NAHUA-PIPIL DIASPORIC MIGRATION AND SYMBOLIC LANDSCAPE IN EARLY POSTCLASSIC EL SALVADOR

By

Marlon Vladimir Escamilla Rodríguez

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Approved:

William R. Fowler, Ph. D.

Tom D. Dillehay, Ph. D.

Norbert O. Ross, Ph. D.

Edward Wright-Rios, Ph. D.

DEDICATION

To Lucas

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INTRODUCTION

The Postclassic period migrations of Nahua speaking groups from Mexico to Central America are one of the best known examples of large-scale population movements in New World culture history. Historical, linguistic, and archaeological evidence indicate that the early Nahua-Pipil migrations to Central America consisted of a complex series of population movements that occurred from about AD 800 until perhaps AD 1350. At the time of the Conquest (1524), the Nahua-Pipil had established themselves in the southeast Pacific coast and southeast highlands of Guatemala, and in western and central El Salvador (Fowler, 1989a, 1989b, 1989c). The reasons why Nahua-Pipil groups migrated into this particular landscape in El Salvador and the sociopolitical situation that emerged from this population movement are still unclear.

Scholars have debated the cultural affiliation of Nahua-Pipil people, the location of archaeological sites, and the geomorphological characteristics of the landscape chosen by them. The available evidence indicates that during the Epiclassic and Early Postclassic (AD 800-1200) Nahua-Pipil settlements were distributed throughout the central and western El Salvador. Two of the main characteristics of these settlements are their location on hilltops and walled architecture which reflect defensive considerations (Fowler, 1989a). These settlements were erected on pristine soils, meaning that no occupation dating before AD 800 has been recognized at any of these centers. Nevertheless, reasons why Pipil groups appropriated this particular defensive geomorphology are still uncertain.

This research explores the Postclassic period migrations of Nahua speaking groups from Mexico to Central America, analyzing the earliest Nahua-Pipil settlements established in the Balsam Coast Range of the western part of El Salvador during the Early Postclassic (AD 800-1200) period. Specifically, this research seeks to discuss the possible reasons why the Nahua-Pipil decided to build their settlements in the Balsam Coast Range and to what extent the location of these archaeological sites is a cultural process of symbolic appropriation of the landscape as a reflection of emulation associated with a diasporic migration phenomenon. The study of Nahua-Pipil population movement to the Balsam Coast in El Salvador contributes to better understanding of identity in archaeology to comprehend why these communities maintained their Nahua-Pipil identity through landscape, understanding that landscape is a conceptual and behavioral process, scholars now understand that the analysis should encompass not only what is on the land, but also human perceptions about the land. In addition, productive lines of research are developed through asking questions about the particular characteristics of different man-made environments and the symbolic influence of these characteristics on specific social formations.

Research Questions

The central question of this research is: What are the possible reasons the Nahua-Pipil decided to settle in the Balsam Coast Range during the Early Postclassic period?

Some additional questions arise regarding the socialpolitical landscape of Balsam Coast Range during Early Postclassic: Why did the Nahua-Pipil choose a defensive location? Are there non-defensive sites associated with Nahua-Pipil groups? Did the Nahua-Pipil displace non-Nahua-Pipil local communities? Or did the Nahua-Pipil interacted among themselves in order to control

a spatiality? Is this physical appropriation of a particular defensive geomorphology based on emulation from homeland to the new territory? Or did the Nahua-Pipil settle in the Balsam Coast Range as a process of marginalization? The implications of these questions are important, since they highlight cultural transformations appropriating the landscape and imposing a fresh template on it.

More specifically, the central question is related to two specific objectives: (1) to determine to what extent the settlement pattern of archaeological sites in Balsam Coast Range, are the reflection of emulation associated with a diasporic migration; and (2) to determine to what extent the location of archaeological sites in Balsam Coast Range is a cultural process of symbolic appropriation of the landscape.

Movements of people through the landscape can be related to several reasons. Stanley Tambiah (2000) points out two possible kinds of population movements: 1) a voluntary migration of people carrying with them a variety of occupational skills and cultural practices, in search of better economic opportunities and life chances, and with a view to permanent or temporary settlement, and 2) an involuntary displacement caused by political turmoil and civil war or by natural disasters. Particularly important for the research is William Safran's (1991) "ideal-type" representation of diaspora, Safran argues that communities dispersed from an original "center" to "peripheral" places maintain a memory or myth about their original homeland, however, they believe they are not, and perhaps cannot, be fully accepted by their host country; and they see the ancestral home as a place of eventual return and a place to maintain or restore. Additionally, based on Safran's definition of diaspora, Robin Cohen (1997) suggests that diasporas are highly variable, however the majority involve the following common features: (a) dispersal from an original homeland, often traumatically, to two or more foreign regions; (b) a collective memory and myth

about the homeland, including its location, history and achievements; (c) a strong ethnic group consciousness sustained over a long time and based in a sense of distinctiveness, a common history and the belief in a common fate; and (d) a troubled relationship with host societies, suggesting the lack of acceptance at the least or the possibility that another calamity might befall the group. All of the above features should be identifiable in the archaeological record.

The concept of landscape has a wide variability of interpretations. However, the most common understanding is related with a dichotomy process amongst natural and cultural emphasis. Contrasting with views of the landscape as natural, this concept has to be understood as a cultural construct, and one, which theoretically bridges the relationship between human and nature together with the relationship between agent and structure. Landscape is understood as the product of social factors and human agency, based on this interpretation, landscape can be considered as an anthropogenic product, and as such, a complex structure, fed by continuous changes, idealizations, reflections, symbolisms, contingencies and materiality. If in fact, landscape can be explored through cultural constructs, it is valuable to introduce the concept of symbolic landscapes (Lansing, 1991; Knapp and Ashmore, 1999) in recognition of the importance of the ideological framework in human behavior, and the anthropogenic landscapes of movement.

Hypothesis

The hypothesis is that Nahua-Pipil population movement to El Salvador is a consequence of a diasporic migration process and the settlements were established in the Balsam Coast Range during Early Postclassic (AD 800-1200) as a cultural process of symbolic appropriation of the landscape based on emulation of their homeland, the Central Highlands of Mexico. Although the

geomorphology of the Balsam Coast represents access difficulties, which were exploited defensively, it could also be related to "ideal-type" representation of places (Safran, 1991) chosen in order to maintain a memory of their original homeland that could have been a consideration of equal importance as to that defensive location.

Organization of Dissertation

This dissertation is presented in seven chapters that will discuss the symbolic landscape of Nahua-Pipil in the Balsam Coast during the Early Postclassic and their settlements as a reflection of emulation associated with a diasporic migration phenomenon.

Chapter I: Introduction. This chapter provide general aspects of the research, as the research problem, the research questions, the hypothesis, the theoretical approaches applied based on concepts of diasporic migration and symbolic landscape, and a summary of the chapters.

Chapter II: Archaeology of the Balsam Coast Range. The first part of this chapter is focus on describes and characterize the environmental setting of the Balsam Coast range and the human-nature interaction implications. It discusses the major geologic-tectonic structural units of El Salvador and the general characteristics of the Balsam Coast range including the physiographic landscapes of the area, geology, hydrology, climate and precipitation of the region. Additionally, it discusses the connotations of these environmental features for human existence, the use of the land during prehispanic periods and the limits of the study area. The second part of this chapter is focus on describes the research background, discussing the different researches that have been conducted since historic period until the recent past in the Balsam Coast. Specifically, it discusses

the Guazapa complex defined by William Fowler (1981), describing the Guazapa ceramic complex and early postclassic settlement pattern registered and documented in the Balsam Coast Range area. Finally, this chapter discuss the Balsam Coast Archaeological Project (BCAP), describing the limits of the study area. Likewise, this chapter describes each of the archaeological sites that have been visited and investigated as part of the Archaeological Project. The chapter also presents a detailed description of the settlement pattern and the spatial distribution of the registered structures. Additionally, it describes the artifacts recorded at each site. Finally, this chapter discusses the relationship between the settlement pattern and the cultural landscape of Balsam Coast.

Chapter III: Migration, Diaspora and Symbolic Landscape. The purpose of this chapter is to describes, analyze and discuss the concepts of migration and diaspora, the main differences among them and how these concepts are related with the construction of identity. The idea is to explain and apply the concept of diasporic migration to the Nahua-Pipil phenomenon occurred during the epiclassic and early postclassic periods. Further, this chapter will discuss the concepts of landscape in archaeology along with the different kinds of landscape. The main idea is to explain the concept of symbolic landscape and how this can be applied to early postclassic settlements located in the Balsam Coast Range. At the end of the chapter will discuss the connotations of symbolic landscape in Nahua-Pipil practice.

Chapter IV: Archaeological Survey and Excavations. This chapter will discuss the research methods directed in the study area; describing the surface survey design and strategies and the test excavations. The purpose of this chapter is to describes, analyze and discuss the methodological approach to diasporic migration and symbolic landscape perspectives in the Balsam Coast Range. Furthermore, the dissertation research questions and archaeological correlates are described.

Chapter V: Spatial Analysis of Landscape. This chapter will discuss the spatial structure of the landscape, as well as the different spatial analysis conducted with the archaeological sites of the Balsam Coast Range area. The first part of this chapter I will discuss the use of LiDAR (Light Detection and Ranging), and derived products such as Digital Elevation Models (DEM) and Hillshade, in the Balsam Coast Range. The purpose of the second part of this chapter, is to describe and discuss the different analysis based on Geographic Information Systems (GIS) such as Least Cost Path (LCP), Intervisibility and Viewshade applied in the archaeological sites of Balsam Coast Range.

Chapter VI: Analysis and Interpretation. This chapter will analyze the data recovered in order to offer an interpretation of the archaeological sites located in the Balsam Coast Range during early postclassic. The first part of this chapter, will discuss the topographic characteristics of the Balsam Coast range including the physiographic landscapes of the area; and the connotations of these environmental features for human existence. The second part of this chapter, will focus in the test excavation program, discussing about the excavation process along with the ceramic analysis, and the settlement pattern of the archaeological sites. Finally, the third part of this chapter, will describe and discuss the different analysis based on Geographic Information Systems (GIS) such as Least Cost Path (LCP), Intervisibility and Viewshade applied in the archaeological sites of Balsam Coast Range.

Chapter VII: Discussion and Conclusions. This chapter will discuss the possible reasons why the Nahua-Pipil decided to settle down in the Balsam Coast Range during the early postclassic period, and the cultural process of appropriation of this particular volcanic landscape of Balsam Coast Range. This chapter also propose some general conclusions of this dissertation.

Significance

At a broader level, this research is significant for anthropology because it will provide information on how people used to construct and delimit their individual and social spaces on an interaction zone or boundaries. In both individuals and groups, boundaries are not considered only concrete points in space, but also symbols with cultural and ethnic meaning (Jedrej, 2002; Simmel 1950). These zones represent ideal places to study interethnic interactions between diverse people, the development of new material and cultural innovations, and the construction, negotiation, and manipulation of group identities. This project discusses the variable factors that are present in the creation of individual and social identities present in the landscape through emulation as a result of forming diaspora communities. In archaeology, the diaspora concept can be applied through the exploration of "ideal-type" representations of diaspora in the settlement pattern and in the material remains as well. Safran already pointed out that these representations are present in the collective memory or myth about their original homeland. This continuing relationship with the homeland allows the construction of collective identities.

There is a discursive relationship between human beings and their artificial and natural landscape. The meanings of this communication and the anthropogenic impact on the landscapes transform the space into texts filled with cultural meanings and behaviors (Agnew, 1994; Geertz 1988). Individual, social, and natural space is not only a series of juxtaposed points, but a series of juxtaposed histories that say something about the movement of human beings through space; it is a journal of human experiences (Ingold, 2000) to be read. Commonly, the majority of the research about movement of people through landscape is focused in social groups looking for "desired"

locations associated with the abundance of resources as one of the main reasons. However, this research pretends to open up new avenues of discussions of Mesoamerican prehistory about how collective identities of communities are defined by their relationship with the homeland and how this collective identity can be built based on emulation within places lacking the abundance of resources, as a result of a diasporic migration.

At a local level, this research is significant because it will provide new data about why the Nahua-Pipil chose locations and landscape with particular geomorphological characteristic such as Balsam Coast Range. Although the Nahua-Pipil has been investigated archaeologically for nearly a century, the characteristics of their archaeological assemblage are still uncertain. The location of Nahua-Pipil archaeological sites and the geomorphological characteristics of the landscape chose by them have been debated by scholars. One of the main characteristics of these settlements is that the location and the architecture reflect defensive considerations (Fowler, 1989a). This project pretends to discuss reasons of why Pipil groups established in this particular defensive geomorphology, probably as a consequence of a diasporic migration, a cultural process based on emulation of symbolic appropriation of landscape.

CHAPTER II

ARCHAEOLOGY OF THE BALSAM COAST RANGE

The first part of this chapter describes and characterizes the environmental setting of the Balsam Coast range and the human-nature interaction implications. It will discuss the major geologic-tectonic structural units of El Salvador and the general characteristics of the Balsam Coast range including the physiographic landscapes of the area, geology, hydrology, climate and precipitation of the region. Additionally, it will discuss the connotations of these environmental features for human existence, the use of the land during prehispanic periods and the limits of the study area. The second part of this chapter describes the research background, discussing the different researches that have been conducted since historic period until the recent past in the Balsam Coast. Specifically, it will discuss the Guazapa complex defined by William Fowler (1981), describing the Guazapa ceramic complex and Early Postclassic settlement pattern registered and documented in the Balsam Coast Range area. Finally, this chapter will discuss the Balsam Coast Archaeological Project, describing the limits of the study area. Likewise, this chapter describes each of the archaeological sites that have been visited and investigated as part of the archaeological project. It also presents a detailed description of the settlement pattern and the spatial distribution of the registered structures. Additionally, it describes the artifacts recorded at each site. Finally, this chapter discusses the relationship between the settlement pattern and the

cultural landscape of Balsam Coast.

Geography and Geology of Volcanic Land

Igneous and sedimentary rocks comprise the geology of Salvadoran territory. Igneous rocks cover more than 90% of the country. Due to their chemical and mineralogical composition, these rocks are classified as effusive rhyolitic, dacitic, andesitic and basaltic, as well as pyroclastic materials on a much larger scale. Igneous rocks of intrusive character also occur, classified as granites, granodiorites, monzonites and diorites. Sedimentary rocks are of marine and organic origin, located in the northwest corner of the country, specifically in the northern parts of the departments of Santa Ana and Chalatenango. These types of rocks are classified mostly as limestones, conglomerates of quartz and sandstones. Organic sedimentary rocks are located in different parts of the country, usually forming small deposits of diatomite and lignites. Most igneous rocks were formed in the Tertiary and Quaternary periods. The oldest rocks are the marine sedimentary formations, which were formed in the Upper Cretaceous, their age, can range between 65 and 145 million years. All these rocks make El Salvador a country of relatively young geological age (MARN, 2017a).

El Salvador is a volcanic land (See figure 1) that emerged during the Tertiary, where tectonic plates are predominant, a total of five tectonic west-northwest-east-southeast parallel axes cross the entire country, orientated from the mountain border with Honduras until the coastal line (Bergoeing, 2015). The territory of El Salvador is located at the border of the Middle America Trench, specifically between the Cocos and Caribbean Plates (Dewey, et al. 2004). Tertiary to recent volcanic activities is related to the subduction of the oceanic Cocos Plate beneath the edge

of the Caribbean Plate. Due to the plate subduction, the landscape of El Salvador is bisected by a volcanic front, a linear belt of active volcanoes. El Salvador represents a segment of the Central American Volcanic Front (CAVF) that extends from Guatemala to Panama (Rose, et al. 2004; Carr, et al. 2007 and Lexa et al. 2011). As a consequence, the topography and geology of the territory of El Salvador provides many advantages such a rich soil for agricultural practices, raw material for prehispanic tools and outstanding landscapes. The territory of El Salvador can be divided into five major geologic-tectonic structural units: (1) the coastal plain, (2) the coastal mountains, (3) the central graben, (4) the interior mountains, and (5) the northern mountains (Meyer-Abich, 1953, 1954; Durr, 1960 and Gierloff-Emden, 1956)

The coastal plain covers about 12% of the national territory and consists of two separated zones, one located in the west and the other one in the central area of the country (Aguilar, 1986). This geologic-tectonic unit is an irregular and discontinuous alluvial plain, which has a width variety from a maximum of 25 km at the Lempa River area to 15-20 km in the southwest and approximately 5 km in the southeast (Daugherty, 1960). The geomorphology of the coastal plain consists of coalescing alluvial fans fed by coarse detritus from the volcanic highlands. One of the most notable features of this unit, in the west part, is a series of volcanic outcrops dating from the Miocene and the formation of a delta by sediments of Grande River in Sonsonate Department and Banderas River in Santa Ana Department (Bergoeing, 2015). The coastline, in this western area, exhibits a prominent headland known as the Acajutla peninsula, extending 7 km offshore to its southern tip at Punta Remedios. This peninsula is the product of a massive Late Pleistocene debris avalanche generated by Santa Ana volcano located 50 km to the north (Marshall, 2007). To the east, the coast turns into a series of small reefs configured by the remains of several strata of an ancient volcano from the Quaternary period called Jayaque (Lexa et al., 2011). The central part of

the coastal plain is conditioned by the construction of the huge alluvial fan of the Jiboa River, which includes Jiquilisco Bay, creating Jiquilisco estuary, which is the combined result of the contributions of the Lempa River associated with the Pacific littoral stream drift that has regulated the coastline and created the vaster mangrove area of El Salvador. To the west, the Miocene volcanic outcrops, from Punta El Amatillo cape to Punta Amapala cape, condition the coast narrowed by reefs. From Punta Amapala cape to the Gulf of Fonseca, the Conchagua Volcano determines a coastal path of strong volcanic reefs (Bergoeing, 2015).

