to mobilize labor for the construction of monumental defensive structures, thereby giving them power to manipulate architectural space. The construction of an earth embankment and ditch in the middle of the village shows how war leaders took advantage of their position to segment the community both physically and symbolically into two groups. This physical segmentation was instrumental for creating and maintaining an emergent ideology that highlight status differences within the community, but also for restricting access to communal places, like plazas, and certain tombs

belonging to village ancestors. Architectural modifications were thus important strategies for enhancing control through ritual power.

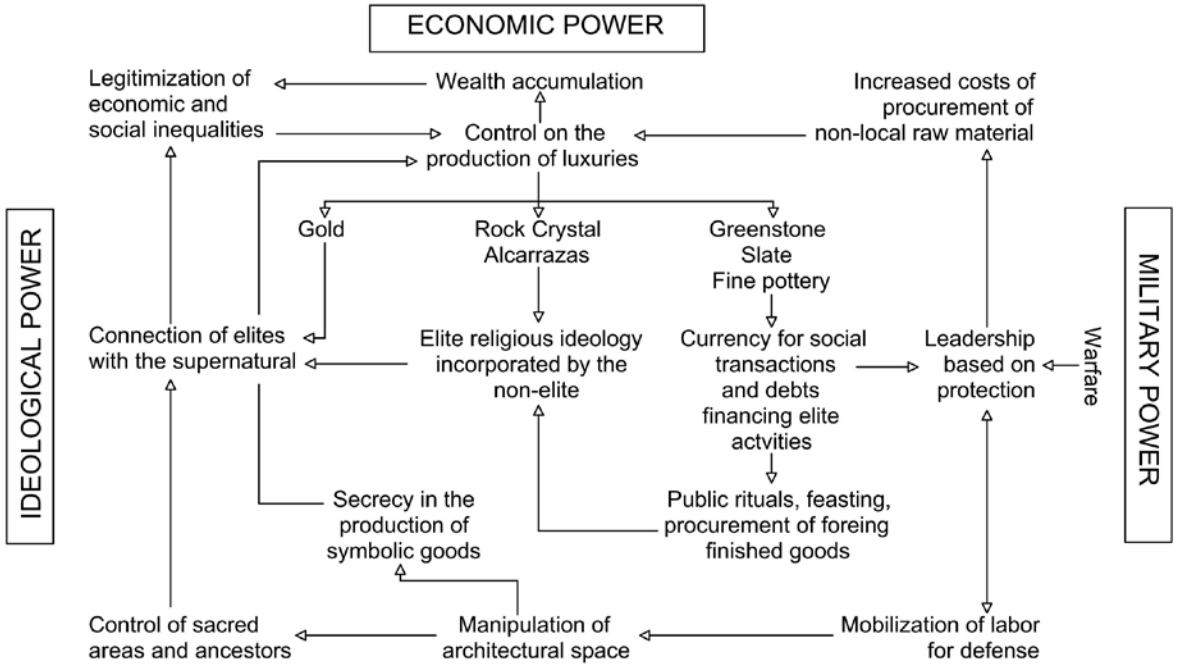

Figure 8-1 Relationships between the different strategies of power used by leaders at Malagana during the EEB period.

The production of luxury objects, like greenstone and slate ornaments (and probably rock crystal items), was not an end in itself. Certainly, the elite wore ornaments as a way to mark their status but they were also used as gifts or payment for services to followers, strengthening asymmetrical positions of power. One way in which they could be utilized as a means of payment for services was in the extraction of gold from alluvial sources. Many of the gold artifacts found in the wealthy tombs indicate the high rates of labor investment required to procure alluvial gold nuggets (e.g. gold masks of more than 100 gr). Gold was used in the secret

production of sacred objects that establish a religious ideology connecting the elite with supernatural entities, which served to further centralize ritual power. Ritual gold objects were also a means of establishing and reinforcing relationships with elites in foreign communities through the exchange of people and prestige goods, which also helped to create and maintain defensive alliances (Gnecco 1996a).

Important changes occurred during the LEB period, but the reasons behind them are not very clear. Population increased and began to occupy areas outside the defensive structures, implying that the threat of attacks, and by association, the intensity of warfare, had lessened. This demographic growth however, did not correspond to an increase in social inequalities at Malagana. Differences in wealth were minimal between households throughout the settlement, and the only marker of wealth recovered during this research (pottery) was not as finely elaborated as it has been in the previous EEB period. It is possible that other perishable goods such as textiles, could have been used for denoting wealth and status in the community, but probable locations for their production were not related to the areas with the highest (albeit still modest) proportions of decorated ceramics. Production of wealth and status items was therefore decentralized during the LEB period and was not related to the areas with the highest levels of wealth.

At the same time that population increased at Malagana, the sector that had been occupied by the economic, ritual and military elites during the EEB period was abandoned, although not completely. In addition, social differences in grave goods appear to have been slight during this period. All this evidence suggests a declining of social inequalities not only within the settlement, but also the entire region – a phenomenon not uncommon in other prehistoric societies. At Moundville, for instance, after a century of political consolidation (1200 AD- 1300

AD) in which the entire population occupied a settlement surrounded by a wooden palisade, the non-elite population vacated the political center of the settlement. Interestingly, the timing of this population relocation corresponded to a cessation in the rebuilding of the palisade, which suggest that there was also a decrease in warfare at this time (1300 AD- 1540 AD), although social stratification was still clear in funerary contexts. Later (1450 AD- 1650 AD), even if the center was still occupied, elite tombs were no longer built, indicating that the existing sociopolitical structure was in decline (Knight and Steponaitis 1998). Similarities in the trajectories of sociopolitical development between Moundville and Malagana are striking, despite the lack of a finer chronological framework for the latter. But what could have been the causes of such change? I can suggest a plausible explanation taking into account the current information (Figure 8-2).

This research has argued that elite power during the EEB period was partially reliant upon the ability of individuals or groups to centralize the production of luxury objects, and that one reason centralization was possible was because of the inherent risks of procurement raw material in a warfare environment. Direct exploitation of could have occurred, but there is also the possibility that raw materials were brought to the settlement through exchange mechanisms, as others have suggested for certain finished goods (Gnecco 2006). Malagana elite could have controlled external exchange through their military power and their connections with elite segments of other allied communities during periods of conflict.

The establishment of elites as nodes of exchange in the regional prestige economy during periods of conflict could have worked for some time after threats of attacks declined. However, once the elites lost their military power as a result of the decline in regional conflict, independent specialists seized the opportunity to exchange their products with neighbor communities, thus

weakening the privileged position of elites in the regional prestige economy. If true, the only source of power left for the traditional elite was ideological, but evidence of its materialization on non-perishable objects is absent. Traditional elites occupying the southern sector of the Malagana settlement could still lead public ceremonies in the large plaza, but the lack of luxury goods in the households of this sector, in terms of decorated ceramics, does not support this position.

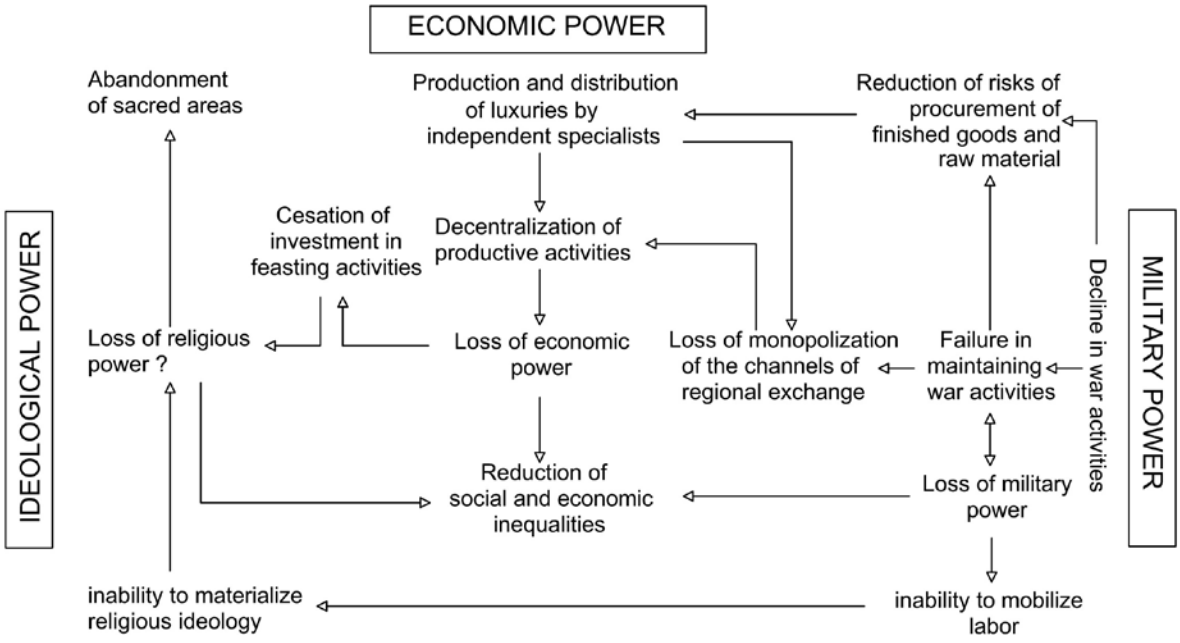

Figure 8-2 Scheme of social change during the LEB period.

Therefore, even if the rising elites at Malagana took advantage of inter-group conflicts for their own political goals during the EEB period, they failed in maintaining the conflicts so as to control the channels of exchange for exotic raw materials and finished goods. The inability of leaders to maintain warfare could explain the association between the seemingly low levels of

concern regarding defense and the decentralization of luxury production with the lack of significant economic differences between households during the LEB period. Thus, during the LEB period, the levels of inequality decreased, but the number of distinct social personae (roles) increased.

The Malagana settlement was probably abandoned some centuries before the Spanish conquest due to continuous flooding in the area. According to ethnohistorical accounts however, a cycle of violence and wealth inequalities appears to have emerged throughout the region prior to Iberian invasion, thereby creating conditions for the development of new social hierarchies. Compared to the political processes of the EEB period, elites of the late LEB period were more disassociated from religious ideological strategies than their predecessors (Carneiro 1990; Trimborn 2005), but that is an aspect not yet studied archaeologically.

8.3 RELEVANCE FOR MODELS OF SOCIAL COMPLEXITY IN THE AREA

Among the models addressing the development of social complexity in the area where the Malagana settlement is located, four are prominent because of their logical structure and coherence according to the available evidence. The types of evidence used for these models however, come from different sources. One relies almost exclusively on archaeological evidence, two on ethnohistorical accounts, and the last on a combination of both, archaeological and ethnohistorical sources.

Models based on 16th century Spanish accounts were not designed specifically to explain social inequalities in the area around Malagana, but rather to use what is known about societies in this area as examples for their own universal models. Carneiro (1981, 1990), for instance,

believed that Cauca River valley societies fit with his model of warfare caused by population pressure in a circumscribed environment, but archaeological research in the Middle Cauca River valley has indicated that population pressure did not play any role in the institutionalization of social inequalities (Langebaek et al. 2002). At Malagana, it is not possible to evaluate Carneiro's model without regional demographics, but it is clear that when the site was most populated, during the LEB period, social inequalities decreased and warfare appears less intense. This pattern does not coincide with one might expect for the development of social hierarchies if increasing population was a causal factor in sociopolitical change.

Redmond (1994a, 1998), on the contrary, proposed a more politically- oriented model for the development of social-political inequalities in the Upper/Middle Cauca River valley: Warfare was intentionally pursued and intensified by warrior leaders to increase their power and pass their position on to their offspring. At Malagana, warfare was intense during the EEB period, which corresponds to the period of earthwork construction; but warfare was not the only strategy used by leaders to maintain power. Centralization of the production of luxury and specialty goods, as well as the monopolization of religious spaces, ancestors, and tokens were also important in the formation of enduring social inequalities at Malagana.

