


2015

Settlement History and Interaction in the Manialtepec Basin of Oaxaca's Central Coast

Victoria Menchaca
University of Central Florida

 Part of the [Archaeological Anthropology Commons](#)
Find similar works at: <https://stars.library.ucf.edu/etd>
University of Central Florida Libraries <http://library.ucf.edu>

This Masters Thesis (Open Access) is brought to you for free and open access by STARS. It has been accepted for inclusion in Electronic Theses and Dissertations, 2004-2019 by an authorized administrator of STARS. For more information, please contact STARS@ucf.edu.

STARS Citation

Menchaca, Victoria, "Settlement History and Interaction in the Manialtepec Basin of Oaxaca's Central Coast" (2015). *Electronic Theses and Dissertations, 2004-2019*. 1235.
<https://stars.library.ucf.edu/etd/1235>

SETTLEMENT HISTORY AND INTERACTION IN THE MANIALTEPEC BASIN OF
OAXACA'S CENTRAL COAST

by

VICTORIA LYNN MENCHACA
B.A. University of Texas

A thesis submitted in partial fulfillment of the requirements
for the degree of Master of Arts
in the Department of Anthropology
in the College of Sciences
at the University of Central Florida
Orlando, Florida

Summer Term

2015

Major Professor: Sarah Barber

©2015 Victoria Lynn Menchaca

ABSTRACT

As the focus of over 70 years' of archaeological research, Oaxaca, Mexico, is one of Mesoamerica's best understood regions. Yet, despite the volume of work in Oaxaca, information about one of its key resource areas, the central Pacific coast, remains limited. Specifically, the ambiguous role of Oaxaca's Central Coast in interregional relationships during pre-Hispanic times to the sites of Monte Albán and Tututepec has been a chronic problem and major source of debate for decades. The purpose of this thesis is to begin clarifying the role of Oaxaca's Central Coast in interregional networks and its pre-Hispanic history.

Analysis utilized surface observations, surface collections, and information from limited excavations performed by the Proyecto Arqueológico Laguna de Manialtepec (PALM) in the Manialtepec Basin, located on the Central Coast of Oaxaca. The data was then mapped using ArcGIS software to render settlement and artifact patterns. Based on the results of this project I suggest a history of settlement for this area. I also argue that the Basin contained three centers, maintained interregional interactions, and was invaded by the Mixtecs of highland Oaxaca during the Late Postclassic Period (A.D. 1200-1500).

ACKNOWLEDGMENTS

First, I would like to thank the National Geographic Society and the Waitt Foundation for funding the 2013 Proyecto Arqueologico Laguna Manialtepec, without their contributions this thesis would not have been possible. Next, I would like to sincerely thank Dr. Sarah Barber. Dr. Barber is an extremely supportive and fantastic advisor. She was always available to answer my many, many questions and continually provided the encouragement I needed to get the job done. I would also like to thank my thesis committee, John Walker and Arlen Chase. Finally, I wish to express my sincere gratitude to all of my family and friends for their support, especially my mother. Without the support and inspiration my mother has provided me none of this would have been possible.

TABLE OF CONTENTS

LIST OF FIGURES	vii
LIST OF TABLES	ix
CHAPTER 1: INTRODUCTION AND THEORY	1
Introduction.....	1
Theoretical Perspective on Interregional Interaction	4
Social Network Analysis.....	5
World Systems Theory	7
Peer-polity	11
Conclusion	13
CHAPTER 2: HISTORY AND GEOGRAPHY OF OAXACA	14
Introduction.....	14
Geography and the Environment	16
The Archaic Period	21
The Early Formative	23
The Middle Formative	29
The Late Formative.....	32
The Terminal Formative	37
The Classic Period	43

The Early Postclassic	49
The Late Postclassic.....	52
Summary	57
CHAPTER 3: METHODS AND RESULTS	60
Methods.....	60
Results.....	63
CHAPTER 4: DISSCUSSION AND CONCLUSIONS	102
Discussion	102
Settlement History	102
Political History and Interregional Interaction	104
Other Patterns.....	115
Conclusions.....	117
REFERENCES	125

LIST OF FIGURES

Figure 1: Map of Mexico	16
Figure 2: Map of the Regions of Oaxaca	17
Figure 3: The Manialtepec Basin	19
Figure 4: Late Formative Sherds	65
Figure 5: Terminal Formative Sherds	66
Figure 6: Early Classic Sherds	67
Figure 7: Late Classic gray-ware sherd	68
Figure 8: Early Postclassic orange-ware sherd	69
Figure 9: Late Postclassic Mixteca-Puebla polychrome sherd	70
Figure 10: Gralisa graphite-slipped red-ware	71
Figure 11: Late/Terminal Formative occupation and ceramic collections western side of the Manialtepec Basin	72
Figure 12: Late/Terminal Formative occupation and ceramic collections eastern side of the Manialtepec Basin	73
Figure 13: Bajos de Chila Presidencia Stela 1	75
Figure 14: Bajos de Chila Presidencia Stela 2	76
Figure 15: Bajos de Chila Stela 3	77
Figure 16: Early Classic occupation and ceramic collections western side of the Manialtepec Basin	79
Figure 17: Early Classic occupation and ceramic collections eastern side of the Manialtepec Basin	80

Figure 18: Late Classic occupation and ceramic collections western side of the Manialtepec Basin	82
Figure 19: Late Classic occupation and ceramic collections eastern side of the Manialtepec Basin	83
Figure 20: Hidalgo concentric circle carved stone	85
Figure 21: Parallel Alignment.....	87
Figure 22: Stela at Manialtepec 2	88
Figure 23: Stela 1 at Hidalgo Agencia.....	89
Figure 24: Stela 2 at Hidalgo Agencia.....	90
Figure 25: Stela 3 at Hidalgo Agencia.....	91
Figure 26: Early Postclassic occupation and ceramic collections western side of the Manialtepec Basin	92
Figure 27: Early Postclassic occupation and ceramic collections eastern side of the Manialtepec Basin	93
Figure 28: Late Postclassic occupation and ceramic collections western side of the Manialtepec Basin	94
Figure 29: Late Postclassic occupation and ceramic collections eastern side of the Manialtepec Basin	95
Figure 30: Isla Piedra Blanca Wall	97
Figure 31: Cerro de La Vieja Wall	98
Figure 32: Possible Historic Wall.....	100
Figure 33: View from Cerro de La Vieja.....	113

Figure 34: Ballcourt Locations in the Manialtepec Basin	116
Figure 35: Paths projected by the FETE model	120

LIST OF TABLES

Table 1: List of Archaeological Sites observed	63
--	----

CHAPTER 1: INTRODUCTION AND THEORY

Introduction

This thesis analyzes the results of the Proyecto Arqueológico Laguna de Manialtepec (PALM); an archaeological reconnaissance survey directed by Sarah B. Barber and carried out in the Manialtepec Basin on the Central Coast of Oaxaca, Mexico in the spring of 2013. I will examine diachronic change in settlement patterns, architecture, and artifacts from the Late Formative to the Late Postclassic Periods in order to assess the internal and external interactions affecting the Basin during its pre-Hispanic past. Based on my analysis, I propose that three important centers existed in the Basin and that towards the end of the pre-Hispanic era it was subjugated and possibly colonized by a foreign entity: the Mixtecs of Tututepec.

The Manialtepec Basin was chosen as the focus of research for two reasons: it was likely one of pre-Hispanic Oaxaca's key resource areas and it holds a unique position at the center of a larger debate regarding the influence of regional powers in Oaxaca. The Central Coast of Oaxaca was recorded by the Spanish as an area rich in resources (Joyce 2010) and it has been argued that these resources made it the target of expansionary efforts from interior highland valleys of Oaxaca (Balkansky 2002; Feinman and Nicholas 1990). The ambiguous role of Oaxaca's Central Coast in interregional relationships during pre-Hispanic times, specifically in regards to Monte Albán and Tututepec, has been a major source of debate for several years (Levine 2013; Joyce 2003; Marcus and Flannery 1996; Zeitlin and Joyce 1999; Joyce 1993, 2010). Lack of area research compounds this problem. The Oaxaca Coast Survey Project, a reconnaissance project directed by Donald Brockington in the 1970's, was the only prior archaeological research carried

out in this study area (Brockington et al. 1974; Barber and Menchaca 2013). With this thesis I aim to build a foundation for clarifying the role of the Central Coast of Oaxaca in interregional networks and its pre-Hispanic history beginning with the Manialtepec Basin.

In this chapter, I present my theoretical perspective. The theoretical framework that I use in this thesis draws from three bodies of archaeological theory: World Systems Theory, the Peer-polity approach, and Social Network Analysis Theory. By drawing on all three of these perspectives, I hope to combine their strengths into a framework that will allow for an adaptable analysis. My theoretical framework draws most heavily from the theory behind Social Network Analysis in that I look at sites as nodes within a regional system. Because Social Network Analysis allows for connections at multiple scales, I treat the Manialtepec Basin as a sub-region of the Oaxacan coast. This also falls in line with the history of treating the various valleys of Oaxaca as sub-regions (Flannery and Marcus 1996; Kowalewski et al. 2009; Joyce 1993). Additionally, although I acknowledge that external dynamics often play important roles in development and change (Wallerstein 1974 a,b; Schortman and Urban 1994; Smith and Berdan 2003 a,b,c), I believe that change may come from more than one source and internal regional dynamics are just as important for understanding long-term social, political, and economic processes (Renfrew and Cherry 1986).

Chapter 2 presents the geography and history of Oaxaca focusing on four of its main regions: the Central Coast of Oaxaca, the Valley of Oaxaca, the Isthmus of Tehuantepec, and the lower Rio Verde Valley (also known as the Costa Chica). The background information covers the geography of these regions, including their natural resources, and places into context the

location of the Manialtepec Basin relative to the rest of Oaxaca. Chapter 2 also explains the development of society in each of these regions where information is available and highlights the patterns of interregional interaction that occurred.

In Chapter 3 I present the methods and results. Methods were based on previous archaeological survey conducted in Oaxaca (see Kowalewski et al. 2009). The reconnaissance survey carried out by the PALM also included three excavations that involved cleaning the profile of pre-existing cuts. All feature and artifact collections were recorded with Trimble GPS and Garmin GPS units. A judgmental sample of ceramics were also analyzed, focusing on sherds that exhibited diagnostic markers. All of this information was then uploaded into ArcGIS and mapped to reveal feature and artifact patterns. The results section outlines the outcome of the survey and artifact collections, and are presented by time period.

Chapter 4 covers the discussion and conclusion sections. Here I argue that data collected from the PALM indicate the existence of three important centers during the pre-Hispanic era in the Manialtepec Basin. Additionally, there is evidence for external interaction through exchange connections between the Basin, other parts of the Pacific coast, and the interior highlands. Furthermore, there is evidence of a Mixtec intrusion at the end of the pre-Hispanic era. I also discuss other patterns present in the Basin such as the distribution of a ceramic ware known as “Gralisa” graphite-slipped red-ware and the high frequency of ballcourt architecture that was encountered. I conclude by demonstrating the importance of this study as an initial step to resolving long held questions in Oaxacan archaeology and suggest further questions generated by this research that should be addressed in the future.

Theoretical Perspective on Interregional Interaction

In this section I establish the theoretical framework used to interpret the PALM survey data. I chose to use three theoretical perspectives because I found that no single theoretical model on interaction was sufficient by itself to account for the myriad interactions that affected communities during prehistoric (and even modern) times. One specific type of interaction not addressed by the major theoretical frameworks is the area beyond what would be considered a “periphery” and the relationship of this area to larger population centers. Many times, these areas are simply written off as places of resource extraction that were subordinate to either a center or the center’s periphery. I believe that the roles of these more distant areas have been oversimplified in part by the restrictions inherent in the major archaeological theoretical models that deal with social-political interactions, specifically the World Systems Theory and the Peer-polity approach. By themselves these approaches fail to cover the broad spectrum of interactions that likely took place between societies. However, when combined and supplemented, they can be used to interpret a wider scope of interaction scenarios. Thus, instead of adhering to one interpretive approach as the theoretical perspective of this thesis I draw from aspects of three: Social Network Analysis (SNA), World Systems Theory (WST), and the Peer-polity approach. The following sections define each base theory and the specific elements that I incorporated into my underlying perspective. By drawing on all three of these approaches I aim to combine their strengths into a flexible theoretical perspective that allows for an adaptable analysis.

Social Network Analysis

The first theory that I draw from is Social Network Analysis (SNA). SNA first emerged in the field of psychology during the 1930's and was then known as "sociometry" (Freeman 2011). Today it is an important methodological technique used in sociology to measure the strength of social connections (Freeman 2011). However, since its emergence it has also gained popularity in other academic disciplines such as anthropology and physics (Freeman 2011). Social Network Analysis is defined as a "systematic approach that utilizes empirical datasets, mathematical and statistical models, and visualization to explore network structure and the effects of that structure on participation in a network" (Gjesfjeld and Phillips 2013:284; Freeman 2004; Mizruchi and Marquis 2006). One area SNA has been utilized in to explore social networks is the pre-contact U.S. Southwest (Hill et al. 2015, Mills et al. 2013). In this area archaeologists used databases of information on ceramics and settlement to graphically map connections among sites in western Arizona and eastern New Mexico (Hill et al. 2015; Mills et al. 2013) Using this method they were able to successfully map out changes in long-distance interaction, social connections and migrations over time (Hill et al. 2015; Mills et al. 2013). Although SNA is more of a methodology for teasing out relationships between entities through the use of mathematics and statistics, the theory behind it views those entities as nodes, which may or may not be connected, within a complex interaction network/system. Additionally, according to SNA, all scales are viewed as important to understanding development and change of nodes and connections. It is the notion that multiple scales must be considered that constitutes the foundation of my theoretical perspective.

In SNA, nodes may be defined according to the subject of the network the researcher desires to explore. This user-defined scale allows the “nodes” to range in definition from individual human beings to households to large empires. For example, if the researcher wishes to analyze a regional network the nodes may consist of the sites within that region. If the network being analyzed consists of a single site the nodes may be the various households or structures within that site. Connections may also be present between nodes and they may be of different types including material, political, economic, ideological, or a combination thereof. In addition to the different types, the connections may also be unidirectional, multidirectional, multi-scalar, and have the ability to shift over time (Knappett 2013; Sinbæk 2013; Rivers et al. 2013; Gjesfjeld and Phillips 2013). Although the node is a fundamental concept in SNA, it is really the characteristics of the connections that define a node’s role within the network (or region, or system). For example, based on the characteristics of their connections, some nodes may be categorized as centers. Nodes with many external connections are considered to be centers of either political or economic significance (Sinbæk 2013). However, because SNA accepts different connections on multi-type, multi-scalar, multi-directional, and temporal levels, different types of centers can be discerned. Some nodes may be centers of political or ideological connections while others may be of economic importance and these of course can change through time. Centers also have the potential to be a combination of any of these types (Rivers et al. 2013).

Following the lead of researchers in the U.S. Southwest (Hill et al. 2015, Mills et al. 2013), I view archaeological sites as nodes within a regional system and I treat the Manialtepec Basin as a sub-region of the Oaxacan coast. This sub-division of the coastal region also falls in

line with a history of treating the various valleys and river-valleys of Oaxaca as sub-regions within Oaxaca (Flannery and Marcus 1996; Kowalewski et al. 2009; Joyce 1993). In my analysis I further identify nodes as centers based on the connections indicated by their material culture and features. Because SNA techniques produce a foundational level of analysis of the interactions between sites, I find this theory particularly useful to include in my overall perspective (Gjesfjeld and Phillips 2013:282). However, once the connections or interactions of the Basin are found it is necessary to make interpretations as to their nature, or meaning. This is where the theoretical perspectives of World Systems Theory and the Peer-polity approach are needed. These theories help to interpret the possible social interactions and structures present rather than only identifying connections and centers as the methods of SNA does.

World Systems Theory

The next theory that I incorporate into my perspective is the World Systems Theory (WST), which was first developed by Immanuel Wallerstein in the 1970's (1974a, b). The traditional form of World Systems Theory defined a world system as "a single division of labor which contains multiple cultures and this single division of labor separated polities (or societies) into two categories: cores and peripheries" (Wallerstein 1974a, cited in Chase-Dunn and Hall 1996:12). In this version of WST, interaction between the two categories were seen as unequal with the core dominating the periphery through economic, political, and ideological means. The core was thought of as a politically or socially dominant area with the exclusive ability to dictate economic, social, and political interactions. In contrast, the periphery was generally viewed as an area with a decentralized government and largely incapable of setting the terms of its interactions

with the core. Change in society originated from the core and radiated out to the periphery. WST emphasized “long-distance trade dominated by the core as the primary cause of the political economy of the periphery and its trajectory of developmental change” (Stein 1999:3). Wallerstein took an important step by recognizing the importance of external exchange and long-distance trade, however many researchers disagreed with his view of interaction (Chase-Dunn and Hall 1996; Schortman and Urban 1994; Smith and Berdan 1986; Stein 1999).

This disagreement led to a reworking of WST for archaeology by Christopher Chase-Dunn and Thomas D. Hall (1996) and later Michael E. Smith and Mary Frances Berdan (2003a,b,c). Chase-Dunn and Hall developed a more general definition in which world systems are inter-societal networks in which interaction is necessary to maintain sociopolitical structures and has a large effect on changes within these structures (Chase-Dunn and Hall 1996:7-8). They replaced the term world system with core-periphery structure and said that not all core-periphery structures need be hierarchical; they can exist without inequalities or exploitation. Chase-Dunn and Hall also defined two types of core-periphery relationships: differentiation and hierarchy. “Core-periphery differentiation consists of two societies at different levels of complexity and population density interacting within one world system...Core-periphery hierarchy is the political, economic, or ideological domination of one society over another within the same world system” (Chase-Dunn and Hall 1996:15). In defining two types of core-periphery relationships Chase-Dunn and Hall attempted to modify the original world systems theory to account for a situation (differentiation) in which “dominance” does not have to exist. However, in differentiation, inequality is still assumed in the “different levels of complexity.” In *The Postclassic Mesoamerican World*, Smith and Berdan formulated an even more modified world

systems approach which focused more on the interconnectedness of economies throughout Mesoamerica through exchange via tribute and markets (Smith and Berdan 2003 a,b,c; Kepecs and Kohl 2003). Instead of defining areas of the Mesoamerican world system as cores and peripheries, Berdan and Smith (2003 a) defined core areas and non-core areas. The non-core areas were further subdivided into international trade centers, exchange circuits, affluent production zones, resource production zones, and unspecialized peripheries (Smith and Berdan 2003 a,b,c; Pollard 2003 a,b). While Berdan and Smith stressed that non-core areas were not dominated by a core, they continued to focus on the influence of core areas over non-core areas (Smith and Berdan 2003 a,b,c, Berdan 2003).

Despite the revisions of WST, it has continued to be criticized as an inadequate model for interpreting interactions. In his book *Rethinking World Systems*, Gil Stein (1999:16) points out that “virtually all theoretical versions and applications of the model share the same three assumptions: core dominance, core control over an asymmetric exchange system, and the causal primacy of long-distance interaction in structuring the political economy of the periphery”. He also adds that “the analytical categories of the world systems model cannot accurately describe the variability in relations between polities in ancient interregional interaction systems” (Stein 1999:39).

As I interpret the data on settlement change and non-local interaction I try to avoid two issues present in all versions of WST brought up by Gil Stein (1999): the over-emphasis of external dynamics and the terms “core” and “periphery.” These two elements are present in all incarnations of World Systems Theory and in my view are not ideal for interpreting the type of

data presented in this thesis. In those versions of WST, external dynamics are emphasized to the point of over-shadowing and minimizing the internal ones. These external dynamics include: the importance of long-distance interaction and the dominance of the core over the internal dynamics of the periphery (Stein 1999:3-16). Gil Stein also pointed out that such an emphasis on external forces “can distort our understanding of developmental change in society” (Stein 1999:3). Furthermore, such assumptions effectively limit agency within the so-called “peripheral” areas and leave the impression that peripheries were helpless to the whims of the core. This core-centered focus in WST is then only exacerbated by the approach’s terms: core and periphery. I argue that when used together these terms are inherently dichotomous and their connotations create an unavoidable bias in our interpretations of interaction. The definition of the word core, according to the Oxford dictionary, includes “the center or most important part of something” and the definition of periphery includes “a marginal or secondary position in, or part or aspect, of a group, subject, or sphere of activity” (Oxford English Dictionary 2000). Such definitions evoke images of a powerful, well-developed, influential entity (the core) and a weak, under-developed entity (the periphery). Furthermore, if a site or area is categorized as a core by default it is expected to have a periphery. Thus, because of the inherent meaning of the terms, they signify a hierarchical relationship of dominance and subordination that distorts our view of interaction from the beginning of any analysis. Which entity is labeled a core and which a periphery is also dependent on perspective. As Schortman and Urban (1994) have demonstrated, areas such as “the Southwest Maya periphery” do not seem so peripheral upon closer or more in-depth investigation. Additionally, the Pacific Coast of Oaxaca was considered peripheral to the Aztec Empire during the Late Postclassic (Smith and Berdan 2003) but recent archaeological

investigation has revealed it had its own very powerful empire located at Tututepec (Joyce et al. 2008; Levine 2007; Workinger 2002).

Although I would prefer not to use terms core and periphery in my analysis, I do recognize that there are cases in which these terms are completely appropriate to use such as with the Aztec Empire in the Valley of Mexico (Berdan 1996) and the Tarascan Empire in Michoacán (Pollard 2003 a,b). I also acknowledge that such a relationship among the sites in the Maniatepec Basin and with another region is possible and likely. Thus, in my analysis I favor the position of viewing external interaction as more closely in line with that of Smith and Berdan's modified World Systems (Smith and Berdan 2003a,b,c) approach that essentially views all areas of Mesoamerica as participating in a large international market economy.

Peer-polity

The last theoretical element that I integrate into my perspective is the Peer-polity approach developed by Colin Renfrew and John Cherry (1986). The Peer-polity approach emphasizes "the interactions of neighboring polities of equivalent scale and status" (Renfrew and Cherry 1986:5). A polity in this context refers only to an autonomous political unit, and does not involve any assumptions about its degree of complexity or scale of organization (Renfrew and Cherry 1986:2). Interactions include everything from competition to economic exchange. According to the Peer-polity approach, the main source of social change originates from interactions (competition and/or cooperation) with neighboring polities. As one polity begins to grow and become more complex their peers recognize it and respond. This response may come in the form of competition or cooperation but the end goal is to match the perceived status or

complexity of the neighboring polity (Renfrew and Cherry 1986:7-8). It has been suggested by both David Freidel (1986) and Jeremy Sabloff (1986) that the southern Maya lowlands prior to the Late Classic collapse were a good example of Peer-polity interaction. According to Freidel (1986) and Sabloff (1986) this area was characterized by competitive independent polities that were largely similar in culture (and probably language). No one polity ever united the southern lowland Maya into a single empire, although this would have been feasible given the incredible similarities between the polities (Freidel 1986; Sabloff 1986).

Renfrew and Cherry also stated that the Peer-polity approach was meant to be an intermediary between those theories that focused on exogenous origins of change and those that focused on endogenous ones. They defined the theories focused on exogenous change, such as WST, as characterized by “models of dominance” in which change is primarily the result of contact or influence by an adjacent area thought to be more advanced (Renfrew and Colin 1986:5). Theories focused on endogenous change emphasized change as the result of an internal “prime mover,” such as increasing population or the implementation of irrigation in agriculture. According to Renfrew and Cherry, change comes from an assemblage of interacting polities and operates on a regional scale. In short, change is seen as internal to the region, or system, but external to the polity (Renfrew and Cherry 1986). However, this is also problematic because of how different researchers may define what a system is and what is or is not included in it. In archaeology a system refers to a set of connections, most often political or economic, between certain polities that form a bounded unit. Thus, supposing that social interactions could be bounded in a unit, at what point would polities or societies be considered a part of that unit (internal) or separate from it (external)?

While forming my conclusions about the socio-political dynamics of the Manialtepec Basin, I incorporate the aspect of the Peer-polity approach regarding the influence of neighboring polities. However, I do not regard this interaction as the only source of social change. Although the Peer-polity approach is useful in that it de-emphasizes external or exogenous change, it is difficult to define which polities are external to a system versus which ones would be internal. Additionally, the Peer-polity approach seems to hinge on the similarity of the polities that are interacting and previous research in the Manialtepec Basin has been unclear regarding similarities or differences between sites within the Basin. And finally, as with the various forms of WST, the focus remains on the external origins of social change (in this case external to the polity) while minimalizing the internal factors (the agency of individual polities, and people's actions within those polities).

Conclusion

In conclusion, my theoretical perspective is a combination of the three theories: Social Network Analysis, World Systems Theory, and the Peer-polity approach. The basic terms and ideas of Social Network Analysis form the majority of my theoretical perspective. Its multi-faceted view of sites (nodes) and their connections is particularly appealing because of the preliminary nature of the project data. Additionally, such a perspective allows the results to be viewed through the lenses of World Systems Theory and the Peer-polity approach in order to make further interpretations on the causes of transformation in the Manialtepec Basin. Using WST I take into consideration external influences and core-periphery relations, but I only treat these as possible factors in the overall causes of social change. Likewise using the Peer-polity

approach I consider the effects of internal regional interactions, or neighbor interactions, but I refrain from stating that these were the only type of interactions occurring. Both WST and the Peer-polity approach suggest types of interactions already seen among other sites in pre-history. However, I feel that focusing on one type of interaction is not sufficient in explaining the various dimensions of social change that could be at work. Furthermore, in cases like the Manialtepec Basin that have yet to be intensely investigated, it is more advantageous to consider the types of interactions seen in WST and the Peer-polity approach but leave interpretations open to further refinement.