The coastal mountains, as the coastal plain, approximately cover 12% of the national territory (Aguilar, 1986) and are composed of three separate ranges but with similar age, structure and morphologic history; Apaneca, Balsam and Jucuarán range. The coastal mountains are block-faulted mountains tilted steeply toward the coast and sharply delimited in the interior by a series of faults that extends the length of El Salvador in a WNW direction from the Guatemalan border to the Gulf of Fonseca. These mountains are composed of highly eroded and deeply dissected Pliocene rocks originally deposited as lahars or torrential flows of lava rather than airborne volcanic debris. The dominant topography is clearly erosional (Williams and Meyer-Abich, 1955a, and Daugherty, 1960). The Apaneca range, located in western El Salvador, begins at Paz River at 300 masl in an east direction reaching 1400 masl at Tacuba-Apaneca highlands and descending at Sonsonate and Izalco towns. This range is separated from the coast by a narrow coastal plain. The Balsam range extends in an east-west direction for approximately 70 km from Sonsonate to San Vicente Volcano, reaching 1500 masl south to Jayaque town and descending to Jiboa River valley at 400 masl (Aguilar, 1986). It is composed principally of andesitic tuff breccia and interstratified tuffs (Stirton and Gealey, 1949). The western portion is especially deeply dissected by numerous consequent streams whereas the eastern portion has more of a plateau-like appearance with steeply

walled mesas (Daugherty, 1960). The Jucuarán range extends from the Grande River of San Miguel to Conchagua Volcano on the south-eastern coast with an elevation of 600 masl (Aguilar, 1986). Dissected and eroded volcanic peaks and plateaus characterize this range. The rocks are principally andesitic and basaltic tuff breccias of Pliocene age (Stirton and Gealey, 1949).

The third geologic-tectonic structural unit, named as the Central Graben, covers approximately 20% of the national territory with a WNW-ESE direction from near the Guatemalan border to and including the Gulf of Fonseca, and a range between10 km to 30 km width (Aguilar, 1986 and Daugherty, 1960). This graben is an extension of the Nicaraguan Depression (Meyer-Abich, 1953a) and is one of the fundamental structural features of the geology of Middle America. It is the structural nature of the trough that has given rise to and governed the location of the Quaternary volcanoes in El Salvador and Nicaragua (Maldonado-Koerdell, 1964). Within El Salvador, the trough is located between southern coastal ranges and the interior mountains. This structural unit is composed of collapsed and eroded Pliocene volcanic materials that are now overlain in part by Quaternary alluvium and pumice deposits forming an irregular plain. The graben is tilted downward. Near Güija Lake at the Guatemalan border the base of the graben has a general elevation of 500 masl whereas it disappears below sea level in the Gulf of Fonseca in the southeast limit (Daugherty, 1960).

The Interior Mountains unit, located to the north of the central graben, covers approximately 20% of the national territory. The elevation of this unit ranges from 700 to 1000 masl. Its base is formed by volcanic agglomerates of Pliocene age. In the departments of Cabañas and Morazán, these rocks lay alluvium-volcanic sediments of dacitic type. One of the main characteristics of this unit is that has volcanoes that are geologically considered as inactive, such as Sihuatepeque and Cacahuatique, which are quite eroded (Aguilar, 1986).

The last unit, named as the Northern Mountains, covers 25% of the country. These mountains bordering Honduras and Guatemala are geologically a part of the highly folded and faulted mountain chains of Honduras. This unit is constituted by two structural elements, which are geologically quite heterogeneous: (1) the marine series of Metapán, formed by the oldest rocks in the country, is comprised of folded and faulted sedimentary rocks, principally limestones of Mesozoic Age (Mullerried, 1939), the highest peaks of the country are found here, Montecristo 2,447 masl and El Pital 2,730 masl, and (2) the Chalatenango, Cabañas and Morazán series that consist of principally of folded and faulted Pliocene volcanic rocks (Stirton and Gealey, 1949; Williams and Meyer-Abich, 1955a; Aguilar, 1986 and Daugherty, 1960).

The Balsam Coast Range

The Balsam Coast range is located in the southwest sector of the Salvadoran territory (See figure 2). The coastal plain narrows in this area and shows rocky headlands and cliffs cut into resistant Pliocene volcanic rocks of the Balsam range (Marshall, 2007). According to recent geological investigations developed in the area, the Balsam Coast range consists of the remains of several strata of an ancient volcano from the Quaternary period. This volcano is called Jayaque and it could have had a diameter of up to 30 km and a relative height between 3,000 and 4,000 masl, significantly exceeding the parameters of any active volcano in El Salvador during the Quaternary (Lexa et al., 2011). The southern sector of Jayaque volcano, that ascends from sea level to 1,500 masl, is known as Balsam Coast, which conforms an irregular and complex topography of rugged volcanic range that intersect the coast in a series of southwest-trending ridges separated by deeply incised small, linear canyons (Marshall, 2007).

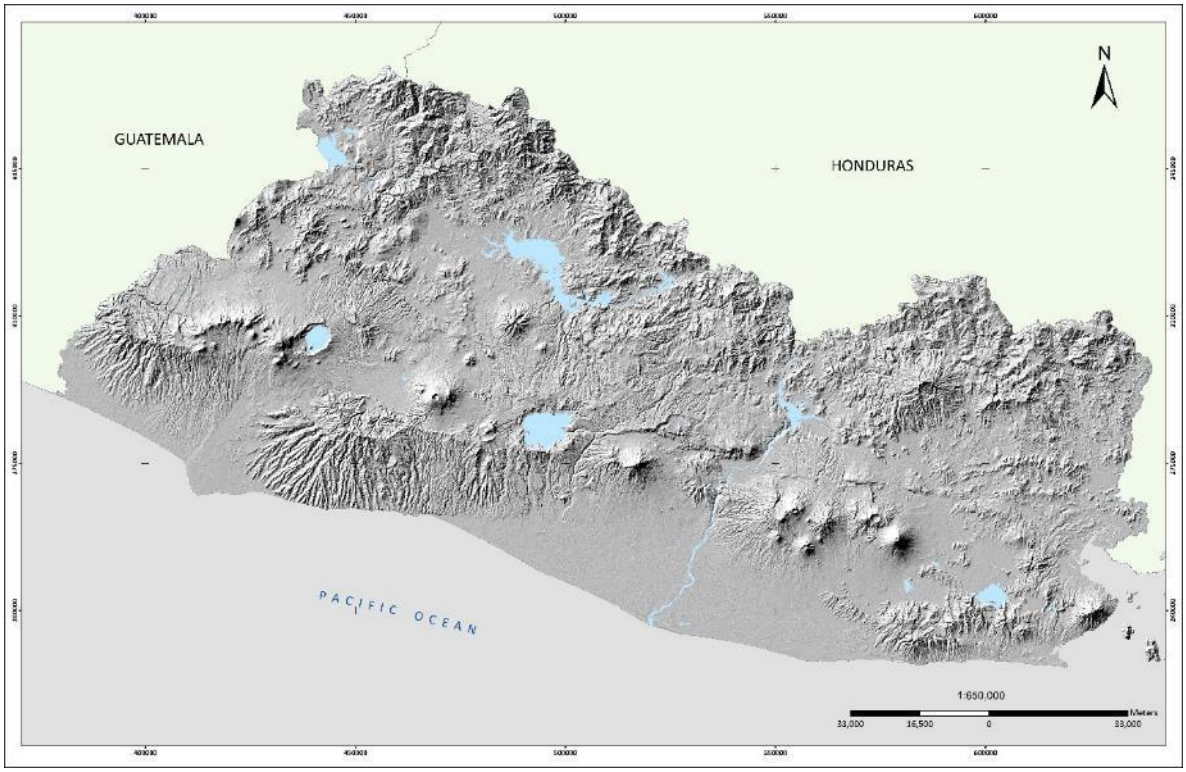

Figure 1. Map of El Salvador.

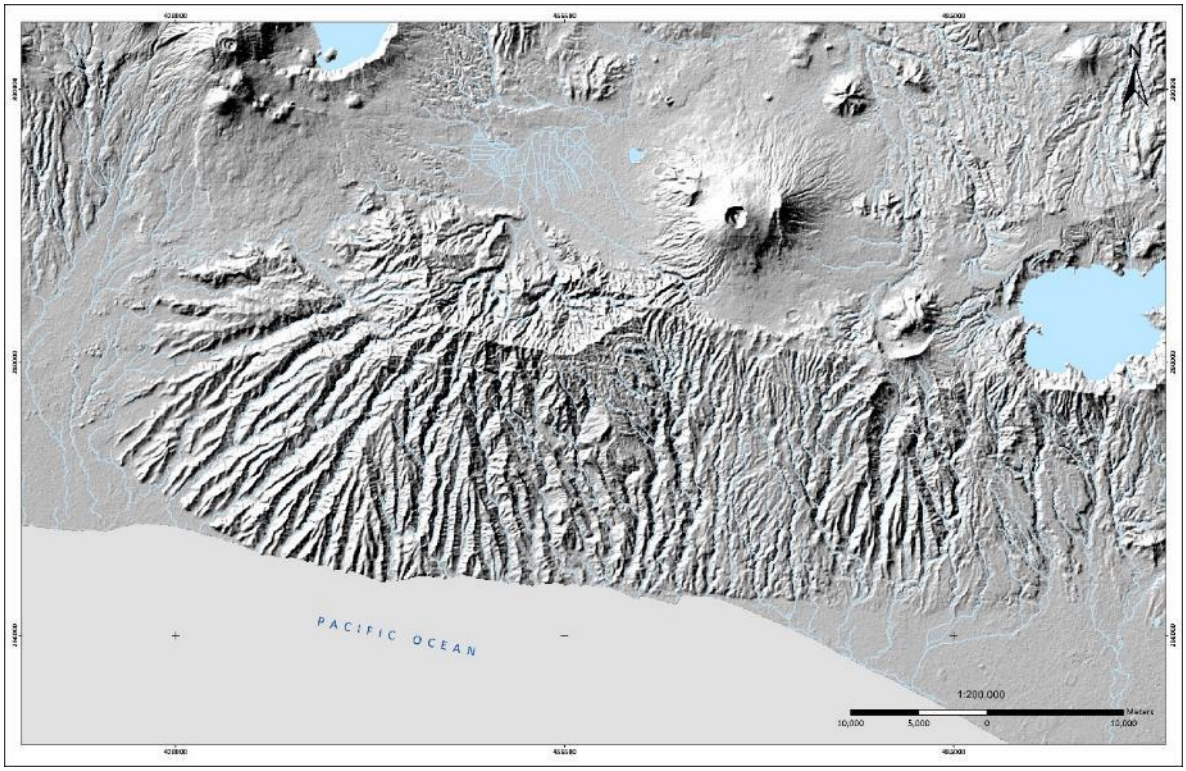

Figure 2. The Balsam Coast Range.

The area of the Balsam Coast is composed by heights from 0 masl at seashore to 1500 masl at *La Cumbre* in Comasagua. The physiographic landscapes can be distinguished as: (1) mountainous blocks; (2) sloping plains of the piedmont; (3) coastal alluvial plains; and (4) landscapes of upland (Viceministerio de Vivienda y Desarrollo Urbano, 2005).

(1) Mountainous blocks. This landscape, which covers a large part of the Balsam Coast, is located north of Zaragoza municipality. It is a block raised from the earth's crust by orogenic forces, then fractured by numerous geological faults and strongly dissected by erosion processes, through thousands of years. Nowadays, it appears as a very rugged region, with few remnants, very strong slopes, long and narrow tops and V-shaped valleys which run from the heights and reach the sea. At the top, the landscape is interrupted abruptly by a geological fault that runs from east to west and separates it from the Central Graben or Central Depression of the country; the road to La Cumbre mostly follows the edge of this geological fault.

(2) Sloping plains at the foot of the mountain. This is a geological formation similar to the previous landscape, but this is characterized by presenting plains that, although fractured by geological faults, have been dissected to a lesser degree by erosive processes, and remnants can be seen with topography from undulating to *alomada*, separated by quite deep ravines. These are located south of Zaragoza and San José Villanueva municipalities. This physiography is also presented south of Rosario de Mora and Huizúcar municipalities.

(3) Coastal alluvial plains. These are almost flat areas, without dissection and without relief with slopes generalities below 3%. They are in discontinuous form along the coast and have originated, for the most part, by the successive depositions of the materials dragged from the upper

parts by the rivers; on a smaller scale, marine deposits participate.

(4) Landscapes of upland. At the level of the municipalities of Nuevo Cuscatlán and Nueva San Salvador, dissected areas of the plateaus compose the physiography. The local relief is less than 15 m; predominant slopes are less than 12%.

Geology

The area of the Balsam Coast range is part of the northern segment of the Tertiary to Quaternary CAVF, parallel to the Pacific coast and Middle America Trench (Stoiber and Carr, 1973 and Lexa et al., 2011). The Central American Volcanic Front products are presents in three volcanic formations: (1) the Late Miocene-Pliocene Bálsamo Formation, which is composed of andesite lavas, tuffs and epiclastic volcanic breccias/conglomerates representing remnants of andesite stratovolcanoes, (2) the Late Pliocene-Early Pleistocene Cuscatlán Formation comprises silicic domes, tuffs, ignimbrites and volcanic sediments related to calderas, interstratified locally with basaltic and/or andesitic lavas; and (3) the Late Pleistocene-Holocene San Salvador Formation that includes products of basalt-andesite stratovolcanoes that are associated with the evolution of the Central Graben as well as interstratified silicic tephra/ignimbrites of the Coatepeque and Ilopango calderas (Wiesemann, 1975; Bosse et al., 1978; Reynolds, 1980 and Lexa et al., 2011).

The Bálsamo Formation is considered the primary element in the structure of the Balsam Coast. This formation it is buried underneath younger volcanic rocks of the Cuscatlán and San Salvador formations in the Central Graben. Along the crest of the Balsam Coast range, it is mostly covered by tephra units of the San Salvador Formation, and to the south, the Bálsamo Formation, is covered by Jayaque ignimbrites of the Cuscatlán Formation. The relief with dominantly

southward-oriented, V-shaped, deeply cut small valleys and relatively flat platforms at the top of ridges with thick laterites, implies a young uplift associated with the subsidence of the Central Graben, following a longer period of denudation. The Bálsamo Formation consists of andesite volcanic activity products, lava flows, epiclastic volcanic breccias, conglomerates and sandstones with rare reworked pumice tuffs. Remnants of the primary radial drainage pattern, facies zoning, and radial orientation of stratification dips indicate that it represents relics of extensive andesite stratovolcanoes (Lexa et al., 2011).