Models of social inequalities in the Upper/Middle Cauca River valley based on archaeological evidence tend to rely more on ideological (religious) aspects than on economy or warfare, which are practically absent in such models for the EEB period. For Gnecco (1996a), elite goods (gold objects principally, but not exclusively), such as those found in the wealthy graves at Malagana, were an 'epiphenomenon' of the extensive alliance networks among elites from different social groups through which power was symbolically legitimized. Therefore, power did not originate from elite goods *per se,* but such objects were an expression of elite

relationships. Power was based on different sources of knowledge (ritual, genealogical, esoteric) and control over the access to women, which subsequently allowed for control over the social reproduction permitted by such elite alliances (Gnecco 1996a:182).

Gnecco (1996: 195) suggests three types of evidence necessary to confirm his model: 1) the existence of a 'regional core' from which symbolism was adopted by other societies; 2) the existence of specialists controlled directly by the elite; and 3) the displacement of ceremonial structures from communal settings to more restricted spaces. Evidence gathered for this research, and by other investigators, coincides with the expectations proposed by Gnecco, thus confirming his hypothesis: 1) A higher diversity of gold objects has been found at Malagana when compared to other places in Southwest Colombia (Archila 1996; Bray 2000), which may be an indication that the Malagana site as was 'regional core' of symbolic production; 2) evidence of gold production is associated with only one sector of the settlement, the sector where wealthy graves were found (Chapter 4); and 3) the location of communal, open spaces are also associated with the wealthy graves and households at Malagana (Chapter 5). However, the data collected for this research adds to Gnecco's models, broadening it by revealing the complexity of the strategies through which elites at Malagana elites obtained power. Religious ideology was actively employed through the manipulation of symbolically-charged objects and public spaces, but control over the production of luxury objects and skills for defense played similarly important roles in the construction of social differences at Malagana during the EEB period. Gnecco's model thus ultimately ignores the costs and continuous reinvestment of economic capital required to support ideological legitimizations of leadership, as well as and the strategies through which exchange networks between communities could be restricted.

Gnecco's model succeeds in explaining the dynamics of power relations during the period in which elite tombs were endowed with impressive gold artifacts, but it does not mention the subsequent changes in the social structure after phenomena disappeared from the archaeological record. Langebaek (2000, 2003) has provided a model explaining what he perceives as a pattern in the development of social complexity not only for the Colombian southwest, where the site of Malagana is located, but for other prehispanic societies of Colombia. Like Gnecco, Langebaek (2003: 248) uses gold artifacts as a starting point for his analysis, with changes in the quality and distribution of gold artifacts viewed as expressions of the changes in political organization. According to Langebaek's model, shifts occur from 'highly personalized and noninstitutionalized' political structures based almost exclusively on ideological aspects (before 1000 AD), to more institutionalized political structures in which power is based on the control of labor and resources, specifically in craft specialization and short-distance trade (after 1000 AD).

For early chiefdoms, Langebaek sees imitation of foreign symbolism, rather than circulation of prestige goods among elites, as a more suitable explanation for regional stylistic similarities in gold objects. Utilizing foreign symbolism rather than exchange, leaders may thus present themselves as 'intermediaries with the outside world' (Langebaek 2003: 267). For late chiefdoms, Langebaek states that gold objects made by specialists attached to the elites were directed to a larger market of non-elite consumers. This change is explained in terms of 'processes of population growth' (Langebaek 2003:268). In other words, the power structure of many Colombian chiefdoms changed from a monopoly of objects made of highly symbolic religious materials regard identifying elites with supernatural forces, to the commercial production of similar ornaments distributed to the rest of the population as a result of the

economic advantages earned by providing for a growing demand. Similar patterns may be observed regarding pottery and textiles. Why such change happened after many centuries of successful power transmission (gold artifacts were probably produced exclusively for the same group over several generations) is not well explained. Evidence from Malagana however, suggests a different scenario: that elite power relied heavily upon military and economic control from the earliest periods of occupation, and there is currently no evidence to indicate that the elite (or the wealthiest households, at least) participated directly in the production of crafts or short-distance exchange during the LEB period.

8.3.1 Malagana and the Colombia southwest

The growing body of research on the Intermediate Area of the Americas has shown that despite certain claims of homogeneity, many societies followed different trajectories of social development in terms of social inequality, labor mobilization, hierarchical differentiation and demography. Noticeable even at a regional scale, these divergences can be seen even among the societies of southwest Colombia (Calima, Tumaco, Tierradentro, and Alto Magdalena) (Figure 1-1) and the central Colombian highlands (Muisca). Although the character of the archaeological information obtained from these societies is not of the same quality, it still allows for broad comparisons. Even though comparisons amongst some of the societies above mentioned were already outlined in Chapter 1, I would like to end this dissertation by addressing similarities and differences in the trajectories of social development of Malagana and these other prehispanic societies of Colombia after 1000 AD.

The principal similarity between Malagana and the other well-studied societies listed here, regardless of the scale of comparison, is the increase of the populations after ca. 1000 AD.

Tumaco-La Tolita societies provide an exception to this trend. However, this demographic growth did not correspond in all cases with increases in hierarchical differentiation or economic inequalities. At Malagana, social change after 1000 AD implied a decrease in wealth differentiation, just like the nearby Calima or Tumaco societies. At Tierradentro, leadership appears to have been more diffuse, a characteristic shared with Alto Magdalena communities, although archaeological evidence is more ambiguous in the latter. In the Alto Magdalena, evidence of wealth differentiation may be observed in the presence of a large structure that could be interpreted as the residence of a very wealthy household, but this identification remains a point of debate (Drennan 2000). In contrast to the other societies listed above, wealth and vertical differentiation appears to increase in the central Colombia highlands from the Early Muisca period until the Spanish Conquest (Langebaek 2003).

Archaeologically, Malagana appears to have shared many social similarities with its nearest neighbor, Calima, including an apparent increase in horizontal differentiation during the LEB period (Drennan 2008). However, unlike Calima, inhabitants of Malagana did not invest in large communal projects after 1000 AD. Movement of large amounts of earth in the hills of Calima has been interpreted as evidence of labor mobilization for agricultural activities (Langebaek 2003), but the worked area is, in most cases, very small for that purpose (less than half a hectare). The lack of evidence for labor mobilization at Malagana during the LEB period therefore only coincides with Tumaco societies and, to some degree, the communities of the Alto Magdalena. Evidence of drainage technology has been reported for the Alto Magdalena, but the creation of these features does not appear to have required labor mobilization as at Calima.

The production of luxury goods at Malagana was important during both periods, but after 1000 AD such production was not centralized. This marks another point of divergence with other

societies of northern South America, like those from Central Colombia highlands, where chiefs coordinated the production and distribution of prestige goods such as textiles, and the Alto Magdalena, where production of ceramics became more centralized.

One remarkable element observed in all of the societies of the southwest Colombia is the decreasing investment in the materialization of religious ideologies after 1000 AD, with the notable exception of Tierradentro. As was previously mentioned, decreasing investment in religious ideologies has been understood as part of a process institutionalizing hierarchical positions that ambitious leaders no longer needed to legitimize their places in society through associations with supernatural entities. However, institutionalized leadership with seemingly indistinguishable elites in terms of wealth or status insignia at Calima, Alto Magdalena, Tumaco, Tierradentro and, Malagana does not seem very plausible.

This brief description of the different trajectories of social change indicates that the Malagana society followed a different path from other well-known societies of Southwest Colombia, including those from the nearby Calima cultural area. Hierarchical differentiation did not turn more complex in Malagana, rather it would appear that hierarchy, and concomitant social and economic inequalities, diminished, despite an increase in the population. The reduction of conflicts is perhaps the most probable explanation for the decline in the control over the production of wealth used for financing other political, ritual, and economic activities during the LEB period. Comparisons of social development sequences between different societies of the same macro-region is only the first step in establishing the network of relationships that helped shape the particular and changing organizational structure of the community of Malagana.

8.4 FUTURE RESEARCH

This research has provided evidence for the centralized production of luxury goods in the same areas where elite graves and public ceremonies took place. It has also provided information on the relevance of inter-group conflict in the structuration of political and economic inequalities. In addition, this research has provided evidence for changes in the social, economic, and religious structure of the Malagana community after warfare decreased or stopped. However, while there was significant concomitance in the different mechanisms that could have triggered and maintained social inequalities, the specific way in which they were intertwined is debatable. Here it is suggested that centralization of wealth could only be possible if procurement of the raw materials was not easily accessible for everyone, and that warfare provided the necessary circumstances required for such exclusivity. The model presented in this dissertation could be improved if the different phenomena involved (warfare, centralization of luxury goods production, social inequalities in grave goods) were dated more closely. Such exercise however, can hardly be done at the site due to difficulties obtaining permissions to excavate and the continuous looting activities that make it hard to find undisturbed features related to social inequalities. Culturally-related cemeteries so far excavated may provide some clues regarding the phenomena mentioned. For example, dating the unusual, collective grave in the El Estadio could be helpful in determining the time conflict emerged. Dating graves with unusual quantities of greenstone beads may also be an indication of the period when their production and distribution was monopolized. Information regarding the degree of centralized production of decorated ceramics is currently lacking. Petrographic analysis of decorated ceramics from Malagana and nearby sites could give clues about the use of these objects in the political economy of Malagana society.

Aside from technical aspects like dating, the political and economic relationships between the communities of Malagana and nearby villages are currently unclear. Greenstone beads, rock crystal beads, and *alcarrazas* have all been found in cemeteries, some of which were used for long periods of time. These cemeteries, located approximately 7-9 km from Malagana, share a certain cultural affinity between them. There is no information regarding the size of the residential sector of these sites, if they had any defensible architecture, or when production activities were carried out at these sites. Therefore, in order to understand activities inside these sites, proper localization of them is necessary. A full systematic survey of the area surrounding the site of Malagana would provide information on the character of the relationships between these sites (whether they were hierarchical) and how these regional relationships varied through time, as well as improve notions regarding the characteristics of warfare in the region through the identification of buffer zones and settlement nucleation.

APPENDIX A

CERAMIC STYLES

A.1 EARLY EL BOLO PERIOD DECORATED CERAMIC STYLES

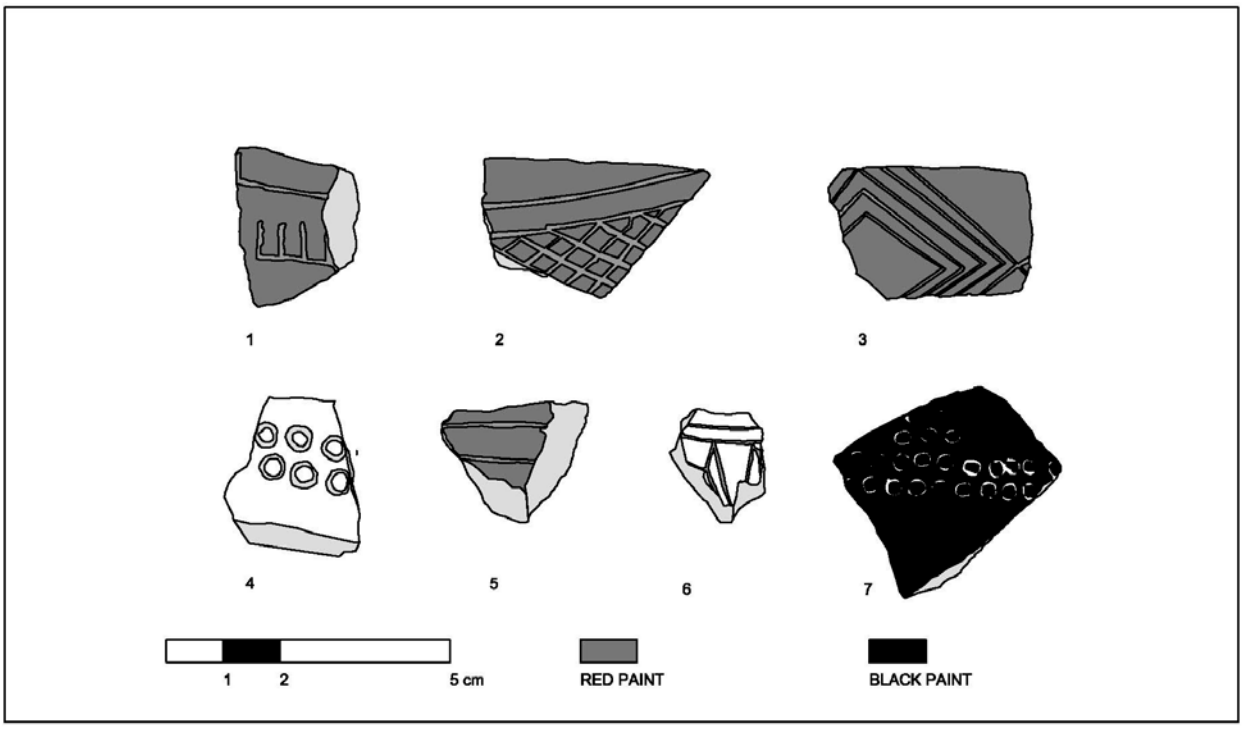

Figure A-1 1. Incised. 2. Zone incised cross-hatched. 3. Rhomboid parallel incised. 4. Annular impressions. 5. Linear parallel incised. 6. Incised. 7. Annular impressions.