CHAPTER 2: HISTORY AND GEOGRAPHY OF OAXACA

Introduction

In the following sections I contextualize the Manialtepec Basin by introducing Oaxaca's regions, geography, climate, and reviewing its pre-Hispanic history. In stark contrast to other parts of Oaxaca, such as the Valley of Oaxaca, the Mixteca Alta and Baja, the Isthmus of Tehuantepec, and the lower Rio Verde Valley, the Central Coast of Oaxaca has not been subject to the same level of intensive and extensive archaeological research. Only two river valleys along Oaxaca's 597 km of coastline have been intensively investigated: the large lower Río Verde valley to the west (Joyce 2010; Workinger 2002; Levine 2007) and the Río de los Perros drainage in the Isthmus of Tehuantepec to the east (Zeitlin 2005; Zeitlin 1978). Archaeological investigations carried out around the Manialtepec basin prior to the PALM consisted of a reconnaissance and limited excavations conducted by Donald Brockington and the Oaxaca Coast

Project in 1969 (Brockington et al. 1974). The Manialtepec Basin (and most of the Central Coast of Oaxaca) has not been the subject of intensive research. This lack of research is problematic because the Basin falls into the area of Oaxaca's Pacific coast that is involved in an ongoing debate over the influence of Monte Albán during the Late Formative to Early Classic Periods (Joyce 2010; Marcus and Flannery 1996).

The pre-Hispanic history and socio-political relations of the Central Coast of Oaxaca between the Rio Verde Valley and the Isthmus of Tehuantepec are almost completely unknown for the entire pre-Hispanic period (but see Kroefges 2004; Matadamas and Ramirez 2010; Fernández and Gomez 1988; Arnaud-Bustamante 2003). Some clues to the region's possible history come from the surrounding areas including the central highland valleys and the lower Rio Verde Valley. Therefore, because of the limited information available on the Central Coast, my historical review of Oaxaca focuses upon the closest and best-known areas: the Valley of Oaxaca, the Isthmus of Tehuantepec, and the lower Rio Verde Valley (also known as the Costa Chica). My review also incorporates information from the Oaxaca Coast Survey Project and three other nearby sites, Huamelula, Copalita, and Nopala, that have not been as intensively investigated as those located in the lower Rio Verde Valley and the Valley of Oaxaca. Throughout the chapter I highlight several questions in Oaxaca archaeology raised by the lack of information on the Central Coast, including: how the Central Coast interacted with Oaxaca's other regions, the need for settlement information on the Central Coast, and why the Manialtepec Basin is an ideal location to investigate.

Geography and the Environment



Figure 1: Map of Mexico

The state of Oaxaca is located in southwestern Mexico (Figure 1). It is one of the largest states in Mexico (93,757 km² in area) and boasts one of the highest indigenous populations in the country with at least 16 distinct language groups (Comisión Nacional para el Desarrollo de Los Pueblos Indígenas 2014; Joyce 2010). Due to its large area and enormous diversity Oaxaca has been treated by archaeologists as its own region, divided into several smaller sub-regions: the Central Valleys (this includes the Valleys of Oaxaca, Miahuatlán, Ejutla, and Sola), the

Cuicatlán Cañada, the Coast of Oaxaca (including the Costa Chica [also known as the Costa Mixteca], and the Central Coast), the Mixteca Alta, the Mixteca Baja, and the Isthmus of Tehuantepec (Figure: 2) (Joyce 1993, 2010; Flannery and Marcus 1996; Kowalewski et al. 2009).



Figure 2: Map of the Regions of Oaxaca

Along with its great cultural diversity Oaxaca is also very ecologically diverse. While the majority of the state is covered in mountainous terrain with peaks as high as 3,200 m and valleys

interspersed throughout, there are several areas along its southern and southeastern edges on the Pacific Coast where the elevation drops significantly to coastal floodplain (Tamayo 1964 cited in Joyce 2010). The highlands of Oaxaca, which include the Tierra Norte, the Central Valleys, the Mixteca Alta, the Mixteca Baja and the Cuicatlán Cañada, are the most mountainous regions with highland valleys and a cool, semi-arid environment. The lowlands of Oaxaca, which include the Isthmus of Tehuantepec and the Coast of Oaxaca, are characterized by coastal floodplains with a hot, humid and tropical environment. The largest areas of agriculturally productive land are located in the Valley of Oaxaca, and in the coastal lowland areas including the Rio Verde Valley on the Costa Chica, and the Isthmus of Tehuantepec (Joyce 2010, 2004). The coastal lowlands of Oaxaca are also one of the most ecologically diverse areas in the state with environmental zones that include riverine, floodplain, coastal, lacustrine, estuarine, and marine (Levine 2007).



Figure 3: The Manialtepec Basin

The focus area of this thesis, the Manialtepec River Basin, is located in the lowlands of Oaxaca's Central Coast approximately 14 km to the west of Puerto Escondido (Figure 3). This area of the Central Coast is primarily characterized by the proximity of the Sierra Madre del Sur Mountains to the Pacific Ocean, resulting in very little area of coastal plain. While the proximity of the mountains to the coastal plain results in very few large tracts of land suitable for farming, it does have the advantage of easier access to mountain, piedmont, and secondary valley habitats (Levine 2007). The largest area of coastal plain is located 80 km to the west in the lower Rio

Verde Valley where the Rio Verde emerges from the mountains. Because the Rio Verde drains two of the largest highland valleys in Oaxaca, the Nochixtlán Valley and the Valley of Oaxaca, sediment carried down from the highlands has created an expansive floodplain 20 km long and 1,000 km² in area (Joyce 2013:4). The environment along this part of the coast is typical of the lowlands: hot and humid year-round with a summer rainy season and a winter dry season.

The Manialtepec Basin area includes the 1,640 hectare Manialtepec Lagoon and the floodplains of the permanent Manialtepec and Chila Rivers (Figure 3) (Barber 2014). The Manialtepec Lagoon, fed by the Manialtepec River, is the third largest on the coast of Oaxaca west of the southern Isthmus (Barber 2014). Due to the depth and size of the lagoon, this area was likely an important source of estuarine products during pre-Hispanic times (Barber and Menchaca 2013). Resources from this area that would have been valuable to the inhabitants of ancient Oaxaca include exotic feathers, marine shell, fish, purpura dye, cacao, salt, tropical fruits, manioc, and cotton (Joyce 1993; King 2008; Levine 2007). Control of these resources was also important to elites living in the interior of Mesoamerica who used them to achieve, legitimize, and demonstrate their special status in society (Brumfiel and Earle 1987; Friedel et al. 2002; McAnany et al. 2002; King 2008; Spencer 1982). Highland products that may have been exchanged to the coast include cochineal dye, pulque, fancy pottery, textiles, maguey, gold, silver, obsidian, jade, copper, and precious stones (Joyce 2010; King 2008; Workinger 2013).

While highland-coastal exchanges were very important in ancient Mesoamerican society the exact nature of these interactions, whether they were via tribute or market systems, remains unclear for the Central Coast. This is in large part because archaeological research in Oaxaca has

avored other areas of large population concentrations including the Valley of Oaxaca, the lower Rio Verde Valley, and the Isthmus of Tehuantepec. The following sections will discuss the research that has been conducted in these areas and the conclusions that have been made regarding their interactions with the Pacific coast of Oaxaca.

The Archaic Period

The first people to arrive in Oaxaca likely did so during the Paleoindian Period (9500-7000 BC) and were probably part of the first migrations of people into the Americas (Joyce 2010). However, the only real evidence for a human presence in Oaxaca at this time derives from the recovery of three fluted projectile points in the Valley of Oaxaca. Two were found near Mitla and the other near San Juan Guelavía in the Tlacolula sub-valley of the Valley of Oaxaca (Joyce 2010).

During the following Archaic Period (3000-1900 BC), archaeological evidence suggests low population density in Oaxaca. However, it is at this time that evidence of semi-permanent occupation and long-distance exchange becomes more visible in the archaeological record (Joyce 2010). In the Valley of Oaxaca, Kent Flannery and Joyce Marcus report a total of 15 open air sites consisting of scatters of flint tools and atlatl points, as well as 8-10 caves with Archaic remains (Flannery and Marcus 1996:53). The Tehuacán and Valley of Oaxaca projects also investigated several sites from this period in Oaxaca and nearby, including Guila Naquitz, Cueva Blanca, Geo Shih, Yuzanu, and Coxactlan Cave (Flannery and Marcus 1996; MacNeish et al. 1972; Flannery 1986). At Guila Naquitz and Coxcatlan, both cave sites, archaeologists recovered the remains of plant foods, specifically early domesticates, chipped stone tools, ground stone

tools, pollen, floral and faunal remains, lithic debitage, nets, baskets, cords, and small hearth and storage pit features (Joyce 2010:68; Marcus and Flannery 1996:50-59). At Geo Shih, an important open air site, archaeologists observed chipped stone tools, ground stone tools, and evidence for the production of drilled stone pendants (Marcus and Flannery 1996:58; Joyce 2010:69). Excavations also revealed two 20 m long parallel lines of boulders set 7 m apart. This feature was previously interpreted as a ritual space, likely a dance ground. However, Marcus Winter and his colleagues (2008) encountered a similar feature at the site of Guhdz Bedkol, but with two possible postholes and an ash deposit between the lines of rocks. This suggests that the feature could have been some kind of structure instead of a dance ground as previously interpreted (Joyce 2010:70). Yet, despite the trajectory towards more permanent settlements, there is evidence in the importation of marine shell beads and the use of obsidian for stone tools, meaning that the early people of Oaxaca maintained interregional connections (Flannery 1986; Marcus and Flannery 1996:62; Joyce 2010:69). Thus, Oaxaca has been involved in long-distance exchange, specifically of shell and obsidian, since its earliest occupations. Based on the Valley of Oaxaca and Tehuacán projects, Richard MacNeish (1971) argued that in the Early Archaic small nomadic groups consisting of nuclear families shifted into a seasonal fission-fusion cycle.

While information about Archaic Period settlements in highland Oaxaca is more abundant compared to the rest of Mesoamerica, information about the Archaic Period on the coast of Oaxaca is very limited. Recent paleo-ecological studies conducted in the lower Rio Verde Valley have shed some light on the nature of early human activity in this area. Goman et al. (2013) performed pollen analysis on sediment cores from various locations on the west side of the Rio Verde floodplain and from the Laguna Pastoria (a coastal lagoon to the east of the river

mouth). They found evidence for “charred panicoid grass phytoliths near the basal material” from the lagoon that dated to the Late Archaic (2830 cal BC) (Goman et al. 2013:55). The authors state that, while it is not definitive, it does indicate evidence for maize-based horticulture in the area. However, Goman and her colleagues (2013), also found that maize pollen, elevated microscopic charcoal levels, and associated charred microfossils disappeared by the following Early Formative Period. Additionally, another study, based on geomorphology, indicates that the floodplain of the lower Rio Verde was in fact smaller and less fertile prior to an alluvial shift around the Early/Middle Formative Period (Mueller et al. 2013). Combining the pollen analysis with the geomorphological study, Goman and colleagues (2013) concluded that there was not a large human presence on this part of the coast during the Archaic Period and that nomadic horticulturalists likely only used this area for a short period of time and then moved on (Joyce 2013:12; Goman et al 2013:58). No studies such as the ones conducted on the lower Rio Verde have been carried out on the Central Coast and neither has any evidence of Archaic Period settlement been observed. However, the presence of shell in the highlands of Oaxaca suggests some form of contact with the Pacific coast during this early period.

The Early Formative

The Early Formative (1900-850 BC) was characterized by population growth, the first clear evidence of sedentary villages, and the beginnings of pottery production (Joyce 2010:70). Most of our understanding of Early Formative Oaxaca comes from research in the Valley of Oaxaca. Less information on this early period has been available from the Pacific coast, although the recent discovery of La Consentida in the lower Rio Verde Valley region will hopefully add

more data. No data on the Early Formative has been recovered from the Central Coast; however, the presence of imported items, including shell, suggests contact with coastal communities and a widespread network of interaction.

Early permanent communities in the Valley of Oaxaca were the most populous in the Etla and Valle Grande sub-valleys and were usually located on low spurs of piedmont near the agricultural land on the valley floors (Joyce 2010:75). Among the most important of the Valley of Oaxaca sites were San Jose Mogote, Tierras Largas, and Tomaltepec, all of which have been the focus of major excavations (Marcus and Flannery 1996; Whalen 1981; Joyce 2010:77-78). In the other central highland valleys of Miahuatlán, Ejutla, and Sola, settlement was sparse until the Late Formative (Sherman et al. 2010; Feinman and Nicholas 1990; Balkansky 2002).

According to Joyce (2010) archaeological evidence indicates that during the Early Formative households freely and actively established their own interregional contacts; by the end of the Early Formative, society was most likely egalitarian in nature with affiliations based on community (Joyce 2010:82-83). Additionally, at end of the Early Formative, archaeological data indicate an increase in variation among households reflected in the volume and variety of craft production and imported materials.

Items produced by households in the Valley of Oaxaca included cloth, bone and stone tools, mica or magnetite mirrors, baskets, pottery, and shell ornaments (Marcus and Flannery 1996; Joyce 2010). Iron-ore mirrors were produced at San Jose Mogote mainly for export to San Lorenzo and the Gulf Coast area (Pires-Ferreira 1976:324). Shell ornaments were found at almost all the excavated houses from the Valley of Oaxaca. However, evidence of shell

production was found almost entirely at San Jose Mogote and Tierras Largas, where households had varying sources of imported shell, some from the Atlantic and others the Pacific (Joyce 2010:86-87; Flannery and Winter 1976:39). According to Marcus and Flannery (1986:89) these varied procurement patterns suggest that each household was responsible for its own exchange relations and that all were equally capable of establishing contact with regions outside of Oaxaca. Further indication of household independence and their maintenance of interregional contacts come from the presence of ritual objects from household contexts. Such objects found include a turtle shell drum fragment from Tierras Largas, as well as macaws, shell ornaments and ceramic figurines similar to others found throughout Mesoamerica (Joyce 2010:78; Winter 1976; Marcus and Flannery 1996:84).

The Early Formative San Jose phase (1250-850 BC) also marked the earliest appearance of obsidian prismatic blades in Oaxaca and coincided with the beginning of long-distance trade in this item throughout Mesoamerica (Joyce 2010). All households in the Valley of Oaxaca had some access to obsidian. However, the importation source of the obsidian by individual households varied, with sources ranging from Guadalupe Victoria on the Gulf Coast, Otumba in the Basin of Mexico, and Zinépécuaro in West Mexico (Joyce 2010). In addition to obsidian and shell, Olmec-style ceramic vessels and hollow baby figurines imported from the Gulf Coast were found in both domestic and mortuary contexts. Other exotic imports included stingray spines and jade. The importation of these exotic items indicated a variety of connections to the Basin of Mexico, the Gulf Coast, Chiapas, West Mexico, and Morelos (Joyce 2010:88-94). Evidence for rituals with figurines and common bloodletting tools (obsidian blades) were found in nearly all

households; however, other exotic ritual items such as the stingray spines appeared to be associated only with high household status (Joyce 2010:96).

In addition to the domestic use of imports, these items were also found in mortuary contexts, signaling access to trade goods. In the late Early Formative at the communal cemeteries of San Jose Mogote and Tomaltepec the distribution of imported goods in offerings combined with the age and gender ratios of the internments signals affiliations that emphasized community and achieved status. At San Jose Mogote internments in the cemetery were of adults of both sexes and children; nearly every adult interment had a greenstone bead placed in their mouth (Joyce 2010:101). At Tomaltepec juveniles were excluded from the cemetery and there were near equal gender ratios. However, offerings that included figurines were only found with females and offerings with Olmec-style ceramics were found only with males (Joyce 2010:101).

Occupation during the Early Formative was also present along the coast of Oaxaca in the southern part of the Isthmus of Tehuantepec region, although not as much is known about social organization here as in the Valley of Oaxaca. During the Early Formative, the site of Laguna Zope was the largest settlement in the southern Isthmus and by the end of the Early Formative had grown to double the size of San Jose Mogote (Zeitlin 1978). In addition to its large size, Laguna Zope also maintained interregional contacts and was also likely a center of shell ornament production. Pottery recovered from the site exhibited the most similarity to contemporaneous sites in the Gulf Coast lowlands and the Soconusco region (Zeitlin 1978). By the end of the Early Formative, Laguna Zope had transitioned to using a white-slipped ware with Olmec styles superimposed on to pre-existing pottery forms (Zeitlin 1978). This style of

ceramics was similar to some of its neighboring regions, including the Valley of Oaxaca, Chiapa de Corzo, and the northern Isthmus (Zeitlin 1978). Interestingly, despite the close proximity of Laguna Zope to the El Chayal obsidian source in Guatemala, only 25 percent of the site's obsidian came from that source. The bulk of Laguna Zope's obsidian, 50 percent, came from the Guadalupe Victoria source in Puebla and the remaining 25 percent is believed to have come from El Ocotito in Guerrero (Zeitlin 1978). According to Zeitlin (1978), this signifies very close ties to the Olmec of San Lorenzo, which is thought to have controlled the Guadalupe Victoria source. Zeitlin's investigations (1978) also suggest that shell production was an important activity at Laguna Zope. In excavations and survey, large quantities of flaked quartz stone tools used for working shell were found, as well as large quantities of worked, partially worked, and unworked shell (Zeitlin 1978). Given the presence and importance of shell in the interior of Mexico, it is likely that Laguna Zope was exchanging its shell in return for obsidian (Zeitlin 1978).

In the lower Rio Verde Valley, only a few small sites dating to the Early Formative are known. These are located near the salt flats of the coastal estuaries. Excavation data suggest only a small number of permanent settlements were present in the lower Rio Verde Valley during the Early Formative (Joyce 2010:12-13; Hepp 2014). Joyce (2013:13) points out that this is surprising, given that further south along the coast of Mexico and Guatemala there are large sites such as Paso de la Amada and Laguna Zope (220 km to the east) that have some of the earliest evidence for sedentary villages and social complexity. For example, at Paso de la Amada there were monumental buildings, including the earliest known ball court, an elite residence, and a public plaza (Joyce 2010:13). However, one of the lower Rio Verde Valley's Early Formative sites, La Consentida, was recently discovered to be the earliest known Formative Period site on

the coast with five radiocarbon samples giving the site a date range of 1947-1530 cal BC (Hepp 2014). It also has some of Mesoamerica's earliest ceramics and mounded earthen architecture, as well as evidence for transition between hunting-gathering and agriculture in the lower Rio Verde Valley (Hepp 2014; Hepp and Joyce 2013). There is also evidence for early interregional contact along the Pacific coast and the central and Gulf coast of Mexico (Hepp 2014). Decorated ceramics from La Consentida were found to be similar to ceramics from Capacha and Opeño phases (1450-1150 BC) in Colima and Michoacán, although La Consentida's ceramics predate both these phases (Hepp 2014). Additionally, obsidian sourcing revealed La Consentida's principal source of obsidian was from Pico de Orizaba in the Gulf Coast region and, unlike highland Oaxaca, there was no obsidian from Guatemala. The data from La Consentida not only suggest very early occupation on the Costa Chica but also a very early establishment of interregional exchange relations.

As presented above, during the Early Formative there was ample evidence for interregional contact between Oaxaca's regions and other areas of Mesoamerica. Pacific coast shell indicates interaction between Oaxaca's highlands and coastal lowlands. Obsidian demonstrates Oaxaca's interaction with the Gulf Coast, Central Mexico and the northern Pacific coast. Trans-coastal trade along the Pacific is also suggested by the ceramic assemblage at La Consentida. However, despite the indications of world systems-like dynamics through the importation of products from other regions, it is unknown exactly how these regions would have related to the Central Coast.

The Middle Formative

During the Middle Formative (850-400 BC) social organization exhibited continuity in the Valley of Oaxaca from the end of the preceding Early Formative Period. However, there were several interesting discontinuities in interregional relationships that occurred in both the Valley of Oaxaca and in the southern Isthmus. Meanwhile, in the lower Rio Verde Valley archaeological research indicates that population and social complexity grew and the available archaeological data indicates the Central Coast had not been occupied (Brockington et al. 1974)

In the Valley of Oaxaca the Middle Formative is best known from excavations at San Jose Mogote, Tierras Largas, Fábrica San Jose, Huitzo, Hacienda Blanca, and Tomaltepec (Marcus and Flannery 1996; Winter 1972, Drennan 1976, cited by Joyce 2010). The construction of public buildings continued and household rituals remained the same with the continued use of ceramic figurines, auto-sacrifice, and feasting (Joyce 2010:108). Exotic bloodletting implements, like imported stingray spines, also continued to be associated with higher status households (Flannery 1976 cited by Joyce 2010). Additionally, “activities such as crafting, long-distance exchange, ritual, body ornamentation, and the expansion of social ties via marriage, and the debts via feasting or gift-giving also continued to create social distinctions” (Joyce 2010:104). Yet, despite the continuities, several interesting changes in interregional relationships occurred. Around 850 BC Olmec-style ceramic vessels and figurines were no longer imported and iron-ore production stopped in the Valley of Oaxaca (Joyce 2010:105). Additionally, overall importation of obsidian dropped and there was a decrease in obsidian from Gulf Coast sources while obsidian from Central Mexican sources increased. There was also a decline in shell ornament production

from both Atlantic and Pacific sources; however, greenstone continued to be imported and used (Joyce 2010:105).

At Laguna Zope, on the southern Isthmus, new ceramic styles were adopted including fine white burnished and gold specular wares (Zeitlin 1978). There was also a shift in obsidian procurement patterns, similar to what had occurred in the Valley of Oaxaca, which also appears to have coincided with the collapse of San Lorenzo (Zeitlin 1978, Pires-Ferreira 1975). Obsidian from the Guadalupe Victoria source practically disappeared and was replaced by obsidian from Atlotonga in Veracruz, which is thought to have been controlled by La Venta (Zeitlin 1978). However, obsidian from the El Chayal source continued as before (Zeitlin 1978). Other changes at Laguna Zope included an increase in flaked quartz stone tools that may have signaled an increase in ornamental shell production as well (Zeitlin 1978).

On the Costa Chica archaeological data indicate that until the Middle Formative the lower Rio Verde Valley was sparsely inhabited. Based on geomorphological studies, Mueller and colleagues (2013) suggest the reason for this sparse occupation was that the large fertile floodplain conditions that are currently characteristic of the lower Rio Verde Valley did not develop until around the end of the Middle Formative. Anthropogenic erosion from the highland valleys in the upper drainage basin of the Rio Verde increased its sediment load and discharge, causing the lower reaches of the river to change from a meandering to a braided river and the flood plain to expand. Additionally, the increased sediment load caused the formation of bay barrier features along the coast that in turn formed coastal lagoons and wetlands (Mueller et al. 2013:86) In fact, during the Late Middle Formative Charco phase (700-400 BC), after the river

was thought to have changed, there was a major demographic expansion in the lower Rio Verde Valley and a regional center developed on the river floodplain at Charco Redondo (Joyce 2013). Charco Redondo had an occupation area of 62 hectares, making it was one of the biggest Middle Formative sites in Oaxaca (Joyce 2013). Other sites with evidence of Charco phase occupation included Rio Viejo, Cerro de La Cruz, Corozo, and San Francisco de Arriba. Despite the obvious presence of social complexity in the lower Rio Verde Valley during the Middle Formative Charco phase, this phase has not been well studied and thus the specifics of its interregional connections and social organization remain unknown.

There has been some debate regarding the emergence of rank society in the Valley of Oaxaca. Marcus and Flannery (1996:93-110) suggest that social inequality increased to the point where rank society fully emerged in the Valley of Oaxaca during the late Early Formative San Jose phase (1150-850 BC). However, Arthur Joyce (2010) argues that ranked society in the Valley of Oaxaca did not fully emerge until the end of the Middle Formative. While, Joyce (2010:116-117) acknowledges that status distinctions were modest and increasing by the beginning of the Early Formative, he asserts that the overall emphasis as seen in the domestic and mortuary data was on family and a communal identity. However, despite this disagreement, both parties do agree that the resulting interregional connections established by domestic groups to the sources of material for their craft production, as well as the competition among houses in crafting, was linked to status and social inequality (Joyce 2010; Marcus and Flannery 1996:104). Additionally, both sides also agree that by the end of the Middle Formative Period major social transformations were in effect, including hereditary status distinctions and centralized political authority (Marcus and Flannery 1996; Joyce 2010:118).

The focus of research continues to be on the Valley of Oaxaca, the lower Rio Verde Valley and the Isthmus of Tehuantepec. All of these areas were involved in interregional interaction during this period; however, changes in these interactions occurred. Additionally, whether or not all of these interregional interactions were world system-like in nature (with one region dominating the interactions) is difficult to conclude without additional information from the Central Coast. The possibility also exists that these regions may have had Peer-polity-like interactions in which no one region dominated the other.

The Late Formative

At the end of the Middle Formative and into early Late Formative (400 BC- AD 1) major socio-political changes took place in the Valley of Oaxaca resulting in the foundation of Monte Albán. Meanwhile, populations on the coast of Oaxaca and the southern Isthmus of Tehuantepec continued to grow. As with the preceding period all of these regions continued to participate in interregional networks but it is unclear if these networks consisted of peer-polity-like or world systems-like interactions. The nature of these interactions is especially vague regarding the dynamics between the Valley of Oaxaca, the Costa Chica, and the Central Coast of Oaxaca.

Around 600 BC San Jose Mogote experienced a dramatic crisis involving the destruction of its sacred ceremonial precinct (Joyce 2010:123). After this event the site underwent a major change in its social structure in which elites gained unprecedented and exclusive access to ritual roles and the use of ritual spaces (Joyce 2010). However, despite the radical change, San Jose Mogote could not be saved. At the beginning of the Late Formative archaeological evidence indicates that many people from San Jose Mogote moved to the no man's land at the intersection

of the three sub-valleys of Oaxaca. There, they founded Monte Albán circa 400 BC on a series previously unoccupied hilltops (Joyce 2010). In the early years of Monte Albán, residential and mortuary data indicate a dramatic increase in social differences. Elites lived in larger, more architecturally elaborate houses closest to the ceremonial center. They also enjoyed greater access to exotic imports like pottery, obsidian blades, and greenstone and shell ornaments. There were no overt images of nobles on the Main Plaza; however, the importance of their role in society was alluded to through such iconographic representations as Monument J-41 from Building J (Joyce 2010).