The remnants of the Jayaque stratovolcano consist of a radially oriented drainage pattern that reflects former slopes of the stratovolcano. Recent geological research conducted in the area by Lexa and colleges (2011) documented three facial zones: (1) the proximal zone with lava flows prevailing over mostly coarse epiclastic volcanic breccias, primary periclinal dips being 10-15º; (2) the medial zone where coarse-to-fine epiclastic volcanic breccias and breccias/conglomerates dominate over subordinate lava flows (on the side of the proximal zone) and subordinate conglomerates (on the side on the distal zone), primary periclinal dips being 5-10º; and (3) the distal zone with prevailing epiclastic volcanic conglomerates and sandstones than have been deposited in the alluvial plain (north) and shallow marine (south) environments, primary dips being 0-5º; conglomerates and sandstones include locally thick horizons of mudflow deposits.

Hydrology

The territory of El Salvador, with respect to water, includes the characterization and delimitation of water bodies located on surface and underground. The surface water bodies are classified into the following categories: (1) rivers, lakes or wetlands; (2) transition waters; and (3) coastal waters (MARN, 2017).

The Balsam Coast range has transition and coastal waters categories. The transitional waters are bodies of surface water near river mouths and have high salinity content due to the interaction that exists with coastal waters. Additionally, the *Plan Nacional de Gestión Integrada del Recurso Hídrico* (PNGIRH) (National Plan for the Integrated Management of Water Resources) considers this type of surface resource as ecological or social use. However, there are no regulations that include them in the current regulatory framework of El Salvador. Within the PNGIRH, a delimitation was developed based on the layer of land uses, considering areas of mangrove forests, estuaries, coastal lagoons, salt mines and ecotone transition zones. Additionally, the *Ley de Medio Ambiente* of El Salvador (LMA) (Environmental Law), in Article 5, describes the coastal-marine zone as the coastal strip comprised within the first 20 km from the inland coastline and the marine zone into the open sea, from 0 to 100 m depth, and where the species of marine bottom organisms are distributed. The approximate surface of this area is 21,000 km2, which is divided into a strip land (33% of the total) and in the coastal strip (67% of the total). PNGIRH delimits coastal waters based on their natural features (landscapes), detailed legislation criteria in the Law of the Environment and the protected or conservation areas (íbid, 2017).

The hydrographic zone of the Balsam Coast range is named as *Mandinga Comalapa*, which covers an area of 1302.91 km^2. Converning transitional waters, the Balsam Coast range has a very low percentage located in the west limit near Barra Ciega beach in the Department of Sonsonate, and in the east limit near San Diego beach in the Department of La Libertad. The coastal waters, located to the south of Balsam Coast range are named *Costa Acantilada El Bálsamo* covering an area of 1,532.82 km2 (íbid, 2017). Due to the geomorphology of the Balsam Coast range, there is a not a main river, lake or wetlands in the area. However, the Balsam Coast has six large watersheds according to the division of hydrographic regions data submitted by the *Centro*

Nacional de Registro Atlas de El Salvador 2000 (National Atlas Registration Center of El Salvador 2000): (1) watershed between Banderas-Chilama, (2) Chilama Basin, (3) Chilama-Huiza Basin, (4) Huiza Basin, (5) Tihuapa Basin, (6) Comapala Basin. These watersheds provoked floods causing difficulties in the area. The watershed located in the study area is the Banderas-Chilama, which is composed by the next rivers: Mandinga, Pululuya, Apancoyo, Acachapa, Sihuapilapa, Mizata, Aguacayo, La Perla, Taquillo, Sunzacuapa, Shutía, Julupe, El Zonte, El Palmar, Sunzal, El Tunco, Grande, El Majahual y Comasagua; covering a watershed area of 667.4 km^2.

Climate and Precipitation

Geographically El Salvador is located in what is known as the tropical belt of the Earth, within the Inter Tropical Convergence Zone (ITCZ). The influence of marine currents from the Pacific Ocean to the south, and the small of its territory, they do that the majority of climatic parameters do not present big oscillations in the course of the year. With the flow of the east, it begins, after a certain period of transition, the rainy season in the central zone of the country. The rainy activity usually begins first in the west and in the north of the country, and a few weeks later it covers the eastern zone. The rainy season runs from May to October; it suffers a decrease between July and August, presenting dry periods with nocturnal rains. These dry periods are named as *canículas*, and constitute a serious problem for agriculture in the eastern zone, inner valleys of the northwest, and the southwestern coastal area. The rainy season covers from May to October and the dry season from November to April, and among them are transition periods. During the rainy season the distribution of precipitation is bimodal and, in most cases, the primary maximum rain record is in September (maximum close to 350 mm) and the secondary maximum in June (325 mm approximately). The months of July and August show a significant decrease in precipitation, showing clearly in the coastal and eastern part of the country, but not in some points of the northern

zone or the southern mountain range (MARN, 2017).

The annual average rainfall values range between 1200 mm in the vicinity of the northwestern border with Guatemala, and 2800 mm in the high parts of the northern mountain range and southwestern mountain ranges, reaching national averages of 1867 mm (series 1981-2010). The coast and inner valleys of the eastern part of the country considered relatively dry, with annual rainfall of 1600 mm. Sierras and volcanoes of the southwest they present quantities above 2400 mm. Additionally, 85% of the total rainfall comes from showers accompanied by thunderstorms, and the remaining 15% of temporary events that occur in the southern part of the country. The showers (rain of short duration), characteristic of the rainy season, generally have an average of one hour and 20 minutes, and reach maximum intensities greater than 2 mm per minute. The rain generation of the squalls is variable, but maximums of up to 220 mm in only one. The squalls are produced by disturbances in the eastern current, favored by orography, local wind systems or transports of humid air from the Pacific (íbid, 2017).

El Salvador is classified into three climatic zones according to Köppen, Sapper and Larer: (1) Tropical hot savannah or hot lands (200 - 800 masl), includes the coastal zone and some valleys. The average of temperature decreases with height, ranging from 22° to 27° C in the coastal plains, and from 22° to 28° C in the internal plains; (2) Tropical warm savannah or temperate lands (800 - 1200 masl), identified by being on the peripheries of mountainous zones, valleys, or high plains. The average temperature decreases with the height of 20° to 22° C in the high plains, and from 19° to 21° C in the foothills of the mountains; (3) Tropical climate of the heights (1200 - 1800 masl), or temperate lands, high plains and outskirts of the mountain. The average temperature ranges from 16° to 20° C in high plains and valleys, from 19° to 21° C in mountain slopes, and from 10° to 16° C in valleys and hollows; and (4) Tropical climate of the heights (1800- 2700 masl), cold lands,

peaks and summits of mountains or volcanoes. The average temperature oscillates below 19° C and very occasionally reaches temperature close to zero degrees (MARN, 2017a). Related with the Balsam Coast, it is necessary to point out that the four climate zones described above are present at different points determined by the height. These data are important because climatic variability has allowed the growth of different products and goods that were probably used during prehispanic period.

Based on data of average multiannual precipitation collected by MARN (2017), the Balsam Coast range captures four different levels of average precipitation per year. The higher point of the area, at 1500 masl, captures an average of 2201-2400 mm. Around 800-1000 masl, the area captures an average of 2001-2200 mm. The third area, approximately around 400-800 masl, captures an average of 1801-2000 mm. The lower point, approximately around 0-400 masl, captures an average of 1601-1800 mm. These average precipitations are very important and probably were fundamental for the Nahua-Pipil to decide to build their settlements in the Balsam Coast range.

Connotations for Human Existence

The environmental features of Balsam Coast range described above have connotations for human existence in the area in different levels of necessities. El Salvador, based on its geographical location, has developed a geological history in which intense volcanic activity has predominated. The above is due to the high concentration of volcanoes that are scattered throughout the national territory, reaching an estimated number of 62 volcanic structures of which 25 are considered active volcanoes. This concentration of volcanoes has allowed the country to develop a long history of

volcanic activity, which has positive and negative aspects for human settlement throughout its history. Among the positive aspects of having an intense volcanic activity include the formation of fertile soils allowing the development of agricultural practices, the formation of raw material which can be used for construction, for example tuff; or can be used for manufacturing of utilitarian artifacts for everyday life or prestigious artifacts associated with ritual practices, for example obsidian. Likewise, the volcanoes themselves provide a landscape that human agency transformed to a construct transforms it, appropriates it and gives it a connotation of cultural landscape. However, a volcanic landscape also carries negative connotations for human settlements. Among the main problems are volcanic eruptions that generate deposition of ash and pyroclastic flows on human settlements and their fields, irreparably affecting their ways of life.

The location of Balsam Coast is strategic in terms of resources due to the fact that forms a mountainous barrier that interacts with the Pacific Ocean and the internal valleys of the Central Graben. This position allows ancient cultural groups accessibility to maritime and mountain resources. As explained above, the Balsam Coast consists of the remnants of the Jayaque stratovolcano (Lexa et al., 2011) with a complex geomorphology composed by ridges with narrow plateaus and small plains between the ridge systems. However, despite the resources that the area could have provided to the ancient societies, the conditions to build settlements and live in the area are not optimal. Some problems for established permanent settlements could have been the absence of lasting water sources at the narrows plateaus area, the lack of extensive plain areas to build the settlements and to practice agriculture, and possible flooding. There is a group of rivers in the Banderas-Chilama watershed. This basin is included between the Sihuapilapa and Comasagua Rivers, all emptying towards the Pacific Ocean. The basin covers the municipalities of Teotepeque, Jicalapa, Chiltiupán, Comasagua and La Libertad; the main rivers within the basin are: Mizata

River with a total length of 32 km, Aguacayo River (or the Chorrerones) with a total length of 11 km, La Perla River with a total length of 33 km, Sunzacuapa River with a total length of 21 km, Taquillo River with a total length of 15 km, Shutia River with a total length of 9 km, Julupe River with a total length of 7 km, El Zonte River with a total length of 25 km, El Palmarcito or El Palmar River with a total length of 13 km, El Sunzal River with a total length of 33 km, El Tunco River with a total length of 15 km, Rio Grande with a total length of 30 km, El Majahual River with a total length of 19 km, and Comasagua River with a total length of 29 km (CNR-IGN, 2000).

The natural hydrological threats mainly focused in the upper part of the area, specifically in the municipalities of Teotepeque, Jicalapa, Chiltiupán, Tamanique, Comasagua, Panchimalco, Rosario de Mora, Huizúcar and part of the municipality of San José Villanueva. These locations correspond the area of greater slope, greater intensity of rain and at the same time corresponds to an area of high susceptibility to landslides; when rains of high intensity with unstable soils are combined can give rise to debris flow. The debris flows constitute a natural event that would affect people and agriculture plantation that will be found in the riverbed or streams at the time of the occurrence of the referred debris flow. On the other hand, the flows of debris can cause unstable dams that become a threat of greater magnitude to collapse these dams, generating a flow of debris of great magnitude and speed. The threat of instantaneous avenues has also been identified; in the case of high storms intensity and short duration in the upper part, which can affect river users in the middle zone and low of the aforementioned municipalities, because of the shape of the elongated basins they have to give a rapid response to the drainage of the rain generating large fluxes and kinetic energy originated for the slopes of the high zone. This type of rapid response to storm drainage occurs in all sub-basins of the area (Viceministerio de Vivienda y Desarrollo Urbano, 2005).

The zones susceptible to flooding are the same as those areas of low slope that allow the decrease in water velocity, which in turn causes sediment deposition with which the riverbed rises causing the flood phenomenon. On the other hand, the variation of the tides or geological events such as "tsunamis" can cause the flooding of the lower area of the area. The flood zones also match the deposit materials sedimentary of the Quaternary in the discharge zone of the rivers, described in the geological aspects. The areas susceptible to flooding correspond to areas surrounded El Tunco, El Sunzal, La Perla, El Majahual and other beaches. The municipalities subject to the effects of floods are: Teotepeque, Jicalapa, Chiltiupán, Tamanique and La Libertad (CNR-IGN, 2000).

The Balsam Coast constitutes an area with difficult conditions to deal with, indicated by the fact that important settlements dating to the Preclassic and Classic periods in the Balsam Coast have not been documented yet, with the exceptions of some sites located in the coast line, such as Zunzal, El Zonte, and Punián, among others. Despite the lack of a concentration of Preclassic and Classic settlements in the area, during the Postclassic period this situation totally changed. The irregular topography of rugged volcanic range that intersects the coast in a series of southwest-trending ridges separated by deeply incised linear and small canyons (Marshall, 2007) somehow attracted Nahua-Pipil immigrant groups. Specifically, during the Early Postclassic period, groups of Nahua-Pipils decided to establish their settlements in the Balsam Coast, mainly at the top of the narrows plateaus area. Why did these groups decide to build their settlements during the Early Postclassic in the Balsam Coast? The difficult conditions of the area explained above did not attract any cultural group during Preclassic and Classic periods. Probably the use of the space during Early Postclassic period, under these environmental conditions, was related to a process of conceptualization of space from a defensive perspective and from a symbolic perspective as well.

Despite the harsh conditions to build their settlements and live in the Balsam Coast, the high density of annual rainfall in the area could be an attractive determinant for Nahua-Pipils to settle in the area. This may be related to the different cultural practices developed during the Postclassic period associated with the veneration cult of Tlaloc, deity associated with water, rain and war, among other invocations. These venerations were usually carried out at the top hill of the mountains in order to be close to the rain-laden clouds. Likewise, these cultural practices may be associated with an emulation process in order to preserve their identity as an ethnic group. The cultural landscape played a decisive role in the settlements established in the Balsam Coast range during Early Postclassic period. I argue that this particular landscape constituted a symbolic element of great importance in the decision to build the settlements in order to develop cultural practices evoking their homeland.

The area of Tula is considered the homeland of Nahua-Pipil (Fowler, 2011). Tula is located in the Central Highlands of Mexico, an interior plateau with a long tradition of prehispanic settlements, beginning with Teotihuacan and ending with Tenochtitlan. A disproportionately large number of prehispanic cities were located within the 8,000 km2 lacustrine basin known as the Basin of Mexico. Tula is situated about 30 km north of the basin in an area bounded on three sides by mountain ranges and dissected by streams. The site is located on the southwest corner of a broad alluvial plain that is today productive agricultural land enhanced by irrigation systems, some of which go back at least to the colonial era. Volcanism has produced numerous prominent hills, including the centrally located Cerro Xicuco, and mesas along the eastern flank (Healan, 2012). Archaeological sites from Central Highlands of Mexico such as La Mesa, are located on a hilltop and present architectural elements such as terrace walls, platforms, stairway remnants, and numerous rectangular and circular foundations (Mastache and Cobean, 1989). These topographical

features are particularly important to the identity of the Nahua-Pipil. Many corresponding geomorphological characteristics may be found in the Balsam Coast Range, and I argue that, to Nahua-Pipil immigrants arriving in Pacific Central America during the Epiclassic, this landscape evoked that of the region surrounding Tula in the northern Basin of Mexico.

The Epiclassic settlement in the Tula region is associated with the Coyotlatelco ceramic complex. The Classic period Chingú phase settlement systems are notably different, with the Epiclassic nucleated settlements, which are situated on hilltops or elevated terrain mostly along the periphery. Although both Classic and Epiclassic dispersed sites were registered on the alluvial plain, few sites exhibit both components (Mastache et al., 2002). This mutually exclusive distribution suggests wholesale discontinuity between the Classic and Epiclassic settlement systems, perhaps reflecting the breakup of the Teotihuacan political system (Healan, 2012). This Epiclassic settlement pattern in the Tula region has similarities with the Early Postclassic settlements of the Balsam Coast Range.

Currently, the living conditions on the Balsam Coast are still very difficult. Based on the territorial classification of poverty categories, the Balsam Coast has been classified as an area of extreme poverty. The indicators are based on the accessibility to education, housing condition, social security, health, basic services, food security, and habitat quality. Despite the proximity of the area to the capital city of San Salvador, it remains a forgotten area of difficult access due to the topography of the area. Moreover, the area presents several potential risks of flooding and landslides. The modern economy is based mainly on agricultural activities limited to the planting of corn and beans, some coffee plantations in the highest parts of the area and livestock in some areas. In the last decade, beach tourism associated with the practice of surfing has increased in the area. However, this tourist growth has only indirectly benefited the populations located in the

coastal zone of the area. The Balsam Coast still has harsh conditions to deal with. In spite of the current technological advances, the environmental and climatic conditions of the Balsam Coast continue to represent an important challenge to overcome for human existence in the area.