A.2 LATE EL BOLO PERIOD DECORATED CERAMIC STYLES

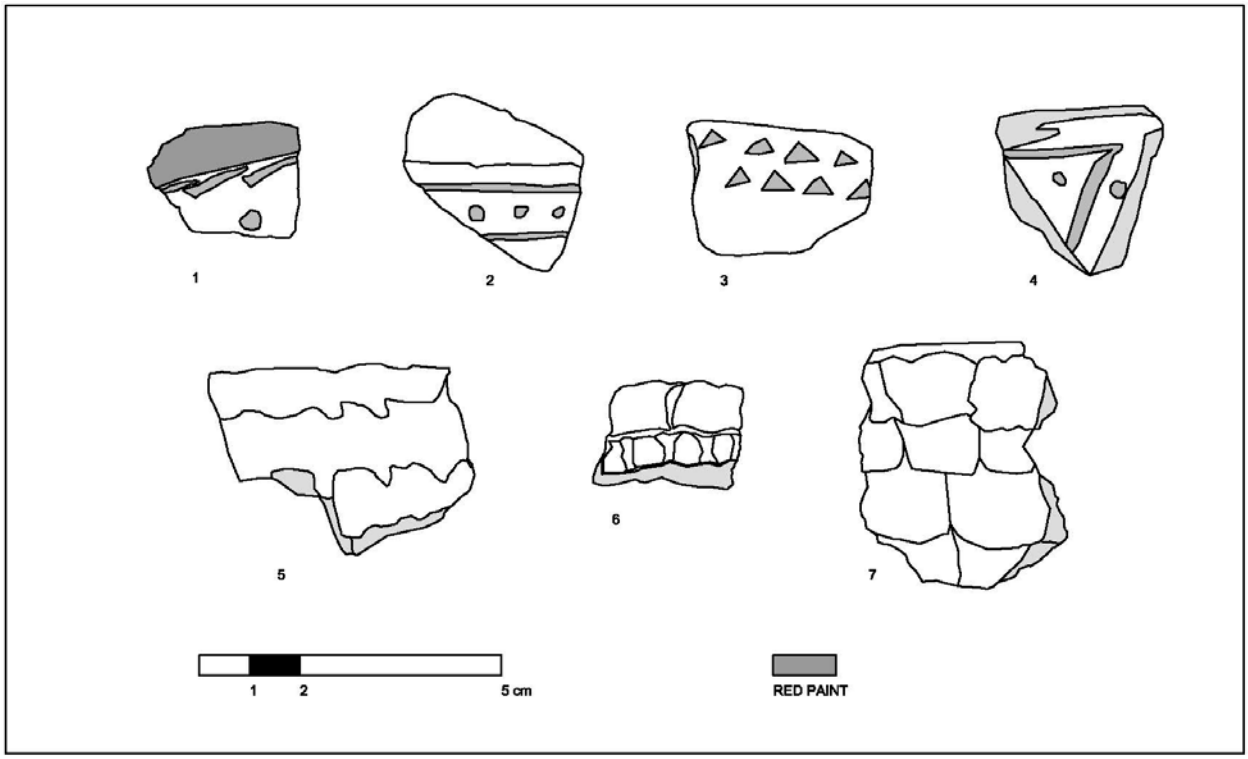

Figure A-2 1. Finger-nail impression. 2. Parallel impression. 3. Triangle impression. 4. Linear incision and circular impression. 5., 6. and 7. *Corrugado*.

APPENDIX B

TYPES OF ARTIFACTS FOUND IN THE SYSTEMATIC SURFACE SURVEY

B.1 GOLD AND GREENSTONE ARTIFACTS PRODUCTION

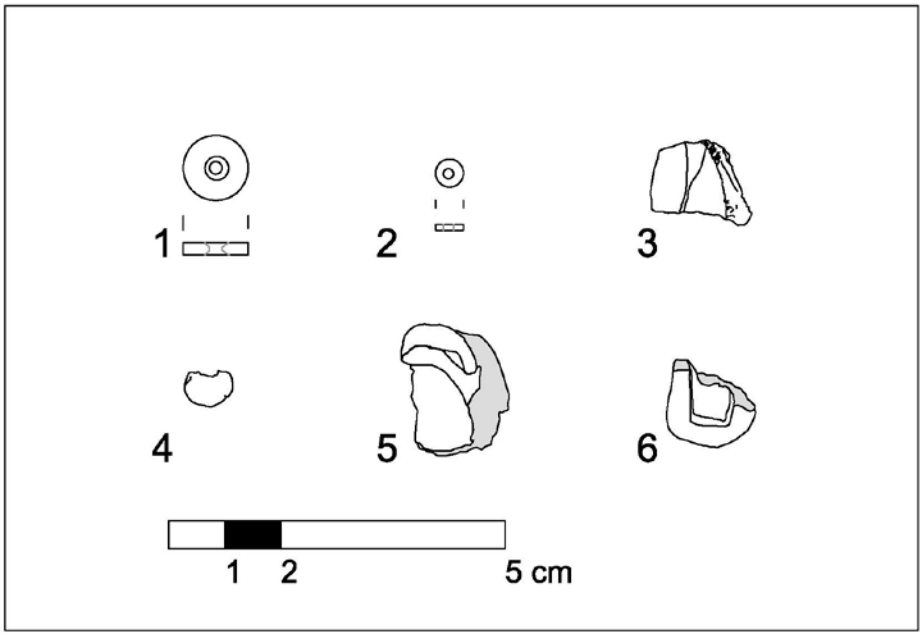

Figure B-1 1. and 2. Greenstone beads. 3. Greenstone debitage. 4. Gold off-cut. 5. and 6. Crucibles.

B.2 SYMBOLICALLY CHARGED ARTIFACTS

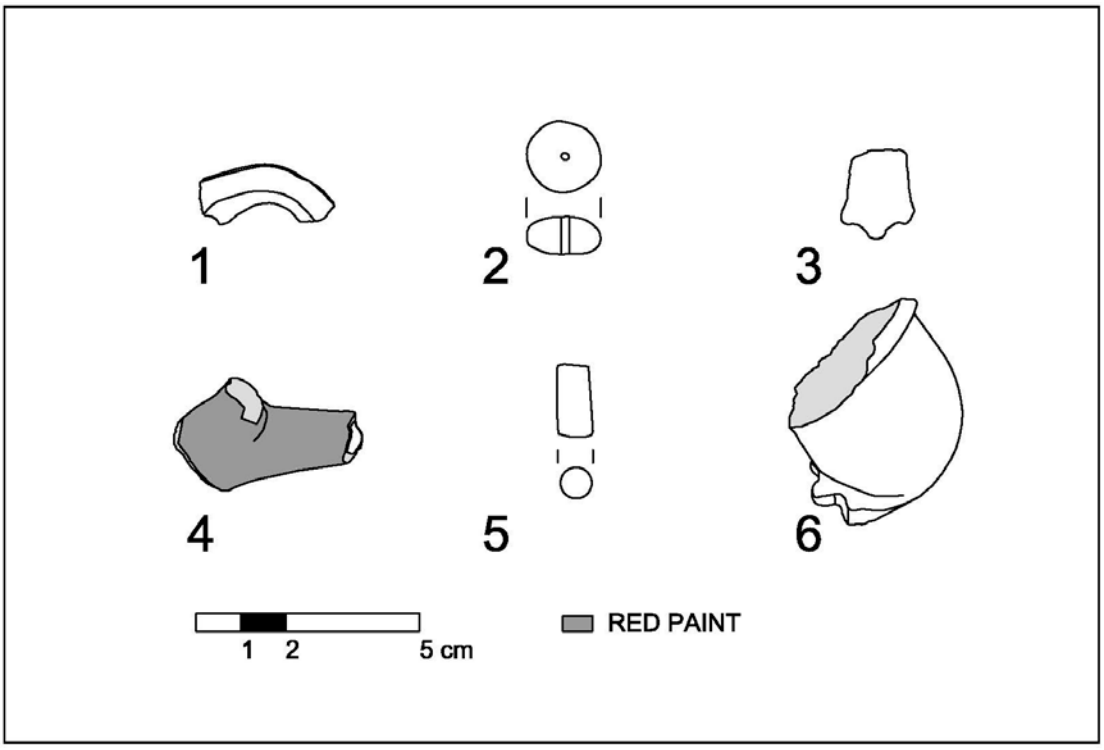

Figure B-2 1. *Alcarraza* handle. 2. Rock crystal bead. 3. Hand of a ceramic figurine. 4 *Alcarraza* spout. 5. Greenstone tubular artifact. 6.Foot of a ceramic figurine.

B.3 WEAPONRY

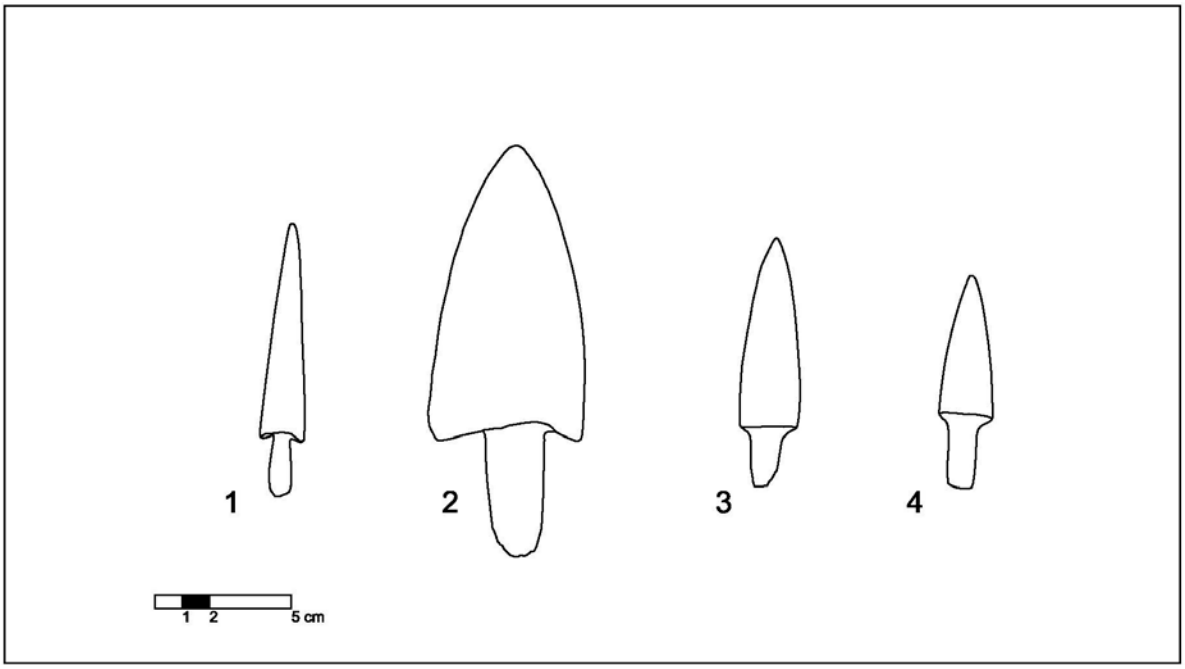

Figure B-3 1. Bone point. 2. Ornamental stone point. 3. and 4. Ornamental stone points or polished stone tools. The entire set of artifacts represented above are maintained by the *Fundación Cultural Malagana*.