Some archaeologists attribute the founding of Monte Albán to warfare in the Valley of Oaxaca and say that it was a result of a strategic resettlement by community leaders in response to external military threats (Marcus and Flannery 1996). Additionally, they argue that Monte Albán continued this militaristic pattern by politically subjugating areas outside the Valley of Oaxaca including the Cuicatlán Cañada, the coast of Oaxaca, and the southern Central Valleys (the Sola, Miahuatlán, and Ejutla Valleys) (Marcus and Flannery 1996; Kowalewski et al 2009; Feinman and Nicholas 1990). In the Late Formative, settlement expanded to the edges of the Valley of Oaxaca and into the Sola, Miahuatlán, and Ejutla Valleys (Kowalewski et al 2009; Feinman and Nicholas 1990). There are two different theories for this population expansion. Arthur Joyce (2010) suggests the expansion may have been an effort to “get away” from Monte Albán and maintain independence, while Kowalewski and colleagues (2009) argues that this expansion reflected purposeful colonization by Monte Albán. Additionally, Joyce (2010:130-131) argues that, while defense was most certainly a concern, the primary motive behind the foundation of Monte Albán was “a religious movement that engaged a broad audience.” He also

argues that while Monte Albán may have expanded its hegemony over the southern Central Valleys it did not successfully conquer the areas located further away, such as the Cuicatlán Cañada and the Costa Chica (Joyce 2010)

At Monte Albán one of the main lines of evidence used to support its hegemonic expansion is a building located at the southern end of the plaza, Building J. This arrowhead-shaped building had a different orientation than all of other buildings on the acropolis; its walls consisted of approximately 50 carved stone slabs that had been reset there at the beginning of the Terminal Formative. The carved stones, also known as the “conquest slabs,” were originally interpreted as toponyms of the places that Monte Albán had conquered (Marcus 1983). However, a re-interpretation of this iconographic program by Arthur Joyce and Javier Urcid provides an alternative explanation of these glyphs. According to Urcid and Joyce (2013), the iconography found in this program does not refer to place names but rather to the names of people, likely the leaders of Monte Albán. Previously, Alfonso Caso had concluded that the “hill” (or place) glyph with another specific glyph above it was the name of particular place, a toponym. Later Joyce Marcus expanded upon this interpretation and concluded that those place glyphs accompanied by an inverted decapitated head with closed eyes signaled the execution of the ruler of that place and the conquest of that place by Monte Albán. Marcus then compared the names depicted with place names in the Codex Mendoza and Nahuatl names given to towns in Oaxaca during the 16th century to identify locations named by the slabs. Among the locations she identified were Tututepec on the Pacific Coast, the Cuicatlán Cañada, Miahuatlán, and Ocelotepec. In Urcid’s and Joyce’s interpretation the presence of nose-plugs along with the hill glyphs in this program signal that these were not place name glyphs, they were personal name

glyphs. They also argue that in other iconography the closed eyes of a face usually only means that person was deceased. Therefore, the inverted heads with closed eyes do not represent sacrificed victims but rather a “deceased, or fallen hero” or “revered ancestor” (Urcid and Joyce 2014: 162). More importantly, this new interpretation adds to an already large body of archaeological evidence from the lower Rio Verde Valley (Joyce 2013, 2010; Levine 2007; Workinger 2002) that shows Monte Albán did not conquer, control, or otherwise have a significant influence over the Costa Chica.

While the Valley of Oaxaca experienced change and upheaval, the Costa Chica and the Isthmus of Tehuantepec continued to experience growth and participate in exchange networks (Joyce 1993). At Laguna Zope, settlement growth appears to slow but ceramic and obsidian data indicate involvement in exchange networks that linked the area to the Gulf Coast. Perhaps concurrent with the collapse of La Venta, obsidian from Guadalupe Victoria reappeared during this period (Zeitlin 1978). Lustrous brown and waxy orange wares with Usulután-like resist décor, thought to be Maya in origin, also became popular (Zeitlin 1978). In addition to these changes there was an enormous increase in flaked quartz stone tools and ornamental shell exploitation (Zeitlin 1978). This increase also coincided with a higher importation of shell and shell ornaments in the highlands and the occurrence of shell in high status burials and at ceremonial centers (Zeitlin 1978). Joyce (1993) suggests that the elites of coastal Oaxaca were participating in a prestige exchange network that involved elite ceramics, obsidian, shell, and various other coastal resources.

In the lower Rio Verde Valley, Charco Redondo grew to become a population center and another secondary population center emerged at San Francisco de Arriba as well (Joyce 2013:15). Other sites in the lower Verde included Rio Viejo, Yugué, and Cerro de la Cruz. The presence of gray-ware pottery imported from the Valley of Oaxaca at the sites of Charco Redondo, San Francisco de Arriba, Yugué, Rio Antiguo, and Rio Viejo indicate that some kind of relationship with the Central Valleys was maintained; however, whether or not the connection was direct is difficult to ascertain (Levine 2013). Also, evidence of ceramic imports from the Mixteca Alta in Middle Formative contexts from San Francisco de Arriba and obsidian from Paredón and Pachuca indicate a very early connection of the lower Rio Verde to the highland Mixteca areas and the Basin of Mexico (Workinger 2013; Joyce 1993).

There were also indications from ceramics recovered by the Oaxaca Coast Survey Project that settlement was developing in the Manialtepec Basin, specifically at the site of Bajos de Chila (Brockington 1974; Houston 1974). However, because extensive excavations have not been undertaken at Bajos de Chila, archaeologists only know that it had occupation dating to this period; no other information was available until the PALM. At this point in coastal research, it appears that the most concentrated occupation during the Late Formative was in the lower Rio Verde Valley.

After the establishment of Monte Albán in the archaeological record the debate surrounding the nature of the interregional interactions in Oaxaca begins to intensify. Monte Albán was certainly an impressive polity with its large monumental works but whether or not it was able to exert a core-like influence (as seen in the traditional world systems view) over the

other regions in Oaxaca is fiercely debated. As I continue to discuss in the following time period data from the Costa Chica suggests Monte Albán was not able to exert control over the coast; however, additional data from the adjacent Central Coast is needed to confirm whether or not this was true for the entire Pacific coast of Oaxaca. It is also unknown how the Costa Chica region interacted with its neighbors to the west on the Central Coast.

The Terminal Formative

As the Terminal Formative Period (AD 1- AD 300) began, the Costa Chica experienced an explosion in population growth and settlement nucleation, and populations on the rest of the Central Coast started to grow (Brockington et al. 1974; Matadamas and Ramirez 2010; Kroefges 2004). In the Valley of Oaxaca, Monte Albán's population and influence continued to expand. In the southern Isthmus, the growth of Laguna Zope stalled; however, it continued to be involved in changing interregional interactions (Zeitlin 1978).

In the Valley of Oaxaca, Monte Albán's relationship with the surrounding Valley communities and other regions varied throughout the Late/Terminal Formative. Archaeological evidence suggests that in the Oaxaca Valley certain communities, such as Tomaltepec, Abasolo, Yagul, San Jose Mogote, Dainzú, Cuilapan, and later Cerro Tilcajete were likely very closely affiliated with Monte Albán (Joyce 2010). Ceremonial architecture such as ballcourts, two-room temples, elite residences, burial offerings, and ceremonial precincts that were similar to those at Monte Albán were observed at those sites (Joyce 2010; Whalen 1981:88-105; Marcus and Flannery 1996:170). Many other sites in which crema-ware ceramics were found were interpreted to have had close ties to Monte Albán, because these ceramics were only produced

from clay sources located near the ancient city (Elson and Sherman 2007; Kowalewski et al. 2009; Sherman et al. 2010). By the Terminal Formative evidence of conflict at El Mogote (Tilcajete), discontinuity in settlement patterns and the appearance of crema-ware at major centers in the other central valleys reflected efforts by the leaders of Monte Albán to control, perhaps because of trade, the valleys lying between the Valley of Oaxaca and the coast (Balkansky 2002; Feinman and Nicholas 1990; Brockington et al. 1974; Sherman et al. 2010; Elson and Sherman 2007; Elson 2006).

In fact, large amounts of shell from the Pacific (greater than in the Valley of Oaxaca) and possible shell workshop areas were observed at sites in the Sola and Ejutla Valleys, but are tentatively dated to the Classic Period (AD 300-800) (Balkansky 2002; Feinman and Nicholas 1990). It has been further suggested that Monte Albán's rulers expanded their authority all the way to the coast (Marcus and Flannery 1996). Evidence cited for political influence at a large scale included: the previously discussed “conquest slabs” of Building J at Monte Albán; the presence and distribution of Monte Albán II/G12 or gray-ware pottery across the highlands of Oaxaca and the Pacific coast; and the presence of Gralisa-ware in the Terminal Formative Tomb 118 at Monte Albán (Caso et al. 1967:52; Marcus and Flannery 1996; Houston 1974:56, Redmond and Spencer 2008; Redmond 1983). Yet, despite the evidence from the highlands, data from the coast indicating Monte Albán political influence remains a matter of debate (Chase et al. 2009:178; Joyce 2003; Marcus and Flannery 1996:201-202; Sherman et al. 2010; Workinger 2002; Zeitlin and Joyce 1999). Along the coast, in the lower Rio Verde valley and the Isthmus of Tehuantepec, G12 gray-wares resembling Monte Albán II were found to have been locally produced (Levine 2013; Joyce et al. 2006). Additionally, these gray-wares were unique in both

form and decoration with little resemblance to ceramics from other regions (Joyce 1993:73). The ceramic data combined with a lack of settlement change during this period suggest Monte Albán did not exert any significant control over the lower Rio Verde Valley during the Late/Terminal Formative Period. Finally, it is likely that the polity of Rio Viejo was simply too big and too far away for Monte Albán to attempt to dominate it (Workinger 2013; Joyce 2010; Joyce et al. 2000; White and Barber 2012).

Based on previous archaeological research and recent geospatial modeling, however, there have been indications that the Central Coast, from the Manialtepec Lagoon to Huatulco, would have been more accessible to the elites living in the Central Valleys. Recent geospatial modeling conducted by Sarah Barber and Devin White (2012), as well as by Sherman et al. (2010), suggest that if elites from the central Oaxacan highlands wished to exploit Pacific coastal resources the Manialtepec Basin on the Central Coast would have been an ideal location from which items transported along the coast could be moved inland. The geospatial model known as FETE (From Everywhere to Everywhere) was used to predict pedestrian transportation corridors requiring the least caloric expenditure for the region of Oaxaca (White and Barber 2012). Out of the multiple pedestrian transportation routes produced, two of the most direct routes between the Oaxacan highlands and the Pacific coast began in the Manialtepec Basin. Interestingly, the paths to the coast produced by the FETE model were similar to the paths rendered by a Least Cost Path analysis conducted by Sherman et al. (2010: Figures 10-13). Sherman et al.'s (2010: Figures 10-13) route labeled "Coastal Point 2" appears to follow the northern course of the Manialtepec River for 20 km before slightly veering off to the west by approximately 3 km; however it continues parallel to the river and ends about 9 km to the west of the Manialtepec Basin.

Ethnohistoric sources also recorded that an array of coastal resources (such as cacao, cotton, feathers, salt and purpura dye) were being transported inland from the coast during pre-Hispanic times (Terraciano 2001; Gerhard 1972). Control of trade in these items would have been highly valued by the elites that used them to gain, maintain, and legitimate their status (Joyce 1993; Paso y Troncoso 1981; Spores 1993). Additionally, the Oaxaca Coast Survey project recovered Gralisa-ware from sites along the central Pacific Coast to the east of the lower Rio Verde Valley, primarily at Bajos de Chila in the Manialtepec Basin (Houston 1974:49). However, because archaeological research between the lower Rio Verde Valley and Huatulco has only been preliminary (Brockington 1974; Menchaca and Barber 2013), it has been impossible to infer the exact nature of the possible connection between the Central Coast and Oaxaca's central highlands in the later Formative.

By the end of the Terminal Formative changes in on the Main Plaza at Monte Albán indicate the occurrence of a political crisis. Narrative programs like, those at Building J, were dismantled, covered up, and in some cases broken and used as construction fill (Urcid 2008; Joyce 2010:159; Winter 1994:15). According to Joyce (2010), these events, along with changes in ritual, mortuary practices, iconography, and monumental architecture on the Main Plaza indicate that the nobility of Monte Albán had successfully managed to overthrow the previous traditional forms of leadership and become powerful exclusionary rulers (Joyce 2010).

On the floodplains of the lower Rio Verde Valley settlement growth and nucleation continued to increase and culminated in the emergence of a regional center located at Rio Viejo. It also resulted in the presence of a five-tiered settlement hierarchy with secondary sites such as

San Francisco de Arriba, Charco Redondo, Cerro de La Virgen, and Tututepec (Joyce 2010). Major construction projects erected monumental buildings at Rio Viejo, Charco Redondo, San Francisco de Arriba, Cerro de La Virgen, and Yugué. (Joyce 2010). The largest construction project was the acropolis at Rio Viejo. In addition to these large construction projects an emphasis on community was also evident in the rituals accompanying these works, specifically caches of luxury goods placed in public buildings (Barber et al. 2013). Although obtaining exotic ritual objects conferred status upon elites, the subjective use of the objects transformed the items from something that signaled high status into something that materialized corporate identity (Joyce 2010:194; Barber 2013). However, although Rio Viejo became a powerful polity that likely tried to unify the surrounding valley centers under its singular rule during the Terminal Formative; Joyce and colleagues (Barber and Joyce 2007) suggest that it was never able to fully do so.

Due to the limited amount of archaeological investigation, the Late and Terminal Formative Period along the Central Coast to the east of the lower Rio Verde Valley has not been well distinguished. However, excavation and survey suggest that during the Late/Terminal Formative settlement arose and grew in the Rio Huamelula Valley, at Bocana Copalita, and at Bajos de Chila in the Manialtepec Basin (Brockington 1974; Kroefges 2004; Matadamas and Ramirez 2010). Ceramics recovered by the Oaxaca Coast Survey Project have been used to suggest that people living at the site of Bajos de Chila had possibly developed interregional exchange relations with Monte Albán (Brockington et al. 1974; Houston 1974). Gralisa-ware, a type of graphite and red painted ware known as K.5 and A.9 in Late/Terminal Formative Monte Albán Tombs 6 and 118, was found in excavations at Bajos de Chila (Houston 1974; Caso et al.

1967). Although Gralisa-ware was present at Monte Albán, it has so far only been found in great abundance and variety at two locations elsewhere in Mesoamerica, Bajos de Chila and the highlands of Guatemala (Houston 1974). Due to this distribution Houston (1974) theorized that the central part of the coast also had strong connections to Maya area. However, because of the limited nature of excavations by the Oaxaca Coast Project these long-distance connections and additional conclusions about the nature of social organization at Bajos de Chila have not been possible.

In the southern Isthmus, Laguna Zope's growth had completely stagnated and the site was abandoned around AD 300 in favor of Saltillo located about 1 km to the southeast (Zeitlin 1978). Also by AD 300, there was almost no Guadalupe Victoria or El Chayal obsidian present. These sources were replaced by obsidian suspected to have come from Zaragoza in Puebla (34 percent of the assemblage), possibly controlled by El Tajin, as well as from Altotonga (43 percent of the assemblage). In addition to this change in obsidian, there was also yet another ceramic shift. Ceramics shifted away from glossy-waxy orange and brown-and-red-slipped pottery to Oaxaca Valley-related gray-wares (Zeitlin 1978). However, contrary to the previous patterns there was a dramatic decline in flaked quartz stone tools and a sharp decline in ornamental shell exploitation (Zeitlin 1978). Shell continued to be important to Laguna Zope; however, by the site's abandonment it appears to have decreased in importance (Zeitlin 1978). Interestingly, Zeitlin (1978) also pointed out that this decline in shell production is especially puzzling because of the obsidian and ceramic evidence that suggest Laguna Zope was connected via exchange networks to Monte Albán in the Valley of Oaxaca, which at the time was gaining power and likely using large quantities of shell.

As was the case in the previous era, the interregional exchange of items continued to be an important aspect in all of these regions. Additionally, as presented above, the role of Monte Albán in these interactions has been debated for decades. Marcus and Flannery (1996) argue that following the foundation of Monte Albán there was a world-systems like dynamic in Oaxaca with Monte Albán as the principal core area. But, according to research by Joyce and his colleagues (Joyce et al. 2000) Rio Viejo was large enough to have been a peer to Monte Albán. It may be that a combination of world systems and Peer-polity-like interactions were present. However, additional information from other areas of the Oaxaca coast, specifically the Central Coast, is needed to determine how these areas related the large centers of population.

The Classic Period

At the beginning of the Classic Period (AD 300-800), archaeological evidence suggests more shifts in interregional relations. Political upheaval occurred in the central highlands and along the coast (Joyce 2010). The coast and the central valleys were also not the only areas to experience dramatic change. Other early urban centers such as Yucuita, Huamelulpan, and Monte Negro in the Mixteca Alta experienced socio-political upheaval as well (Joyce 2010).

Although Monte Albán was certainly a sacred and politically powerful place, the nature of its interaction with the surrounding valley communities and further abroad during the Classic Period is again unclear. By the Early Classic other communities in the Valley of Oaxaca, such as Jalieza, the DMTG cluster of sites (Dainzú, Macuilxóchitl, Tlacoahuaya, and Guadalupe), El Palmillo, and San Joaquin in the Ejutla Valley, began to rival Monte Albán in size. Beyond the Central Valleys researchers generally agree that by the Early Classic Monte Albán's influence

had retracted from areas that it may have conquered during the Terminal Formative, such as the Cuicatlán Cañada, and this may have been related to its relationship with Teotihuacan (Joyce 2010:201). However, the nature of the relationship between Teotihuacan and Monte Albán is also a highly debated matter. Winter (1998) suggests the relationship was hegemonic in nature with Teotihuacan exerting political or economic control over Monte Albán; while Joyce (2010:205) suggests that the relationship was more of a reciprocal trading and political partnership. Although the nature of the interaction between the two polities is unclear, there is extensive evidence for direct interaction between the two sites including migration from Oaxaca to Teotihuacan (Spence 1998). A Zapotec barrio in the Tlailotlacan residential area at Teotihuacan was established during the Early Classic Tani phase (Cowgill 1997:139; White et al. 2004) and there were several discoveries of Teotihuacan imports and imitations on the North Platform of Monte Albán. The findings on the North Platform include: a midden with Basin of Mexico-style pottery (imported and locally produced), mica (used to decorate Teotihuacan braziers), tools to work mica, a Teotihuacan-style black limestone figurine; an altar with Teotihuacan-style greenstone figurines; a Teotihuacan-style seated burial with a possible Thin-Orange bowl from central Mexico, and Teotihuacan-style greenstone figurines (Joyce 2010:203). Whether or not the relationship between Teotihuacan and Monte Albán was hegemonic or reciprocal, their interaction most certainly would have added to the power base of the elites at Monte Albán.

Near the end of the Terminal Formative the giant acropolis at Rio Viejo, in the lower Rio Verde Valley, was largely abandoned and remained so throughout the Early Classic. Other sites were abandoned as well or declined in size, and settlement shifted to defensible piedmont

locations (Joyce 2013:27). In the lower Rio Verde Valley (and the Mixteca Alta and the Mixteca Baja) imitations of thin-orange ceramics strongly resembling central Mexican Thin Orange pottery appeared, and imported Pachuca obsidian dominated the lithic assemblage (Joyce 1993:75). At the same time, there was a decline in gray-ware pottery imported from the Valley of Oaxaca and obsidian that may have arrived via Oaxacan highland trade routes. This suggests that strong ties were established with central Mexico, specifically Teotihuacan, and that former ties with the Zapotecs at Monte Albán were de-emphasized (Joyce 1993). However, this connection did not continue after the Late Classic Period collapse of Teotihuacan. After the collapse of Teotihuacan, evidence for interaction with central Mexico diminished (Joyce 1993:75). Furthermore, the decline in the Oaxaca Valley gray-ware and obsidian may also have been related to conflict occurring in the highlands during this same time period.

While the lower Rio Verde Valley experienced collapse during the Terminal Formative/Early Classic and Monte Albán experienced socio-political re-organization, excavations in the Rio Huamelula Valley (Kroefges 2004), at Bocana Copalita (Matadamas and Ramirez 2010; Fernández and Gómez 1988), and at Bajos de Chila (Brockington et al. 1974) do not make it clear what was happening on the Central Coast during this time. Excavations in the Huamelula Valley indicate that settlement growth had possibly started to gain momentum with the construction of a civic-ceremonial compound and possibly an I-shaped ballcourt at the site of La Soledad as early as the end of the Terminal Formative or Early Classic Period (Kroefges 2004). At the site of Bocana Copalita, a plaza surrounded by buildings, including a ballcourt, was also in use at least by the end of the Early Classic (Matadamas and Ramirez 2010), and excavations by the Oaxaca Coast Project at Bajos de Chila indicate that carved stone stelae found

there likely date to the Early Classic Period (Brockington et al. 1974, Hepp n.d.). Interestingly, although the artifact data suggest some connections to the Oaxacan highlands, it may also indicate ties between the Central Coast and the Isthmus of Tehuantepec during the Terminal Formative and Early Classic Periods (Houston 1974, Jorrín 1974, Matadamas and Ramirez 2010). Excavations at Bajos de Chila recovered both Gralisa-ware and a Monte Albán-style urn in the form of the Zapotec god Cocijo. No such Zapotec-style effigy vessels have been reported in the lower Rio Verde Valley (Sarah Barber personal communication). Ceramic figurines from Early Classic contexts at Huatulco exhibited strong ties with those from the Isthmus of Tehuantepec, specifically from Laguna Zope (Matadamas and Ramirez 2010). Additionally, iconographic studies of the stelae found at Bajos de Chila (Jorrín 1974, Urcid 1993) and ballgame paraphernalia found at the site of La Soledad were both considered to be stylistically most similar to corresponding material from Chiapas and the highlands of Guatemala (Matadamas and Ramirez 2010). Finally, obsidian imported from Puebla/Veracruz found in the Rio Huamelula Valley further reflects connections to the Isthmus region (Kroefges 2004).

Although Laguna Zope was abandoned at the beginning of the Early Classic in favor of Saltillo, this major change was not accompanied by settlement decline (Zeitlin and Zeitlin 1990). In fact, after its foundation Saltillo continued to grow throughout the Classic Period until it reached its maximum of 267 hectares in the Early Postclassic (AD 800-1200) (Zeitlin and Zeitlin 1990). Unlike the rest of Oaxaca, the southern Isthmus did not appear to establish interactions with Teotihuacan during the Classic Period but instead strengthened its pre-established Gulf Coast ties, possibly with El Tajin (Zeitlin and Zeitlin 1990). At Saltillo there was no obsidian from Pachuca or El Chayal; instead obsidian came from Zaragoza in Puebla and Altotonga in

Veracruz. The Gulf Coast connection is further emphasized by the presence of kaolin and white slipped wares (during the Early and Late Classic), as well as a diminished use of Oaxaca Valley gray-wares (Zeitlin and Zeitlin 1990). Additionally, an El Tajin style votive stone hacha, imported polychrome pottery from the Gulf Coast, and polychrome pottery possibly from the Maya lowlands, further highlight Saltillo's connections to the north (Zeitlin 1978).

In the lower Rio Verde Valley, the period of political fragmentation during the Early Classic ended with the Late Classic re-emergence of Rio Viejo as a political center and possibly part of centralized authority (Joyce 2010). However, while Rio Viejo had re-emerged as a regional capital and its acropolis was once again a civic-ceremonial center, the base of its centralized authority had changed from a focus on communal corporate rule to a more exclusionary form of power (Joyce 2010:243). The extent of Rio Viejo's influence in the lower Rio Verde Valley is not clear, but carved stone stelae similar to those found at Rio Viejo during the Late Classic were also observed at the site of Rio Grande about 11 km to the west (Urcid and Joyce 2014).

Interregional connections in the lower Rio Verde also shifted during the Late Classic with a decrease in Pachuca obsidian likely signaling a decrease in trade with Teotihuacan and coinciding with the collapse of that site (Joyce 2010:243). Obsidian data indicate that the most common source of obsidian during the Late Classic was from Ucareo in Michoacán, which suggests connections to Xochicalco (Joyce 2010:243). Along the Oaxaca coast, carved stone monuments similar those in the lower Rio Verde Valley were found at the sites of Piedra Labrada, El Ciruelo (Cola de Palma), and Rio Grande, showing connections along the coast of

Mexico as well as with the interior (Gutiérrez 2008; Urcid 1993; Joyce 2010:243). Common themes include representations of rulers dressed as jaguars and references to the ballgame and human sacrifice (Joyce 2010). Inscriptions on the carved stones are similar to Classic Period highland Zapotec epigraphy (Urcid 1993). Certain symbols like the RE glyph and a version of the sign for blood appear to have come from the Mexican Highlands, specifically Teotihuacan and Xochicalco (Urcid 1993; Urcid and Joyce 2001).

Along the Central Coast of Oaxaca very little is known, although there are some indications that socio-political trends may have mirrored those in the lower Rio Verde Valley and the Central Valleys of Oaxaca during the Late Classic. The Classic Period was not well delineated at Bocana Copalita but there was evidence of occupation during the Late Classic and it is likely that the site's ballcourt was in use during this period. In the Huamelula River Valley excavations show that the most construction and activity took place during the Late Classic (Kroefges 2004). Three I-shaped ballcourts located at the sites of Los Cocos, Huamelula-La Soledad, and Hualampano were most definitely in use during the Late Classic (Kroefges 2004). The presence of sculptured tenoned heads and hachas found near La Soledad suggest the practice of human sacrifice through decapitation was being performed. Ballgame-related sculptures, Classic Period pottery, and obsidian from the Puebla/Veracruz region indicate there were strong connections between the eastern Oaxaca coast, the Isthmus, and the Gulf Coast during Classic Period. Additionally, Kroefges (2004) suggests that the presence of concurrently occupied sites with individual ceremonial centers in the Rio Huamelula valley means there was centralized authority in this area during the Classic Period in the form of community leaders, but that no single polity dominated the entire region. He also suggests that the ballgame may have been a

“ritualized substitute for inter-polity rivalries.” At Bajos de Chila there is not much information on the Late Classic from excavations other than ceramic evidence indicating occupation (Brockington et al 1974). However, other sites along the coast, such as Rio Grande, Nopala, Piedra Parada, and Jamiltepec, have stelae dating to the Late Classic (Brockington et al. 1974; Arnuad-Bustamante 2003).

The Classic Period was a time of change and re-organization; however, evidence of importation and exchange suggest continued, perhaps increased, participation in interregional exchange networks. The participation of these regions in interregional exchange networks suggests world systems-like interactions but the specifics these interactions remain unclear. Further information from the Central Coast would serve to clarify this matter, specifically regarding how these regions related to each other and their surrounding areas within Oaxaca.