The Study Area Limits

The Balsam Coast covers an area of approximately 800 km2 and includes the municipalities of Panchimalco and Rosario de Mora in the department of San Salvador; the municipalities of Nuevo Cuscatlán, Huizúcar, San José Villanueva, Zaragoza, La Libertad, Comasagua, Talnique, Jayaque, Tepecoyo, Tamanique, Chiltiupán, Teotepeque and Jicalapa in the department of La Libertad; and the municipalities of Santa Isabel Ishuatán and Cuisnahuat in the department of Sonsonate. The dissertation research presented here focused its investigations in four municipalities of the department of La Libertad located on the Balsam Coast: Teotepeque, Jicalapa, Chiltiupán and Tamanique. The total area of the four municipalities covers approximately 350 km2 (See figure 3).

The selection criteria of the research area are related to the following variables: the first criterion was based on the background of previous investigations in the area, which indicated the existence of archaeological sites belonging to the Early Postclassical period. In this case, the Izalco Project was fundamental in the updating of data collected at the Cerro de Ulata archaeological site (Fowler et al. 1989). The second criterion is related to the geographical location of the four municipalities, which are located on the south side of the Jayaque volcano; this area is facing the ocean and has the system of crests thus enhancing the registry of new archaeological sites. The third criterion is related to the obtaining of authorizations from *Ministerio de Cultura* (Ministry of

Culture) and from the municipalities to be able to develop the research focus on archaeological survey and excavations. And the fourth criterion is based on security. During the last decade, this area has been affected by the social phenomenon of gangs, which has made difficult the access to different points in the area because it is a territory controlled by the different gangs in the area.

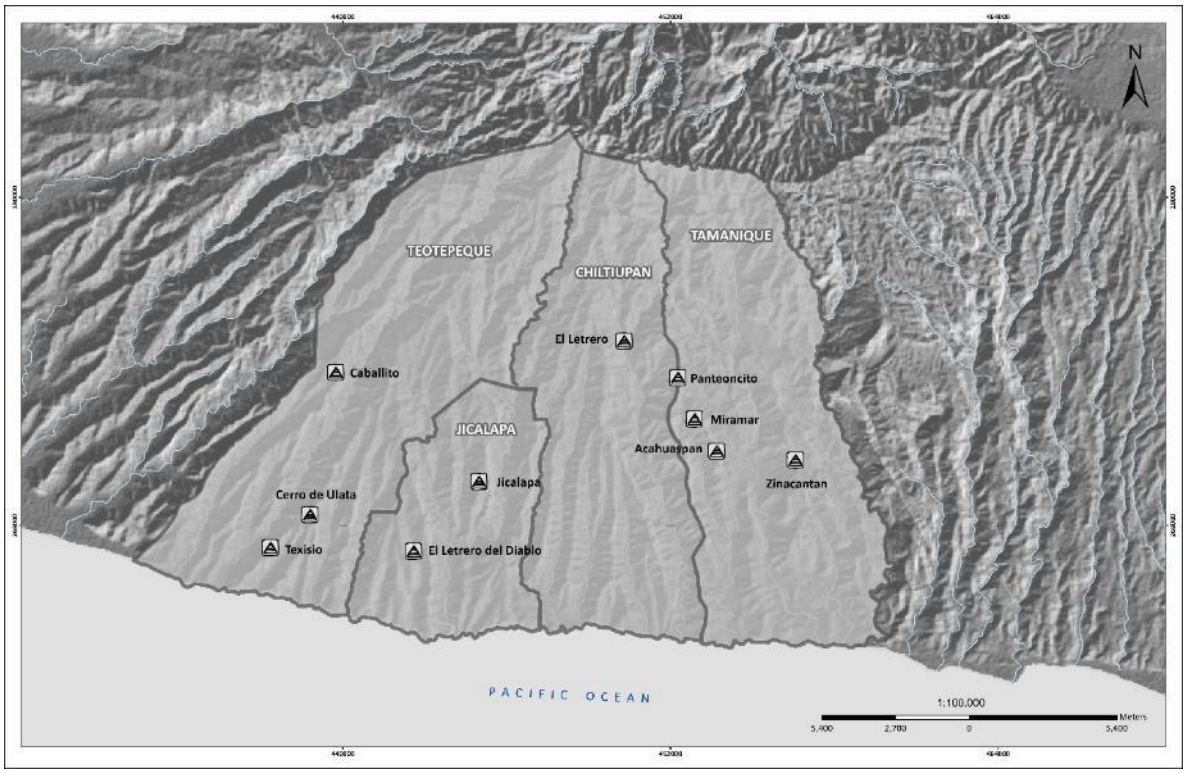

Figure 3. The study area.

Historical and Archaeological background

Different travelers and researchers have mentioned the cultural landscape of the Balsam Coast over time. During 1853, Ephraim Squier, on his trip through Central America, makes reference to the Balsam Coast and describes it as an area in which the indigenous groups of the

time were almost totally isolated, allowing the conservation of their customs, their ancient rituals and their native language, which Squier called the ancient Nahuat or Mexican. Squier pointed out that the conservation of these cultural traditions was due to the difficult access to the area of the Balsam Coast due to its irregular topography. Likewise, he refers to the hostile nature of the indigenous groups that inhabited it. One of the most important observations made by Squier in relation to the appropriation of the cultural landscape, is that these indigenous settlements were located in the high parts of the hills, in the narrow plateaus, which descends to the Pacific coast.

Throughout the recent history of archeology in El Salvador, important archaeological research projects have been developed in the Balsam Coast range, covering some specific sectors of it (Fowler et al., 1989, Amaroli 1986, 1992, Escamilla, 2011, 2013, Revene and Bruhns, 2007, Méndez, 2007, Hamilton, 2009, Bruhns and Amaroli, 2009), however, this area is still considered as an unexplored area.

During 1988, the Izalco Project, directed by William Fowler with the participation of archaeologists Paul Amaroli and Bárbara Arroyo, was developed. The project proposed, within its objectives and goals, the location and registration of Pipil archaeological sites from Postclassic and Colonial periods in the region of the Izalcos and the Balsamo Coast (Fowler et al., 1989). In total they visited 41 archaeological sites, 26 of which were registered for the first time; the rest were already registered sites which were updated. One of the relevant sites described as a result of this project is the Cerro de Ulata site, located in the municipality of Teotepeque, department of La Libertad. Although this site was registered by Jorge Lardé (1926) and mentioned by Longyear (1944), the visit made by the Izalco Project researchers resulted in the first detailed description of the site. In the preliminary report of the Izalco Project, the authors highlight the difficult access to the site and its high degree of predation. The interpretation of Cerro de Ulata site as a settlement

of the Guazapa complex is based on the similarity in settlement pattern, architecture, and ceramics with Cihuatán, a Nahua-Pipil town located in the Paraíso Basin (part of the Central Graben) in central El Salvador, also indicating at least partial contemporaneity of the two sites (Fowler et. 1989).

The Balsam Coast Archaeological Project was founded in 2010 (Escamilla, 2011), and through the development of this project, eight additional archaeological sites dating to the Early Postclassic (900-1200 AD) in the Balsam Coast area have been identified and registered. These sites have been interpreted as Pipil settlements.

Guazapa Complex

The Guazapa complex was defined by William Fowler (1981) in his doctoral thesis defining a ceramic complex and a settlement pattern of Early Postclassic sites. Fowler (ibid) relied on the analysis of cultural materials from the archaeological investigations of the Cihuatán and Santa María sites, located in the Paraíso Basin of north-central El Salvador. Research conducted over the past three decades, however, has demonstrated that the Guazapa complex is not limited to the Paraíso Basin. The term "Guazapa complex" is now used to designate Early Postclassic sites located throughout western and central El Salvador (Fowler, 2019). Some of these sites are Igualtepeque, Chalchuapa, Isla El Cajete, Las Marías, Carranza, Tacuscalco, Cerro de Ulata, Jicalapa, El Panteoncito, Miramar, El Caballito, among others (Escamilla, 2013).

The Guazapa ceramic complex was defined by Fowler (1981) on the basis of a modified type-variety analysis--similar to the modified type-variety analysis conducted by E. Wyllys

Andrews (1976) on the ceramics of Quelepa--of more than 28,000 pottery sherds from excavations conducted in 1978 and 1979. The Guazapa ceramic complex is typologically shaped by the following major ceramic groups: Las Lajas Coarse, Tamulasco Plain, García Red, Zancudo White Polychrome, Jején Red Polychrome, Tamoa Buff, Tohil Plumbate and Nicoya Polychrome (Fowler, 2019).

Las Lajas Coarse (Fowler 1981:129-151). This ceramic group is characterized by coarse and medium hard brown or reddish brown paste and unslipped, smoothed surfaces, the predominant vessel form of this group is a large, thick-walled, hourglass-shaped (or biconical) censer with exteriorly thickened rims and modeled-apliqué conical spikes on vessel bodies. Perhaps the most diagnostic indicator of the Guazapa ceramic sphere are sherds of Las Lajas Coarse spiked, hourglass censers (Fowler, 2019). Also modeled effigy decoration occurs on some of these large censers, often in the shape of Tlaloc faces (Boggs, 1949). Additionally, phytoform vessels mounted on pedestal bases and flat-bottom, flaring-wall censer bowls with impressed-fillet rims are one of the most representative Las Lajas forms with a closed, hollow, spherical morphology. These vessels could be representing the *biznaga* or barrel cactus (*Echinocactus* spp. or *Ferocactus* spp.) native to the desert regions of the Mexican states of Chihuahua, Coahuila, Zacatecas, San Luis Potosí, Durango, Nuevo León, and Hidalgo (Fowler, 2019). Recent excavations at Cihuatan, conducted by Amaroli (2015) and Cabrera (2013), found more than 20 cactus effigy vessels in association with Structure Q-40, a T-shaped temple platform. The vessels had apparently been mounted to the roof of the temple as *almenas* as a form of architectural graphic reminder of ancestral Nahua migrations through the northern desert regions of Mexico (Amaroli 2015:90-91; Fowler, 2019). Also, Las Lajas Coarse presents some modeled effigy figures of animals such as jaguars and toads, and some Nahua deities such as Xipe Totec, Tlaloc,

Huehueteotl, and Mictlantecuhtli (Casasola 1975; Fowler 1995:148-149). These modeled effigy figures were made from the same coarse, reddish brown clay as Las Lajas vessels (Fowler, 2019).

Tamulasco Plain (Fowler 1981:152-163). This ceramic group, which has a medium-textured, relatively hard, light brown or reddish brown paste, occurs predominantly in flat-bottom, flaring-wall bowls; convex-wall bowls; low-neck and high-neck jars; tecomates; comals (griddles); and large, thick-walled, vertical-wall storage vessels. Fowler (2019) has associated these forms with the preparation, storage, and service of food and liquids.

García Red (Fowler 1981:163-178). Monochrome red-slipped pottery occurs abundantly at Postclassic sites of western and central El Salvador. The García Red ceramic group is essentially the Tamulasco Plain ceramic group with the addition of a red slip. The paste of this group is the same as that of Tamulasco Plain, but a polished red slip covers exterior and, except for jars, interior vessel surfaces. The predominant form is a flat-bottom, flaring-wall bowl. Like Tamulasco Plain, this is a service ware. An important difference between the two ceramic groups is that flat-bottom, flaring-wall bowls predominate in the former, whereas jars are relatively more common in the latter. An interesting vessel form of both ceramic groups is the thick-walled, vertical-wall storage vessel. These vessels could have served in the preparation and storage of *chicha* (fermented maize beer). Taken together, the García Red and Tamulasco Plain ceramic groups comprise the bulk of a domestic subcomplex within the Guazapa ceramic complex, although some types, such as the vertical-wall storage vessels, could also be classed within a ceremonial subcomplex (Fowler, 2019).

Zancudo White Polychrome (Fowler 1981:185-199). Vessels of this group are characterized by geometric polychrome decoration painted in three or four colors (black, brown,

red, orange) over a hard, well-polished white slip. Stepped fret, triangles, and curvilinear motifs are common. Major vessel forms include flat-bottom, flaring-wall bowls and vertical-wall vessels. Zancudo White Polychrome pottery appears to be a local manifestation of a red and black-on-white polychrome tradition which was widespread in Mesoamerica during the Epiclassic and Early Postclassic (Fowler, 2019).

Jején Red Polychrome (Fowler 1981:199-206); referred to by Amaroli and Bruhns (2013) as "Banderas Polychrome" (Fowler, 2019). Geometric and naturalistic painted decoration in black, white, and sometimes yellow or orange over a soft red slip comprise the hallmarks of this ceramic group. Forms include flat-bottom, flaring-wall bowls; hemispherical chalices with pedestal supports; small cups on pedestal supports; and vertical-wall vessels. Motifs include banners, flags, shields, darts, human skulls, long bones, rib cages, and serpent heads and bodies. Like Zancudo White Polychrome, this ceramic group appears to be a local product, and its major forms, except the vertical-wall vessel, replicate those most common in the García Red ceramic group (ibid, 2019).

Tamoa Buff (Fowler 1981:206-215). A very hard, relatively fine, buff paste and well-polished surfaces distinguish this group. The predominant type of this group is Tamoa Red-on-buff. Tamoa would appear to be a precursor to Marihua Red-on-buff (Haberland 1964). Decoration includes incised lines and red-painted dots on interiors. The predominant form is a hemispherical bowl with tripod supports.

Tohil Plumbate (Fowler 1981:215-224). Plumbate ceramics defined by Shepard (1948), this distinctive hard, gray, lustrous ware with incised and effigy decorations is unmistakable horizon marker for the Epiclassic to Early Postclassic. Shepard recognized two Plumbate types:

San Juan (late Middle Classic/Late Classic) and Tohil (Epiclassic/Early Postclassic). Tohil Plumbate forms include composite-silhouette bowls, vertical-wall vessels, low-neck jars, and effigy vessels. The effigy vessels frequently represent Nahua detities, especially Tlaloc, Xipe Totec, Huehueteotl, and Mictlantecuhtli. Tohil Plumbate sherds comprise a relatively minor part of the Guazapa complex at Cihuatan, represented by only 149 sherds and no complete vessels in the collection studied for this analysis. This raises the possibility that the bulk of the period of occupation of Cihuatan occurred after the peak of Plumbate popularity, say around A.D. 1050 or 1100. The Museo Nacional de Antropología "David J. Guzmán" has in its collection a complete Plumbate effigy vase representing the old god, Huehueteotl, reported to be from Cihuatan (Fowler 1995:148). Shepard (1948:109) reported a bird head fragment from Cihuatan. Undoubtedly the most widely traded pottery in Mesoamerica during the Early Postclassic, the intersite distribution of Tohil Plumbate ranges from west and central Mexico to Panama (Cobean 1990:483-485; Fahmel Beyer 1988:69-85, 117-148; Shepard 1948:103-114) (Fowler, 2019).

Nicoya Polychrome (Fowler 1981:233-243). Fowler (2019) states the use of term "Nicoya Polychrome" as a generic designation to refer to the fine-paste, white-slipped polychromes of southeastern Mesoamerica, especially Nicaragua and Costa Rica, during the Early Postclassic. Like Tohil Plumbate, Nicoya Polychrome was a widespread trade ware during the Early Postclassic (Baudez 1967; Healy 1980:169-170; Lothrop 1926, vol. 1:115), and thus it serves as a convenient marker of this time period wherever it occurs throughout Mesoamerica. Its relatively fine paste was covered with a thin, hard white, pinkish white, or grayish white slip which carries painted geometric or naturalistic decoration. Predominant forms include composite-silhouette bowls, convex-wall bowls, and vertical-wall vessels.

The settlement pattern of most of the Early Postclassic sites associated with the Guazapa

complex shows a tendency to be located in high places such as at the top of hills, hills or islands, probably associated with an eminently defensive and sheltering strategy, with the objective of controlling accessibility. In general, these settlements present two relevant characteristics: a strategically defensive location and architecture with defensive and militaristic features (Fowler 1989). Probably these defensive characteristics were taken advantage of by the Pipils through processes of appropriation of the natural landscape of certain geomorphological features, constructing them and transforming them into cultural landscapes (Escamilla, 2013).

The cultural landscape played a decisive role in the settlements established in the Balsam Coast range during Postclassic period. The main inhabitants of these settlements were probably Pipils, which is the name used in the Mesoamerican literature to refer to the Nahuat-speaking groups, whose ancestors migrated from Mexico to Central America in a sequence of population movements that took place during the last centuries of pre-Hispanic times (Fowler, 1989a, 1989b, 1989c, 2001).