B.4 OTHER STONE TOOLS

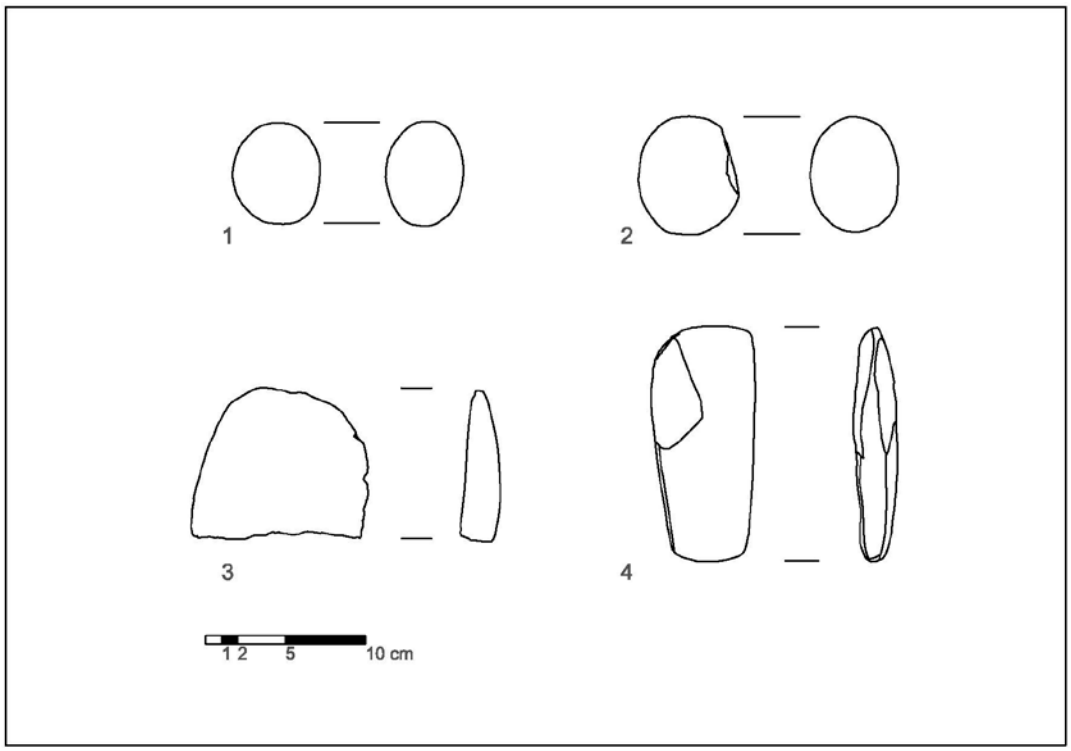

Figure B-4 1. and 2. Polished stone tools. 3. Axe. 4. Celt.

B.5 *OLLA* RIM TYPES

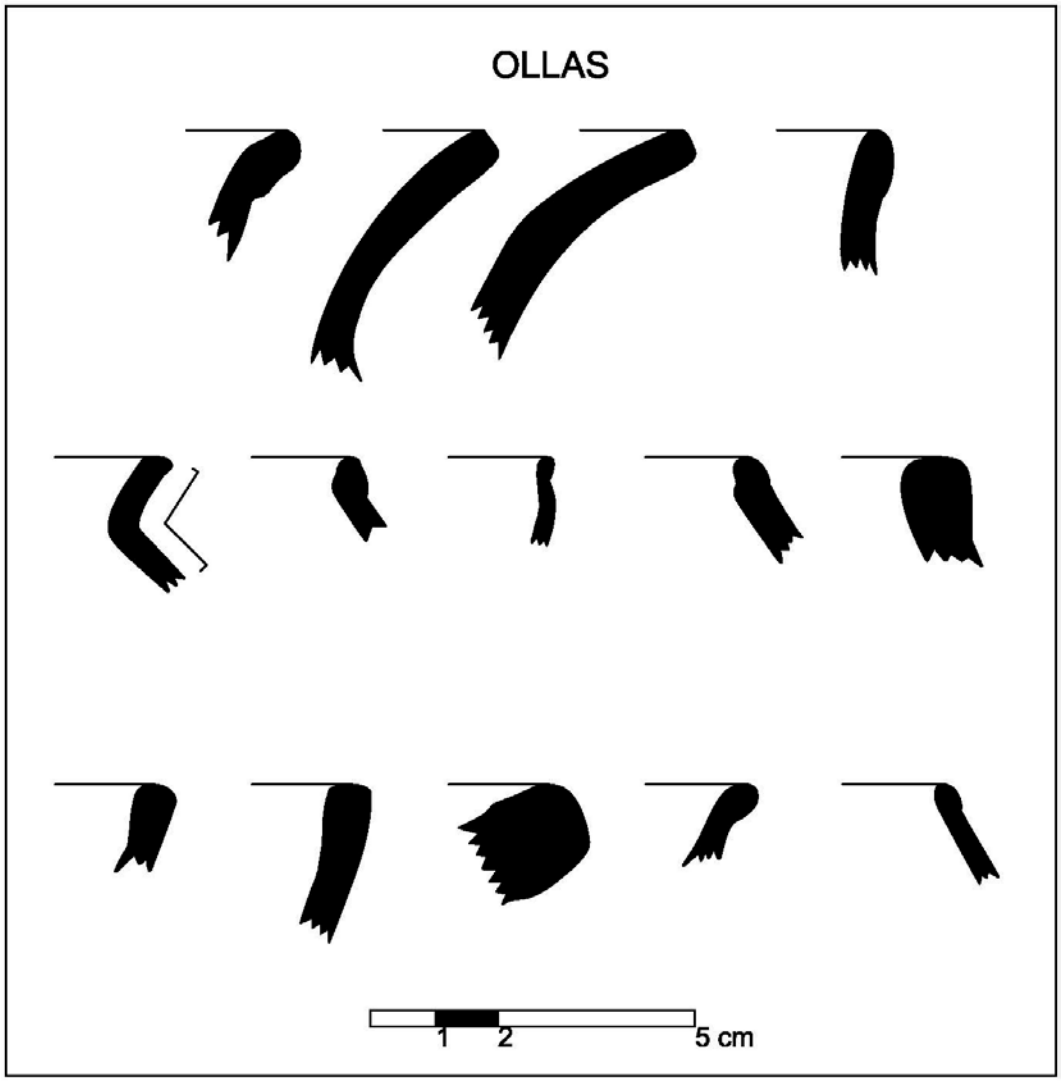

Figure B-5 ***Ollas rim types***

B.6 BOWL AND PLATE RIM TYPES

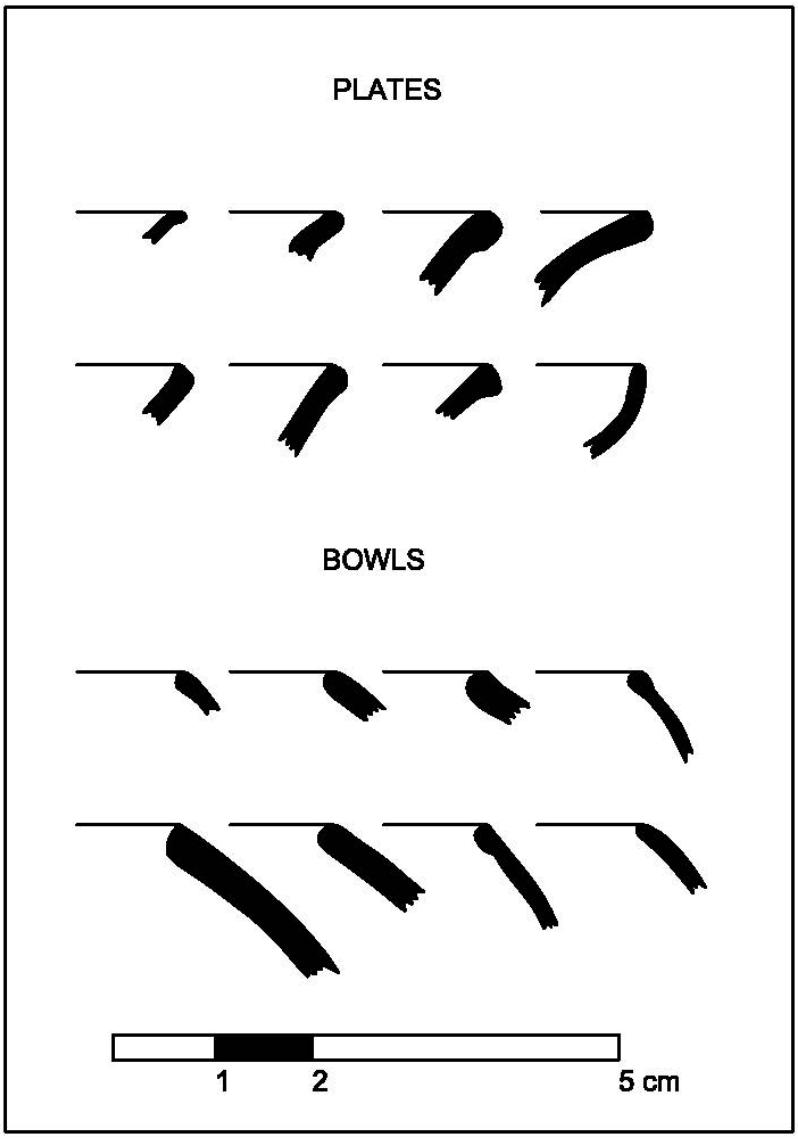

Figure B-6 Bowl and plate rim types

APPENDIX C

LOOTED ARTIFACTS FROM MALAGANA

C.1 GOLD ARTIFACTS FROM THE WEALTHIEST GRAVE AT MALAGANA

Figure C-1 Artifacts that may have been looted from Malagana. They would belong to the wealthiest tomb. Photo courtesy of *Fundación Cultural Malagana.*

APPENDIX D

DATA SET

The Malagana site data collected and analyzed for this dissertation is available on-line in the University of Pittsburgh's Comparative Archaeology Database. It can be downloaded from the following URL: http://www.cadb.pitt.edu/. This data set consists of the spatial coordinates for the collection units, the number of collection units by collection lots, and artifact counts by type (ceramic and lithic). If data is not available it can be requested via e-mail to cadb@pitt.edu.

BIBLIOGRAPHY

Adams, Ron

2004 An ethnoarchaeological study of feasting in Sulawesi, Indonesia. *Journal of Anthropological Archaeology*. 24: 56-78.

Aldenderfer, Mark.

2010 Gimme that old time religion: rethinking the role of religion in the emergence of social inequality. In *Pathways to power. Fundamental issues in archaeology*, edited by Douglass Price and Gary Feinman, pp. 77-94. Springer. Tucson.

Allen, Mark

2006 Transformations in Maori warfare: Toa, Pa, and Pu. In *The archaeology of warfare. Prehistories of raiding and conquest*, edited by Elizabeth Arkush and Mark Allen, pp. 184-213. University of Florida Press. Gainesville.

2008 Hillforts and the cycling of Maori chiefdoms: Do good fences make good neighbors? In *Global perspectives on the collapse of complex systems*, edited by J. Railey and R. Martin, pp. 65-81. Maxwell Museum of Anthropology. Albuquerque.

Alt, Susan.

1999 Spindle whorls and fiber production at early Cahokian settlement. *Southeastern Archaeology*.18:124-33.

Ames, Kenneth

1995 Chiefly power and household production on the northwest coast. In *Foundations of Social Inequality*, edited by Douglas Price and Gary Feinman, pp. 155-187. Plenum Press. New York.

2008 The Archaeology of Rank. In *Handbook in archaeological theories*, edited by Alexander Bentley, Herbert D.G. Maschner, and Christopher Chippindale, pp. 487-513. Altamira Press. Lanham.

Archila, Sonia

1996 *Los Tesoros de los Señores de Malagana.* Museo del Oro- Banco de la República. Bogotá.

Arnold, Phillip and Robert Santley
2003 Household ceramics production at middle classic period Matacapan. In *Prehistoric domestic units in western Mesoamerica: studies of the household, compound, and residence*, edited by Robert Santley and Kenneth Hirth, pp. 227-247. CRC Press. Boca Ratón.

Arkush, Elizabeth
2011 *Hillforts of the ancient Andes. Colla warfare, society, and landscape*. University Press of Florida. Gainesville.