The Early Postclassic

At the end of the Late Classic many regions throughout Mesoamerica experienced yet another dramatic political decline followed by societal re-organization and cultural changes. The exception to this, as mentioned earlier, appears to be the southern Isthmus. The southern Isthmus maintained its independence and continued to prosper through the Early Postclassic (AD 800-1200) (Zeitlin and Zeitlin 1990). In the Valley of Oaxaca, Monte Albán experienced collapse involving a severe decline in population, a cessation of construction activities, and abandonment of ceremonial centers around 800 AD, about 200 years after the collapse of Teotihuacan (Feinman and Nichols 1990: 236-238; Joyce 2010). Although the site continued to be a sacred place in to the Early Postclassic, it never again regained its power (Joyce 2010). Some

researchers suggest that, without the connection to Teotihuacan, the elites of Monte Albán lost much of their influence and, along with that, their ability to attract and retain followers (Joyce 2010). Understanding this upheaval has been inhibited in the past by the inability to delineate Late Classic, Early Postclassic, and Late Postclassic ceramics in the Valley of Oaxaca. However, a recent re-analysis of the ceramic record by Robert Markens (2008) has provided archaeologists with a new seriation and has allowed for a better analysis of sites such as Lambityeco and Dainzú-Macuilxóchitl. Lambityeco was a salt-producing site located in the Tlacolula sub-valley with, perhaps unwilling but extremely close, ties to Monte Albán at the end of the Late Classic (Lind 2008). Excavations led by Paddock (2008) suggest that Lambityeco may have had its local lineage deposited and replaced by the elites at Monte Albán. Lind (2008) also suggests that it may have been the close socio-political connection between Monte Albán and Lambityeco that contributed to Lambityeco's economic and population decline during the Early Postclassic and prevented its recovery in the Late Postclassic. At Macuilxóchitl, also located in the Tlacolula sub-valley, research suggests that it too had close connections with Monte Albán, experienced great growth during the Late Classic, and then socio-political change and population decline. However, according to Faulseit (2012:241), Macuilxóchitl's "social institutions that governed household ritual behavior and regional markets remained intact." Research by Faulseit (2011) also indicates that community-level ceremonial activities became more open and less restricted during the Early Postclassic. Unlike many other centers in the Valley of Oaxaca that were nearly or completely abandoned by the Late Postclassic, Macuilxóchitl managed to reemerge and establish a "noble house" (Faulseit 2012). However, despite such evidence for profound social

transformation, a precise understanding of those changes in the central valleys of Oaxaca is still needed (Joyce 2010).

Meanwhile, in contrast to other regions, the Early Postclassic Period on the Costa Chica of Oaxaca is much better understood. As with other parts of Oaxaca, the lower Rio Verde valley experienced institutional collapse; monumental construction ceased and ceremonial centers declined (Joyce 2010:252-253). However, archaeological research has demonstrated that this decline in elite power did not coincide with a decline in population or complex social organization. Instead, the collapse may have served to equalize socio-economic statuses and grant commoners more freedoms (Joyce 2010:252-253). Excavations at Rio Viejo by Stacie King (2013) suggest that the community thrived during the Early Postclassic by focusing their efforts on the production of cotton thread and cloth. These products were then exported north to the Mixteca Alta, likely in exchange via markets for maguey, pulque, and obsidian from Pachuca, Hidalgo, and Pico de Orizaba (King 2008). There is evidence of carved stone monuments at Rio Viejo that date to the Early Postclassic, but these differ from the ones in the Late Classic. Instead of depicting individual rulers, they appear to be more generic and to depict individuals without name glyphs or elaborate or distinctive attire (Joyce 2008:234-239). The carved stone monuments were also placed in more open and easily accessible areas.

Additionally, acts such as the reoccupation of the acropolis and the destruction and re-use of other carved stone monuments suggest that commoners were actively taking back elite symbols of power (Joyce 2008; Joyce et al. 2001:359-359). Along with societal re-organization, it also appears that settlement was re-organized. During the Early Postclassic, settlement shifted away from the floodplain and toward the piedmont. There were two areas of nucleated settlement at

Rio Viejo and San Marquitos; however, neither of these sites had monumental architecture or administrative facilities during this time period (Joyce 2008:234-235). Arthur Joyce and colleagues (2004) suggest that this means the lower Rio Verde valley was politically fragmented during the Early Postclassic.

Despite the dramatic changes that occurred throughout Oaxaca during the Early Postclassic archaeological evidence from the Costa Chica indicates that although interregional interactions may have been altered, they still continued and thrived. However, whether or not the Central Coast also underwent a similar experience to its neighbor the Costa Chica during this period is unknown. Additionally, whether or not the collapse of Monte Albán effected the Central Coast is also not known.

The Late Postclassic

After the demise of Monte Albán and the dramatic changes of the Late Classic and Early Postclassic, small city-states (also known as *cacicazgos*) emerged and flourished in the Late Postclassic (AD 1200-AD 1500) Valley of Oaxaca (Joyce 2010). The greatest change occurred in elite culture, while commoner household organization exhibited continuity (Blomster 2008; Lind 2008; Faulseit 2008). Alliances between *cacicazgos* became the desired method to reinforce the power and legitimacy of ruling lineages and the position of the *cacicazgos* in the regional network (Oudijk 2008; Blomster 2008a, b; Markens et al. 2008). Royals with ancestry from places that had divine connections or ancient genealogies were the most desirable marriage partners (Oudijk 2008; Blomster 2008a, b; Markens et al. 2008). Several sites including Zaachila, Mitla, Macuilxóchitl, and Cuilapan established royal dynasties and intermarried with

elites from other powerful centers in the Mixteca Alta (Oudijk 2008; Blomster 2008a, b; Markens et al. 2008). Additionally, heroic histories that mixed supernatural events with the historical actions of ancestors were created to further legitimate the ruling dynasties (Oudijk 2008; Blomster 2008a:24, 2008b:322-324; Markens et al. 2008). Yet, despite the emphasis on marriage alliances, military action was not unusual. In the 14th century, exiled nobles from Zaachila invaded the southern Isthmus and the region experienced dramatic population decline along with an intrusion of Zapotec material culture (Zeitlin 1978). Zapotec control of the southern Isthmus lasted until the arrival of the Spanish (Joyce 1993).

Following these new alliances to the Mixteca Alta, elites across Oaxaca began to share the similar material culture of Mixteca-Puebla style and iconography (Blomster 2008a). New symbols of power were introduced, such as turquoise nose-piercings and sacred bundles made of paper cloth or plants that enveloped a sacred object (likely the bones of important ancestors) (Blomster 2008:25-26). New material culture available to both elites and commoners also appeared or became more widely available, including bichrome pottery, flutes, earspools, spindle whorls, and copper objects (Blomster 2008:28). Additionally, ethnohistoric and archaeological evidence indicate that the economy of Late Postclassic Oaxaca was marked by a high level of commercialization that was not tightly controlled by a state institution but that did result in fierce competition between the cacicazgos (Blomster 2008). Monumental and civic-ceremonial structures were again constructed, but they were less common and smaller in comparison to those of the Classic Period (Blomster 2008). Finally, while smaller sites of centralized authority did re-emerge in the Valley of Oaxaca, it was never again united under a single entity (Joyce 2010). Such was the political landscape when the Spanish arrived (Joyce 2010).

While the Valley of Oaxaca remained fragmented from the end of the Late Classic to the arrival of the Spanish, the coast of Oaxaca was re-organized and re-unified by an invasion of Mixtecs at the beginning of the Late Postclassic (Levine and Joyce 2008; Spores 1993). According to the Mixtec Codices Nuttal, Bodley, and Colombino-Becker in the 11th century, the Mixtec Lord 8 Deer “Jaguar Claw” founded the powerful Mixtec Tututepec Empire along the Pacific coast of Oaxaca (Hermann 2007). Tututepec was located in the lower Rio Verde Valley approximately fifteen kilometers north of the coast and twenty kilometers east of Rio Viejo in the foothills of the Sierra Madre Mountains (Joyce 2010; Levine 2007). The codices also show that after the foundation of Tututepec, Lord 8 Deer continued to expand his empire by conquering dozens of coastal towns that were then required to pay tribute to Tututepec (Levine and Joyce 2008:45). The natural resources of the coast (such as cacao, salt, cotton, fish, and quetzal-bird feathers) were greatly valued by highland Oaxacans and this access was likely one of the main motivations for Lord 8 Deer to target the coast for conquest (Joyce et al. 2004). Although Tututepec disappears from the codices after Lord 8 Deer returned to Tilantongo to usurp the throne there, early Spanish colonial documents indicate that Tututepec continued as a powerful polity. At the time of Spanish arrival, Tututepec was said to have controlled an empire of 25,000 km² along the Pacific Coast (Joyce and Levine 2008). These early Spanish documents consist of the Relaciones Geografias, litigation documents, and the writings of Fray Francisco Burgoa (Levine 2007; Paso y Troncoso 1981; Gerhard 1972; Terraciano 2001). They are consistent with the representation of Tututepec in the Codices as “the capital of a conquest empire founded by the Mixtecs” and they also record the subordination of various coastal towns to Tututepec (Joyce et al. 2004; Spores 1993; Gerhard 1972). The ethnohistoric sources also

recorded the great resources of the coastal Mixtecs, including gold, copper, cotton, cacao, pearl, salt, and fish (Levine 2007).

In addition to the ethnohistoric sources, archaeological survey and excavations at Tututepec show changes in settlement, architecture, and ceramic material that provide supporting evidence for a Late Postclassic Mixtec intrusion (Joyce et al. 2004; Workinger 2002; Levine 2007). Survey in the lower Rio Verde Valley revealed that during the Late Postclassic, settlement continued to shift into the piedmont zones and almost completely to the east side of the Rio Verde (Joyce et al. 2004, O'Mack 1990). In addition to these locational shifts there was a 512% increase in occupation area, with 94.5% of it centered at the sites of Tututepec and San Francisco de Arriba (Joyce et al. 2004; Joyce 2008). In the Late Postclassic Tututepec was one of the largest sites, by area, in Mesoamerica and it was the only site in the lower Rio Verde Valley with mounded architecture and carved stone monuments (Joyce et al. 2004; Joyce and Levine 2008). Furthermore, as previously discussed, the lower Rio Verde Valley was fragmented in the Early Postclassic and would have been vulnerable to conquest.

Analysis of pottery styles, figurines, spindle whorls, groundstone, and projectile points at Tututepec also show a discontinuity that supports the assertion of a Mixtec intrusion (Levine 2007; Workinger 2002). Mixteca-Puebla Polychrome pottery from Tututepec was found to be both formally and stylistically closest to that from the Mixteca Alta, although the occurrence of blue paint was higher at Tututepec (Forde 2006). Interestingly, although the Mixteca-Puebla polychrome found at Tututepec was stylistically very close to the same material from the Mixteca Alta, petrographic analysis indicates that most of the polychromes were produced

locally (Levine 2007:382). Ground stone, that was stylistically more similar to Mixteca Alta equivalents, and burials found in the seated position like bundle burials depicted in the Mixtec Codices also suggest strong ties to the Mixteca Alta (Levine 2007). Additionally, a carved stone monument (Monument 6) likely representing the Tolteca-Chicimeca deity Itzpapalotl, as well as high percentages of obsidian from Pachuca and Orziaba, provide archaeological support for Tututepec's connections with the interior of Mexico as documented in the codices (Urcid and Joyce 2001; Joyce 1993) .

Despite the incursion and the resulting shift in settlement and material culture, Levine's excavations showed that society at Tututepec differed from that found in the Mixteca Alta. Levine (2007:451) found that the commoners of Tututepec "consumed higher quantities of Mixteca-Puebla polychrome pottery and obsidian than their highland peers and were involved more heavily in long-distance trade networks." Overall, there was a greater quantity of polychrome pottery, obsidian, and copper objects in commoner residences at Tututepec than in the Oaxaca highlands (Joyce et al. 2004). Levine (2007) also found evidence of commoner feasts at the household level, suggesting that this was the locus of commoner ritual. He concluded the Mixtec incursion and the establishment of Tututepec as the capital of an empire elevated the common class in the lower Rio Verde Valley and that it was highly likely that these changes were embraced by the commoners.

Although the extent of Tututepec's empire has not been fully investigated, there were signs along the coast that it may have been just as extensive as the Spanish recorded. Along the coast, Mixteca-Puebla polychrome pottery has been recorded in high densities at the sites of

Huatulco and Pochutla (Brockington et al. 1974; Hepp n.d). Additionally, the Oaxaca Coast Survey project concluded that the site of Isla Piedra Blanca in the Manialtepec Lagoon was Mixtec site (Brockington et al. 1974). At the eastern edges of the empire's recorded boundary, at the site of Huamelula, evidence of Mixteca-Puebla polychrome pottery was also observed but not in the same quantity as to the west (Kroefges 2004). However, because the Central Coast has not been as thoroughly investigated as the lower Rio Verde valley, information, such as changes in settlement patterns and material culture from earlier occupations, is lacking. Thus, more archaeological investigation is needed to confirm the extent to which Tututepec controlled the coast of Oaxaca and the Manialtepec Basin directly adjacent to the lower Rio Verde Valley is strategically logical place to begin.

Tututepec's control of the Oaxacan coast during the Late Postclassic continues to be an unanswered question in Oaxacan archaeology; however, it is clear that it was one of the most powerful polities in Mesoamerica at the time of Spanish contact. It was so well known that, upon hearing about its grandeur, Hernan Cortes sent Pedro Alvarado with an army of Isthmus Zapotecs to Tututepec in 1521 and the great Mixtec Tututepec Empire finally fell (Levine 2007; Joyce and Levine 2008). The Mixtecs at Tututepec eventually rebelled and were subdued once again, but that did not stop it from becoming one of the wealthiest encomiendas of New Spain, second only to that of Hernan Cortes (Terraciano 2001).

Summary

As I have illustrated, there is a wealth of information from archaeological excavation and ethnohistorical sources on the developments and connections of the Valley of Oaxaca, the lower

Rio Verde Valley (the Costa Chica), and the Isthmus of Tehauntepec. However, information on the Central Coast of Oaxaca is lacking. The Mixtec Codices only cover Tututepec and many of the Spanish era colonial documents have been lost from this part of the coast (Sarah Barber personal communication). While some excavations and surveys have been done, information on the Central Coast from the lower Rio Verde Valley to the southern Isthmus of Tehuantepec is still lacking.

The lack of information has prevented archaeologists from answering some major questions about the settlement of coastal Oaxaca and interactions within this region. Although the discovery of La Consentida's very early occupation has greatly added to our knowledge of coastal occupation, the settlement history of the neighboring Central Coast is not well understood. Excavations at Bajos de Chila, Huatulco, and Huamelula did not produce material culture any earlier than the Late/Terminal Formative, which suggests that the initial occupation of the Central Coast of Oaxaca was later than that of the lower Rio Verde Valley. However, these projects were not nearly as intensive as the research that has been conducted in the lower Rio Verde Valley. Thus, a great deal of information is still needed.

How the Central Coast interacted with the major centers of occupation in the lower Rio Verde Valley and the Valley of Oaxaca is also poorly understood. The coast of Oaxaca was most definitely a rich and an important resource area, but whether or not the Central Coast was a target for trade or conquest by Monte Albán is unclear. The nearby Costa Chica was certainly desirable to the Mixtecs and the Spanish. Computer modeling indicates that the Central Coast was the closest area from which the highlanders of Oaxaca could have obtained coveted lowland

resources. Archaeological evidence from the Miahuatlán, Sola, and Ejutla Valleys suggests Monte Albán attempted to control these areas in order to gain access to coastal trade routes. Also, the central valleys of Oaxaca have a long history of shell ornament use and production, using shell from the Pacific. Yet, because little intensive research has been carried out on the coast of Oaxaca between the lower Rio Verde Valley and the Isthmus of Tehuantepec, these issues have been difficult to address.

CHAPTER 3: METHODS AND RESULTS

Methods

Archaeological research was carried out in the Manialtepec Basin on the Central Coast of Oaxaca (Figure 3) in order to begin addressing the issues raised in the Chapter 2. As previously illustrated, these questions included how the Central Coast of Oaxaca interacted with other regions of Oaxaca (specifically the Valley of Oaxaca and the lower Rio Verde Valley), as well as the lack of settlement information for this area. The Manialtepec Basin was chosen over other areas of the Central Coast due to its archaeological and geographical background. The main points of this background include: previous archaeological research (the Oaxaca Coast Project survey and excavations), computer modeling indicating the Basin may have been located on an important highland-coastal pedestrian route, the Basin's natural resources (the lagoon and two permanent rivers), and ethnohistoric sources suggesting this area's importance and occupation by the Mixtec Empire.

Data for this thesis project was gathered by the Proyecto Arqueológico Laguna de Manialtepec from February 11th to March 8th 2013. The project area consisted of the floodplains of the Manialtepec and Chila Rivers, the piedmont adjacent to both rivers and the lagoon, the coastal plain surrounding the Manialtepec lagoon, and the islands and shoreline of the lagoon itself (Figure 3). The PALM gathered artifact, feature, and geographical data through reconnaissance and cutting back pre-existing profiles. Due to the mountainous terrain and available funds and time, a systematic full coverage survey was not feasible; therefore, a reconnaissance was carried out.

The reconnaissance was conducted by two teams consisting of at least two archaeologists and one local guide hired to help navigate the terrain. As much as possible individual team members surveyed within 1 to 2m of each other, following the contours of the land on ridges and hills. On level land we used transects spaced 5 m apart. Site definition was based on the “100-meter rule;” artifacts and features separated by more than 100 meters were considered separate sites (Barber 2012; Barber and Joyce 2012; Kowalewski et al. 2009). Sites were designated by a system of prefixes and numbers modeled after survey projects conducted in the Oaxacan highlands (Kowalewski et al. 2009). Each site was given three prefixes with each prefix consisting of three letters. These prefixes indicate distrito, municipio and agencia, respectively. A number was then assigned to each site loosely based on the order in which they were discovered. During the 2013 field season, the PALM surveyed in one distrito, Juquila (JUQ), which included two municipios: San Pedro Mixtepec (SPM) and Tututepec (TUT), and five agencias: San Isidro Llano Grande (SLG), Hidalgo (HID), San Jose de Manialtepec (SJM), Aguaje El Zapote (AEZ), and Bajos de Chila (BDC). Some sites encountered by the PALM were previously discovered and named by the Oaxaca Coast Survey project directed by Donald Brockington in 1969 (Brockington et al. 1974). These sites were renamed according to the new system and their old name was placed into a category called “other names” on the site table. Additionally, several sites were given nicknames by PALM and placed in the “other name” category. Features, artifacts, and surface collections were recorded with handheld Garmin and Trimble GPS units as points (artifact groups or single artifacts), lines (walls and terraces), or polygons (mounds). Recorded features included terraces and other architectural elements, such as ballcourts, mounds, walking trails, springs, and lagoon islands. Surface collections consisted

of judgmental samples focusing on diagnostic artifacts that could indicate age or function of the sites encountered.

Limited excavation consisted of cleaning and exposing pre-existing profiles at three locations: Brockington's Manialtepec 2 (JUQ-TUT-HID-2) and Bajos de Chila 1 (JUQ-SPM-BDC-21 or Bajos de Chila) sites, as well as the newly discovered Linda Vista (JUQ-TUT-SJM-8) site. At Manialtepec 2, the side of a low mound that likely formed a part of a residential patio group, that had previously been cut by heavy machinery, was excavated (Barber 2014). At Linda Vista, excavations were focused on the side of a low mound that had been cut by the construction of a water retention pond at the north section of the ridge. Excavations at Bajos de Chila were focused on a profile created from the construction of a modern house. The profile cut the side of one of two pyramids located at the site's ceremonial center. At all of the locations archaeologists excavated about 20 cm from the cut face and artifacts obtained from the profile cuts were collected by strata.

Results from the Oaxaca Coast Survey Project's previous excavations and ceramic cross-ties with other nearby regions were used to date surface collection and excavation ceramics (Barber 2014). The geographic location of both the surface and excavation-collected artifacts, as well as the locations of all architectural elements and selected geographic features (springs, trails, bodies of water, and roads), were then entered into ArcGIS to create an archaeological map of the Basin. The select by attribute tool was used to map the location of the ceramics in relation to their specific time periods. These periods included the Late/Terminal Formative, the Early Classic, the Late Classic, the Early Postclassic, and the Late Postclassic

Results

Table 1: List of Archaeological Sites observed

Site Number	Site Name	Date Range	Area (hectares)
JUQ-TUT-SIL-1	-	Possible historic	0.3
JUQ-TUT-HID-2	Manialtepec 2	Early Classic to Late Postclassic	57
JUQ-TUT-HID-3	El Burrito	Late Classic to Late Postclassic	9
JUQ-TUT-HID-4	-	-	9
JUQ-TUT-HID-5	Hidalgo	Late Classic to Late Postclassic	5
JUQ-TUT-HID-6	Manialtepec 1	Late/Terminal Formative to Late Postclassic	13
JUQ-TUT-HID-7	-	-	0.3
JUQ-TUT-SJM-8	Linda Vista	Late Classic to Late Postclassic	115
JUQ-TUT-SJM-9	-	-	.1
JUQ-TUT-SJM-10	-	Late Postclassic to Historic	3
JUQ-TUT-SJM-11	-	-	6
JUQ-TUT-SJM-12	-	Late Postclassic	13
JUQ-TUT-SJM-13	-	-	0.3
JUQ-SPM-AEZ-14	Isla Piedra Blanca	Late Postclassic	11
JUQ-SPM-BDC-15	El Sacate	-	16
JUQ-SPM-BDC-16	-	-	1
JUQ-SPM-BDC-17	-	-	0.1

Site Number	Site Name	Date Range	Area (hectares)
JUQ-SPM-BDC-18	-	-	0.2
JUQ-SPM-BDC-19	Chila Cementario	Late Classic to Late Postclassic	52
JUQ-SPM-BDC-20	Bajos de Chila	Late/Terminal Formative to Late Postclassic	288
JUQ-SPM-BDC-21	Cerro de La Vieja	Terminal Formative and Late Postclassic	25

The PALM recorded 21 sites in the project area (see Table 1 above), including all of the original sites (7 total) found by the Oaxaca Coast Survey Project, as well as 7 out of the 8 stelae they observed (Brockington et al. 1974). According to ceramic analysis, these sites date from the Late Formative Period through the Late Postclassic Period, with the majority of occupation falling between the Late Classic to the Postclassic Periods. Ceramics from the Manialtepec Basin included: Late Formative Period coarse brown ware ceramics, Terminal Formative and Early Classic gray-ware ceramics (Figures 4, 5 and 6), Late Classic gray-ware ceramics (Figure 7), differentially fired and orange ware ceramics of the Early Postclassic (Figure 8), a wide range of Late Postclassic pottery including both coarse wares and Mixteca-Puebla style polychromes (Figure 9), and the Gralisa graphite-slipped red wares (Figure 10) previously observed by the Oaxaca Coast Project (Brockington et al. 1974).



Figure 4: Late Formative Sherds



Figure 5: Terminal Formative Sherds



Figure 6: Early Classic Sherds



Figure 7: Late Classic gray-ware sherd



Figure 8: Early Postclassic orange-ware sherd



Figure 9: Late Postclassic Mixteca-Puebla polychrome sherd



Figure 10: Gralisa graphite-slipped red-ware

Dated ceramic samples were used to assign occupation dates to the sites observed and ArcGIS mapping revealed specific patterns in settlement occupation for the Terminal Formative, Early Classic, Late Classic, Early Postclassic and Late Postclassic Periods. Based on the distribution of ceramic dates in this area, it appears that only three areas were occupied during the Terminal Formative and Early Classic Periods. During the Late Classic, settlement expanded to other areas in the Basin with this trend continuing through the Early Postclassic and Late Postclassic Periods. The presence of monumental architecture and material culture indicating

external site connections were also used as criteria to further define sites (or nodes) as important centers in the Basin. Below is a review of sites by associated time period.



Figure 11: Late/Terminal Formative occupation and ceramic collections western side of the Manialtepec Basin

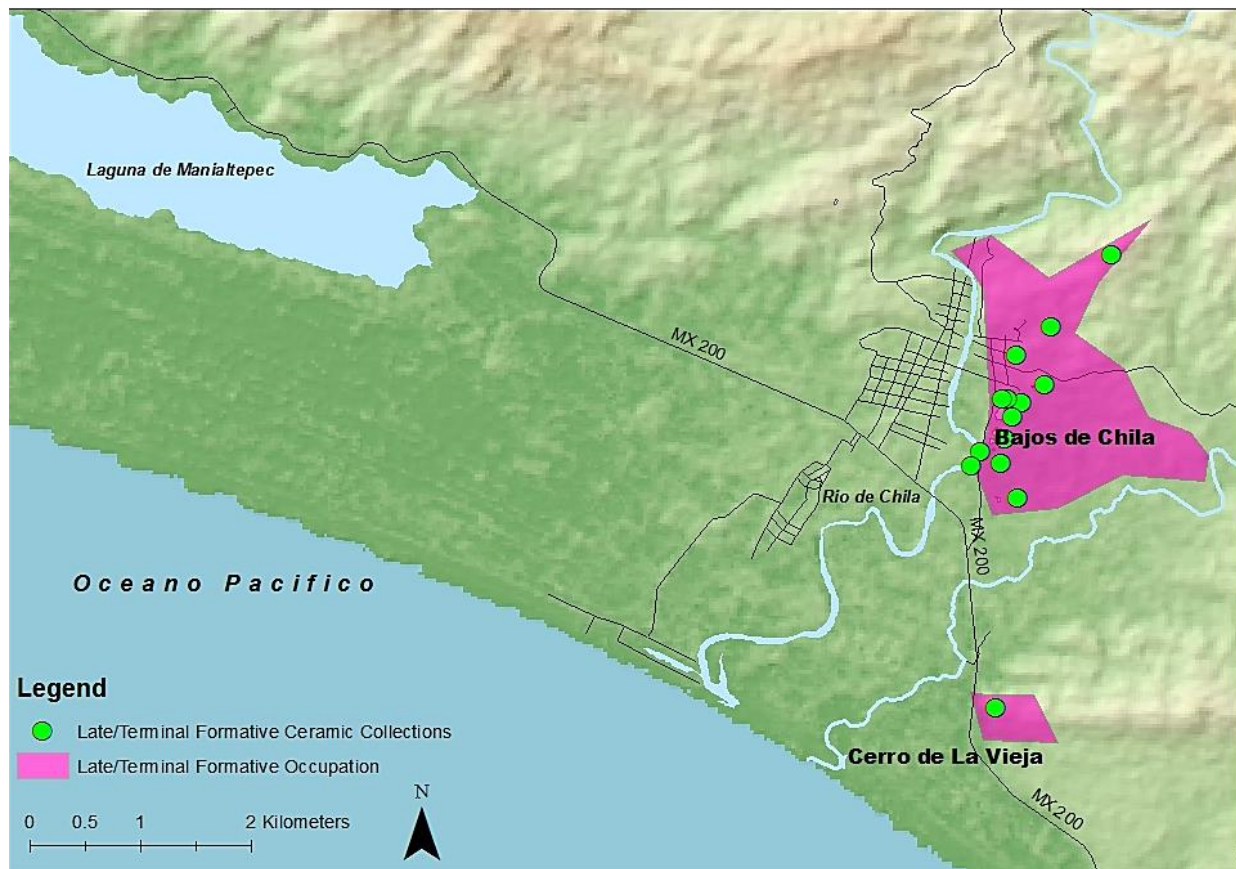


Figure 12: Late/Terminal Formative occupation and ceramic collections eastern side of the Manialtepec Basin

Ceramic samples dating to the Terminal Formative were found at three sites (Figures 11 and 12 above). However, only one of these areas, the site of JUQ-SPM-BDC-20, or Bajos de Chila, could be securely dated to the Terminal Formative Period. Bajos de Chila, previously identified by the Oaxaca Coast Survey Project, extended south from the foothills of the Sierra Madre and east along the floodplains of the Chila River over an area of approximately 250 hectares. The site consisted of two large platforms, one of which was over 5 m in height and had several smaller mounds constructed on top. A profile cleaning the side of one of these platforms

revealed that it was initially constructed during the Late or Terminal Formative Period and contained at least one stone retaining wall. Nearby a large hill was also modified with several large terraces. Carved stone stelae originally observed by the Oaxaca Coast project in the 1970's were observed by the PALM in front of the town hall ("Presidencia") at the center of the modern town of Bajos de Chila, and near one of the large platforms (Figures 13-15 below).