The Balsam Coast Archaeological Project

Since 2010, The Balsam Coast Archeological Project (BCAP) has identified and registered archaeological sites of Pipil affiliation from the Early Postclassic period (850-1200 AD) in the Balsam Coast region. Mostly, these sites are small settlements that show a strategically defensive architecture and settlement pattern, consisting of low mounds, plazuelas, platforms and possible observation points. Regarding the settlement pattern, these sites are located in the narrow plains of the high ridge tops of the plateaus, in defensible locations optimizing to the maximum the visual control of the landscape through the height, and the limited plain and narrow space. Currently, the

Department of Archeology of the Ministry of Culture of El Salvador has an inventory of more than thirty archaeological sites registered in the Balsam Coast Range. Although important archaeological research projects have been developed in the past, covering some specific sectors of the mountain range, this still constitutes a less explored area (Fowler et al 1989; Escamilla 1999, 2011, 2013; Revene and Bruhns 2007; Méndez 2007; Hamilton 2009).

During the 2012 and 2014 field seasons, the Project developed systematic archaeological surveys in four municipalities of the department of La Libertad located on the Balsam Coast: *Teotepeque, Jicalapa, Chiltiupán* and *Tamanique*. The area of the four municipalities totals approximately 350 km^2. Based on the analysis of aerial photographs, cartographic maps, satellite images and the background of research in the area, a methodological strategy was designed to optimize resources and at the same time potentiate the registration of new archaeological sites in the area and visit sites already registered in the past in order to upgrade information. In total, ten archaeological sites have been registered and documented in the area of the four municipalities mentioned above.

Caballito

The archaeological site Caballito is located in the municipality of Teotepeque, department of La Libertad, on the upper part of the Loma del Caballito at an altitude of 500 meters above sea level. It was discovered in 2012 by the BCAP, directed by Marlon Escamilla (Escamilla and Fowler 2013). Currently the site is bounded to the north by the prolongation of the plateau, and to the south by Loma Los Encuentros. The east boundary is marked by the Mizata River where the piedmont spur descends from 500 meters above sea level (masl) to 150 m.a.s.l., and the western is

marked by the end of the piedmont spur which descends from 500 m.a.s.l. to 259 m.a.s.l. until El Tambor stream. Caballito is composed of ten mounds distributed in two concentrations, which were denominated as North Group and South Group. Four mounds constitute the North Group, which forms a small plaza. The South Group consists of six mounds, which are oriented on a northeast-southwest axis and separated into groups of two, forming at least three small plazas. The southern limit of the site shows a small burned surface area forming lumps about the size of a fist. It is difficult to establish if this burning trace is associated with practices developed in prehispanic times or due to current agricultural practices (Escamilla 2013). (See figure 4).

During the archaeological survey, some artifacts were collected, identifying ceramic associated with the Guazapa Ceramic Complex defined by William Fowler (1981, 2011) as a ceramic complex of Early Postclassic. In addition, lithic artifacts as black obsidian arrow points, *manos* and *mutates*, were collected. The constructive system is formed by volcanic rocks without stucco. The settlement is located on land owned by the Chiquileca Cooperative. Currently the land is agricultural; some plots are planted with corn, beans and *maicillo*. In terms of conservation, the site is relatively well preserved.

Figure 4. Archaeological site Caballito

Texisio

The archeological site Texisio is located in the municipality of Teotepeque, department of La Libertad, on the upper part of the Texisio plateau at a height of 281 m.a.s.l. It was discovered in 2012 by the BCAP, directed by Marlon Escamilla (Escamilla and Fowler 2013). Currently the site is bounded to the north by the hill El Cerro, south by the end of the piedmont spur. The Texisio stream, where the plateau descends from 281 m.a.s.l. to 50 m.a.s.l., marks the east boundary. The end of the piedmont spur, which descends from 281 m.a.s.l. to 29 m.a.s.l. to the Mizata River, marks the western end. The Texisio site consists of three mounds, which form a small plaza (ibid) (See figure 5).

During the archaeological survey, some artifacts were collected, identifying ceramic associated with the Guazapa Ceramic Complex defined by William Fowler (1981, 2011) as a ceramic complex of Early Postclassic. In addition, lithic artifacts as black obsidian arrow points and prismatic blades were collected. The constructive system is formed by volcanic rocks without stucco. The settlement is located on private land. Currently the area is planted with pasture for livestock and there are modern housing constructions in very low density. In terms of conservation, the site is relatively well-preserved.

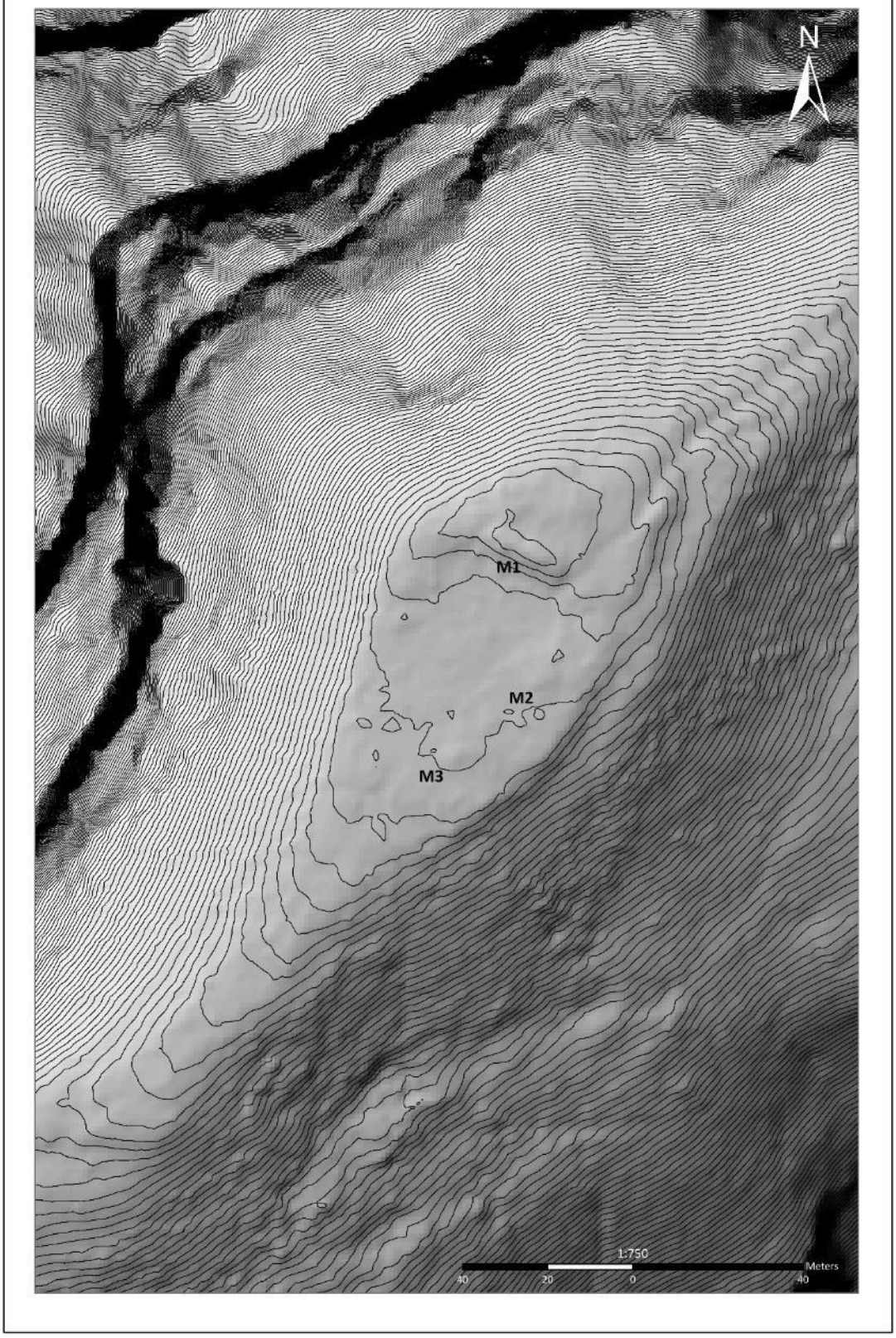

Figura 5. Archaeological site Texisio

Cerro de Ulata

The archaeological site Cerro de Ulata is located in the municipality of Teotepeque, department of La Libertad at an altitude of 410 m.a.s.l. The site was registered by Jorge Lardé (1926) and mentioned by John Longyear (1944), however, the site is described and mapped for the first time by the researchers of the Izalco Project interpreting it as a settlement of the Guazapa phase and contemporary to the Cihuatán site based on its settlement pattern and its ceramics (Fowler et al., 1989). The site is composed of at least twenty five mounds with a spatial distribution of the structures along the bifurcation of a plateau on two north-south oriented axes, the distribution is determined by the topography of the crest of the same plateau. The site is divided into two large concentrations of mounds, which have been called East Group and West Group. The East group was identified and mapped by the Izalco Project. This group consists of at least eleven mounds distributed on a north-south axis forming small plazas. The West Group is composed of at least fourteen mounds distributed over a north-south axis and forming at least three small plazas (Escamilla 2013) (See figure 6).

During the archaeological survey, some artifacts were collected, identifying ceramic associated with the Guazapa Ceramic Complex defined by William Fowler (1981, 2011) as a ceramic complex of Early Postclassic. In addition, lithic artifacts as black obsidian arrowheads, manos and metates, were collected. The constructive system is formed by volcanic rocks without stucco. The settlement is located on private land divided on plots. Currently the land is agricultural; some plots are planted with corn, beans and maicillo. However, in the West group area there are modern housing constructions in low density. In terms of conservation, the East group is relatively well preserved. Nevertheless, in the West group some of the mounds have been looted.

Figure 6. Archaeological site Cerro de Ulata.

Jicalapa

The Jicalapa archaeological site is located in the municipality of Jicalapa, department of La Libertad just south of the current town of Jicalapa. It was discovered in 2010 by the BCAP directed by Marlon Escamilla (Escamilla 2011). The site is located on the upper part of La Nancera hill at a height of 475 m.a.s.l. The settlement is delimited towards the north by the current town of Jicalapa, to the south by the end of the plateau known as La Nancera hill, which descends from 475 m.a.s.l. to 100 m.a.s.l until the place where San Pedro River converges with Cupa River which together with El Carrizo River are tributaries of La Perla River. To the east it is bounded by San Pedro River and to the west by El Carrizo River. The site is composed of eighteen structures of which fifteen are mounds and are divided into three groups and distributed over three different terraces. The spatial distribution of the structures occurs along the north-south axis, which is determined by the topography of the narrow plateau. Group A, located on the southern boundary, has seven mounds distributed on terrace one. Similarly, group B is composed of seven mounds located on Terrace two. Group C is located in the northern limit, which contains a mound associated with a rock with a concave depression, like a dome in its upper part. For the most part, the mounds are low with heights ranging from 0.5 m to 1 m, with the exception of mound 14, which has an approximate height of 2 m. In some cases it was possible to document the limits of rectangular platforms and stone alignments located in the limits of the narrow plateau of the crest of the plateau (Escamilla 2011) (See figures 7, 8 and 9).

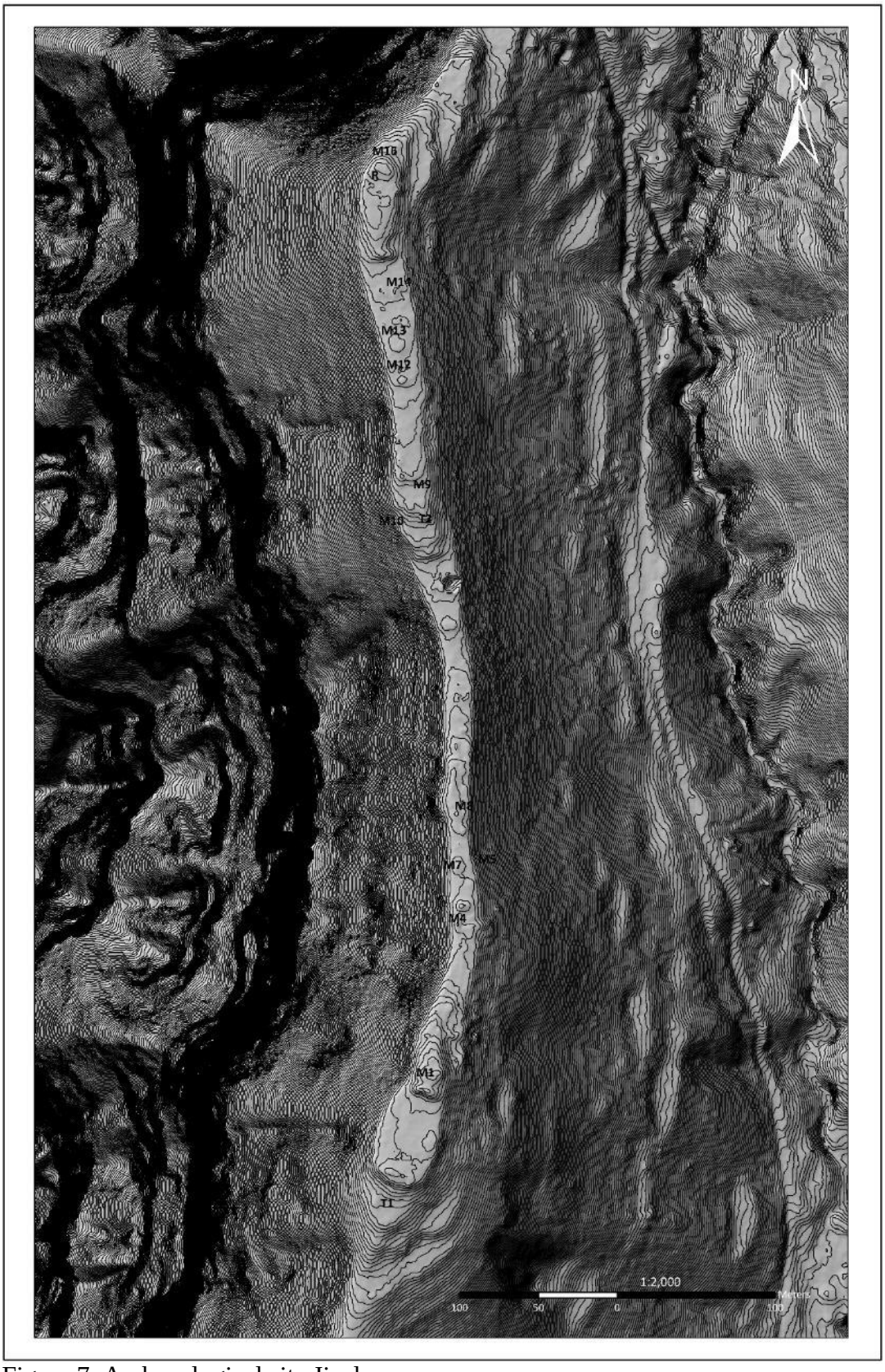

Figure 7. Archaeological site Jicalapa.