Arkush, Elizabeth and Charles Stanish
2005 Interpreting conflict in the ancient Andes. Implications for the archaeology of warfare. *Current Anthropology*. 46: 3-28.

Bandy, Matthew
2004 Fissioning, scalar stress, and social evolution in early village societies. *American Anthropologist*. 106: 322-33.

Barber, E.J.
1991 *Prehistoric textiles. The development of cloth in the Neolithic and Bronze ages.* Princeton University Press. Princeton.

Beck, Margaret and Matthew Hill
2004 Rubbish, relatives, and residence: the family use of middens. *Journal of Archaeological Method and Theory*. 11: 297-333.

Bernardini, Wesley
2004 Hopewell geometric earthworks: a case study in the referential and experiential meaning of monuments. *Journal of Anthropological Archaeology*. 23: 331-356.

Berryman, Carrie
2007 Captive sacrifice and trophy taking among the ancient Maya: an evaluation of the bioarchaeological evidence and its sociopolitical implications. In *The taking and displaying of human body parts as trophies by Amerindians*, edited by Richard Chacon and David Dye, pp. 377-399. Springer. New York.

Binford, Lewis
1981 Behavioral archaeology and the 'Pompeii premise'. *Journal of Anthropological Research*. 37:195-208.

Bird, M; C. Turney, L. Fifield, R. Jones, L. Ayliffe, A. Palmer, R. Cresswell and S. Robertson
2002 Radiocarbon analysis of the early archaeological site of Nauwalabila I, Arnhem Land, Australia: implications for sample suitability and stratigraphic integrity. *Quaternary Science Review*. 21: 1061-1075.

Blanco, Sonia

2011 La variabilidad fúnebre como expresión del cambio social en la población prehispánica del valle geográfico del río Cauca entre el 1200 a.C. y el 700 d.C. Master Thesis, Departmento de Antropología, Universidad Nacional de Colombia. Bogotá.

Blanco, Sonia and Maria González

2002 *La sociedad Malagana y su comportamiento frente a la muerte. Caso Santa Bárbara. Palmira. Conference Paper*. II Congreso of Arqueología in Colombia.

2003 *Un caso de ingeniería hidráulica prehispánica en el sur del Valle geográfico del rio Cauca. Estadio del Deportivo Cali- Palmira. Conference Paper*. X Congreso of Antropología en Colombia.

Blanco, Sonia, Maria Gónzalez, and Gustavo Cabal

2004 *Un cementerio prehispánico temprano en inmediaciones del estadio Deportivo Cali. Monitoreo arqueológico durante la cimentación de la tribuna oriental. Palmaseca, Palmira- Valle del Cauca. Informe final.* Instituto de Investigaciones Científicas del Valle del Cauca, INCIVA. Cali.

Blanco, Sonia; José Rodríguez Cuenca and Gustavo Cabal

2007 Asentamientos prehispánicos tempranos. In *Territorio ancestral, rituales funerarios y chamanismo en Palmira prehispánica, Valle del Cauca*, edited by José Rodríguez Cuenca, pp. 61-80. Universidad Nacional de Colombia. Bogotá.

Blanton, Richard

1983. Factors underlying the origin and evolution of market systems. In *Economic anthropology: topics and theories*, edited by Sutti Ortiz, pp. University Press of America. Lanham.

1994 *Houses and households: a comparative study*. Plenum Press. New York.

Blanton, Richard, Gary Feinman, Stephen Kowalewski and Peter Peregrine

1996 A Dual-Processual Theory for the Evolution of Mesoamerican Civilization. *Current Anthropology*. 37:1-14.

Blick, Jeffrey

1993 Social differentiation in the Regional Classic period (A.D. 1-900) in the Valle de la Plata, Colombia. PhD. Diss., University of Pittsburgh.

Boada, Ana

2007 *The Evolution of Social Hierarchy in a Muisca Chiefdom of the Northern Andes of Colombia.* Memoirs in Latin American Archaeology 17. Pittsburgh: University of Pittsburgh Latin American Archaeology Publications.

2009 La Producción de textiles de algodón en la política económica de los cacicazgos muiscas de los andes colombianos. In *Economía, prestigio y poder*, edited by Carlos Sánchez, pp. 272-313. Instituto Colombiano de Antropología e Historia. ICANH. Bogotá.

Boserup, Ester
1965 *The conditions of agricultural growth*. Aldine. Chicago.

Botero, Pedro
1999. Los suelos de Malagana. *Boletín de Arqueología*. 14: 95-102.

Botiva, Alvaro and Eduardo Forero
1993 Malagana y la fiebre del oro; la destrucción de la evidencia cultural. *Revista Procaña*. 23: 32-3.
1995 Malagana Guaquería vs Arqueología. *Boletín Museo del Oro*. 31: 125-129.

Bray, Tamara
2001 Skeuomorphos, conchas de cerámica en los Andes septentrionales: ideología, emulación e intercambio a larga distancia. *Revista de Arqueología del Área Intermedia*. 3: 11-24.

Bray, Warwick
1989 Cerámica Buga: Reevaluación. *Boletín del Museo del Oro*. 24:103-119.
2000 Malagana and the goldworking tradition of southwest Colombia. In *Precolumbian gold, technology, style and iconography*, edited by Colin McEwan, pp. 94-111. British Museum Press. London.
2005 Craftsmen and Farmers. The archaeology of the Yotoco Period. In *Calima and Malagana. Art and Archaeology in Southwestern Colombia*, edited by Marianne Cardale, pp. 98-139. Fundación Pro-Calima. Bogotá.

Bray, Warwick; Marianne Cardale, Leonor Herrera, Anne Legast, Diogenes Patiño, and Carlos Rodríguez.
2005. Lords of the Marshes. The Malagana people. In *Calima and Malagana. Art and archaeology in southwestern Colombia*, edited by Marianne Cardale, 141-201. Fundación Pro-Calima. Bogotá.

Bray, Warwick; Leonor Herrera and Marianne Cardale
1998 The Malaga Chiefdom, a New Discovery in the Cauca Valley of Southwestern Colombia. In *Shamans, Gods, And Mythic Beast: Colombian Gold And Ceramics in Antiquity*, edited by Armand Labbe, pp. 121-160. The American Federation of Arts and University of Washington Press. New York.

Brown, Antony
1997 *Alluvial geoarchaeology: floodplain archaeology and environmental change*. Cambridge University Press. Cambridge.

Brown Vega, Margaret and Nathan Craig
2009 New experimental data on the distance of sling projectiles. *Journal of Archaeological Science*. 36: 1264-8.

Brumfiel, Elizabeth and Timothy Earle
1987 Specialization, Exchange, and Complex Societies: An Introduction. In *Specialization, Exchange, and Complex Societies*, edited by Elizabeth Brumfiel and Timothy Earle, pp. 1-9. Cambridge University Press. Cambridge.

Cabal, Gustavo
2006 Heterogeneidad y Centralización en la Suela Plana del Valle del Cauca: El Cementerio Prehispánico de Coronado. Undergraduate Thesis, Department of Anthropology, Universidad del Cauca. Popayán.

Carcedo, Paloma
1998 Instrumentos líticos y de metal utilizados en la manufactura de piezas metálicas conservadas en los museos. *Boletín Museo del Oro*. 44-45: 238-270.

Cardale, Marianne
2005 The people of the Ilama period. In *Calima and Malagana. art and archaeology in southwestern Colombia*, edited by Marianne Cardale, 36-97. Pro-Calima Foundation. Bogota.

Cardale, Marianne; Leonor Herrera and Carlos Rodríguez
1995 *Informe Proyecto Malagana. Informe final.* Instituto de Investigaciones Científicas de Valle del Cauca, INCIVA. Ms. Bogotá.

Cardale, Marianne; Leonor Herrera, Carlos Rodríguez and Yolanda Jaramillo
1999 Rito y ceremonia en Malagana. *Boletín de Arqueología*. 14: 3- 109.

Carneiro, Robert
1970 A Theory of the origin of the state. *Science*.169: 733-738.
1979 Forest clearance among the Yanomamo, observations and implications. *Antropologica*. 52: 39-76.
1981 The Chiefdom: Precursor to the State. In *The Transition to Statehood in the New World*, edited by Grant Jones and Robert Kautz, pp. 37-75. Cambridge University Press. Cambridge.
1990 Chiefdom-level Warfare as Exemplified in Fiji and the Cauca Valley. In *The Anthropology of War*, edited Jonathan Haas, pp. 190-211. Cambridge University Press. Cambridge.
1991 The Nature of the Chiefdom as revealed by Evidence from the Cauca Valley of Colombia. In *Profiles in Cultural Evolution*, edited by Terry Rambo and Kathleen Gillogly, pp. 167-190. University of Michigan Museum of Anthropology, Anthropological Papers No 85. Ann Arbor.
1998 What Happened at the Flashpoint? Conjectures on Chiefdom Formation at the Very Moment of Conception. In *Chiefdoms and Chieftaincy in the Americas*, edited by Elsa Redmond, pp. 18-42. University Press of Florida. Gainesville.

Chacon, Richard and David Dye
2007 Introduction to human trophy taking: an ancient and widespread practice. In *The taking and displaying of human body parts as trophies by Amerindians*, edited by Richard Chacon and David Dye, pp. 5-31.Springer. New York.

Chapman, John
1999 The origins of warfare in the prehistory of Central and Eastern Europe. In *Ancient Warfare*, edited by M. Dobres and J. Robb, pp. 101-42. Stroud. Sutton.

Cieza de León, Pedro
1984 *La Crónica del Perú.* Raycar. Madrid.

Clarke, Michael
2001 Akha feasting: an ethnoarchaeological perspective. In *Feasts. Archaeological and Ethnographic Perspectives on Food, Politics, and Power*, edited by Michael Dietler and Brian Hayden, pp. 144-167. The University of Alabama Press. Tuscaloosa.

Clark, John and Michael Blake
1994 The Power of Prestige: Competitive Generosity and the Emergence of Rank Societies in Lowland Mesoamerica. In *Factional Competition and Political Development in the New World*, edited by Elizabeth Brumfiel and John Fox, pp. 17-30. Cambridge University Press. Cambridge.

Clark, John and William Parry
1990 Craft specialization and cultural complexity. *Research in Economic Anthropology*. 12:289–346.

Cobb, Charles
1996 Specialization, exchange, and power in small-scale societies and chiefdoms. *Research in economic anthropology*. 17: 251-94.

Coles, John
1973 *Archaeology by experiment.* Cherles Scribner's son. New York.

Correal, Gonzalo; Leonor Herrera, Marianne Cardale and Carlos Rodríguez
2003 Estudio de los restos humanos y de fauna del sitio arqueológico Hacienda Malagana. *Revista de Arqueología del Area Intermedia*. 5: 179-238.

Costin, Cathy
1991 Craft Specialization: Issues in Defining, Documenting, and Explaining the Organization of Production. *Journal of Archaeological Method and Theory*. 3: 1-56.

Costion, Kirk
2009 Huaracane social organization: Change over time at the prehispanic community of Yahuay Alta, Perú. PhD. Dissertation. University of Pittsburgh. Pittsburgh.

Cubillos, Julio
1984 *Arqueología del Valle del Río Cauca. Asentamientos prehispánicos en la suela plana del Río Cauca*. FIAN. Bogotá.

D'Altroy, Terence and Timothy Earle
1985 Staple Finance, Wealth Finance, and Storage in the Inka Political Economy. *Current Anthropology*. 26: 187-206.

DeBoer, Warren and Donald Lathrap
1979 The making and breaking of Shipibo-Conibo ceramics. In *Ethnoarchaeology: implications of ethnography for archaeology,* edited by Carol Kramer, pp. 102-38. Columbia University Press. New York.

Demarest, Arthur
1992 Archaeology, ideology, and pre-columbian cultural evolution. The search for an approach. In *Ideology: and pre-Columbian civilizations*, edited by Arthur A. Demarest and Geoffrey W. Conrad, pp. 1-13. School of American Research Press. Santa Fe.

DeMarrais, Elizabeth, Luis Castillo and Timothy Earle
1996 Ideology, Materialization, and Power Strategies. *Current Anthropology*. 37: 15-31.