Figure 13: Bajos de Chila Presidencia Stela 1



Figure 14: Bajos de Chila Presidencia Stela 2



Figure 15: Bajos de Chila Stela 3

Terminal Formative ceramics were also tentatively identified from two surface collections at the site of Manialtepec 1 (JUQ-TUT-HID-6) on the west side of the Manialtepec River in the hills surrounding the modern town of Hidalgo and from one collection at the site of Cerro de La Vieja (JUQ-SPM-BDC-21). Most of the brown and gray-ware Formative Period ceramics recovered were identical to those found in the lower Río Verde Valley during the Minizundo Phase. However, distinct Gralisa graphite-slipped red ware was recovered in

excavations associated with Late Formative lower Rio Verde pottery at Bajos de Chila.

Interestingly, Gralisa graphite-slipped red ware was only found on the eastern side of the Lagoon in excavations and from survey surface collections.

Early Classic sherds were found at three sites (Figures 16 and 17 below). Most of the Early Classic sherds were found at Bajos de Chila, but they were also observed in three collections to the west of the Manialtepec River. These collections included one from the site of Manialtepec 2 (JUQ-TUT-HID-2) and two from the site of Manialtepec 1. However, from the widespread location of these collections it appears that Early Classic occupation was widely scattered across the basin. Sites associated with Early Classic ceramics included Manialtepec 1, Manialtepec 2, and Bajos de Chila.

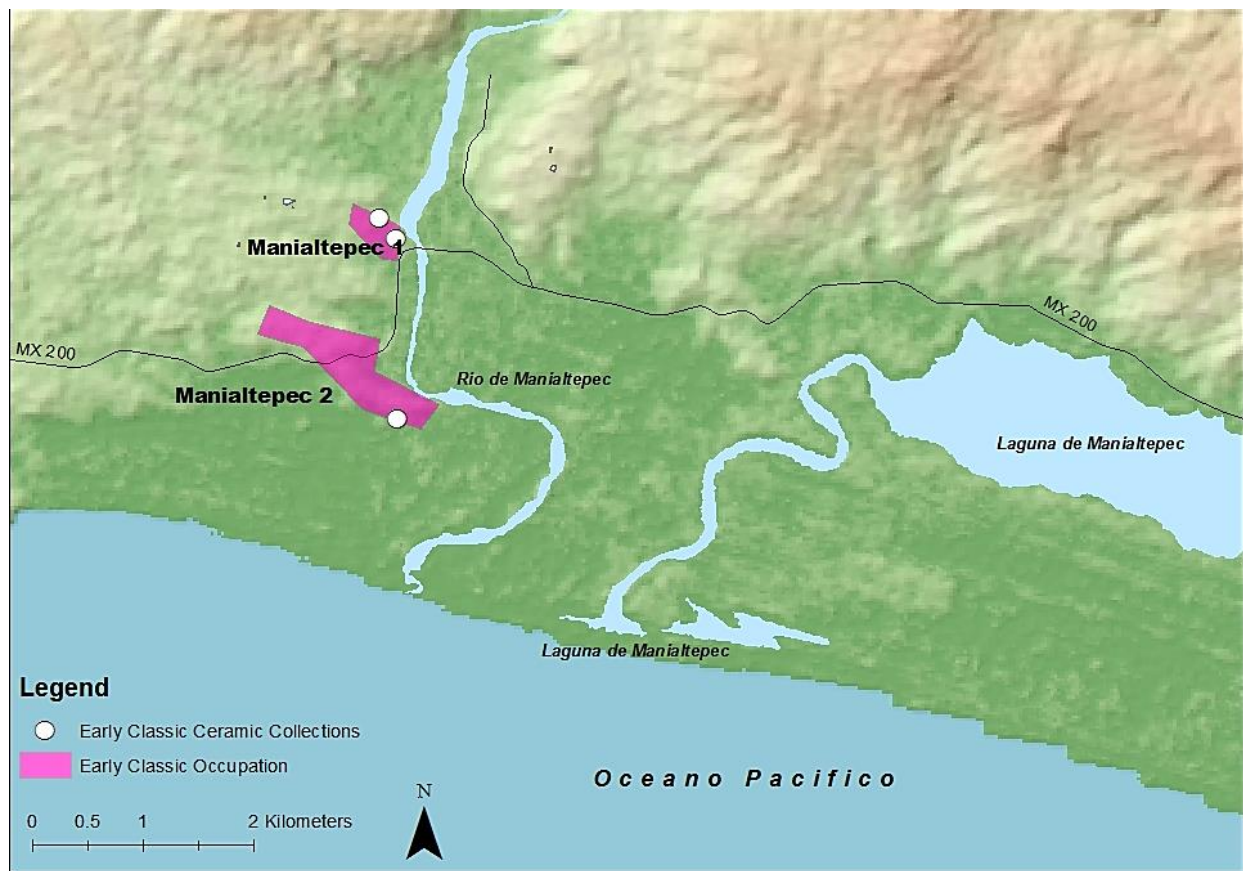


Figure 16: Early Classic occupation and ceramic collections western side of the Manialtepec Basin

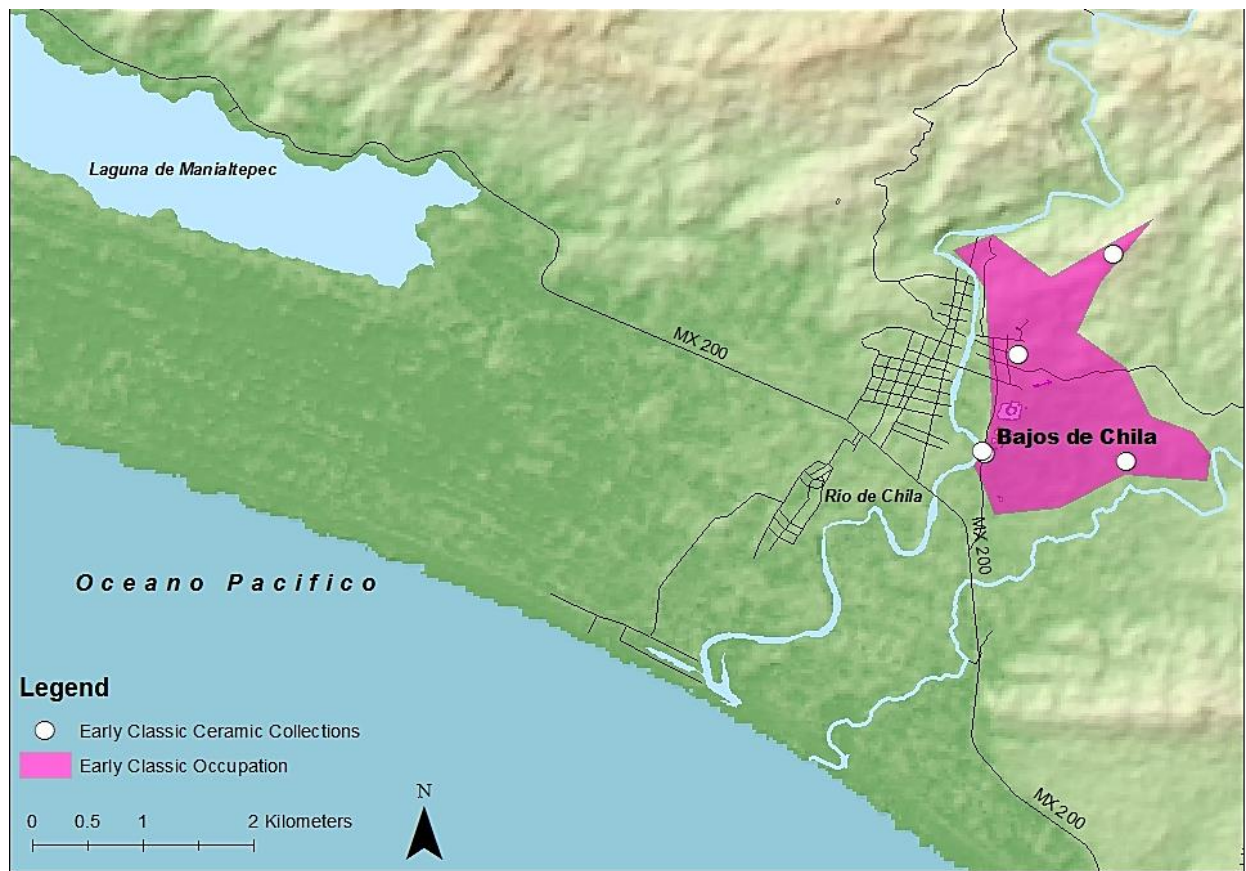


Figure 17: Early Classic occupation and ceramic collections eastern side of the Maniatepec Basin

Late Classic ceramics were observed at six sites and in higher quantities than the Early Classic material (Figures 18 and 19 below). They were also observed in areas of the Basin that had no signs of prior occupation on the surface, meaning the settlement of these areas possibly began in the Late Classic. At the site of Bajos de Chila 1, Late Classic ceramics continued to be present in relatively the same density as the Early Classic. Late Classic ceramics were also present at the site of Chila Cementerio (JUQ-SPM-BDC-19). Chila Cementerio was located approximately 700 meters to the west of Bajos de Chila across the Chila River and corresponded

to Brockington's previously identified sites of Bajos de Chila 2 and 3 (Brockington et al. 1974). No artifacts or features were found between Bajos de Chila and Chila Cementerio, but this was likely due to the location of the modern town of Bajos de Chila and the River Chila in the intervening space. Artifacts and features were found up to the eastern and western edges of the river and the modern occupation; based on the ceramic distribution patterns, it appears that the entire area surrounding Bajos de Chila, including Chila Cementerio, may have been one large low-density settlement during the Late Classic. Three other collections of Late Classic ceramics were also obtained from the area near Chila Cementerio and the site of El Sacate (JUQ-SPM-BDC-15); however, these collections were not associated with sites. One collection was located in the hills to the north of Chila Cementerio and the other two were located on the flood plain between Chila Cementerio and El Sacate just north of the coastal highway.

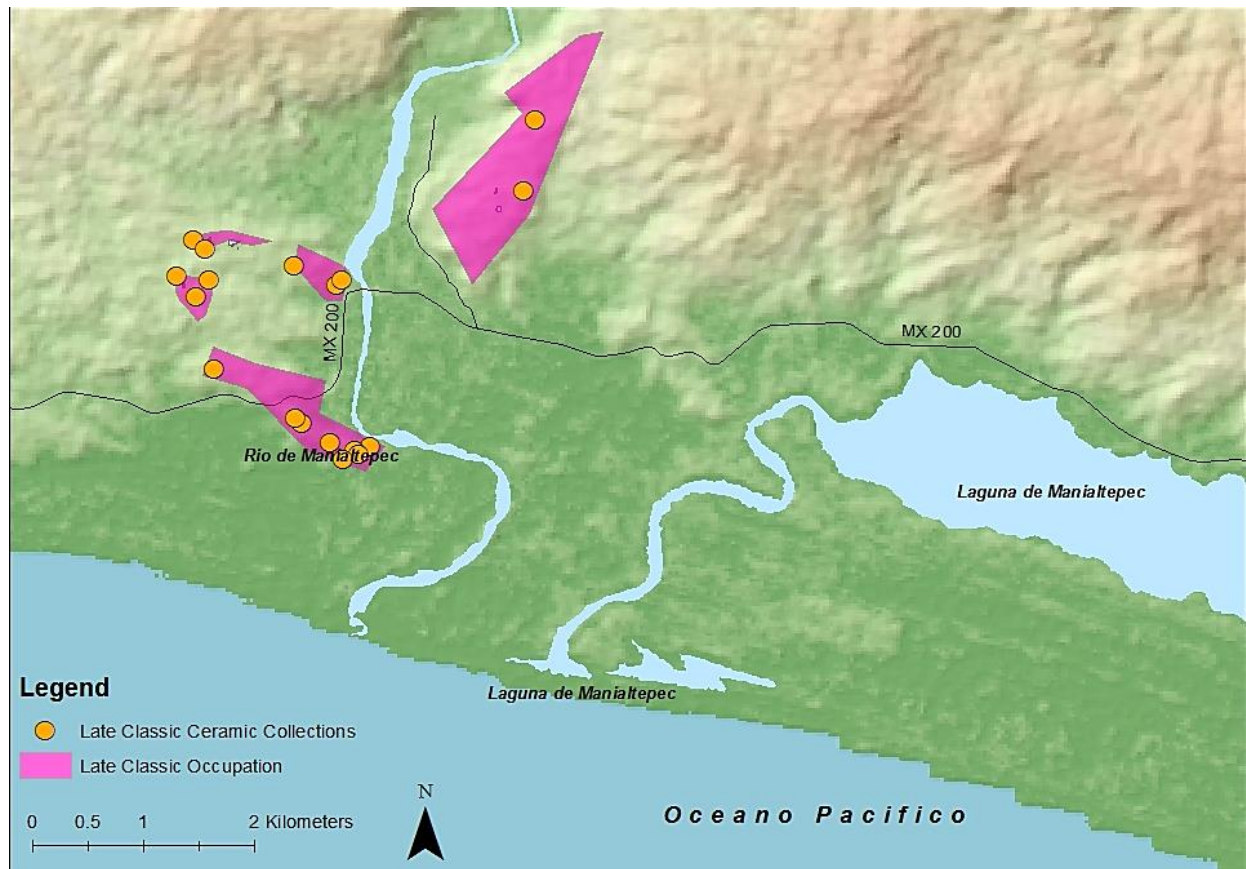


Figure 18: Late Classic occupation and ceramic collections western side of the Manialtepec Basin

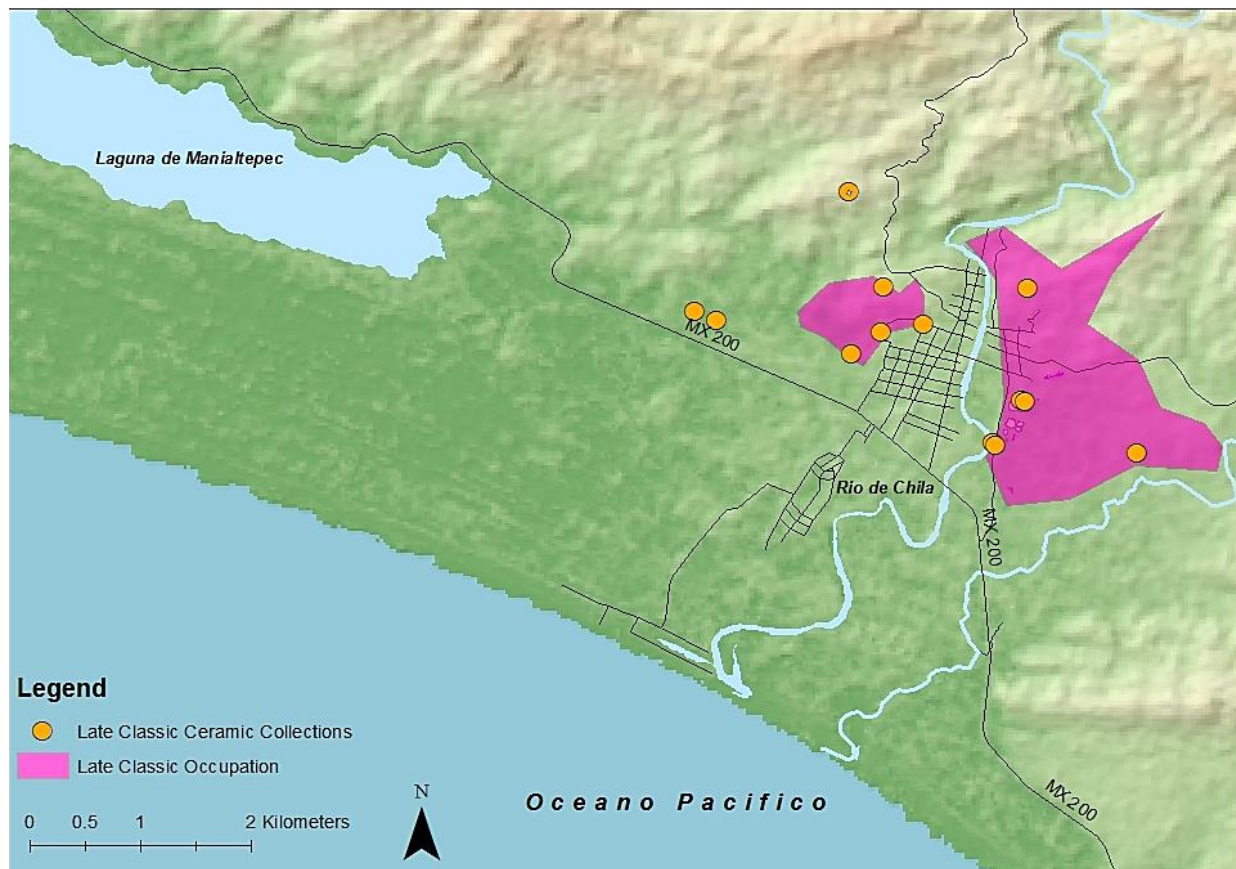


Figure 19: Late Classic occupation and ceramic collections eastern side of the Manialtepec Basin

The site of El Sacate was located in a small north-south running valley northeast of the lagoon. In this valley 8 low mounds, as well as the remains of building foundations on the eastern hill adjacent to the valley, were found. Looking south from this valley we were able to see the coastal highway and the coastline. There are a series of boulders across the southern entrance to the valley from the coast that could either have been natural or intentionally placed. If placed by humans, these boulders could have served as a protective wall or as terracing to help control erosion. No ceramic samples were recovered from this site due to the extremely dense

amount of surface vegetation. However, based on the Late Classic, Early Postclassic, and Late Postclassic dates of the nearest ceramic samples it is possible that this area, including El Sacate, was occupied from the Late Classic onwards.

The PALM also recovered surface collection samples (n=2) dating to the Late Classic from the site of Linda Vista (JUQ-TUT-SJM-8), located on a hilltop east of the Manialtepec River and the modern town of San Jose de Manialtepec. In the area surrounding the modern town of Hidalgo, three small sites (Hidalgo (JUQ-TUT-HID-5), Manialtepec 1, and El Burrito (JUQ-TUT-HID-3)) were associated with Late Classic occupation and may represent a large area of low density settlement. In this area, multiple platforms, one carved stone with a concentric circle design (Figure 20 below), two north-south aligned ballcourts, and multiple mounds on average about a meter in height were observed.



Figure 20: Hidalgo concentric circle carved stone

To the southwest of Hidalgo close to the coastal highway, the PALM found a north-south parallel alignment of stone (Figure 21 below) but, it is debatable whether or not to consider this an additional ballcourt. The largest concentration of Late Classic material in the Basin was located on a low ridge across the coastal highway to the south of the modern town of Hidalgo. This site, previously identified as Manialtepec 2 (JUQ-TUT-HID-2) by the Oaxaca Coast Survey Project, consisted of numerous small mounds averaging approximately 1.5m in height and at least one large platform with an estimated height of 3 m located at the southern end of the ridge.



Figure 21: Parallel Alignment

A large rectangular carved stone stela bearing the image of a person with their arms crossed was observed located at the base of the platform (Figure 22 below). It is likely that this is one of the stelae previously identified by the Oaxaca Coast Survey Project. Three stelae now located at the Hidalgo agencia (Figures 23-25 below), and carved in a style similar to stela located at Nopala, were originally found in this area (Brockington et al. 1974; Urcid 1993; Arnaud-Bustamante 2003). Although the original project reported a ballcourt as well at this site, the PALM did not observe one. This is possibly due to the fact that the area where it was supposed to have been was leveled by heavy machinery.



Figure 22: Stela at Manialtepec 2



Figure 23: Stela 1 at Hidalgo Agencia



Figure 24: Stela 2 at Hidalgo Agencia



Figure 25: Stela 3 at Hidalgo Agencia

Early Postclassic ceramics were found at 7 sites, including Bajos de Chila, Chila Cementerio, Hidalgo, Manialtepec 1, El Burrito, Manialtepec 2, and Linda Vista (Figures 26 and 27 below). Many ceramics were very similar to those found in the lower Rio Verde Valley during this period (see King 2008). At Linda Vista, the vast majority of the ceramic samples (including those obtained through excavation) were dated to the Early Postclassic. This suggests, the main occupation of Linda Vista occurred during the Early Postclassic. Linda Vista covered the entire ridge-top adjacent the modern town of San Jose Manialtepec, an area of at least two square kilometers. Numerous mounds ranging from 2-3 m in height that could have either been

temple or house groups; three north-south aligned I-shaped ballcourts and massive terracing of the ridge slope were observed. A building approximately two meters high in the shape of a squared off C (“[”]) atop a large square platform also approximately 2m in height was observed. Placed in the middle of this platform was an altar, or adoratorio. The PALM also recorded a carved stone slab, approximately 15 by 30 cm in size, carved with concentric circle designs found on the slope of a mound. This carved stone was identical to one found on the ridge top to the north of the coastal highway in near the town of Hidalgo.