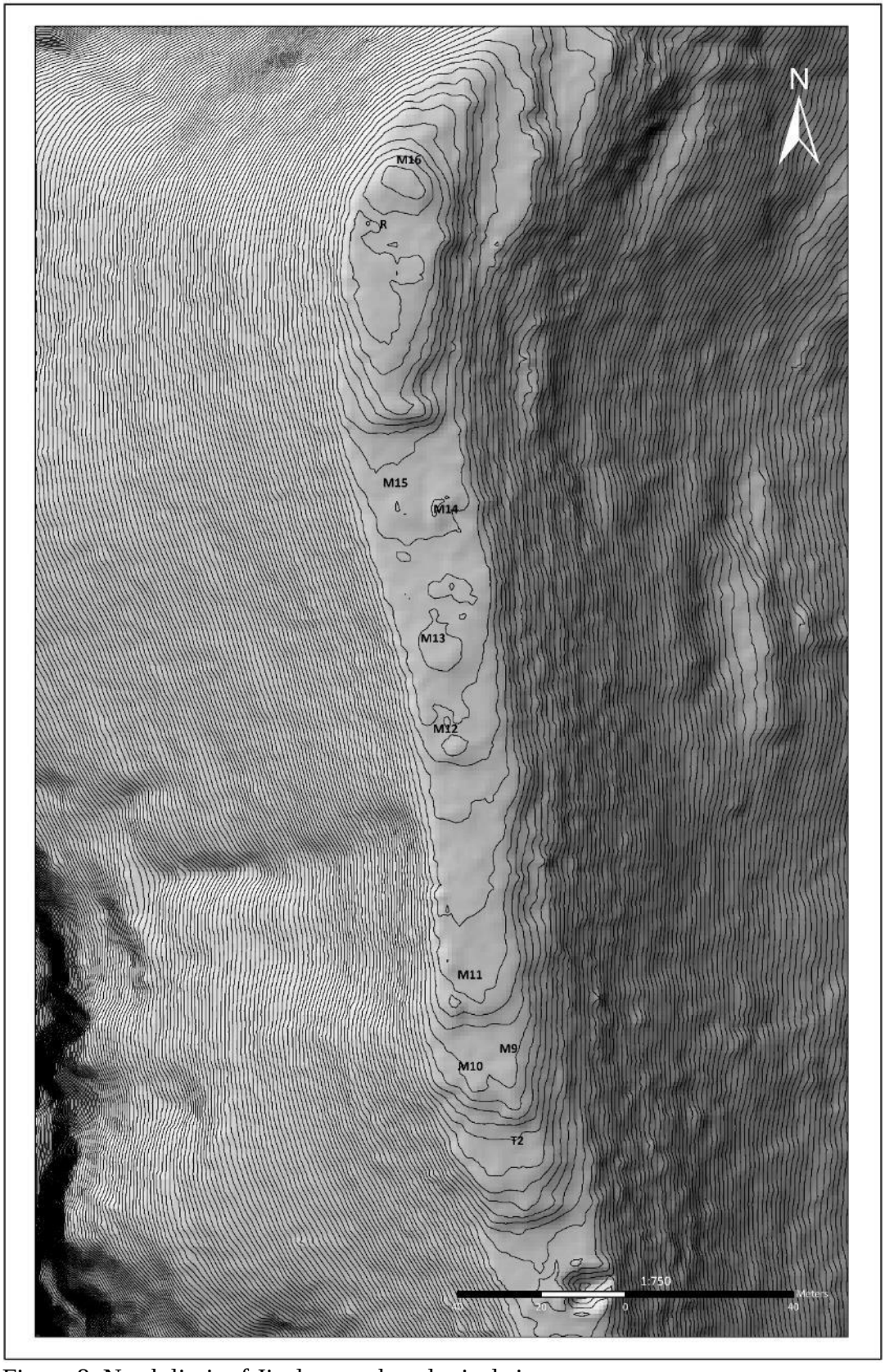

Figure 8. North limit of Jicalapa archaeological site.

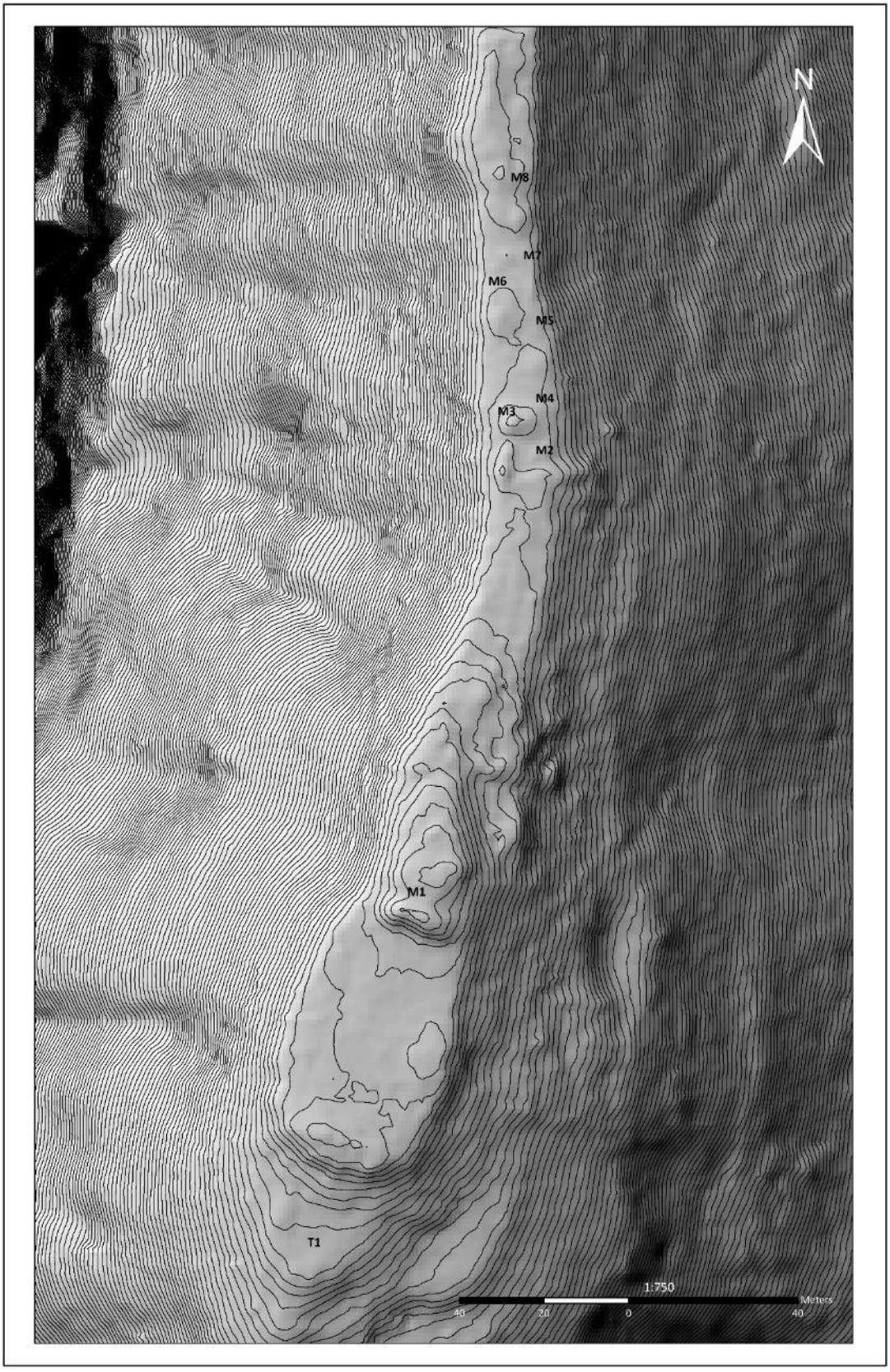

Figure 9. South limit of Jicalapa archaeological site.

During the archaeological survey, some artifacts were collected, identifying ceramic associated with the Guazapa Ceramic Complex defined by William Fowler (1981, 2011) as a ceramic complex of Early Postclassic. In addition, lithic artifacts as black obsidian arrow points, manos and metates, were collected. The constructive system is formed by volcanic rocks without stucco. The settlement is located on private land divided on at least five plots. Currently the land is agricultural, some plots are planted with corn and beans. In terms of conservation, the site is relatively well preserved. However, the mound number fourteen has been looted.

Letrero del Diablo

The archeological site Letrero del Diablo is located in the municipality of Jicalapa, department of La Libertad at an altitude of 140 m.a.s.l. The site was registered by Jorge Lardé (1926). The Ministry of Environment and Natural Resources (MARN) has classified the area where the site is located as a protected area. Letrero del Diablo is a rock art site, which is conformed by a concentration of petroglyphs carved on a rocky wall with dimensions of 50 m long and 8.5 m high. The petroglyphs are oriented to the west, covering an area of 10 m long and 2.7 m high. In general terms, the petroglyphs present an abstract style highlighting mostly geometric figures and in lesser percentage anthropomorphic and zoomorphic figures. However, the most relevant petroglyph is the stylized representation of a Tlaloc deity. It should be noted that the site is located on the eastern side of Iscacuyo or El Cacao stream. In terms of conservation, the petroglyphs are in bad conditions due to the fact that have been painted with chalk and red and white oil paint. As part of the Project, a photographic survey of all the petroglyphs was carried out as well as a digital mosaic survey to obtain a panoramic image using a GigaPan EPIC Pro, this survey was done with the support of Dr. Fabio E. Amador, program officer of National Geographic Society (Escamilla 2013) (See figure 10).

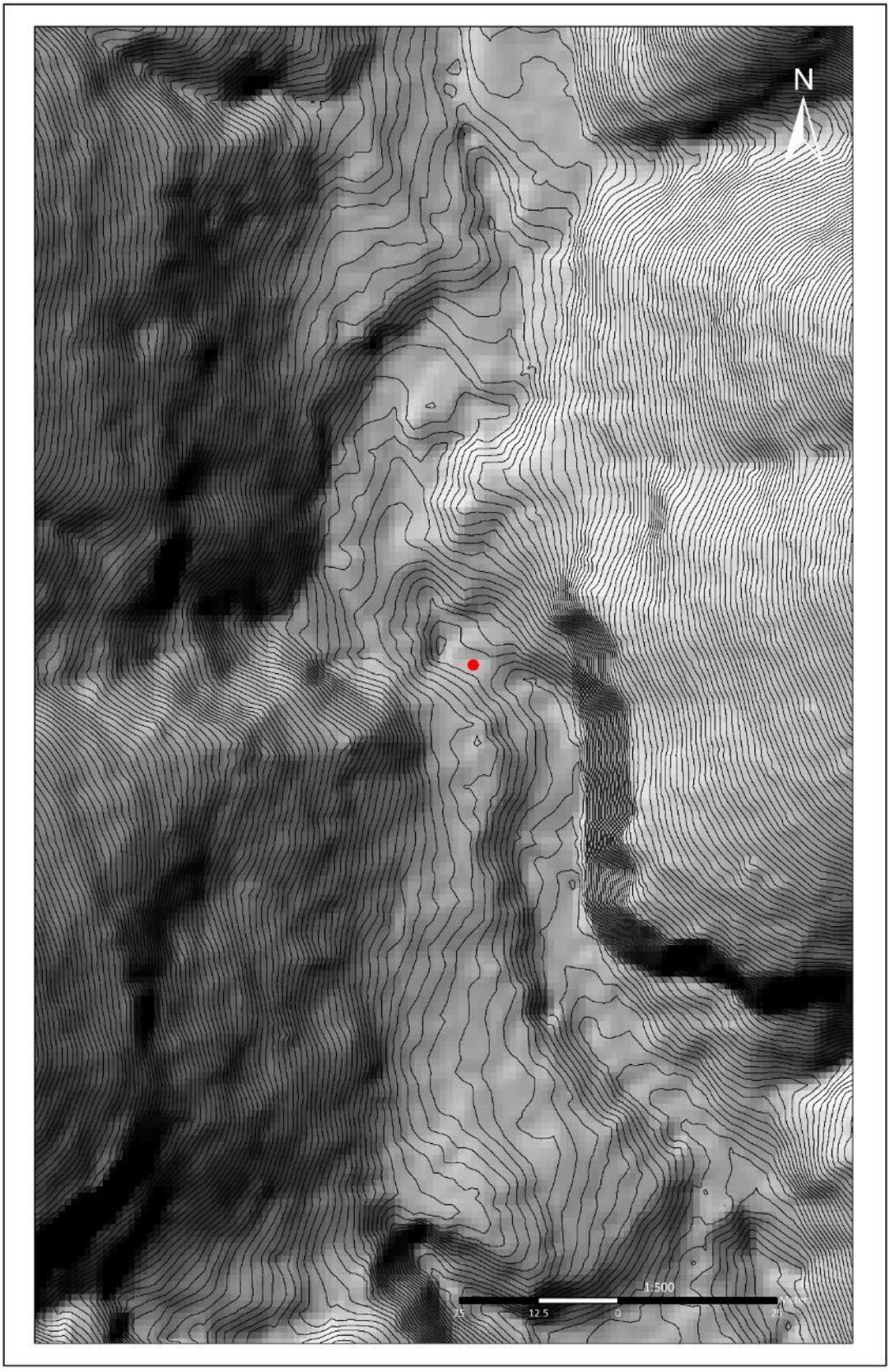

Figure 10. Archaeological site Letrero del Diablo.

The Tlaloc petroglyph (See figure 11) constitutes an important representation for the interpretation of the site. Probably some ritual practices were developed in El Letrero del Diablo revealing the Tlaloc deity, which were associated with the acclaim of water element. These rituals practiced during the Postclassic period by the Pipils were possibly practiced relatively frequently in the low piedmont area or stream channels where rivers and winter ravines are located, taking into account that most of the sites of the Guazapa complex located on the Balsam Coast were built in the narrow plains of the high ridge tops of the plateaus, where access to water is difficult.

Figure 11. Stylized Tlaloc of Letrero del Diablo archaeological site.

El Letrero

The archaeological site of El Letrero is located in the municipality of Chiltiupán, department of La Libertad, specifically in Finca Guadalupe Arriba of Cantón and Caserío Cuervo Abajo at an altitude of 400 m.a.s.l (See figure 12). The site was discovered by the BCAP directed by Marlon Escamilla (Escamilla and Fowler 2013). Currently Finca Guadalupe Arriba bound the site to the north, to the south by El Zonte River. The east boundary is marked by Pájaro León River and the west edge is marked by El Zonte River. El Letrero is a rock art site, which is formed by a concentration of petroglyphs on a rock with dimensions of 15 m long by 12 m high. The petroglyphs are oriented to the east, covering an area of 3 m long and 2 m high. Mainly, the petroglyphs present an abstract style highlighting mostly geometric figures such as concentric circles, spirals; as well as a concentration of domes. Although in a smaller percentage, anthropomorphic and zoomorphic figures were recorded. However, the most relevant petroglyph is the stylized representation of a Tlaloc deity. It should be noted that the site is located at the point of convergence of Pájaro León and El Zonte Rivers. Approximately 200 m north of the rock with the petroglyphs, a small rectangular platform was recorded which most probably served as a shrine during the ritual practices developed in prehispanic times. As part of the Project, a digital photographic survey of all petroglyphs was carried out. In terms of conservation, the site is in bad conditions due to the fact that the incisions have been painted with chalk and some petroglyphs exhibit fracture damage, including a percentage of the Tlaloc (Ibid).

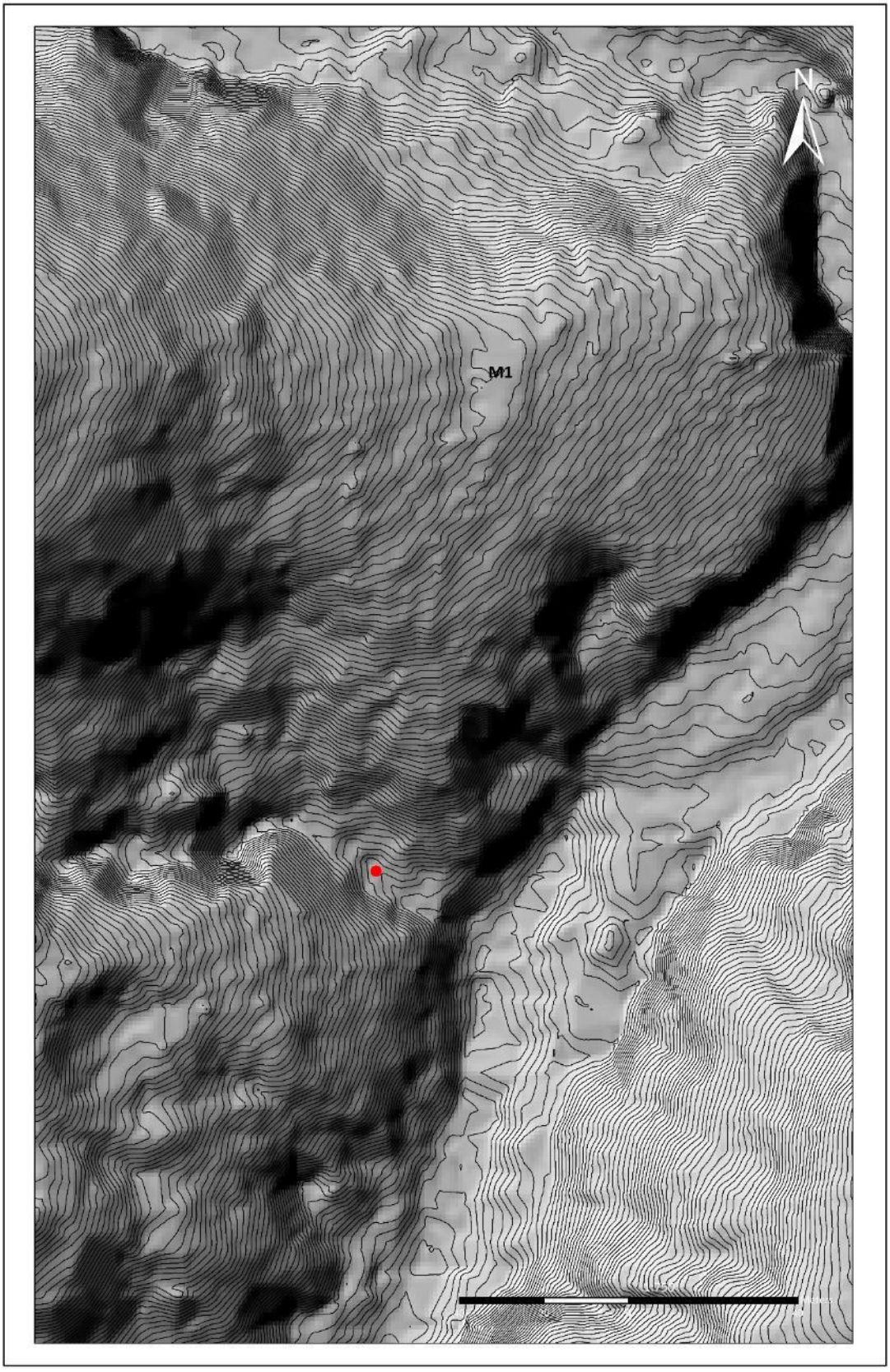

Figure 12. Archaeological site El Letrero

The Tlaloc petroglyph (See figure 13) constitutes an important representation for the interpretation of the site. As at the El Letrero del Diablo site, probably ritual practices were developed in El Letrero site, revealing the Tlaloc deity, associated with the acclaim of the water element. These rituals practiced during the Postclassic period by the Pipils were possibly practiced relatively frequently in low piedmont area or stream channels where rivers and winter ravines are located, taking into account that most of the sites of the Guazapa complex located on the Balsam Coast were built in the narrow plains of the high ridge tops of the plateaus, where the access to the water is difficult.