Dietler, Michael
1996 Feasts and Commensal Politics in the Political Economy: Food, Power and Status in Prehistoric Europe. In *Food and the status quest. An interdisciplinary perspective*, edited by Polly Wiessner and Wulf Schiefenhovel, pp. 87-126. Berghahn. Oxford.

Dietler, Michael and Brian Hayden
2001 Digesting the Feast- Good to Eat, Good to Drink, Good to Think: An Introduction. In *Feasts. Archaeological and Ethnographic Perspectives on Food, Politics, and Power,* edited by Michael Dietler and Brian Hayden, pp. 1-22. The University of Alabama Press. Tuscaloosa.

Dillehay, Tom
1995 Introduction. In *Tombs for the living: Andean mortuary practices,* edited by Tom Dillehay, pp. 1-26. Dumbarton Oask Research Library and Collection. Washington D.C.

Douglass, John
2002 *Hinterland households. Rural agrarian household diversity in northwest Honduras.* University Press of Colorado. Boulder.

Drennan, Robert
1996 *Statistics for archaeologists: A common sense approach*. Kluwer Academic/Plenum Publishers. New York.
2000 *Las Sociedades Prehispánicas del Alto Magdalena*. Instituto Colombiano de Antropología e Historia. Bogotá.

2008 Chiefdoms of Southwestern Colombia. In *Handbook of South American Archaeology*. edited by Helaine Silverman and William Isbell, pp. 381-403. Springer. New York.

Drennan, Robert and Ana Boada
2006 Demographic Patterns. In *Prehispanic Chiefdoms in the Valle de la Plata,* Volume 5. Universtiy of Pittsburgh Memoirs in Latin American Archaeology 16, edited by Robert Drennan, 59-81. University of Pittsburgh Latin American Archaeology Publications. Pittsburgh.

Drennan, Robert and Dale Quattrin
1995 Patrones de Asentamiento y Organización Sociopolítica en el Valle de la Plata. In *Perspectivas Regionales en la Arqueología del Sur-occidente de Colombia y Norte del Ecuador*, edited by Cristobal Gnecco, pp. 85-108. Universidad del Cauca. Popayán.

Drennan, Robert and Christian. Peterson
2006 Patterned Variation in Prehistoric Chiefdoms. *Proceedings of the National Academy of Sciences*. 103: 3960–3967.

Drennan, Robert; Christian Peterson, Gregory Indrisano, Teng Mingyu, Gideon Shelach, Zhu Yanping, Katheryn Linduff and Guo Zhizhong
2003 Approaches to regional demographic reconstruction. In *Regional archaeology in Eastern Inner Mongolia: A methodological exploration*, edited by Chifeng International Collaborative Project, pp. 152-165. Kexue Chubanshe. Beijing.

Earle, Timothy
1987 Chiefdoms in Archaeological and Ethnohistorical Perspectives. *Annual Review of Anthropology*. 16: 279-308.
1997 *How Chief Come to Power: The Political Economy in Prehistory*. Stanford University Press. Stanford.

Eckert, Georg
2002 La Cacería de Cabezas. In *Guerreros y Caníbales del Valle del Cauca*, edited by. Mario González Restrepo. Fondo de Promoción de la Cultura Banco Popular. Universidad de los Andes – CESO. Bogotá.

Erasmus, Charles
1965 Monument building: some field experiments. *Southwestern Journal of Anthropology*. 21: 277-301

Erickson, Clark
2010 The transformation of environment into Landscape: the historical ecology of monumental earthwork construction in the Bolivian Amazon. *Diversity*. 2: 618-652.

Feinman, Gary
1995 The Emergence of Inequality. A focus on strategies and processes. In *Foundations of Social Inequality*, edited by Douglas Price and Gary Feinman, pp. 255-279. Plenum Press. New York.

Feinman, Gary and Jill Neitzel
1984 Too Many Types: An Overview of Prestate Sedentary Societies in the Americas. In *Advances in Archaeological Method and Theory.* 7: 39-102.

Ferguson Brian
1992 A savage encounter. Western contact and the Yanomami war complex. In *War in the tribal zone. Expanding states and indigenous warfare*, edited by Brian Ferguson and Neil Whitehead, pp. 199-227. School of American Research Press. Santa Fe.

Flannery, Kent
1998 The ground plans of archaic states. In *Archaic states*, edited by Gary Feinman and Joyce Marcus, pp. 15-58. School of American Research Press. Santa Fe.
2009 Sampling by Intensive Surface Collection. In *The early Mesoamerican village*, edited by Kent Flannery, 51-62. Left Coast Press. Walnut Creek.

Flanney, Kent and Joyce Marcus
1993 Cognitive archaeology. *Archaeological Journal*. 3: 260-70.
2012 *The creation of inequality: how our prehistoric ancestors set the stage for monarchy, slavery, and empire*. Harvard University Press. Cambridge.

Fogelin, Lars
2007 The archaeology of religious ritual. *Annual Review of Religious Ritual*. 36: 55-71

Ford, John
1944 *Excavations in the vicinity of Cali, Colombia*. Yale University Publications in Anthropology, No 31. Yale University Press. New Haven.

Frankenstein, Susan and Michael Rowlands
1978 The internal structure and regional context of Early Iron Age society in south-western Germany. *Bulletin of the Institute for Archaeology*. 15:73-112.

Fraser, Douglas
1968 *Village planning in the primitive world*. Studio Vista. London.

Friedman, Jonnathan and Michael Rowlands
1977 Notes towards an epigenetic model of the evolution of 'civilisation'. In *The Evolution of Social Systems*, edited by Friedman, Jonnathan and Michael Rowlands, pp. 201-76. Duckworth. London.

Gähwiler, Theres
2005 A new lifestyle in the southwest. The beginnings of the Sonso tradition. In *Calima and Malagana. Art and archaeology in southwestern Colombia,* edited by Marianne Cardale, 202-23. Fundación Pro-Calima. Bogotá.

Gilman, Anthony
1981 The Development of Social Stratification in Bronze Age Europe. *Current Anthropology*. 22:1-23.
1991 Trajectories toward Social Complexity in the Later Prehistory of the Mediterranean. In *Chiefdoms: Power, Economy, and Ideology*, edited by Timothy K. Earle, pp. 146-168. Cambridge University Press. Cambridge.

Giraldo, Hernando
2007 Patrones de Asentamiento y Dinámicas de Población en El Alto Caquetá. Undergraduate Thesis. Department of Anthropology, Universidad del Cauca. Popayán.
2013 Cronología cerámica y cambio en la ocupación humana en el sur del valle geográfico del río Cauca, Colombia. *Arqueoweb*. 14: 96-118.

Gnecco, Cristobal
1996a Relaciones de Intercambio y Bienes de Elite entre los Cacicazgos del Suroccidente de Colombia. In *Caciques, Intercambio y Poder*, edited by Carl Langebaek and Felipe Cárdenas, pp. 175-199. Universidad de los Andes. Bogotá.
1996b Reconsideración de la complejidad social en el Suroccidente Colombiano. In *Dos lecturas críticas: Arqueología en Colombia*, pp. 43-74. Fondo de Promoción de la Cultura. Bogotá.
2006 Desarrollo Prehispánico desigual en el Suroccidente de Colombia. *In Contra la Tiranía Tipológica en Arqueología*, edited by Cristobal Gnecco and Carl Langebaek, pp. 191-214. Uniandes- CESO. Bogotá.

González, Victor
2007 *Prehispanic change in the Mesitas community: Documenting the development of a chiefdom's central place in San Agustín, Huila, Colombia*. Memoirs in Latin American Archaeology 18. University of Pittsburgh Latin American Archaeology Publications. Pittsburgh.

Haas, Jonathan
2001 Warfare and the evolution of culture. In *Archaeology at the millennium a sourcebook*, edited by Gary Feinman and Douglas Price, pp. 329-350. Springer. New York.

Hakansson, Thomas
1998 Rulers and rainmakers in precolonial South Pare, Tanzania: exchange and ritual experts in political centralization. *Ethnology*. 37:263-283.

Haller, Mikael
2008 *Asiento Viejo and the development of the Rio Parita chiefdom, Panama*. Memoirs in Latin American Archaeology 18. University of Pittsburgh Latin American Archaeology Publications. Pittsburgh.

Halperin, Christina; Ronald Bishop, Ellen Spensley and James Blackman
2009 Late Classic (A.D. 600-900) Maya market exchange: analysis of figurines from the Motul de San Jose region, Guatemala. *Journal of Field Archaeology*. 34: 457-480.

Hard, Robert; Jose E. Zapata, Bruce K. Moses, and John R. Roney
1999 Terrace Construction in Northern Chihuahua, Mexico: 1150 BC and Modern Experiments. *Journal of Field Archaeology*. 26:129-146.

Hawkins, Rebecca
1998 Coming full circle: Plowzone assemblages and the interpretation of fort ancient settlement structure. In *Surface Archaeology*, edited by A. Sullivan III, 91-109. University of New Mexico. Alburquerque.

Hayden, Brian
1995 Pathways to power. Principles for creating socioeconomic inequalities. In *Foundations of Social Inequality*, edited by Douglas Price and Gary Feinman, pp. 15-85. Plenum Press. New York
1996 Feasting in prehistoric and traditional societies. In *Food and the status quest. An interdisciplinary perspective*, edited by Polly Wiessner and Wulf Schiefenhovel, pp. 127-148. Berghahn. Oxford.
2001 Richman, Poorman, Beggarman, Chief: The Dynamics of Social Inequality. In *Archaeology at the Millenium. A Sourcebook*, edited by Gary Feinman and Douglass Price, pp. 231-272. Kluwer Academic/Plenum Publishers. New York.

Hayden, Bryan and Suzanne Villeneuve
2010 Who benefits from complexity? A view from Futuna. In *Pathways to power. Fundamental issues in archaeology*, edited by Douglas T. Price and Gary Feinman, pp. 95-145. Springer. Tucson.

Helms, Mary
1992 Thoughts on public symbols and distant domains relevant to the chiefdoms of Lower Central America. In *Wealth and Hierarchy in the Intermediate Area*, edited by Frederick Lange, pp. 317-330. Dumbarton Oaks Research Library and Collection. Washington D.C.

Henderson, Hope, and Nicholas Ostler
2005 Muisca settlement organization and chiefly authority at Suta, Valle de Leyva, Colombia: A critical appraisal of native concepts of house for studies of complex societies. *Journal of Anthropological Archaeology*. 24: 148-178.

Herrera, Leonor

2005 The Late Sonso Period and the Spanish Conquest. In *Calima and Malagana. Art and archaeology in southwestern Colombia*, edited by Marianne Cardale, pp. 224-256. Bogotá: Fundación Pro-Calima.

2007. La orfebrería Sonso. Aspectos formales y simbólicos. In: *Metalurgia en la América Antígua, Teoría, arqueología, simbología y tecnología de los metales prehispánicos*, edited by Roberto Lleras, pp. 215-245. Editorial Panamericana, Bogotá.

Herrera, Leonor and Marianne Cardale

2003 El Valle del Cauca prehispánico. *Revista de Arqueología del Área Intermedia.* 5:279-285.

Herrera, Leonor, Marianne Cardale and Sonia Archila

2007 *Coronado, un cementerio de la cultura Malagana. Excavaciones iniciales*. Bogotá: Fundación de Investigaciones Arqueológicas Nacionales.

Herrera, Leonor, Marianne Cardale and Warwick Bray

1994 Los sucesos de Malagana vistos desde Calima. Atando cabos en la arqueología del suroccidente colombiano. *Revista Colombiana de Antropología*. 31: 145-174.

Herrera, Leonor; Diógenes Patiño, Marianne Cardale, and Pedro Botero

2007 Las estructuras de tierra en la hacienda Malagana. *Revista de Arqueología del Área Intermedia*. 7: 9-38.

Hirth, Kenneth

1993 Identifying Rank and socioeconomic status in domestic contexts: an example from Central Mexico. In *Prehistoric domestic units in western Mesoamerica: studies of the household, compound, and residence,* edited by Robert Santley and Kenneth Hirth, pp. 121-146. CRC Press. Boca Ratón.

1998 The distributional approach: a new way to identify marketplace exchange in the archaeological record. *Current Anthropology*. 39: 451-476.

Hodder, Ian

1979 Economic and social stress and material culture patterning. *American Antiquity*. 44: 446-454.

Hranicky, Jack.