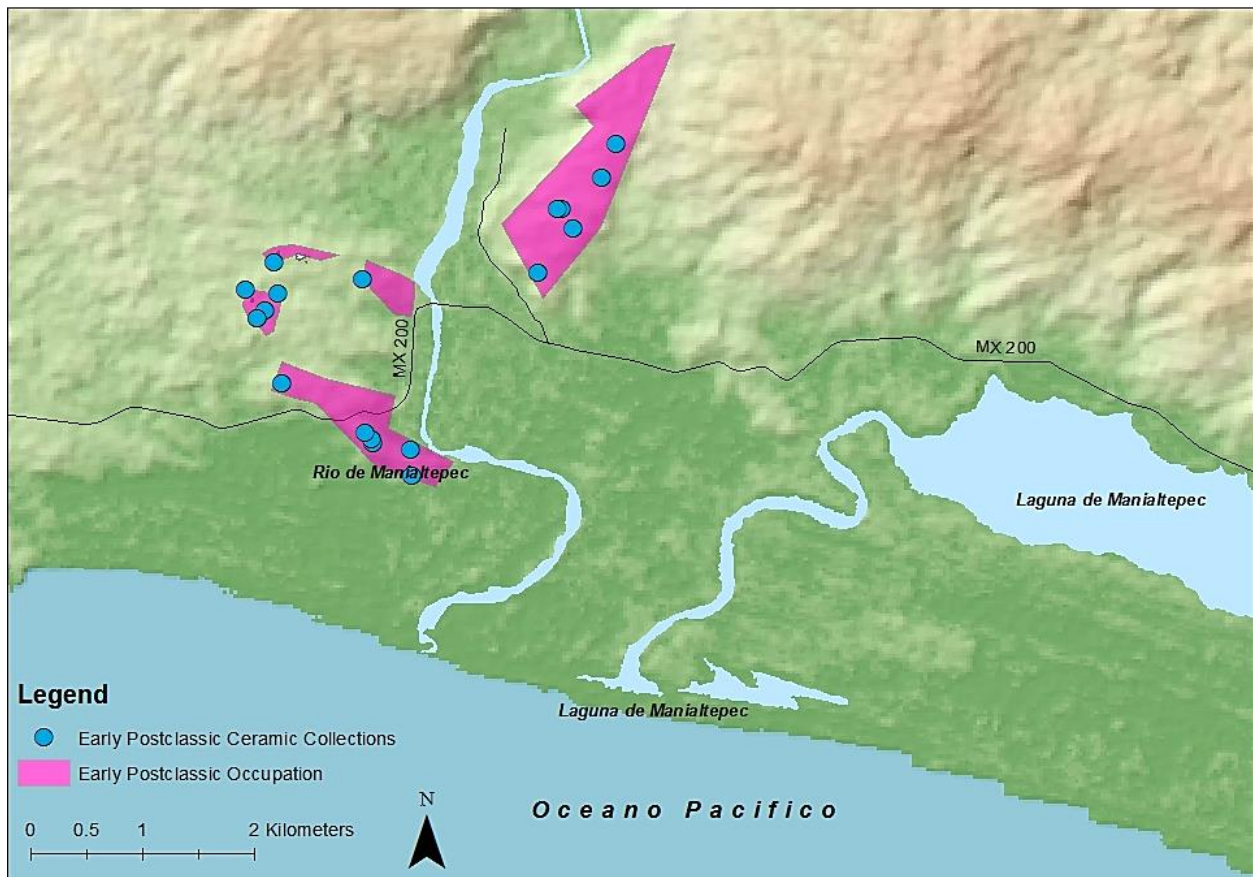


Figure 26: Early Postclassic occupation and ceramic collections western side of the Manialtepec Basin

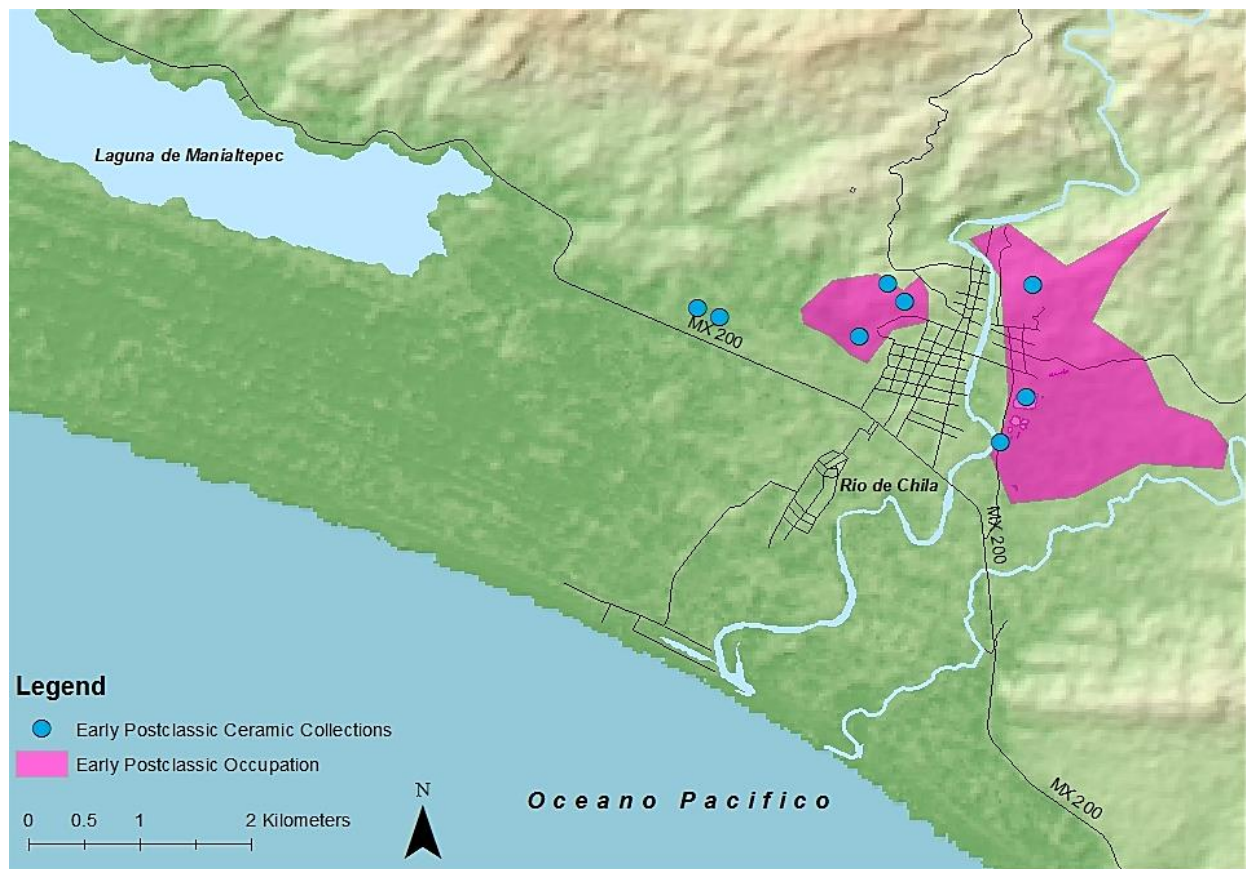


Figure 27: Early Postclassic occupation and ceramic collections eastern side of the Manialtepec Basin

Late Postclassic ceramic material was recovered in collections from 11 sites, including the previously mentioned Bajos de Chila, Chila Cementerio, Hidalgo, Manialtepec 1, El Burrito, Manialtepec 2, and Linda Vista; as well as the sites of Isla Piedra Blanca (JUQ-SPM-AEZ-14), Cerro de La Vieja, JUQ-TUT-SJM-10, and JUQ-TUT-SJM-12 (Figures 28 and 29 below). The PALM observed one area of particularly heavy Mixteca-Puebla polychrome concentration located around the town cemetery of Bajos de Chila (included in the site of Chila Cementerio), which matched Brockington's (1974; Hepp n.d.) description of Bajos de Chila 4.

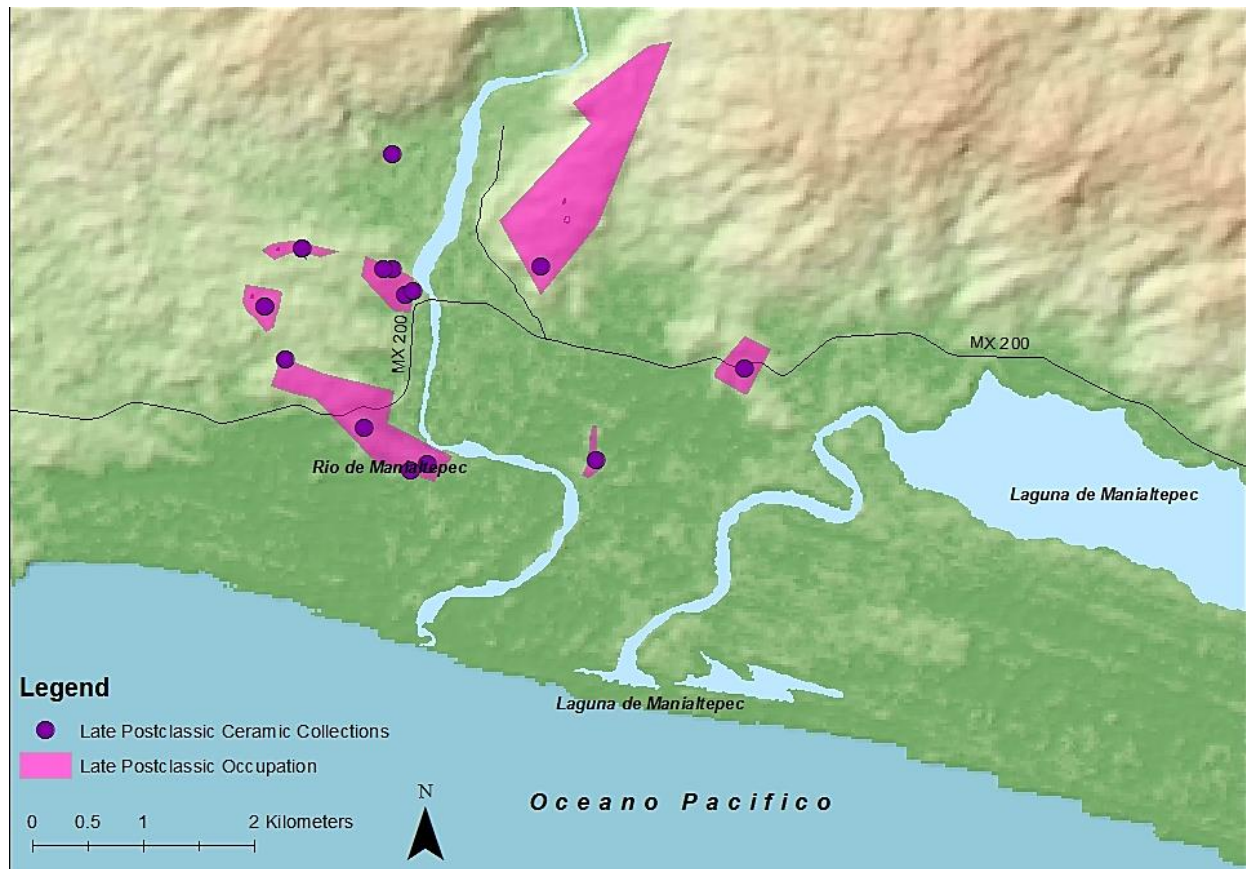


Figure 28: Late Postclassic occupation and ceramic collections western side of the Manialtepec Basin

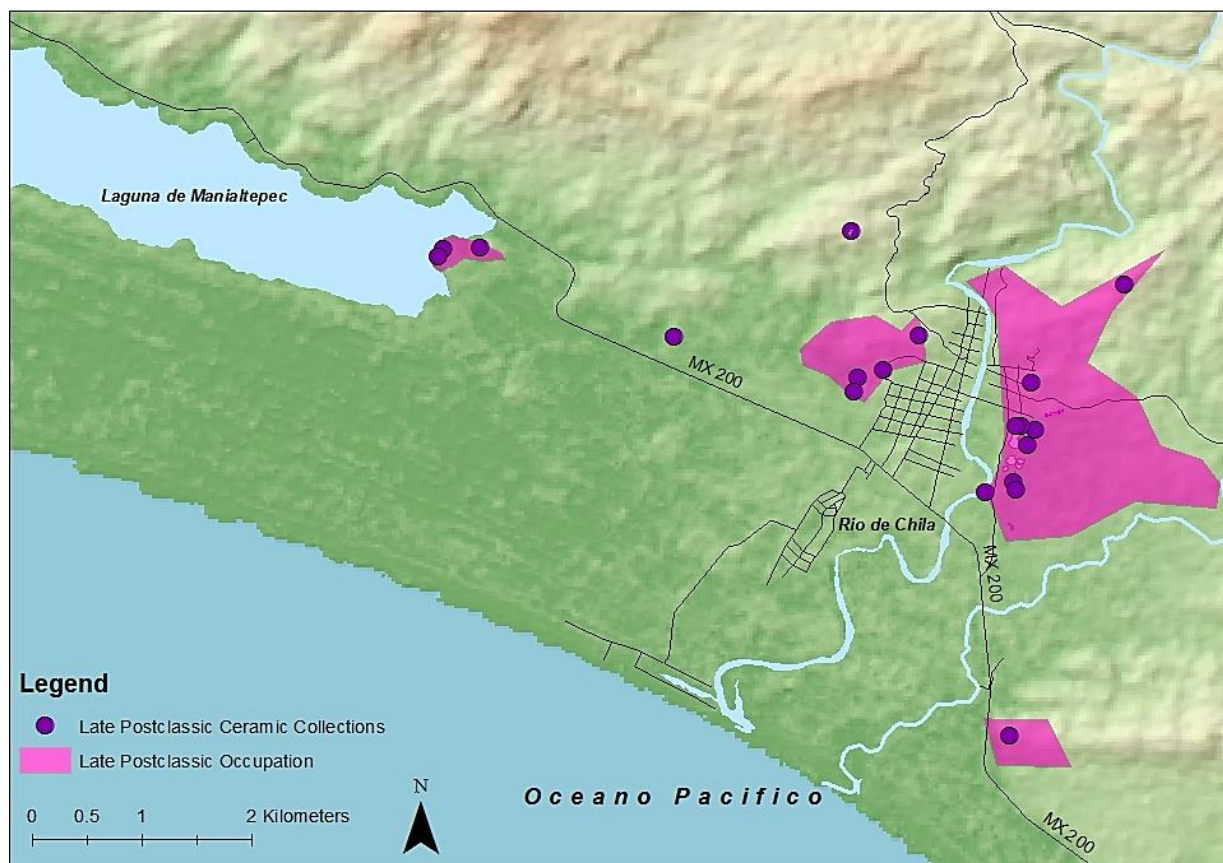


Figure 29: Late Postclassic occupation and ceramic collections eastern side of the Manialtepec Basin

At Linda Vista only one surface collection sample of Late Postclassic ceramic material was observed. The PALM also observed several sites with Late Postclassic ceramics but no ceramics from the preceding period; these included the sites of Isla Piedra Blanca, JUQ-TUT-SJM-10, and JUQ-TUT-SJM-12. The site of Isla Piedra Blanca was located at the eastern end of the lagoon and had been previously identified by the Oaxaca Coast Project as the site of Isla Blanca. Based on ceramics recovered from this site it appears that it was only occupied during the Late Postclassic. Its description by the previous project matched the PALM's observations: it had a

large platform at the center of the hill that forms the island, and a retaining wall encircling part of the island (Figure 30 below). However, unlike the previous project no large stela-like slabs were observed. Local guides also informed the PALM that when the water level was low in the lagoon a stone causeway linking the island to the mainland is visible. However, the team was unable to verify the existence of this causeway because water levels were too high. Scattered signs of occupation were found on a hill on the mainland directly across from Piedra Blanca where the causeway would have ended. However, the entire top portion of this hill has been leveled by modern construction and only a few terraces and some scattered sherds remain. Another, almost exclusively Late Postclassic occupation area identified was Cerro de La Vieja. Although Cerro de La Vieja did have one ceramic sample with a possible Terminal Formative date other collections from this site suggest it was mainly occupied during the Late Postclassic. Cerro de La Vieja was located atop a hill at the tip of a ridge that juts onto the coastal plain. From this promontory, it was possible to see up and down the coast for miles. At Cerro de La Vieja, several platforms and mounds, as well as a large rock wall 1m in width by 1 meter in height that encircled the entire hilltop and site, were observed (Figure 31 below).



Figure 30: Isla Piedra Blanca Wall



Figure 31: Cerro de La Vieja Wall

JUQ-TUT-SJM-10 and JUQ-TUT-SJM-12 were two other sites with ceramics from the Late Postclassic. Both were located between the Manialtepec River and the lagoon. JUQ-TUT-SJM-10 was located on a series of small low hills on the floodplain next to the Manialtepec River and consisted of scattered areas of ceramics, foundations, a retention wall, and a terrace. Two copper axes matching descriptions of axe-monies found elsewhere in Oaxaca during the Postclassic Period were also collected from JUQ-TUT-SJM-10 (Hosler 2003). JUQ-TUT-SJM-12 was

located on low hills to the west of the Manialtepec Lagoon and straddled the coastal highway. The site consisted of several scatters of ceramics, mounds, terraces, one foundation, and a piece of groundstone metate. Given the pattern of what are likely newly settled sites closer to the floodplains of the Basin, it is probable that the site of El Sacate was also occupied during the Late Postclassic even though there were no ceramics directly recovered from the site. Three other collections of Late Postclassic ceramics were obtained that were not associated with sites. One collection was located about 800 meters to the north of Chila Cementerio in the foothills; the second was on the floodplain between Chila Cementerio and El Sacate; and, the last was located about 450 meters to the northeast of JUQ-TUT-HID-7 at the edge of the foothills and the floodplain of the Manialtepec River.

Finally, three areas in the Manialtepec basin were observed to be associated with Historic activities. Approximately 4 km to the north of San Jose de Manialtepec along the Manialtepec River were located “aguas termales,” or hot springs. The presence of ancient activity was evident at the hot springs in the form of several deep metates etched into large boulders surrounding the source of the springs. One of the local guides showed project members a trail that, according to local lore, was used by the Spanish as a Camino Real from San Jose de Manialtepec to the Sola and Oaxaca Valleys. The local guide also informed us that this trail was used until the 1960’s to get from the coast to the highlands. On the floodplain of the Manialtepec River, one sherd of green glazed historic pottery was observed at the site of JUQ-TUT-SJM-10. At the extreme western end of the project area on a promontory overlooking the ocean the PALM also observed another large rock wall that bisected the promontory. However, no ceramics were observed or

collected from this area and it was impossible to tell whether or not the wall was pre-Hispanic or historic (Figure 32 below).



Figure 32: Possible Historic Wall

As presented in this chapter, the reconnaissance and limited excavations carried out by the PALM revealed that the Manialtepec Basin had significant occupation from the Late Formative to the Late Postclassic. During the Late Formative occupation was mostly concentrated around the site of Bajos de Chila with some sparse evidence of human presence in

the foothills to the west of the Manialtepec River as well. In the subsequent Early Classic Period, settlement was no longer as concentrated around Bajos de Chila and there are more indications of sparse occupation to the west of the Manialtepec River. By the Late Classic, ceramic collections indicate that settlement had grown significantly. In the following Early Postclassic Period, although ceramic collections suggest a decrease in overall density of occupation in the Basin, there was actually an increase in settlement at the site of Linda Vista. Finally, the PALM collected and observed a very large amount of Late Postclassic ceramics in the Basin, especially of the Mixtec-Puebla polychrome style. The high density and widespread distribution of Late Postclassic ceramics in the Manialtepec Basin indicate that there was significant growth in settlement occupation. These settlement patterns and their associated ceramic types in the Manialtepec Basin suggest several conclusions regarding its internal relations and its external relations with other areas of Oaxaca.

CHAPTER 4: DISSCUSSION AND CONCLUSIONS

Discussion

In this section I begin by using the PALM's data on settlement patterns, architecture and artifacts to propose a history of occupation for the Manialtepec Basin. I then interpret the data using the theoretical perspectives outlined in Chapter 1 to suggest a possible scenario of the internal and external interactions at play in the pre-Hispanic Manialtepec Basin. In keeping with Social Network Analysis, nodes will be defined as the sites found by the PALM located within the Basin area. I also categorize certain nodes as important centers based their material culture and the external connections they indicate. Both internal and external interactions are considered diachronically through the lenses of the Peer-polity approach and World Systems Theory in order to understand change in interaction over time. Examining the settlement and interaction history of the Manialtepec Basin will set the foundation for a more comprehensive understanding of this region and how it articulates with other areas of ancient Oaxaca.

Settlement History

As highlighted in the previous Results section, ceramic collections obtained from surface sampling and excavations confirm that the Manialtepec Basin on the Central Coast of Oaxaca was occupied from the Late Formative through the Late Postclassic Periods. The earliest evidence of human occupation was found at the site of Bajos de Chila. Both the PALM and Oaxaca Coast Survey Project recovered Late/Terminal Formative Gralisa-wares and sherds similar to Late Formative Minizundo phase pottery from the lower Rio Verde Valley at Bajos de Chila. Pottery from all subsequent Periods (Early Classic, Late Classic, Early Postclassic and

Late Postclassic) were also recovered, indicating that from the Late Formative on the Manialtepec Basin was continuously occupied.

The chronological history of settlement occupation, at least from the Late Formative on, is very similar to that of the lower Rio Verde Valley. However, presently there is no evidence to suggest that occupation began any earlier here in the Basin than along the lower Rio Verde. Both areas experienced growth during the Late/Terminal Formative signaled by the construction of monumental architecture and settlement nucleation. The subsequent Early Classic Period was a time of contraction for both. In the lower Rio Verde Valley, Rio Viejo experienced socio-political change and settlement became less nucleated (Joyce 2013). In the Manialtepec Basin, the extremely low number of samples (n=8) containing material from the Early Classic also indicate a decline in occupation. In the Late Classic both areas experienced a resurgence followed by dramatic change in the Early Postclassic. In the lower Rio Verde Valley, Rio Viejo re-emerged during the Late Classic to become a regional center once again, but was nearly abandoned again during the Early Postclassic although population continued to grow (Joyce 2013). In the Manialtepec Basin, settlement expanded significantly during the Late Classic. However, during the Early Postclassic, there appears to have been an increase in monumental construction at the site of Linda Vista. This is in contrast to the lower Rio Verde Valley where monumental construction came to a halt during the Early Postclassic (Joyce 2013). Finally, in the Late Postclassic both areas experienced an increase in settlement occupation, an influx of Mixteca-Puebla Polychrome pottery, and the establishment of new sites in previously unoccupied areas.

Political History and Interregional Interaction

In addition to the history of occupation just presented, data from the PALM also indicate that three nodes, Bajos de Chila, Manialtepec 2 and Linda Vista, had interregional connections extending beyond the immediate basin area. These nodes were also associated with monumental architecture, and carved stones. The connections of these nodes along with the presence of monumental architecture and carved stones suggest that they were likely important political centers in the region. Ceramic collections further indicate these nodes may have been important centers at differing times; Bajos de Chila in the Late/Terminal Formative, Manialtepec 2 in the Late Classic, and Linda Vista in the Early Postclassic. Analysis of the external connections present in the Manialtepec Basin also revealed a weak connection to Monte Albán in the Valley of Oaxaca during the Late/Terminal Formative, but a very strong connection (due to invasion) to the Tututepec Mixtecs in the lower Rio Verde Valley during the Late Postclassic.

The presence of extremely large mounded architecture, ceramic concentrations, and the observation of carved stone monuments indicate that the site of Bajos de Chila was the largest center in the Manialtepec Basin during the Late Formative to Early Classic Periods. Bajos de Chila covered an estimated area of 288 hectares with two extremely large platforms that comprised what was likely the site's ceremonial precinct. Three other locations in the Basin also yielded surface collections of ceramics from the Terminal Formative (n=3) and Early Classic Periods (n=3). However, given the small number of collections from these other areas it is unlikely that they were densely occupied during this time. In addition to the large size of Bajos de Chila, there is also evidence that the site formed relationships with areas outside of the Manialtepec Basin. Included in surface and excavation ceramic collections at Bajos de Chila

was a specific ceramic ware known as Gralisa. The presence of this ceramic ware in the PALM's and Oaxaca Coast Project's collections suggests connections to the southeast with the Isthmus of Tehuantepec (Houston 1974). The previous discovery of a Zapotec-style effigy funerary urn at Bajos de Chila provides indications that some kind of interregional connection was present between this site, and the highlands of Central Oaxaca. Yet, direct evidence for Monte Albán influence in the area appears to be lacking, especially because few ceramics and only one site were found that date to the Late Formative. Other ceramics in excavations at Bajos de Chila suggest connections with the neighboring lower Rio Verde Valley. Ceramics similar to the Late Formative Minizundo phase in the lower Rio Verde Valley were found in the excavations of a large platform located in the site's ceremonial precinct. Additional evidence that Bajos de Chila formed interregional connections is also supported by its carved stone monuments. As previously discussed, the carved stone monuments at Bajos de Chila are unlike any other style found on the coast of Oaxaca, and it has been suggested that they have stylistic elements in common with Olmec Veracruz and southern Maya monuments (Jorrín 1974:67). If the site's stelae indeed date to the Early Classic as has been previously suggested (Urcid 1993; Jorrín 1974) that would make them earlier than any known stelae from the lower Rio Verde Valley.

The monumentality, interregional connections, and large size of Bajos de Chila indicate it was the socio-political center of the Manialtepec Basin during these early periods. Furthermore, because Bajos de Chila was close in size to Rio Viejo (both around 200 hectares) and both exhibit monumental architecture during the Late/Terminal Formative Period it is likely that the Manialtepec Basin had a peer-like relationship with the lower Rio Verde Valley. The two regions

were probably interacting with one another but no region dominated the other. This is further supported by the similarity of ceramics between the two regions and the fact that Bajos de Chila had its own stelae that were not similar to those at Rio Viejo. This Peer-polity dynamic likely continued during the Early Classic which was a time of documented temporary decline throughout the Pacific Coast of Oaxaca (Joyce 2010; Love 2007); a pattern which the ceramic distribution data (Figure 16 and 17) suggests also occurred in the Manialtepec Basin. Although the Gralisa-ware and the Zapotec-style urn indicate a connection between the Manialtepec Basin and the Valley of Oaxaca, there is no evidence of control by one over the other. In fact the presence of Gralisa-ware and the stylistic elements of the stelae at Bajos de Chila suggest a stronger connection with the Isthmus of Tehuantepec area. However, if these regions had world systems-like interactions with the Manialtepec Basin they probably would have been more like the modified version developed by Smith and Berdan (2003a,b,c) that emphasizes the connections of regions via market exchange. The Manialtepec Basin could fall into one of the non-core categories created by Smith and Berdan (2003 a,b,c) that had economic interactions with core areas such as the Isthmus of Tehuantepec and the Valley of Oaxaca. These non-core areas were not necessarily controlled politically by the core areas and it appears that the Manialtepec Basin was independent from any core areas, at least until the Late Postclassic Period.

During the Late Classic Period occupation at Bajos de Chila continued, however Late Classic ceramics appear to be more scattered, perhaps meaning this site no longer functioned as an important center. Ceramics from this period were observed during survey at Bajos de Chila, but were not concentrated close to the ceremonial precinct as was the case in the previous

Late/Terminal Formative Period (Figure 19). Additionally, in excavations at one of Bajos de Chila's platforms there was a gap in ceramics between the Late/Terminal Formative and the Postclassic Periods (Barber 2012). This decline in ceramic associations with the ceremonial center at Bajos de Chila may have been related to the formation of another center in the Manialtepec Basin at the site of Manialtepec 2. At Manialtepec 2, the Oaxaca Coast Project had previously observed carved stone stelae (now located in front of the Agencia at Hidalgo) and a ballcourt indicating the site was an important center. Further evidence supporting this conclusion was also observed by the PALM. At Manialtepec 2, the PALM found the densest concentration of Late Classic material in the basin, a large platform, and a carved stone monument. A small amount of Early Classic material was observed as well; suggesting occupation of this area initially started in the Early Classic, but was not significant until the Late Classic. Additionally, although the ridge on which the site is located was separated from the rest of the piedmont by the modern coastal highway, artifacts and mounds were found right up to the edge of the highway on both sides making it likely that Manialtepec 2 was a part of the large dispersed area of settlement that surrounds the modern town of Hidalgo (Figure 11). In this large area archaeologists also observed multiple platforms and mounds, a small carved stone (Figure 20), and two north-south aligned ballcourts. Interestingly, observations by the PALM and the Oaxaca Coast Project indicate that Manialtepec 2 and this side of the Manialtepec Basin may have participated in different interregional interactions from those of Bajos de Chila. No Gralisa-ware was observed by the PALM at this site and it appears to only be present at Bajos de Chila. Carved stone stelae found by both the PALM and Oaxaca Coast Survey do not resemble those found at Bajos de Chila. In fact, the stelae at Manialtepec 2 found by both projects most closely resemble the likely

Late Classic carved stone stelae found at Santos Reyes Nopala, located approximately 18 kilometers north on the Manialtepec River in the Sierra Madre Mountains (Arnaud-Bustamante 2003; Barber and Menchaca 2013; Barber 2014). However, the stelae at Nopala and Bajos de Chila both have stylistic elements resembling carved stone monuments found to the southeast, in the Isthmus of Tehuantepec (Arnaud-Bustamante 2003). Based on the distribution of Late Classic ceramics that were similar to lower Rio Verde Valley sherds in many cases, the presence of monumental architecture, carved stone monuments, and associated ballcourts it is reasonable to believe that Manialtepec 2 was an important center in the Manialtepec Basin. Additionally, Manialtepec 2 likely formed external regional connections with Nopala to the north, the lower Rio Verde Valley to the west, and probably with Chiapas and Guatemala to the southeast.