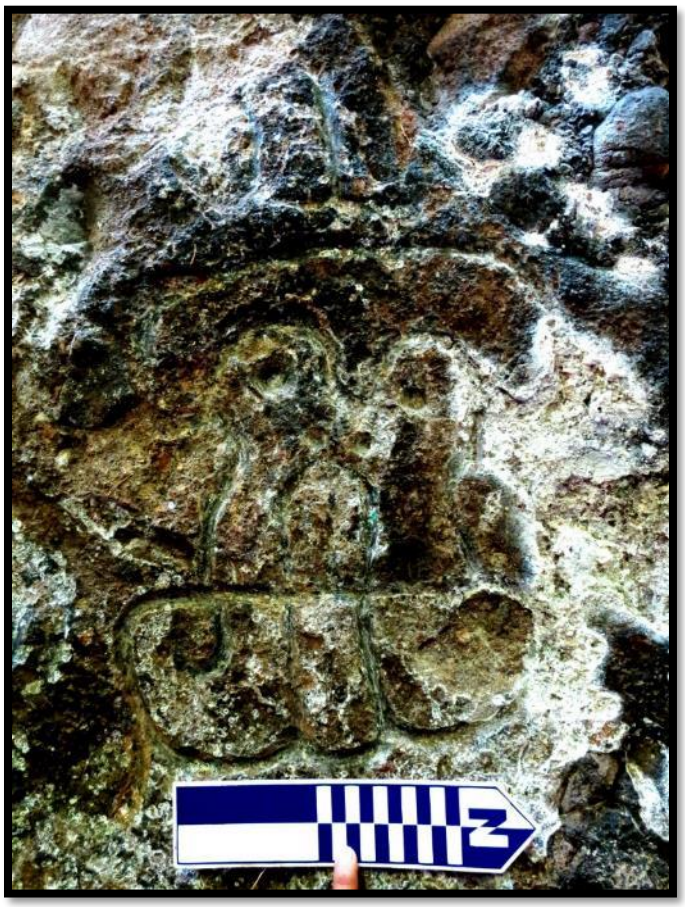

Figure 13. Stylized Tlaloc of Letrero archaeological site.

Zinacantan

The archaeological site of Zinacantan is located in the municipality of Tamanique, department of La Libertad, specifically on the top of Pueblo Viejo hill at an altitude of 460 m.a.s.l. The settlement is delimited towards the north by the prolongation of the plateau and by Canton and Caserío Tarpeya; to the south by the Redondo Hill or Peñol de Zinacantan. The end of the plateau, which descends from 460 m.a.s.l. to 250 m.a.s.l. to La Joyona or El Tacuacín stream, marks the East boundary; and the west limit is marked by the end of the plateau, which descends from 460 m.a.s.l. to 250 m.a.s.l. to Pozo Hondo stream.

William Fowler discovered the site in 1989, while he directed the Izalcos Project by developing archaeological surveys. Fowler heard about the existence of an archaeological site in Pueblo Viejo called Zinacantan. Later the site was visited and registered by Fowler, Gallardo, and Hamilton (Hamilton 2009). During the year 2001 and 2002, Zinacantan was georeferenced and mapped with an electronic total station by Conard Hamilton (2009). Hamilton divided Zinacantan into three places. Site 1 is made up of eight mounds distributed on the narrow tongue and forming at least two small plazas. Site 2, located at the southern end of the tongue, is made up of seven mounds distributed forming at least three small plazas and delimited by a low wall built around the narrow plateau. Site 3, located at the north end, is made up of eleven mounds forming at least two plazas (See figures 14, 15 and 16). In total, Zinacantan consists of at least twenty six mounds, constituting, together with El Panteoncito, one of the sites with the largest number of structures registered so far on the Balsam Coast. Based on the ceramic analysis done by Hamilton, the site probably has Late Postclassic occupation, however it cannot be ruled out that Zinacantan is a site that has a permanent occupation from the Early Postclassic to the Late Postclassic (Escamilla and Fowler 2013).

Figure 14. Sites 1, 2 and 3 of Zinacantan.

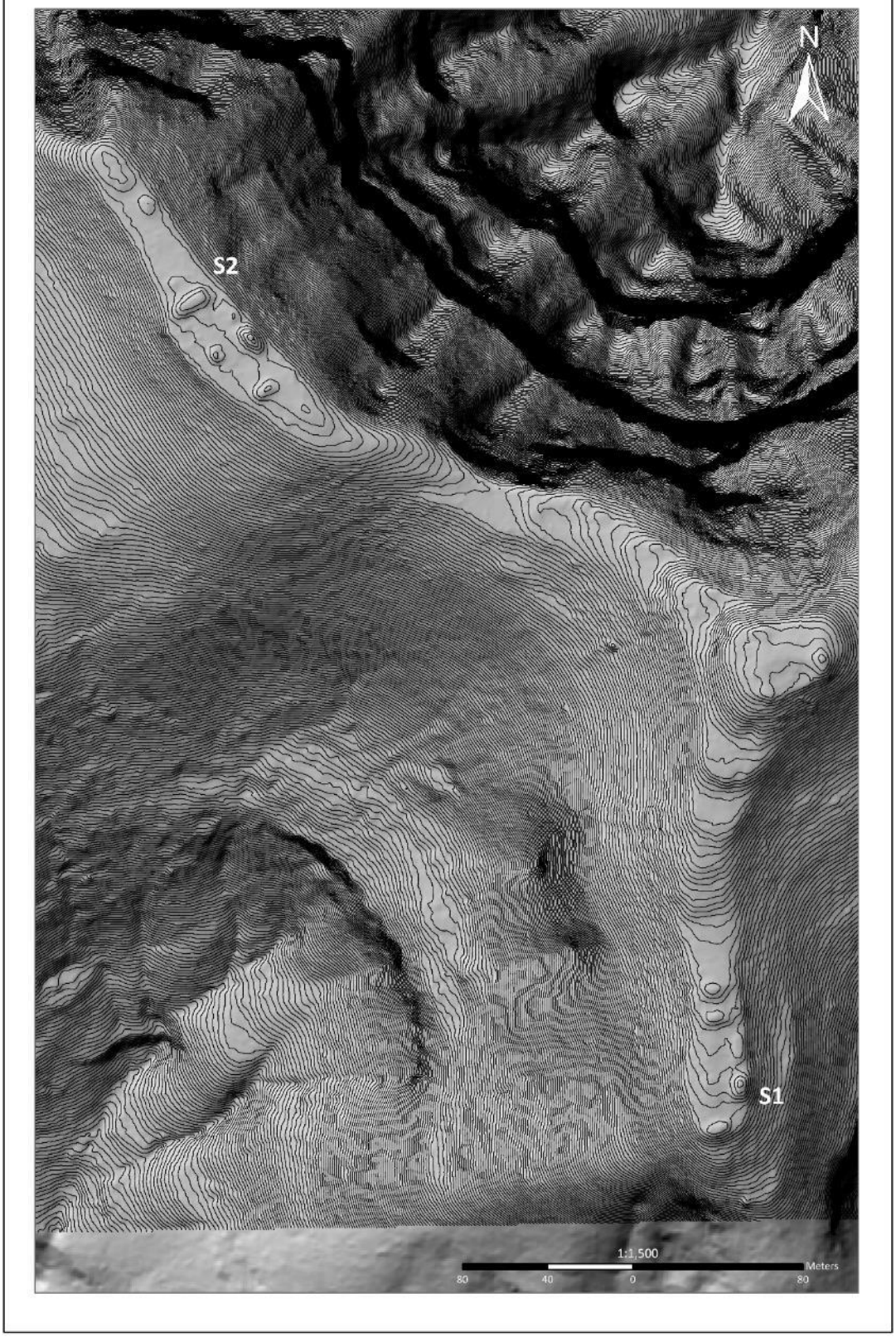

Figure 15. South limit of Zinacantan archaeological site.

Figure 16. North limit of Zinacantan archaeological site.

Miramar

Miramar is located in the municipality of Tamanique, department of La Libertad on Acahuaspán Cooperative lands (See figure 17). The site is located approximately 1 km northwest of Peñon El Cabro on a short and narrow high plain of Loma El Cabro at a height of 605 m.a.s.l. The settlement is delimited towards the north by the prolongation of the plateau, to the south again by the prolongation of the plateau and by Peñon El Cabro. Towards the east El Cusuco stream limits it descending of 605 m.a.s.l. until 400 m.a.s.l. and towards the west with Acahuaspán River also descending until 400 m.a.s.l. The site is composed of fourteen mounds with a spatial distribution of the structures along the northwest-southeast axis, which is determined by the topography of the plateau. The southeast end of the site has a distribution of grouped structures consisting of five mounds, which seems to be forming a small plaza. The rest of mounds are relatively aligned along the northwest-southeast axis and distributed over the narrowest sector of the plateau. Based on its location, apparently some structures served as observation points. The height of the mounds varies between 1 and 2 m (Escamilla 2011).

During the archaeological survey, some artifacts were collected, identifying ceramic associated with the Guazapa Ceramic Complex defined by William Fowler (1981, 2011) as a ceramic complex of Early Postclassic. In addition, lithic artifacts as black obsidian arrow points, manos and metates, were collected. The constructive system is formed by volcanic rocks without stucco. Currently the land is agricultural, planted with corn and beans. In terms of conservation, the site is relatively well preserved.

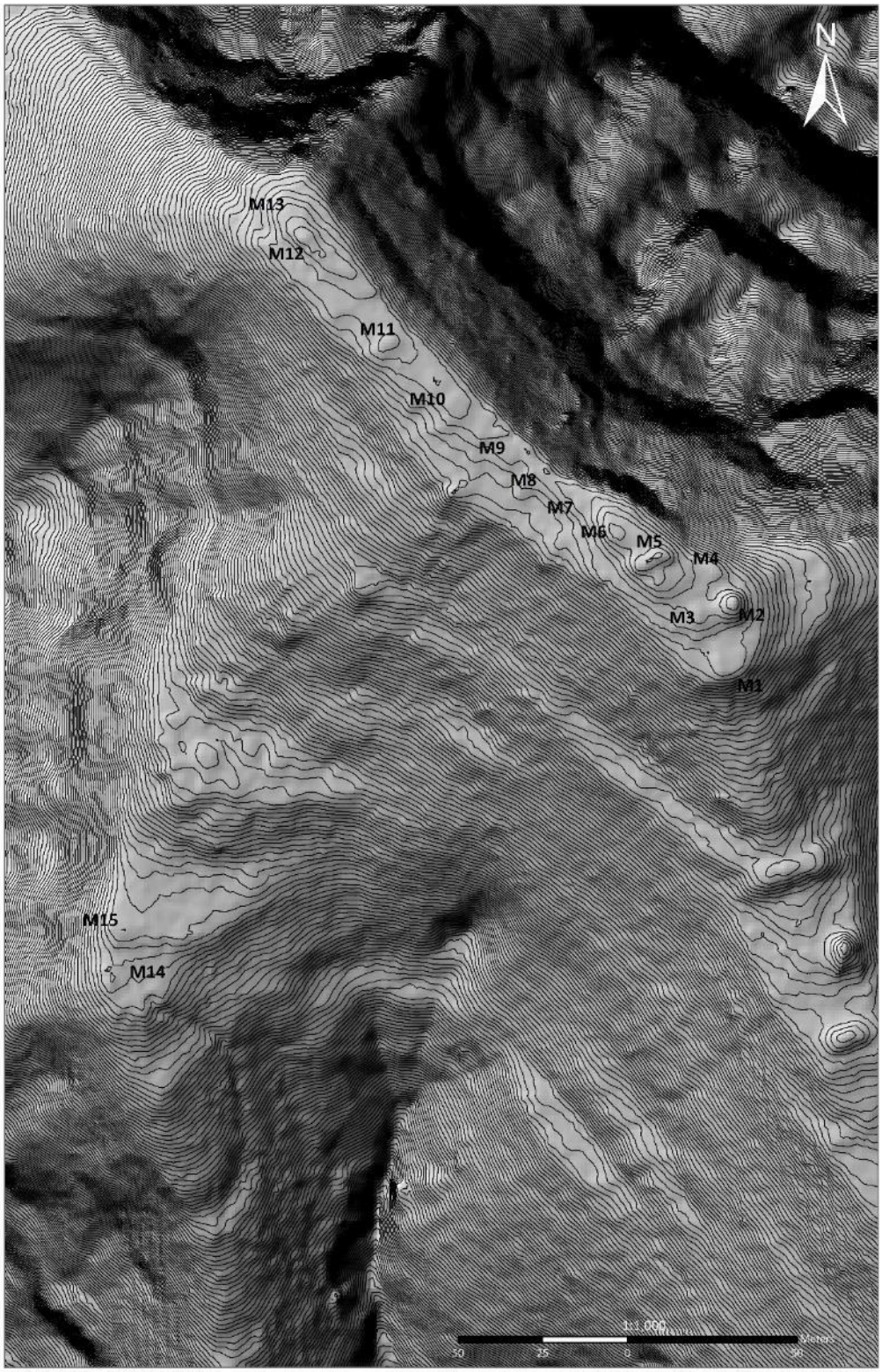

Figure 17. Archaeological site Miramar

El Panteoncito

The archaeological site of El Panteoncito is located in the municipality of Tamanique, department of La Libertad at Cooperativa San Isidro lands. The site is located on the upper part and in the northern sector of Loma El Cabro at an altitude of 610 m.a.s.l. The settlement is bounded to the north by the extension of the plateau and by Canton and Caserío San Isidro, to the south by the prolongation of the plateau. Panteoncito is located approximately 1.5 km north of the Miramar site, on the same plateau. The end of the piedmont spur, which descends from 610 m.a.s.l. to 541 m.a.s.l., marks the western limit. The eastern end has a small extension of the plateau which has an east-west axis and ends down from 610 m.a.s.l. to 400 m.a.s.l. (See figures 18, 19, 20, 21 and 22).

The site consists of thirty five structures, constituting the site with the largest number of structures registered in the Balsam Coast. These structures are divided into seven groups of mounds. The spatial distribution of the structures occurs along the bifurcation of a plateau on two axes, a long axis oriented north-south and a short axis oriented east-west; both axes form an inverted L which is determined by the topography of the plateau. Group A, located on the northern limit, has three mounds (M1-M13) distributed on a platform forming a plazuela. Group B, located on the eastern border, is composed of two mounds (M14-M15) forming a plazuela. Group C, is located on the north-south axis and is composed of ten mounds (M4-M13) which form at least two small plazas. Group D is located on the north-south axis and is composed of two mounds (M16-M17) built on a platform forming a small plaza. Approximately 0.5 km north of group D, always on the north-south axis, is the group E, which is composed of eight mounds (M18-M25) forming a small plaza. Group F is composed of four mounds (M26-M29) on a platform, forming a small plaza. Mounds 30, 31 and 32 are isolated and dispersed between groups F and G. Finally group G

constitutes the southern limit of the site and consist of three mounds (M33-M35). It should be noted that the groups C, F and G mounds have a similar distribution, highlighting a low circular platform in front of the mounds and located towards the west side.