2002 *Lithic technology in the middle Potomac River Valley of Maryland and Virginia*. Kluwer Academic/Plenum Publishers. New York.

Jacobi, Keith

2007 Disabling the dead: human trophy taking in the prehistoric Southeast. In *The taking and displaying of human body parts as trophies by Amerindians*, edited by Richard Chacon and David Dye, pp. 299-338. Springer. New York.

Janusek, John W.
1999 Craft and Local Power: Embedded Specialization in Tiwanaku Cities. *Latin American Antiquity*. 10: 107-131.

Jaramillo, Luis
1995 Guerra y canibalismo en el Valle del Rio Cauca en la época de la conquista española. *Revista Colombiana de Antropología*. 32: 43-84.
1996 *Cacicazgos prehispánicos en el Valle de la Plata, tomo 3: la estructura socioeconómica de las comunidades del Formativo 3*. Memories in Latin American Archaeology 10. Pittsburgh: University of Pittsburgh Latin American Archaeology Publications.

Kantner, John
2010 Identifying the Pathways to Permanent Leadership. In *The Evolution of Leadership. Transitions in Decision Making from Small-Scale to Middle-Range Societies*, edited by Kevin Vaughn, Jelmer Eerkens and Kevin Kantner, pp. 249-282. School for Advanced Research Press. Santa Fe.

Keeley, Lawrence
1996 *War Before Civilization: The Myth of the Peaceful Savage*. Oxford University Press. New York.
2001 Giving war a chance. In D*eady landscapes. Case studies in prehistoric southwestern warfare*, edited by Glen Rice and Steven LeBlanc, pp. 331-342. The University of Utah Press. Salt Lake city.

Keeley, Lawrence; Marisa Fontan and Rusell Quick
2007 Baffles and bastions: the universal features of fortifications. *Journal of Archaeological Research*. 15: 55-95.

Kelekna, Pita
1998 War and Theocracy. In *Chiefdoms and Chieftaincy in the Americas*, edited by Elsa Redmond, pp. 164-188. University Press of Florida. Gainesville.

Killion, Thomas
1992 Residential ethnoarchaeology and ancient site structure: Contemporary farming and prehistoric settlement agriculture at Matacapan, Veracruz, Mexico. In *Gardens in Prehistory: The archaeology of settlement agriculture in Greater Mesoamerica*, edited by Thomas Killion, 119-149. The University of Alabama Press. Tuscaloosa.

Kirch, Patrick
1984 *The Evolution of Polynesian chiefdoms*. Cambridge University Press. Cambridge.

Knight, Vernon and Vincas Steponaitis
1998 A new history of Moundville. In *Archaeology of the Moundville chiefdom*, edited by Vernon Knight and Vincas Steponaitis, pp. 1-25. Smithsonian Institution Press. Washington.

Kosse, Krisztina
2001 Some regularities in human group formation and the evolution of societal complexity. *Complexity*. 6: 60-4.

Kruschek, Michael
2003 The evolution of the Bogotá chiefdom: A household view. PhD. Dissertation. University of Pittsburgh. Pittsburgh.

Langebaek, Carl
1987 *Mercados, poblamiento e integración étnica entre los Muiscas, siglo XVI*. Colección Bibliográfica, Banco de la República, Bogotá.
1993 Arte Precolombino-Culturas. In *Gran Enciclopedia de Colombia*. pp. 27-42. Círculo de Lectores. Bogotá.
1995 *Regional archaeology in the Muisca territory: a study of the Fúquene and Susa valleys*. University of Pittsburgh memoirs in Latin American archaeology No. 9. University of Pittsburgh. Pittsburgh.
1999 Pre-Columbian Metallurgy and Social Change. Two case studies from Colombia. In *Archaeology in Latin America*, edited by Gustavo Politis and B. Alberti, pp. 244-257. Routledge. London.
2000 Cacicazgos, Orfebrería y Política Prehispánica: Una Perspectiva desde Colombia. *Revista de Arqueología del Área Intermedia*. 2: 11-45.
2003 The political economy of pre-Colombian goldwork: four examples from Northern South America. In *Gold and power in Ancient Costa Rica, Panama, and Colombia*, edited by Jeffrey Quilter and John Hoopes, pp. 245-278. Dumbarton Oaks Research Library Collection. Washington D.C.

Langebaek, Carl and Emilio Piazzini
2003 *Procesos de Poblamiento en Yacuanquer-Nariño: Una Investigación Arqueológica sobre Micro verticalidad en los Andes Colombianos. Siglos X a XVIII d.C*. ISA-Uniandes. Bogotá.

Langebaek, Carl; Emilio Piazzini, Alejandro Dever and Ivan Espinoza
2002 *Arqueología y Guerra en el Valle de Aburrá: Estudio de Cambios Sociales en una región del Nor-occidente de Colombia*. IFEA-Uniandes. Bogotá.

Langebaek, Carl, Alejandro Dever and Jeffrey Blick
2001 Arqueología en Tierradentro: Cambios Sociales y Ocupación del Espacio. In *Territorios Posibles. Historia, Geografía y Cultura del Cauca*, edited by Gustavo Barona and Cristobal Gnecco, pp. 325-38. Universidad del Cauca. Popayan.

Lau, George
2010. Fortifications as Warfare Culture: the hilltop centre of Yayno (Ancash, Peru), AD 400-800. *Cambridge Archaeological Journal*. 20: 419-448.

LeBlanc, Steven
2004 *Constant Battles. Why We Fight*. St Martin's Griffin. New York.

2006 Warfare and the development of social complexity. In *The archaeology of warfare. Prehistories of raiding and conquest*, edited by Elizabeth Arkush and Mark Allen, pp. 437-468. University of Florida Press. Gainesville.

Legast, Anne
1995 Los símbolos animales de Malagana. *Boletín de Arqueología*. 10: 5-79.

Lewis, Brandon
1996 The role of attached and independent specialization in the development of sociopolitical complexity. *Research in Economic Anthropology*. 17: 357-88.

Liendo, Rodrígo
2002 *La organización de la producción agrícola en un centro Maya del clásico: patrón de asentamiento en la región de Palenque, Chiapas, México*. Instituto Nacional de Antropología e Historia México D.F.

Linares, Olga and Payson Sheets
1980 Highland agricultural villages in the Volcán Barú region. In *Adaptive radiations in prehistoric Panama*, edited by Olga Linares and Anthony Ranere, pp. 44-55. Peabody Museum Monographs, No 5, Harvard University. Cambridge.

Locascio, William
2010 Communal tradition and the nature of social inequality among the prehispanic households of El Hatillo (HE-4), Panamá. PhD. Dissertation. University of Pittsburgh. Pittsburgh.

Lohse, Jon
2007 Commoner ritual, commoner ideology: (sub-) alternate views of social complexity in prehispanic Mesoamerica. In *Commoner ritual and ideology in Ancient Mesoamerica*, edited by Nancy Gonlin and Jon Lohse. Pp. 1-32. University Press Colorado. Boulder.

López, Luis
2009 *Arqueología preventiva en el predio "Altamira", municipio de Palmira, Valle del Cauca. tumbas 1, 2, 3, 4 y 6. Informe parcial*. Instituto para la investigación y la preservación del patrimonio cultural y natural del Valle del Cauca. INCIVA. Cali.

Mann, Michael
2002 *The Sources of Social Power: A History of Power from the Beginning to AD 1760*. Cambridge University Press. Cambridge.

Mensforth, Robert
2007 Human trophy taking in eastern North America during the archaic period: the relationship to warfare and social complexity. In *The taking and displaying of human body parts as trophies by Amerindians*, edited by Richard Chacon and David Dye, pp. 222-277. Springer. New York.

Menzies, Adam
2009 Craft specialization and the emergence of the chiefly central place community of HE-4 (El Hatillo), Central Panama. PhD. Dissertation. University of Pittsburgh. Pittsburgh.

Morris, Ian
1992 *Death-ritual and social structure in classic antiquity*. Cambridge University Press. Cambridge.

Otterbein, Keith
1970 *The evolution of war. A cross-cultural study*. HRAF Press. New Haven.

Parker Pearson, Michael
1999 *The archaeology of death and burial*. Texas A&M University Press. College station.

Parry, John
1977 *Ring-ditch fortifications: ring-ditch fortifications in the Rewa Delta, Fiji: Air photo interpretation and analysis*. Bulletin of the Fiji Museum, No. 3. The Fiji Museum. Suva.

Patiño, Diógenes
2003 *Tumaco Prehispánico. Asentamiento, Subsistencia e intercambio en la Costa Pacífica de Colombia.* Universidad del Cauca. Popayán.

Patiño, Diógenes; Xiomara López and Martha Hernández
2010 *Excavaciones arqueológicas en la variante El Bolo, malla vial del Valle del Cauca y Cauca. Fase ii. Informe final.* Universidad del Cauca, Fundación General de Apoyo. Unión Temporal Desarrollo Vial del Valle del Cauca y Cauca.

Payne, Claudine
2000 Architectural reflections of power and authority in Mississippian towns. In *The dynamics of power*, edited by Maria O'Donovan, pp. 188-213. Ocassional Paer No. 30. Center for Archaeological Investigations, Southern Illinois University Carbondale. Carbondale.

Peterson, Christian
2006 "Crafting" Hongshan communities? Household archaeology in the Chifeng region of Eastern Inner Mongolia, PRC. Ph.D. Dissertation. University of Pittsburgh. Pittsburgh.

Peterson, Christian and Robert Drennan
2012 Patterned variation in regional trajectories of community growth. In *The comparative archaeology of complex societies*, edited by Michael Smith, pp- 88-137. Cambridge University Press. Cambridge.

Peterson, Christian and GIdeon Shlach
2012 Jiangzhai: Social and economic organization of a Middle Neolithic Chinese village. *Journal of Anthropological Archaeology*. 31: 265-301.

Pineda, Roberto
1987 Malocas de Terror y Jaguares Españoles: Aspectos de la Resistencia Indígena del Cauca ante la Invasión Española del Siglo XVI. *Revista de Antropología*. 3: 87-114.

Pinto, María and Héctor Llanos
1997 *Las industrias líticas de San Agustín*. Fundación de Investigaciones Arqueológicas Nacionales. Bogotá.

Plazas, Clemencia and Ana Falchetti
1983 Tradición Metalúrgica del Suroccidente Colombiano. *Boletín Museo del Oro*. 14: 1-32.

Potter, James
2000 Pots, Parties, and Politics: Communal Feasting in the American Southwest. *American Antiquity*. 65: 471-492.

Ramis Damia and Josep Alcover
2001 Bone needles in Mallorcan prehistory: a reappraisal. *Journal of Archaeological Science*. 28: 907-11

Redmond, Elsa
1994a External warfare and the internal politics of Northern South American tribes and chiefdoms. In *Factional competition and political development in the new world*, edited by Elizabeth Brumfiel and John Fox, pp. 44-54. Cambridge University Press. Cambridge.
1994b *Tribal and Chiefly Warfare in South America.* Memoirs of the Museum of Anthropology, University of Michigan. Ann Arbor.
1998 Introduction: the dynamics of chieftaincy and the development of chiefdoms. In *Chiefdoms and chieftaincy in the Americas*, edited by Elsa Redmond, pp. 1-17. University Press of Florida. Gainesville.
2002 The long and the short of a war leader's arena. In *The archaeology of tribal societies*, edited by William Parkinson, pp. 53-73. International Monographs in Prehistory. Ann Arbor.

Redmond, Elsa and Charles Spencer
2012 Chiefdoms at the threshold: The competitive origins of the primary state. *Journal of Anthropological Archaeology*. 31:22-37.

Reichel, Gerardo
1997 *Arqueología de Colombia. Un texto Introductorio*. Imprenta Nacional de Colombia. Bogotá.
2005 *Goldwork and Shamanism: an iconographic study of the Gold Museum of the Banco de la República,* Colombia Villegas Editores. Bogotá.

Robledo, Jorge
1993 [1540] Relacion de los subcedió en el descobrimyento de las provincias de Antiochia, Anserma y Cartago y cibdades que en ellas están pobladas por el s(eon)r Capita(n) Jorge Robledo. In *Relaciones y visitas a los Andes. Siglo XVI*, edited by Hermes Tovar, pp. 235-262.Tercer Mundo. Bogotá.