Despite the ceramic evidence indicating settlement at Bajos de Chila, it is clear that during the Late Classic the focus of human activity shifted away from this area to Manialtepec 2. This site became the new center and, like the previous center, was probably the hub of socio-political activity for the surrounding communities in the Basin. The nature of the Manialtepec Basin's connections with other regions in Oaxaca such as the lower Rio Verde Valley, the Valley of Oaxaca, and the Isthmus of Tehuantepec are not quite clear at during this time. However, the ceramics and stylistic affinities of its carved stone stelae continue to demonstrate some kind of connection to those areas. Due to the prominence and proximity of Rio Viejo it is possible that the lower Rio Verde Valley had a core-like role in interactions with the Manialtepec Basin; but, more information is needed to explore that possibility. It is not likely that Monte Albán had such a relationship with the Basin due to the lack of material culture connected to the Valley of Oaxaca. There is evidence that suggests Manialtepec 2 was involved in peer-like interactions

with Santos Reyes Nopala located to the north, and the Isthmus of Tehuantepec. All three areas have extremely similar carved stone stelae. The stylistic elements of the stelae at Nopala and Manialtepec 2 exhibited more affinities with stelae found in the Isthmus area than other areas of Oaxaca (Arnaud-Bustamante 2003). However, since no archaeological investigations have been conducted at Nopala dating is problematic and it is not known if there are additional similarities linking these areas.

In the Early Postclassic occupation continued at Manialtepec 2 and Bajos de Chila while it appears that yet another important center was founded in the Basin. This center, nicknamed Linda Vista by the PALM, was located on a ridge-top to the east of the Manialtepec River and to the west of the Manialtepec Lagoon. The presence of extremely large monumental architecture, including three ballcourts, a ceremonial structure with an altar, a possible pyramid, and carved stone, indicate this was an important center. The majority of ceramic collections indicate this site was mostly occupied during the Early Postclassic; however, two collections of ceramics with a Late Classic date were recovered, indicating that this area may have been sparsely occupied or at least visited during the preceding period. Assuming the majority of the occupation and construction on this ridge top occurred during the Early Postclassic, the ballcourts found here would also date to that era; however, excavation is necessary to confirm this.

The additional ballcourts found on the west side of the river around Manialtepec 2 could be given an Early Postclassic date especially since evidence of occupation from this era was found there as well. However, there exists an alternative possibility that the ballcourts on the western side of the Manialtepec River could be slightly older than the ones at Linda Vista. The

sites containing ballcourts on the western side of the Manialtepec River have ceramics dating earlier to the Late Classic. Yet, it would not be unheard of for a ballcourt to date later than the surrounding site with in which it is located, as is the case at San Francisco de Arriba in the lower Rio Verde Valley (Workinger 2002).

At the very least, there are patterns in the connections represented by the ceramic assemblage and the architecture in the Manialtepec Basin. Ballcourts and similar carved stones are present on both sides of the river, but there is a lack of stelae and Gralisa ceramics at Linda Vista. Nopala also has ballcourts; however, whereas in the Manialtepec basin all of the ballcourts are north-south oriented, at Nopala there are several different orientations (Arnaud-Bustamante 2003:42-43). The presence of ballcourts at Linda Vista, Manialtepec 2 and Nopala suggest some kind of connection. However, the presence of similar carved stone stelae at Nopala and Manialtepec 2 and their absence at Linda Vista suggests that the two former sites may have had stronger connections to each other. Furthermore, the squared “C” shaped temple-altar structure at Linda Vista is so far unique within the Manialtepec Basin and I failed to find an exact match to this construction anywhere in Oaxaca. However, other similar complexes known as temple-patio-altar structures have been documented in Valley of Oaxaca, and one was noted by the Oaxaca Coast project at Huamelula (Kroefges 2004).

The Early Postclassic was a time of change in social organization for many regions including the Coast Chica (the lower Rio Verde Valley), and the Valley of Oaxaca. This change included an apparent decline in centralized authority marked by a cessation of monumental architecture. However, in the Manialtepec Basin this period was marked by the construction of a

new socio-political center at Linda Vista. Evidence for connections to outside the Basin area include: the ballcourts, and ceramics that were similar to the neighboring lower Rio Verde Valley. I suggest that the dynamics of any connections to other regions of Oaxaca were peer-like in nature due to the decline of many formerly important centers (e.g. Rio Viejo and Monte Albán) during the Early Postclassic. By this time there were no large core areas that dominated the economic or political landscape of Oaxaca. Thus, any interactions outside of the Manialtepec Basin would likely have been with centers of similar size to those within the Basin.

Despite Linda Vista's large monumental architecture, it was largely abandoned during the Late Postclassic. However, settlement continued at both Bajos de Chila and Manialtepec 2. One possible cause for the decline of Linda Vista may be the arrival of the Tututepec Mixtecs. They may have replaced the Linda Vista authorities with their own external authority and left Bajos de Chila and Manialtepec 2 alone because they were no longer as prominent. Surface ceramic collections and excavations at Linda Vista suggest the site was abandoned, or may have lost much of its former socio-political status at this time. At Linda Vista, only one collection of Late Postclassic material was recovered from the surface and none was obtained from excavation. Notably, no other sites in the Basin exhibited this pattern of settlement decline during the Late Postclassic.

From archaeological and ethnohistoric sources we know that during the Late Postclassic, the Mixtecs led by Lord 8 Deer Jaguar Claw founded a powerful empire based at Tututepec in the lower Rio Verde Valley (Levine 2007:Figure 1.03, Spores 1993:Figure 1, Joyce and Levine 2008). Ethnohistorical accounts also record the Tututepec Mixtecs as having had controlled

towns as far away as Huatulco (about 100 km to the east of the Manialtepec Basin) (Spores 1993) and, with the data gathered by the PALM, it certainly appears as though they exerted their influence over the Manialtepec Basin. Many of the patterns that take place in the lower Rio Verde Valley at the time of the Mixtec incursion are similar to those in the Manialtepec Basin, specifically, the establishment of new sites and the high density of Mixteca-Puebla polychromes (Joyce et al. 2004; Workinger 2002; Levine 2007). Additionally, the almost complete abandonment of the important Early Postclassic center of Linda Vista suggests dramatic socio-political change.

During the Late Postclassic, new sites appeared in previously unoccupied areas of the Basin such as the flood plains of the Manialtepec Basin, at the lagoon island of Piedra Blanca, and on the hill-top of Cerro de la Vieja. None of the new sites had monumental architecture that could be considered ceremonial. However, both Isla Piedra Blanca and Cerro de La Vieja had large walls surrounding them, although likely for different purposes. The location of Cerro de La Vieja and the size and position of the wall encircling it suggest the site was used for defensive purposes. The wall, at least 1 m high, continued nearly unbroken around the entire hilltop and in most places was located adjacent to steep inclines. The hilltop itself was the end point of a ridge that jutted out onto the coastal plain and from which one could see for kilometers to the north and south along the coast (Figure 33).



Figure 33: View from Cerro de La Vieja

The dimensions and location of the wall at Isla Piedra Blanca suggest it was used to protect the island from rising water levels. The wall surrounding Isla Piedra Blanca was located right at the island's shoreline and was low and wide. The Mixtecs were likely responsible for the founding of Isla Piedra Blanca probably in order to take advantage of the lagoon's resources and Cerro de La Vieja was most likely a Fortaleza from which to keep watch along the coast (Feinman and Nicholas 2004). There was also an increase in what could be small homestead sites in the lower piedmont area of the Basin just above the floodplains. These new sites also likely

meant the population of the Basin had significantly increased and may represent Mixtec immigrants. Furthermore, no one site appears to have acted as a primary center in the Manialtepec Basin during the Late Postclassic. Collections from the proposed earlier centers of Manialtepec 2 and Bajos de Chila indicate that occupation continued into the Late Postclassic at these sites. In addition to these changes in settlement patterns, there is also a drastic change in the type of ceramics. The major signal for the Late Postclassic Period in the Manialtepec Basin was the heavy presence of Mixteca-Puebla polychrome pottery at all locations except Linda Vista. The abundance of Mixteca-Puebla polychrome pottery, together with the settlement changes in the Basin, support previous research (Joyce et al. 2004; Workinger 2002; Levine 2007) that indicates a foreign intrusion of Mixtecs along the Pacific Coast of Oaxaca.

Prior to the Late Postclassic there is no evidence of a dominant external connection in the Manialtepec Basin. However, with the arrival of the Mixtecs at Tututepec numerous changes occurred in the Basin including a large influx of foreign material culture (i.e. Mixteca-Puebla Polychromes), an increase in settlement occupation, and the foundation of new settlements in previously unoccupied areas. All of these changes occurred across the Basin, with the exception of Linda Vista, and indicate this entire region was incorporated into the Tututepec Empire. These changes, along with the lack of a prominent center and monumental architecture dating to the Late Postclassic, also suggest the Manialtepec Basin was peripheral to the core area of Tututepec in the lower Rio Verde Valley.

Other Patterns

Several other patterns were found throughout the project area that are worth discussion. The first pattern noted was that most of the sites around the Manialtepec River were located on ridges. There are several possible explanations for site location, including: defense, reluctance to build on land used for farming, or flood avoidance. It is also possible that the floodplain sites have been destroyed by the movement of the river, which according to local informants has shifted as much as 2 km across the floodplain in the past half century due to hurricanes.

The second pattern observed was an unusual concentration of ballcourts around the Manialtepec River. A total of six (possibly seven) ballcourts were observed by the PALM and Oaxaca Coast Survey Projects: three at Linda Vista on the eastern side of the Manialtepec River; and, three (possibly four) on the western side of the Manialtepec River associated with the area of Manialtepec 2 (Figure 34 below). Many researchers studying ballcourts in the highlands of Guatemala and Oaxaca have proposed that these features may have been built at political boundaries or in areas with conflicting groups, and that they were also associated with the separation and forging of socio-political or economic alliances between polities (Kowalski 1991; Scarborough 1991; Fox 1991; Gillespie 1991). Based on the likely dates of the Manialtepec ballcourts' construction, their presence in the area around the Manialtepec River could indicate the establishment of alliances within the Basin and outside of the Basin, most likely with Nopala.

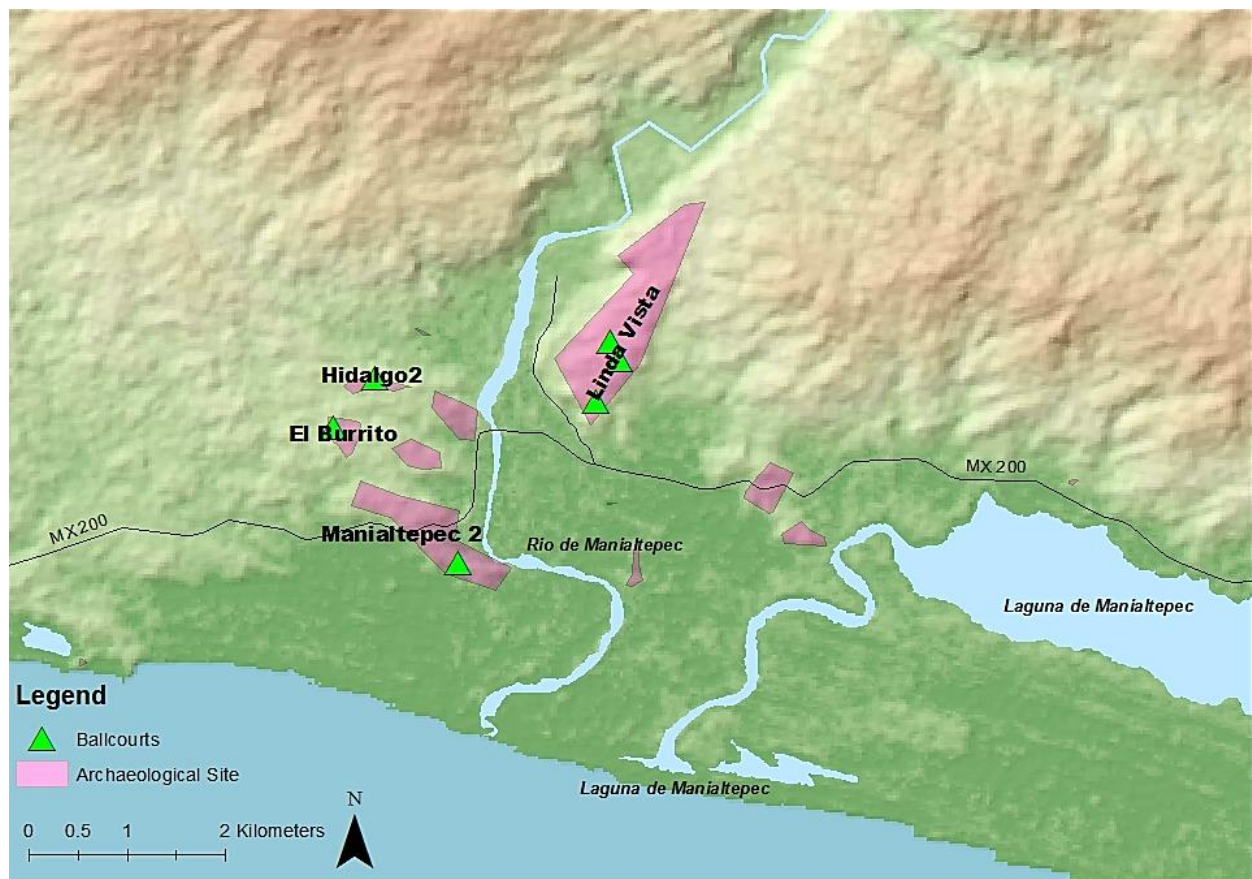


Figure 34: Ballcourt Locations in the Manialtepec Basin

Finally, the Manialtepec Basin appears to have had a Formative Period material signature distinct from that found in regions to the west. Gralisa graphite-slipped red wares do not occur in the lower Río Verde valley nor have they been found to the west of the Manialtepec Lagoon; but these types were present in both surface and profile clearing samples from the Bajos de Chila site. Additionally, Gralisa-ware has previously been noted only in great quantity and variety at Bajos de Chila and to the east in Guatemala; low amounts have also been recovered from sites to the east of the Basin (Houston 1974). The absence of Gralisa-ware to the west of the Lagoon is

especially interesting given that coarse brown-ware closely matching Minizundo found in the lower Rio Verde valley was present throughout the Manialtepec Basin. There are a few explanations for the lack of Gralisa within western portion of the Manialtepec Basin. One possibility could be that due to the limited scope of the project Gralisa-ware was present but was missed. Another explanation is that some kind of cultural, social or political boundary prevented the spread of Gralisa west of the Manialtepec River. Only two collections from the west of the Manialtepec River had Late/Terminal Formative ceramics and neither contained Gralisa. Finally, yet another possibility is that, given the distribution of Gralisa noted by Houston (1974) at sites to the east of the Basin, Bajos de Chila and in the highlands of Guatemala, it is possible that Bajos de Chila was participating in some kind of exclusive exchange network that connected it to the southeast.

Conclusions

Based on my analysis of the data in the previous chapter, I argue that the Manialtepec Basin was home to three important centers during the course of its pre-Hispanic history, and that towards the end of this era the Basin was invaded by the Mixtecs of Tututepec. These important centers were the nodes (sites) of Bajos de Chila, Manialtepec 2, and Linda Vista. Each of these nodes exhibited characteristics, such as monumental architecture, carved stone, and external connections that marked them as important centers during their respective time periods. Although these characteristics suggest these nodes were important centers within the Manialtepec Basin, it is unclear as to how they would have related to each other. Based on the distribution of dated ceramic samples gathered from the PALM, I suggest that the primary

occupation of the three centers were at different, only slightly overlapping, times during the pre-Hispanic era. I also suggest that each center was considered the core of the Manialtepec Basin during its period of primary occupation. However, if it is found that the occupation of the centers overlapped more with each other than I suggest here, it could then be suggested they were in competition with each other as peers. However, until excavations can be done at these centers, conclusions regarding the internal political dynamics of the Manialtepec Basin are somewhat limited. The results suggest that from the Late Formative to the Early Postclassic the focal point of human activity shifted at least three times. The most interesting part of this shift is the last one that occurred during the Early Postclassic at Linda Vista. If the monumental constructions at this site match the Early Postclassic date that has been assigned to it that would make their construction unusual with the pattern of the events occurring in the rest of Oaxaca during the Early Postclassic. There was a cessation of monumental construction in the lower Rio Verde Valley, and the Valley of Oaxaca during this period (Joyce 2010; Blomster 2008), but not in the Manialtepec Basin.

Regarding the external interactions of the Manialtepec Basin, the results also indicate that during the Late Postclassic this area, along with the lower Rio Verde Valley, was brought under the control of the Mixtec Tututepec Empire. The combination of ceramic and settlement data in the Manialtepec Basin and the results of previous archaeological research and ethnohistoric documents make a strong argument for this point. The distribution of polychrome pottery in the Basin and the presence of axe-monies indicate this area was completely integrated in the Tututepec Empire. The lack of Late Postclassic monumental construction and carved stone monuments in the Manialtepec Basin also indicate this area was peripheral to the Tututepec core.

The connection between the Manialtepec Basin and Nopala during the Late Classic may be significant, especially given the similarity of carved stone stelae in both places. Additionally, Manialtepec 2 and Nopala are similar in size which suggests the interaction between these two could have been Peer-polity-like in nature. It is possible that the two formed an alliance based on exchanging goods from the coast to the Valley of Oaxaca. Additional evidence that could support this conclusion includes the possible pedestrian transportation route projected by the FETE model (Figure 35 below), and the high concentrations of ballcourts at Nopala and in the area around the mouth of the Manialtepec River. However, no excavations have been carried out at Nopala and more excavation is required in the Manialtepec Basin. The Manialtepec Basin's relationship with the neighboring lower Rio Verde Valley is unclear during this time period. Given the size of Rio Viejo during the Late Classic, it is possible that the Basin's interaction with this polity followed a World Systems dynamic in which Rio Viejo was the core area and the Basin was peripheral. However, the Basin's unique carved stone monuments also suggest a certain level of independence.

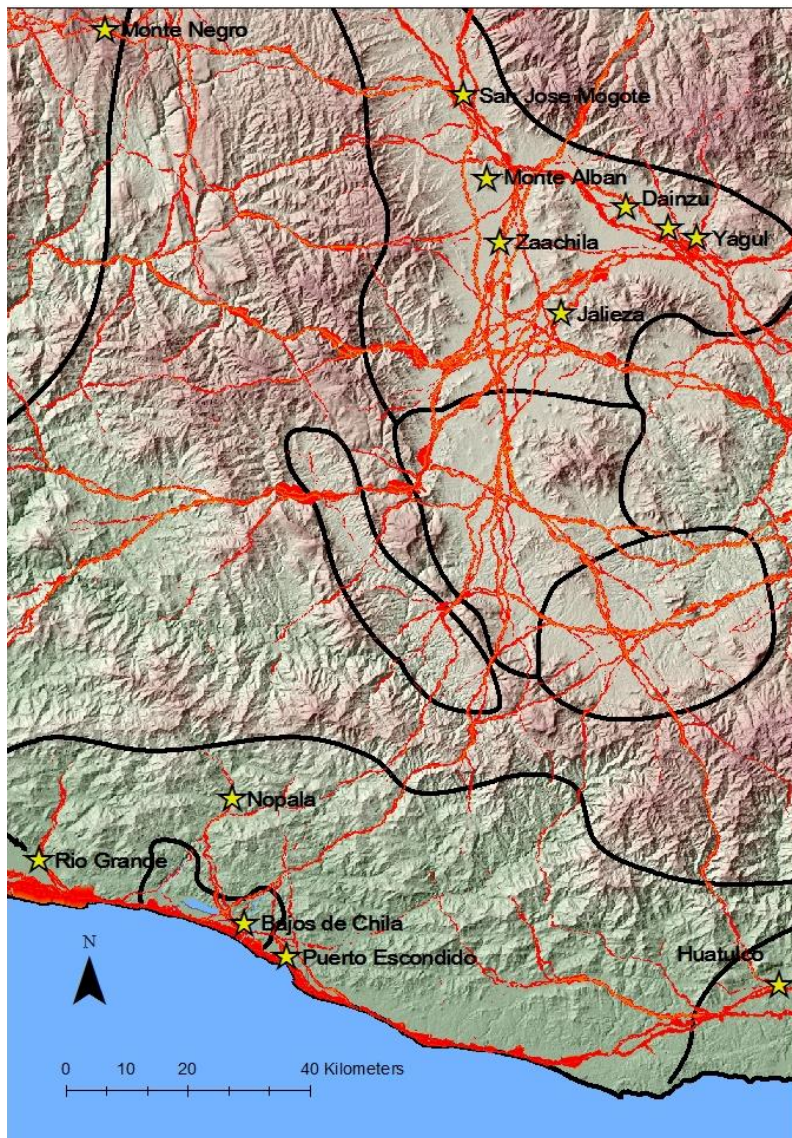


Figure 35: Paths projected by the FETE model

Evidence for expansionistic activity from Monte Albán into this region at any time period is not apparent. Although the ceramic evidence does suggest there was some kind of connection to the central highlands during the Late/Terminal Formative, it also indicates greater connections along the Pacific coast than with the highlands. No singular external connection appears to have

dominated the Basin prior to the Late Postclassic. Due to the Manialtepec Basin's widespread connections to different regions it could be considered to have participated in World Systems-like interactions with these other regions. However, the data indicate these interactions do not match the kinds described in traditional World Systems Theory (Wallerstein 1974 a,b). The Basin's connectedness to other regions through the exchange of goods aligns more with Smith and Berdan's version of World Systems Theory than the older versions.

By analyzing the data through the terms and framework of Social Network Analysis this has allowed an objective identification of the connections present between the Manialtepec Basin and other regions of Oaxaca. Additionally, by analyzing these connections through the lenses of World Systems Theory and the Peer-polity approach it is evident that these interactions were multifaceted in nature. Utilizing all of these theories together has also allowed me to make conclusions about the nature of these interactions that are adaptable, meaning that they are not forced into one category even if they do not entirely fit the criteria. As discussed above the types of interactions the Manialtepec Basin had within its region and with other regions was varied. During the Late/Terminal Formative to Early Classic, the Basin likely had a peer-like relationship with the neighboring lower Rio Verde Valley and core-periphery relationships within its region. The Basin also had ties to the highlands of Oaxaca and the Isthmus of Tehuantepec through exchange. However, the evidence suggests that those interactions aligned more with the modified version of World Systems Theory that emphasizes the interconnectedness of economies in ancient Mesoamerica. In the following Late Classic Period, the internal dynamics of the Basin changed with the establishment of a new center at Manialtepec 2. However, it is unclear if the Basin's external connections continued to follow a

peer-like dynamic. All three of the major regions surrounding the Manialtepec Basin had large important centers during this period (e.g. Rio Viejo, Monte Albán, and Saltillo) but there is no overwhelming evidence indicating any of these areas exerted a core-like influence over the Basin. Evidence does suggest a peer-like relationship with the site of Santos Reyes Nopala located to the north of the Basin along the Manialtepec River. Interactions between these sites may have been established or emphasized during this time in order to facilitate exchange between the highlands of Oaxaca and the coast. During the Early Postclassic there is even less indication of World Systems-like interactions in the traditional Wallersteinian sense. In this period, Monte Albán and Rio Viejo were largely abandoned and monumental construction ceased in both these areas. Meanwhile, in the Manialtepec Basin a new center (Linda Vista) with monumental architecture, including temples and ballcourts, was founded. This act significantly deviates from the overall pattern of socio-political disruption that was affecting much of Oaxaca during the Early Postclassic. The establishment of Linda Vista could be interpreted as proof the Manialtepec Basin was not a dependent periphery of any of these other regions. Alternatively, it could also be argued that the “fall” of these core areas allowed the periphery, in this case the Manialtepec Basin, to prosper. Either way it is clear that by the Late Postclassic the Manialtepec Basin had become peripheral to the capital of the Mixtec Tututepec Empire located in the lower Rio Verde Valley at Tututepec.

This thesis makes a significant contribution to the body of archaeological knowledge regarding human occupation on the central Pacific Coast from the Late Formative to the Late Postclassic. Prior to this study, only tentative dates were given to settlement found in the Manialtepec Basin and very little was known about its patterning, organization, or socio-cultural

ties. My spatial analysis of material culture, including architectural elements and ceramic distribution patterns, provides basic interpretations that can serve as the building blocks of future research. My analysis produced a framework of the diachronic change in settlement patterns and concentrations that occurred in the Manialtepec Basin. It also charted differences in cultural affiliations and expressions to examine possible scenarios of internal and external socio-political interaction.

In summary, further research in this region is important to gaining a broader and more informed view about Oaxacan prehistory. Future investigations should include more intensive survey with statistically meaningful samples, and additional archaeological excavations. Among the goals of future investigations should be the establishment of a ceramic chronology for the Manialtepec Basin. This would allow for better dating and for other cultural connections to be discerned. Excavations at the sites of Bajos de Chila, Manialtepec 2, and Linda Vista are also suggested to understand how they developed over time and how they related to one another. Additional questions for future research should also include:

- When were the ballcourts built in the Manialtepec Basin and what was their function?
- Was there an ethnic or political boundary present here during ancient times that divided the Basin?
- What was the ethnic or linguistic identity of the people living in the Manialtepec Basin before the Tututepec Empire?
- Is there any more evidence of a connection to the central Valleys of Oaxaca?

- Is Gralisa-ware really only limited to the eastern side of the Manialtepec Lagoon?
- What was Manialtepec 2's connection to Nopala?

REFERENCES

Arnaud Bustamante, Laura

2003 Analisis Iconografico de las Piedras Grabadas de Los Santos Reyes Nopala, Juquila, Oaxaca. Unpublished M.A. Thesis. Instituto Nacional de Antropología e Historia. Mexico City.