Rodríguez, Carlos
2002 *El Valle del Cauca Prehispánico*. Universidad del Valle – Fundación Taraxacum. Cali.
2007 *Alto y medio Cauca prehispánico*. Syllaba press. Miami.

Rodríguez, Carlos and Alexandra Bedoya
1999 Asentamientos prehispánicos tardíos en la Universidad del Valle. *Boletín de Arqueología*. 14: 1-73.

Rodríguez Carlos and Yolanda Jaramillo
1993 *Lo cotidiano y lo simbólico en el arte geométrico prehispánico del valle medio del rio Cauca (1000-1300 d.C.).* Instituto vallecaucano de investigaciones científicas. Cali.

Rodríguez, Carlos; Leonor Herrera and Marianne Cardale
1994 El proyecto arqueológico Malagana. *Boletín de Arqueología*. 8: 59-70.

Rodríguez, Carlos; Fernando Rey and Amparo Cuenca
2006 *El cacicazgo prehispánico de Guabas en el Valle del Cauca (700-1300 d.C.).* Universidad del Valle. Cali.

Rodríguez, Carlos; Orlando Zúñiga, Ramiro Cuero
2008 La Utilización de Métodos Geofísicos en la Prospección de un Poblado Prehispánico. Quimbaya Tardío I en Ginebra (Valle del Cauca, Colombia). *Boletín de Antropología.* 22: 295-313.

Rodríguez Cuenca, José
2005 *Pueblos, rituales y condiciones de vida prehispánicas en el Valle del Cauca*. Universidad Nacional de Colombia Bogotá.
2006 *Las enfermedades en las condiciones de vida prehispánica de Colombia*. Universidad Nacional de Colombia. Bogotá.

Rodríguez Cuenca, José; Sonia Blanco and Pedro Botero
2005 *Comunidad prehispánica de El Cerrito*, Valle del Cauca. Universidad Nacional de Colombia. Bogotá.

Rodríguez Cuenca, José; Sonia Blanco and Alexander Clavijo
2007 Asentamientos tardíos. In *Territorio ancestral, rituales funerarios y chamanismo en Palmira prehispánica, Valle del Cauca*, edited by José Rodríguez Cuenca, pp. 139-54. Universidad Nacional de Colombia. Bogotá.

Rodríguez Cuenca, José; Sonia Blanco and Carlos Rodríguez
2007 El desarrollo prehispánico del Valle del Cauca. In *Territorio ancestral, rituales funerarios y chamanismo en Palmira prehispánica, Valle del Cauca*, edited by José Rodríguez Cuenca, pp. 45-60. Universidad Nacional de Colombia. Bogotá.

Rodríguez-Flórez Carlos David and Sonia Colantonio
2013 Tumbas, dientes y cultura: 2.500 años de microevolución y los orígenes de las sociedades prehispánicas en la región arqueológica calima de Colombia, Sur América *Antropo*. 30: 13-32.

Roos, Christopher and Kevin Nolan
2012 Phosphates, plowzones, and plazas: a minimally invasive approach to settlement structure of plowed village sites. *Journal of Archaeological Science*. 39: 23-32.

Roscoe, Paul
2008 Settlement fortification in village and 'tribal' society: Evidence from contact-era New Guinea. *Journal of Anthropological Archaeology*. 27: 507-519.

Ross-Stallings, Nancy
2007 Trophy taking in the Central and Lower Mississippi valley. In *The taking and displaying of human body parts as trophies by Amerindians*, edited by Richard Chacon and David Dye, pp. 339-370. Springer. New York.

Saenz, Juanita; Marianne Cardale, Pedro Obando, Warwick Bray, Leonor Herrera, Augusto Jimenez, Chris Doherty, David Scott
2007 Tras las huellas de los orfebres: herramientas para la metalurgia en las sociedades temprana del valle del Cauca. In *Metalurgia en la America antigua, teoría, arqueología, simbología y tecnología de los metales prehispánicos*, pp. 363-408. Editorial Panamericana. Bogota.

Sahlins, Marshall
1972 *Stone age economics.* Aldine-Atherton. Chicago.

Salgado, Héctor; Carlos Rodríguez and Vladimir Bashilov
1993 *La vivienda prehispánica Calima*. Instituto Vallecaucano de Investigaciones científicas INCIVA. Cali.

Salomon, Frank
1987 A North Andean status trader complex under Inka rule. *Ethnohistory*. 34: 63-77.

Sánchez, Carlos
2000 Agricultura Intensiva, Dinámica de Población y Acceso Diferencial a la Tierra en el Alto Magdalena. *Revista de Arqueología del Área Intermedia*. 2: 69-98.

Schiffer, Michael
1987 *Formation processes of the archaeological record*. University of New Mexico Press. Alburquerque.

Service, Elman
1975 *Origins of the State and Civilization*. Norton. New York.

Shimada, Izumi and Jo Ann Griffin
1994 Precious metal objects of the middle Sican. *Scientific American*. 270:82-9.

Silva, Fabiola
2008 Ceramic technology of the Asurini do Xingu, Brazil: An ethnoarchaeological study of artifact variability. *Journal of Archaeological Method and Theory*. 15: 217-65.

Simón, Pedro
1981 *Noticias historiales de la conquista de tierra firme en las Indias Occidentales*. Banco Popular. Bogotá.

Smith, Michael
1987 Household possessions and wealth in agrarian states: implications for archaeology. *Journal of Anthropological Archaeology*. 6: 297-335.
2004 The archaeology of the ancient state economies. *Annual Review of Anthropology*. 33: 73-102.
2010 The archaeological study of neighborhoods and districts in ancient cities. *Journal of Anthropological Archaeological*. 29: 137-154.

Smith, Monica
1987 Inconspicuous consumption: non-display goods and identity formation. *Journal of Archaeological Method and Theory*. 14: 412-438.

Solometo, Julie
2006 The dimensions of war: conflict and culture change in central Arizona. In *The archaeology of warfare. prehistories of raiding and conquest*, edited by Elizabeth Arkush and Mark Allen, pp. 23-65. University Press of Florida. Gainesville.

Snow, Dean
2007 Iroquois-Huron Warfare. In *North American Indigenous Warfare and ritual Violence*, edited by Robert Chancón and Rúben Mendoza, pp.149-159. The University of Arizona Press. Tucson.

Spencer, Charles
1987 Rethinking the chiefdom. In *Chiefdoms in the Americas*, edited by Robert Drennan and Carlos Uribe, pp. 369-390. University Press of America. Lanham.

Spencer, Charles and Elsa Redmond
2000 Lightning and Jaguars. Iconography, ideology, and politics in Formative Cuicatlán, Oaxaca. In *Cultural Evolution: Contemporary viewpoints*, edited by Gary Feinman and Linda Manzanilla, pp. 145-175. Kluwer Academic/Plenum Press. New York.

Spencer, Charles, Elsa Redmond and Milagro Rinaldi
1994 Drained Fields at La Tigra, Venezuelan Llanos: A Regional Perspective. *Latin American Antiquity*. 5: 119-43.

Spielmann,Katherine
1998 Ritual craft specialists in middle range societies. In *Craft and social identity*, edited by Cathy Costin and Rita Wright, pp. 153-9. Archaeological papers, 8. American Anthropological Association. Arlington.
2002 Feasting, craft specialization, and the ritual mode of production in small-scale societies. *American Anthropologist*. 104: 195-207.

Steinberg, John
1996 Ploughzone sampling in Denmark: Isolating and interpreting site signatures from disturbed contexts. *Antiquity*. 70: 368-92.

Steponaitis, Vincas
1981 Settlement hierarchies and political complexity in nonmarket societies: the Formative period of the valley of Mexico. *American Anthropologist*. 83: 320-363.

Taussig, Michael
1977 The evolution of rural wage labour in the Cauca valley of Colombia, 1700-1970. In *Land and labour in Latin America: essays on the development of agrarian capitalism in the nineteenth and twentieth centuries*, edited by Kenneth Duncan, Ian Rutledge and Colin Harding, pp. 397-434. Cambridge University Press.

Taylor, Sarah
2011 Condition of social change at El Dornajo, southwestern of Ecuador. PhD Dissertation, Department of Anthropology, University of Pittsburgh.

Topic, John
1989 The Ostra site: the earliest fortified site in the new world? In *Cultures in conflict: current archaeological perspectives*, edited by D. Tkaczuk and B. Vivian, pp. 215-228. University of Calgary Archaeological Association. Calgary.

Trigger, Bruce
1990 Maintaining economic inequality in opposition to complexity: an Iroquoian case study. In *The evolution of political systems: sociopolitics in small scale sedentary societies*, edited by Steadman Upham, pp. 119-145. New York. Cambridge University Press.

Trimble, Stanley
1981 Changes in sediment storage in the Coon Creek Basin, Driftless area, Winconsin, 1853 to 1975. *Science*. 214: 181-3.

Trimborn, Hermann
2005 *Señorío y Barbarie en el Valle del Cauca. Estudio Sobre la Antigua Civilización Quimbaya y Grupos Afines del Oeste de Colombia*. Biblioteca del Gran Cauca. Popayán.

Twiss, Katheryn
2008 Transformations in an early agricultural society: Feasting in the southern Levantine Pre-Pottery Neolithic. *Journal of Anthropologcal Archaeology*. 27: 418-442.

Upham, Steadman; Kent Lightfood and Gary Feinman
1981 Explaining socially determined ceramic distributions in the prehistoric plateau southwest. *American Antiquity*. 46: 822-833.

Uribe, Maria
1991. La orfebrería Quimbaya tardía. Una investigación en la colección del Museo del Oro. *Boletín Museo del Oro*. 31: 31-124.
1995 Tendencias del Desarrollo Tardío de los Cacicazgos Andinos Colombianos. In *Perspectivas Regionales en la Arqueología del Sur-occidente de Colombia y Norte del Ecuador*, edited by Cristobal Gnecco, pp. 245-262. Universidad del Cauca. Popayán.

Uribe, María and Santiago Mora
1993 Colombia Prehispánica. In *Gran Enciclopedia de Colombia*, pp. 1-39. Círculo de Lectores. Bogotá.

Vaughn, Kevin
2010 Emergent Leadership in Middle Range Societies: An Example from Nasca, Peru. In *The Evolution of Leadership. Transitions in Decision Making from Small-Scale to Middle- Range Societies*, edited by Kevin Vaughn, Jelmer Eerkens and Kevin Kantner, pp. 147-168. School for Advanced Research Press. Santa Fe.

Vencl, Sl.
1984 War and warfare in Archaeology. *Journal of Anthropological Archaeology*. 3: 116-132.

Verano, John
2008 Trophy head-taking and human sacrifice in Andean South America. In *Handbook of South American Archaeology*, edited by Helaine Silverman and William H. Isbell, pp. 1047-60. Springer, New York.

Walker, Phillip
2001 A bioarchaeological perspective on the history of violence. *Annual Review of Anthropology*. 30: 573-96.

Wallace Anthony
1966 *Religion: An Anthropological View*. McGraw-Hill. New York.

Webster, David
1975 Warfare and the Evolution of the State: A Reconsideration. American. *Antiquity*. 40: 464-70.
1998 Warfare and Status Rivalry: Lowland Maya and Polynesian Comparisons. In *Archaic States*, edited by Gary Feinman and Joyce Marcus, pp. 311-352. School of American Research. Santa Fe.

Welch, Paul
1991*Moundville's economy*. University of Alabama Press. Tuscaloosa.
1996 Control over Goods and the Political Stability of the Moundville Chiefdom. In *Political Structure and Change in the Prehistoric Southeastern United States*, edited by John Scarry, pp. 69-91. University Press of Florida. Gainesville.

Wileman, Julie
2009 *War and rumours of war: The evidential base for the recognition of warfare in prehistory*. Bar International series 1984. Oxford.

Wilson, David
1988 *Prehispanic settlement patterns in the lower Santa Valley, Peru: a regional perspective on the origins and development of complex North Coast society*. Smithsonian Institution Press. Washington D.C.

York, Robert and Gigi York
2011 *Slings & slingstones: the forgotten weapons of Oceania and the Americas*. Kent State University Press. Kent.