Balkansky, Andrew K.

2002 *The Sola Valley and the Monte Albán State: A Study of Zapotec Imperial Expansion*. Memoirs of the University of Michigan Museum of Anthropology No. 36. University of Michigan, Ann Arbor.

Barber, Sarah B.

2005 *Heterogeneity, identity, and complexity: Negotiating status and authority in Terminal Formative coastal Oaxaca*. Ph.D. Dissertation, Department of Anthropology, University of Colorado at Boulder, Boulder.

2014 El Proyecto Arqueológico Laguna de Manialtepec Informe Técnico de la Temporada de 2013. Manuscript on file, Consejo de Arqueología, Instituto Nacional de Antropología e Historia. Mexico City.

Barber, Sarah B. and Arthur A. Joyce

2007 Polity Produced and Community Consumed: Negotiating Political Centralization in the Lower Rio Verde Valley, Oaxaca. In *Mesoamerican Ritual Economy*, edited by Christian Wells and Karla L. Davis-Salazar. University Press of Colorado, Boulder

2012 El Proyecto Río Verde. Informe Técnico de la Temporada de 2012. Manuscript on file, Consejo de Arqueología, Instituto Nacional de Antropología e Historia. Mexico City.

Barber, Sarah B., Arthur A. Joyce, Arion T. Mayes, Jose Aguilar, and Michelle Butler

2013 Formative Period Burial Practices and Cemeteries. In *Polity and Ecology in Formative Period Coastal Oaxaca*, edited by Arthur A. Joyce, pp.97-3-134. University of Press Colorado, Boulder

Barber, Sarah B. and Victoria L. Menchaca

2013 Ballcourts, Ceremonial Centers, and Trade Routes in the Manialtepec Basin of Oaxaca's Central Coast. Paper presented for the 79th annual Society for American Archaeology Conference. Austin, Texas

Blomster, Jeffrey P.

2008a Changing Cloud Formations: The Sociopolitics of Oaxaca in the Late Classic/Postclassic Mesoamerica. In *After Monte Albán: Transformation and Negotiation in Oaxaca, Mexico*, edited by Jeffrey Blomster, pp. 3-48. University Pres of Colorado, Boulder.

- 2008b Legitimization, Negotiation and Appropriation in Postclassic Oaxaca: Mixtec Stone Codices. In *After Monte Albán: Transformation and Negotiation in Oaxaca, Mexico*, edited by Jeffrey Blomster, pp. 219-54. University Press of Colorado, Boulder.
- Brockington, Donald L.
1983 The view from the Coast: relationships between the Coast and the Valley of Oaxaca. *Notas Mesoamericanas* 9:25-3.
- Brockington, Donald L., Maria Jorin, and James R. Long (editors)
1974 The Oaxaca Coast Project Reports: Part I and II. Vanderbilt University Publications in Anthropology 8, Vanderbilt University, Nashville.
- Brumfiel, Elizabeth M. and Timothy K. Earle
1987 Specialization, Exchange, and Complex Societies: An Introduction. In *Specialization, Exchange, and Complex Societies*, edited by E. M. Brumfiel and T. K. Earle, pp. 1-9. Cambridge University Press, Cambridge, England.
- Caso, Alfonso, Ignacio Bernal, and Jorge R. Acosta
1967 La Cerámica de Monte Albán. *Memorias del Instituto Nacional de Antropología e Historia* 13, Instituto Nacional de Antropología e Historia, Mexico City.
- Chase-Dunn, Christopher., and Thomas D. Hall
1991 Conceptualizing Core/Periphery Hierarchies for Comparative Study. In *Core/Periphery Relations in Precapitalist Worlds*, edited by Christopher Chase-Dunn and Thomas D. Hall, pp.5-44. Westview, Boulder.
1996 Comparing World-Systems: Concepts and Hypotheses. In *Pre-Colombian World Systems*, edited by Peter N. Peregrine and Gary M. Feinman, pp.11-25. Prehistory Press, Madison.
- Chase, Arlen F., Diane Z. Chase, and Michael E. Smith
2009 States and Empires in Ancient Mesoamerica. *Ancient Mesoamerica* 20:175-182.
Comisión Nacional para El Desarrollo de Los Pueblos Indígenas www.cdi.gob.mx
- Drennan, Robert D.
1976 Fábrica San José and Middle Formative Society in the Valley of Oaxaca. *Prehistory and Human Ecology of the Valley of Oaxaca*, vol. 4 *Memoirs of the University of Michigan Museum of Anthropology* No. 8, Ann Arbor.
- Elson, Christina M.
2006 Intermediate Elites and the Political Landscape of the Early Zapotec State. In *Intermediate Elites in Pre-Columbian States and Empires*, edited by Christina M. Elson and R. Alan Covey, pp. 44-67. University of Arizona Press, Tucson.
- Elson, Christina M., and R. Jason Sherman
2007 Crema Ware and Elite Power at Monte Albán: Ceramic Production and Iconography in the Oaxaca Valley, Mexico. *Journal of Field Archaeology* 32:265-282

Feinman, Gary M., and Linda M. Nicholas

1990 At the Margins of the Monte Albán State: Settlement Patterns in the Ejutla Valley, Oaxaca, Mexico. *Latin American Antiquity* 1:216-246.

2004 Hilltop Terrace Sites of Oaxaca, Mexico: Intensive Surface Survey at Guirún, El Palmillo and the Mitla Fortress Fieldiana Anthropology 37, Field Museum of Natural History, Chicago.

Fernández Dávila, Enrique, and Susana Gómez Serafín.

1988 Arqueología de Huatulco, Oaxaca. Colección Científica 171. Instituto Nacional de Antropología e Historia, Mexico City.

Flannery, Kent V.

1976 Contextual Analysis of Ritual Paraphernalia from Formative Oaxaca. In *The Early Mesoamerican Village*, edited by Kent V. Flannery, pp. 333-345. Academic Press, New York.

1986 *Guilá Naquitz: Archaic Foragers and Early Agriculture in Oaxaca Mexico*. Academic Press, Orlando.

Flannery, Kent V. and Joyce Marcus

1996 *Zapotec Civilization: How Urban Society Evolved in Mexico's Oaxaca Valley*. Thames and Hudson, London.

Flannery, Kent V., and Marcus C. Winter

1976 Analyzing Household Activities. In *The Early Mesoamerican Village*, edited by Kent V. Flannery, pp.34-45. Academic Press, New York

Friedel, David A.

1986 Maya warfare: an example of peer polity interaction. In *Peer polity interaction and socio-political change*, edited by Colin C. Renfrew and John F. Cherry, pp. 93-108. Cambridge University Press, Cambridge.

Friedel, David. A., Kathryn Reese-Taylor and David Mora-Marín

2002 The Origins of Maya Civilization: The Old Shell Game, Commodity Treasure, and Kingship. In *Ancient Maya Political Economy*, edited by M. A. Masson and D. A. Friedel, pp. 41-86. AltaMira Press, Walnut Creek.

Freeman, Linton C.

2004 *The development of social network analysis: a study in the sociology of science*. Empirical Press, Vancouver.

Gjesfjeld, Erik., and S. Colby Phillips

2013 Evaluating adaptive network strategies with geochemical sourcing data: a case study from the Kuril Islands. In *Network Analysis in Archaeology*, edited by Carl Knappett, pp. 281-306. Oxford University Press, Oxford

Gillespie, Susan D.

1987 Excavaciones en Charco Redondo 1986. Manuscript on file, Manuscript on file, Consejo de Arqueología, Instituto Nacional de Antropología e Historia. Mexico City.

Goman, Michelle., Arthur A. Joyce, and Raymond G. Mueller

2013 Paleoecological Evidence for Early Agriculture and Forest Clearance in Coastal Oaxaca. In *Polity and Ecology in Formative Period Coastal Oaxaca*, edited by Arthur A. Joyce, pp.43-64. University of Press Colorado, Boulder

Hepp, Guy D.

2014 La Consentida: Among Mesoamerica's Earliest for Ceramics and Earthen Architecture. Paper presented for the 79th annual Society for American Archaeology Conference. Austin, Texas

n.d Part II: Bajos de Chila. Unpublished Manuscript.

Hepp, Guy D. and Arthur A. Joyce

2013 From Flesh to Clay: Formative Period Iconography from Oaxaca's Lower Rio Verde Valley. In *Polity and Ecology in Formative Period Coastal Oaxaca*, edited by Arthur A. Joyce, pp.264-300. University of Press Colorado, Boulder

Hermann Lejarazu, Manuel A.

2007 Códice Nutall Lado 1: La Vida de 8 Venado. *Arqueología Mexicana* 23

Hill, J. Brett., Matthew A. Peeples, Deborah L. Huntley, and Jane H. Carmack.

2015 Spatializing Social Network Analysis in the Late Precontact U.S. Southwest. *Advances in Archaeological Practice* 3(1):63-77.

Hosler, Dorothy

2003 Metal Production. In *The Postclassic Mesoamerican World*, edited by Michael E. Smith and Frances F. Berdan, pp. 159-171. The University of Utah Press, Salt Lake City.

Houston, Margaret S.

1974 *Gralisa Ceramic Group: A Graphite-and-red-painted Pottery from the Coast of Oaxaca*. Unpublished M.A. Thesis, Department of Anthropology, University of North Carolina, Chapel Hill

Joyce, Arthur A.

2013 Polity and Ecology in Formative Period Coastal Oaxaca: An Introduction. In *Polity and Ecology in Formative Period Coastal Oaxaca*, edited by Arthur A. Joyce, pp.1-42. University of Press Colorado, Boulder

- 2010 *Mixtecs, Zapotecs, and Chatinos: ancient peoples of southern Mexico*. Wiley-Blackwell, Malden.
- 2008 Domination, Negotiation, and Collapse: A History of Centralized Authority on the Oaxaca Coast. In *After Monte Albán: Transformation and Negotiation in Oaxaca, Mexico*, edited by Jeffrey Blomster, pp. 219-54. University Press of Colorado, Boulder.
- 2003 Imperialism in Pre-Aztec Mesoamerica: Monte Albán, Teotihuacan, and the Lower Río Verde Valley. In *Ancient Mesoamerica Warfare*, edited by M. Kathryn Brown and Travis M. Stanton, pp. 49-72. Alta Mira Press, Walnut Creek.
- 1991 Formative Period social change in the lower Río Verde Valley, Oaxaca, Mexico. *Latin American Antiquity* 2(2):126-150.
- 1993 Interregional Interaction and Social Development on the Oaxaca Coast. *Ancient Mesoamerica* 4:67-84.
- Joyce, Arthur A., Laura Arnaud Bustamante, and Marc N. Levine.
- 2001 Commoner Power: A Case Study from the Classic Period Collapse on the Oaxaca Coast. *Journal of Archaeological Method and Theory* 8(4):343-85.
- Joyce, Arthur A. and Marc N. Levine
- 2008 Tututepec (Yucu Dzaa). Un Imperio del Posclásico en la Mixteca de la Costa. *Arqueología Mexicana* 15(90):44-47
- Joyce, Arthur A., Andrew G. Workinger, Byron Hamann, Peter Kroefges, Maxine Oland, and Stacie M. King
- 2004 Lord 8 Deer "Jaguar Claw" and the Land of the Sky: The Archaeology and History of Tututepec. *Latin American Antiquity* 15(3):273-297
- Joyce, Arthur A., Robert N. Zeitlin, Judith F. Zeitlin, and Javier Urcid
- 2000 On Oaxaca Coast Archaeology: Setting the Record Straight. *Current Anthropology* 41(4):623-5
- Jorin, Maria
- 1974 Stone Monuments. In *The Oaxaca Coast Project Reports: Part I*, edited by Donald L. Brockington, Maria Jorin, and J Robert Long, pp. 25-77. Vanderbilt University Publications in Anthropology vol. 8. Vanderbilt University, Nashville
- Kepecs, Susan, and Philip Kohl
- 2003 Conceptualizing Macroregional Interaction: World-Systems Theory and the Archaeological Record. In *The Postclassic Mesoamerican World*, edited by Michael E. Smith and Frances F. Berdan, pp. 14-20. The University of Utah Press, Salt Lake City.
- King, Stacie M.
- 2008 Interregional Networks of the Oaxacan Early Postclassic: Connecting the Coast and the Highlands. In *After Monte Albán: Transformation and Negotiation in Oaxaca, Mexico*, edited by Jeffrey Blomster, pp. 255-294. University Press of Colorado, Boulder.

Knappett, Carl

2013 Introduction: Why networks? In *Network Analysis in Archaeology*, edited by Carl Knappett, pp. 3-16. Oxford University Press, Oxford

Kowalewski, Stephen A., Andrew K. Balkansky, Laura R. Stiver Walsh, Thomas J. Pluckhahn, John F. Chamblee, Verónica Pérez Roderíguez, Verénice Y. Heredia Espinoza, and Charlotte A. Smith

2009 *Origins of the Nuú: Archaeology in the Mixteca Alta*. University Press of Colorado, Boulder.

Kroefeges, Peter C.

2004 *Sociopolitical Organization in the Prehispanic Chontalpa de Oaxaca, Mexico: Ethnohistorical and Archaeological Perspectives*. Ph.D. Dissertation, Department of Anthropology, University at Albany, State University of New York, Albany.

Lind, Michael D.

2008 The Classic to Postclassic at Lambityeco. In *After Monte Albán: Transformation and Negotiation in Oaxaca, Mexico*, edited by Jeffrey Blomster, pp. 171-192. University Press of Colorado, Boulder.

Levine, Marc N.

2007 *Linking Household and Polity at Late Postclassic period Yucu Dzaa (Tututepec), a Mixtec capital on the coast of Oaxaca, Mexico*. Ph.D. Dissertation, Department of Anthropology, University of Colorado at Boulder, Boulder.

2013 Examining Ceramic Evidence for the Zapotec Imperialism Hypothesis in the Lower Rio Verde Region of Oaxaca, Mexico. In *Polity and Ecology in Formative Period Coastal Oaxaca*, edited by Arthur A. Joyce, pp.227-264. University of Press Colorado, Boulder

Love, Michael

2007 Recent Research in the Southern Highlands and Pacific Coast of Mesoamerica. *Journal of Archaeological Research* 15:275-328.

MacNeish, Richard S.

1971 Speculation About How and Why Food Production and Village Life Developed in the Tehuacán Valley, Mexico. *Archaeology* 24(4):307-15.

MacNeish, Richard S., Melvin L. Fowler, Angel García Cook, Ferderick A. Peterson, Antoinette Nelken-Terner, and James A. Neely

1972 *The Prehistory of the Tehuacan Valley*, vol 5: Excavations and Reconnaissance. University of Texas Press, Austin.

Markens, Robert

2008 Advances in Defining the Classic-Postclassic Portion of the Valley of Oaxaca Ceramic Chronology: Occurrence and Phyletic Seriation. In *After Monte Albán: Transformation and Negotiation in Oaxaca, Mexico*, edited by Jeffrey Blomster, pp. 3-48. University Press of Colorado, Boulder.

Markens, Robert., Marcus Winter, and Cira Martinez Lopez

2008 Ethnohistory, Oral History, and Archaeology at Macuilxochitl: Perspectives on the Postclassic Period (800-1521 CE) in the Valley of Oaxaca. In *After Monte Albán: Transformation and Negotiation in Oaxaca, Mexico*, edited by Jeffrey Blomster, pp. 193-218. University Press of Colorado, Boulder.

Matadamas Díaz, Raúl., and Sandra Liliana Ramírez Barrera

2010 *Antes de Ocho Venado y después de los Piratas: Arqueología e Historia de Huatulco*. Instituto Nacional de Antropología e Historia, Oaxaca.

McAnany, Patricia. A., Ben. S. Thomas, Steven. Morandi, Polly. A. Peterson and Eleanor. Harrison

2002 Praise the Ajaw and Pass the Kakaw: Xibun Maya and the Political Economy of Cacao. In *Ancient Maya Political Economy*, edited by Marilyn. A. Masson and David. A. Friedel, pp. 123-139. AltaMira Press, Walnut Creek.

Mills, Barbara J., Jeffery J. Clark, Matthew A. Peeples, W. R. Jr. Haas, John Jr. M. Roberts, J. Brett Hill, Deborah L. Huntley, Lewis Borck, Ronald L. Breiger, Aaron Clauset, and M. Steven Shackley.

2013 Transformation of social networks in the late pre-Hispanic US Southwest. *Proceedings of the National Academy of Sciences of the United States of America* 110(15):5785-5790.

Mizurichi, M.S. and Marquis, C.

2006 Egocentric, sociocentric, or dyadic? Identifying the appropriate level of analysis in the study of organizational networks. *Social Networks* 28:187-208.

Mueller, Raymond G., Arthur A. Joyce, Aleksander Borejsza, and Michell Goman

2013 Anthropogenic Landscape Change and the Human Ecology of the Lower Rio Verde Valley. In *Polity and Ecology in Formative Period Coastal Oaxaca*, edited by Arthur A. Joyce, pp.65-96. University of Press Colorado, Boulder

O'Mack, Scott

1990 Reconocimiento arqueológico en Tututepec, Oaxaca. *Notas Mesoamericanas* 12:19-38.

Oudijk, Michel R.

2008 The Postclassic Period in the Valley of Oaxaca: The Archaeological and Ethnohistorical Records. In *After Monte Albán: Transformation and Negotiation in Oaxaca, Mexico*, edited by Jeffrey Blomster, pp. 95-118. University Press of Colorado, Boulder.

Oxford English Dictionary

2000 Oxford English Dictionary. Oxford University Press, Oxford

Paso y Troncoso, Francisco del

1981 Relaciones geográficas de Oaxaca. Editorial Innovación, Mexico.

Peregrine, Peter N., and Gary M. Feinman (editors)

1996 *Pre-Columbian world systems*. Prehistory Press, Madison.

Pires-Ferreira, Jane W.

1975 Formative Mesoamerican Exchange Networks with Special Reference to the Valley of Oaxaca. *Memoirs of the University of Michigan Museum of Anthropology* No. 7. University of Michigan, Ann Arbor

1976 Shell and Iron-Ore Mirror Exchange in Formative Mesoamerica, with Comments on other Commodities, In *The Early Mesoamerican Village*, edited by Kent V. Flannery, pp. 311-26. Academic Press, New York

Pollard, Helen P.

2003a The Tarascan Empire. In *The Postclassic Mesoamerican World*, edited by Michael E. Smith and Frances F. Berdan, pp. 78-86. The University of Utah Press, Salt Lake City.

2003b Development of the Tarascan Core: The Lake Pátzcuaro Basin. In *The Postclassic Mesoamerican World*, edited by Michael E. Smith and Frances F. Berdan, pp. 227-237. The University of Utah Press, Salt Lake City.

Redmond, Elsa M.

1983 A Fuego y Sangre: Early Zapotec Imperialism in the Cuicatlán Cañada, Oaxaca. *Memoirs of the University of Michigan Museum of Anthropology* No. 16, Ann Arbor

Renfrew, Colin C., and John F. Cherry (editors)

1986 *Peer polity interaction and socio-political change*. Cambridge University Press, Cambridge.

Renfrew, Colin C.

1986 Introduction: Peer-polity. In *Peer polity interaction and socio-political change*, edited by Colin C. Renfrew and John F. Cherry, pp. 1-18. Cambridge University Press, Cambridge.

Rathje, William L.

1972 Praise the Gods and Pass the Metates: A Hypothesis of the Development of Lowland Rainforest Civilizations in Mesoamerica. In *Contemporary Archaeology: A Guide to Theory and Contributions*, edited by Mark P. Leone, pp. 365-392. Southern Illinois University Press, Carbondale.

Rivers, Ray., Carl Knappett, and Tim Evans

2013 What makes a site important? Centrality, gateways, and gravity. In *Network Analysis in Archaeology*, edited by Carl Knappett, pp.125-150. Oxford University Press, Oxford

Sabloff, Jeremy A.

1986 Interaction among Classic Maya polities: a preliminary examination. In *Peer polity interaction and socio-political change*, edited by Colin C. Renfrew and John F. Cherry, pp. 109-116. Cambridge University Press, Cambridge.

Schortman, Edward M. and Patricia A. Urban

1994 Living on the Edge: Core/Periphery Relations in Ancient Southeastern Mesoamerica. *Current Anthropology* 35(4):401-427.

Sinbæk, M. Søren

2013 Broken links and black boxes: material affiliations and contextual network synthesis in the Viking world. In *Network Analysis in Archaeology*, edited by Carl Knappett, pp. 71-94. Oxford University Press, Oxford

Sherman, Jason R., Andrew K. Balkansky, Charles S. Spencer and Brian D. Nicholls

2010 Expansionary Dynamics of the Nascent Monte Albán State. *Journal of Anthropological Archaeology* 29:278-301.

Smith, Michael E., and Frances F. Berdan

2003a Postclassic Mesoamerica. In *The Postclassic Mesoamerican World*, edited by Michael E. Smith and Frances F. Berdan, pp. 3-13. The University of Utah Press, Salt Lake City.

2003b Spatial Structure of the Mesoamerican World System. In *The Postclassic Mesoamerican World*, edited by Michael E. Smith and Frances F. Berdan, pp. 21-34. The University of Utah Press, Salt Lake City.

2003c The Aztec Empire. In *The Postclassic Mesoamerican World*, edited by Michael E. Smith and Frances F. Berdan, pp. 67-72. The University of Utah Press, Salt Lake City.

Spence, Michael W.

1998 Tlailotlacan, a Zapotec enclave in Teotihuacan. In *Art, Ideology, and the City of Teotihuacan*, edited by Janet C. Berlo, pp.59-88. Dumbarton Oaks, Washington D.C.

Spencer, Charles S.

1982 *The Cuicatlán Cañada and Monte Albán: A Study of Primary State Formation*. Academic Press, New York.

Spencer, Charles. S., Elsa. M. Redmond and Christina. M. Elson

2008 Ceramic Microtypology and the Territorial Expansion of the Early Monte Albán State in Oaxaca, Mexico. *Journal of Field Archaeology* 33:321-341.

Spores, Ronald

1993 Tututepec: A Postclassic-Period Mixtec Conquest State. *Ancient Mesoamerica* 4:167-174

- Stein, Gil
1999 *Rethinking World-Systems: Diasporas, Colonies, and Interaction in Uruk Mesopotamia*. The University of Arizona Press, Tuscon.
- Terraciano, Kevin
2001 *The Mixtecs of Colonial Oaxaca: Nudzahui History, Sixteenth through Eighteenth Centuries*. Stanford University Press, Stanford.
- Thompson, Grahame F.
2003 *Between Hierarchies and Markets: The Logic and Limits of Network Forms of Organization*. New York: Oxford University Press
- Urcid, Javier
1993 The Pacific Coast of Oaxaca and Guerrero: the westernmost extent of Zapotec script. *Ancient Mesoamerica* 4:141-165.
- Urcid, Javier and Arthur Joyce
2014 Early Transformations of Monte Albán's Main Plaza and Their Political Implications, 500 BC-AD 200. In *Mesoamerican Plazas Arenas of Community and Power*, edited by Kenichiro Tsukamoto and Takeshi Inomata, pp. 149-167. University of Arizona Press, Phoenix
- Wallerstein, Immanuel
1974a The Rise and Future Demise of the Capitalist World-System: Concepts for Comparative Analysis. *Comparative Studies in Society and History* 16:387-415.
1974b *The Modern World-System I*. Academic Press, New York.
- White, Devon, and Sarah B. Barber
2012 Geospatial modeling of pedestrian transportation networks: a case study from precolumbian Oaxaca, Mexico. *Journal of Archaeological Science* 39(8):2684-2696.
- Winter, Marcus C.
1972 "Tierras Largas: A Formative Community in the Valley of Oaxaca, Mexico." Unpublished Ph.D. dissertation, University of Arizona, Tuscon
1976 The Archaeological Household Cluster in the Valley of Oaxaca. In *The Early Mesoamerican Village*, edited by Kent V. Flannery, pp.25-32. Academic Press, New York
1994 El Proyecto Especial Monte Albán 1992-4: Antecedents, intervenciones y perspectivas. In Monte Albán: Estudios recientes, edited by Marcus Winter, pp. 1-24. Contribución No. 2 del Proyecto Especial Monte Albán 1992-4, Oaxaca
1998 Monte Albán and Teotihuacan. In *Rutas de intercambio en mesoamérica*, edited by Evelyn C. Rattray, pp.153-84. Universidad Nacional Autónoma de México, Mexico City

Whalen, Michael E.

1981 Excavations at Santo Domingo Tomaltepec: Evolution of a Formative Community in the Valley of Oaxaca, Mexico. Prehistory and Human Ecology of the Valley of Oaxaca, vol. 6. Memoirs of the University of Michigan Museum of Anthropology No. 12, Ann Arbor

Workinger, Andrew G.

2002 Coastal/highland interaction in prehispanic Oaxaca, Mexico: The perspective from San Francisco de Arriba. Ph.D. Dissertation, Department of Anthropology, University of Colorado at Boulder, Boulder.

2013 Coastal/Highland interaction in prehispanic Oaxaca, Mexico: The perspective from San Francisco de Arriba. In *Polity and Ecology in Formative Period Coastal Oaxaca*, edited by Arthur A. Joyce, pp.193-226. University of Colorado, Boulder.

Zeitlin, Judith F.

2005 *Cultural Politics in Colonial Tehuantepec: Community and State Among the Isthmus Zapotec, 1500-1750*. Stanford University Press, Stanford.

Zeitlin, Robert N.

1978 Long-Distance Exchange and the Growth of a Regional Center: An Example from the Southern Isthmus of Tehuantepec, Mexico. In *Prehistoric Coastal Adaptations: The Economy and Ecology of Maritime Middle America*, edited by Barbara L. Stark and Barbara Voorhies, pp. 183-210. Academic Press, New York.

Zeitlin, Robert N. and Arthur A. Joyce

1999 The Zapotec Imperialism Argument: Insights from the Oaxaca Coast. *Current Anthropology* 40:383-392.

Zeitlin, Robert N. and Judith F. Zeitlin

1990 Arqueología y época prehispánica en el sur del istmo de Tehuantepec. Lecturas históricas de estado de Oaxaca: Época prehispánica 1: 393-454. Instituto Nacional de Antropología e Historia, Mexico City.