During the archaeological survey, some artifacts were collected, identifying ceramic associated with the Guazapa Ceramic Complex defined by William Fowler (1981, 2011) as a ceramic complex of Early Postclassic. In addition, lithic artifacts as black obsidian arrow points, manos and metates, were collected. The architectural system is formed by volcanic rocks without stuccoed exteriors. Currently the land is used for agricultural purposes, planted with corn and beans. In terms of conservation, the site is relatively well-preserved.

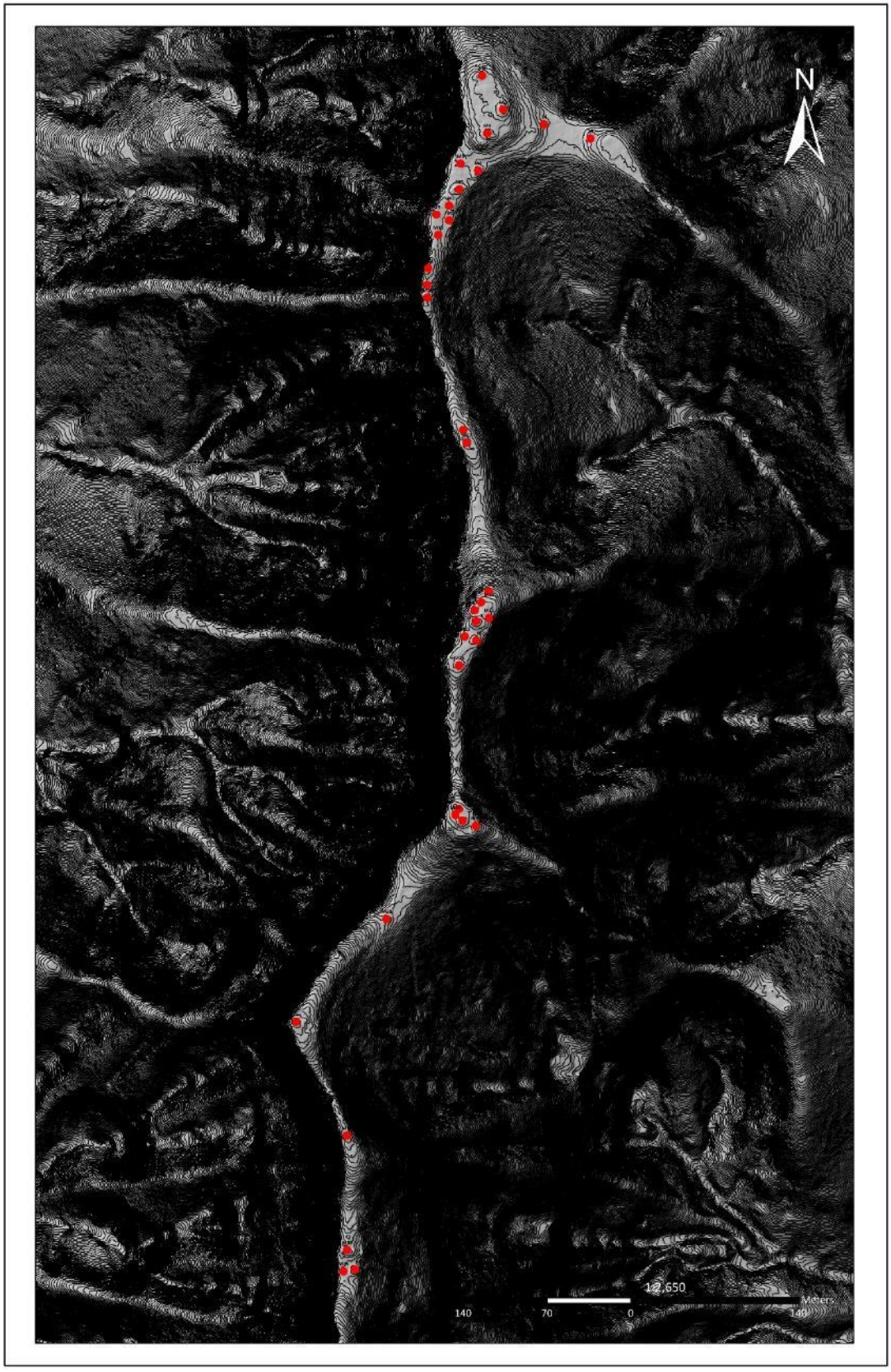

Figure 18. Archaeological site El Panteoncito

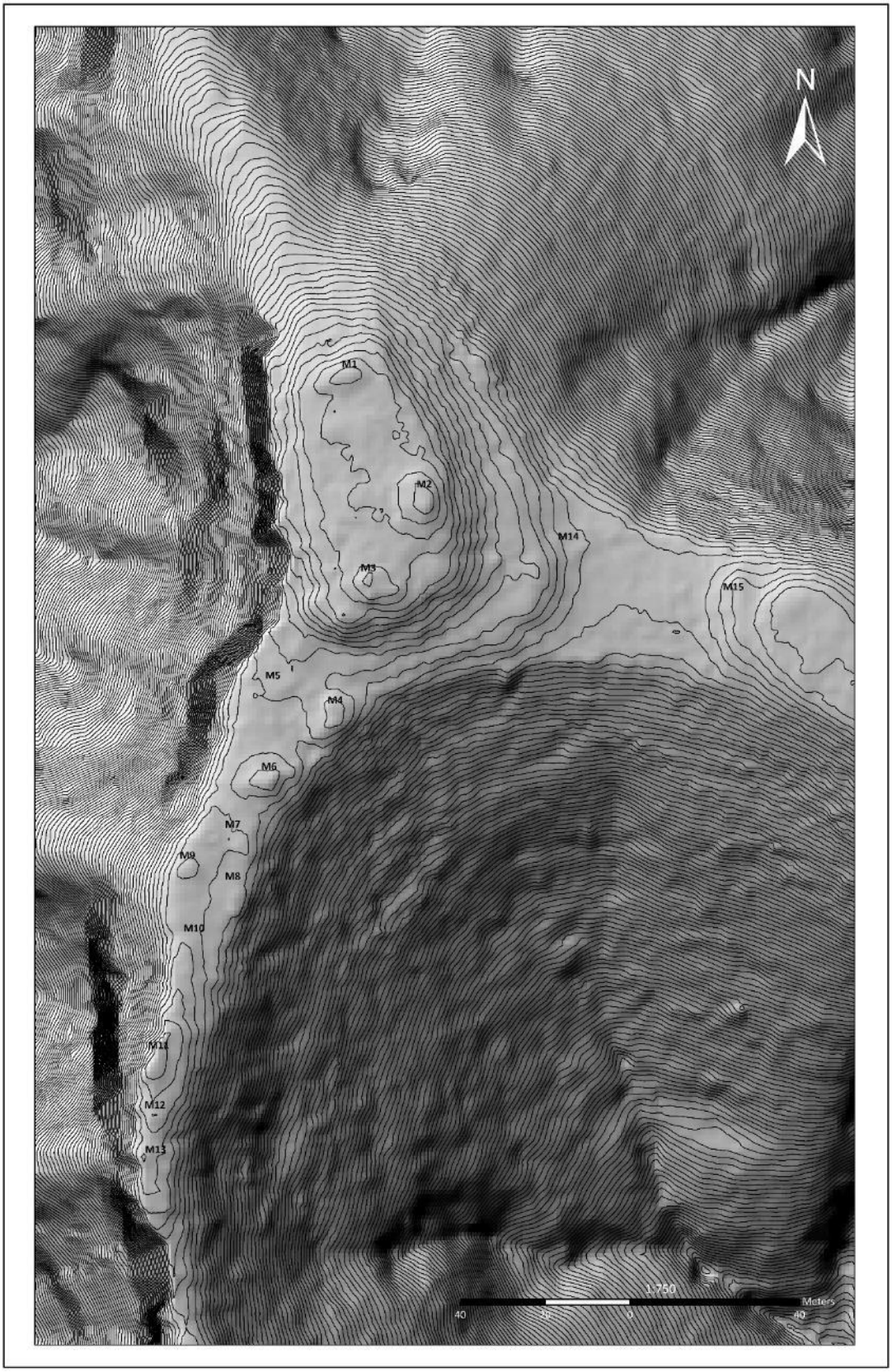

Figure 19. Groups A, B and C. El Panteoncito site.

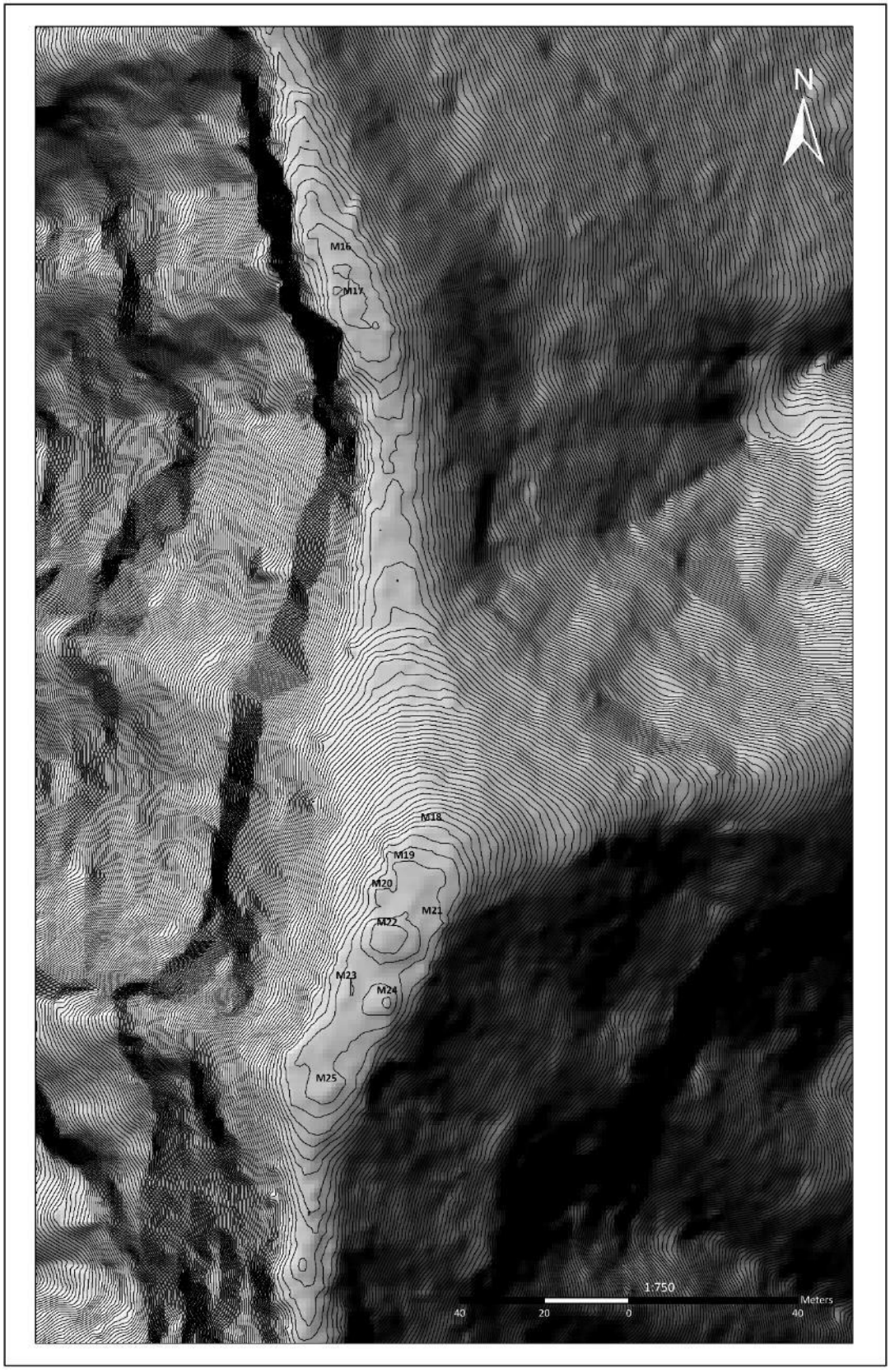

Figure 20. Groups D and E. El Panteoncito site.

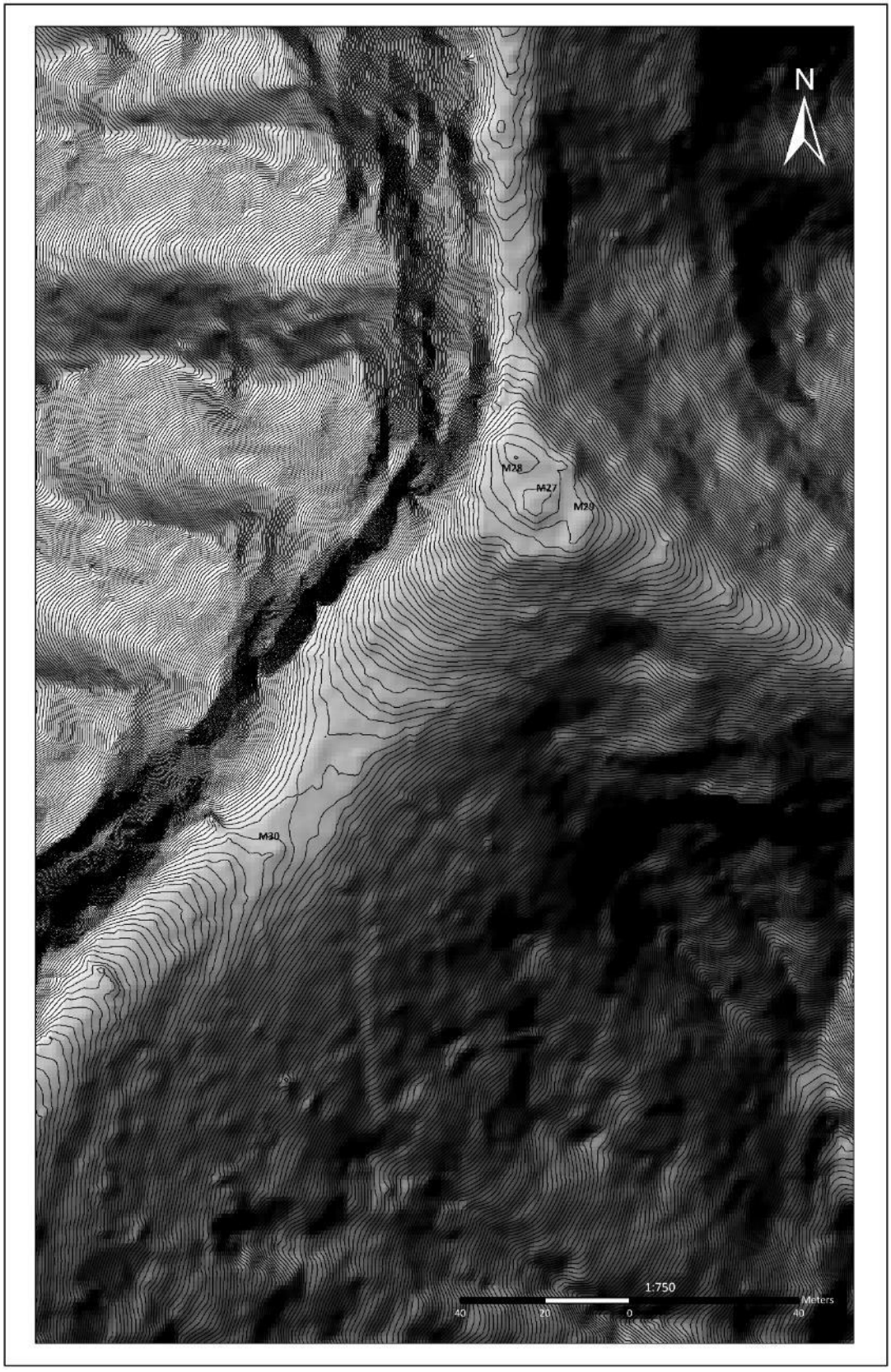

Figure 21. Group F. El Panteoncito site.

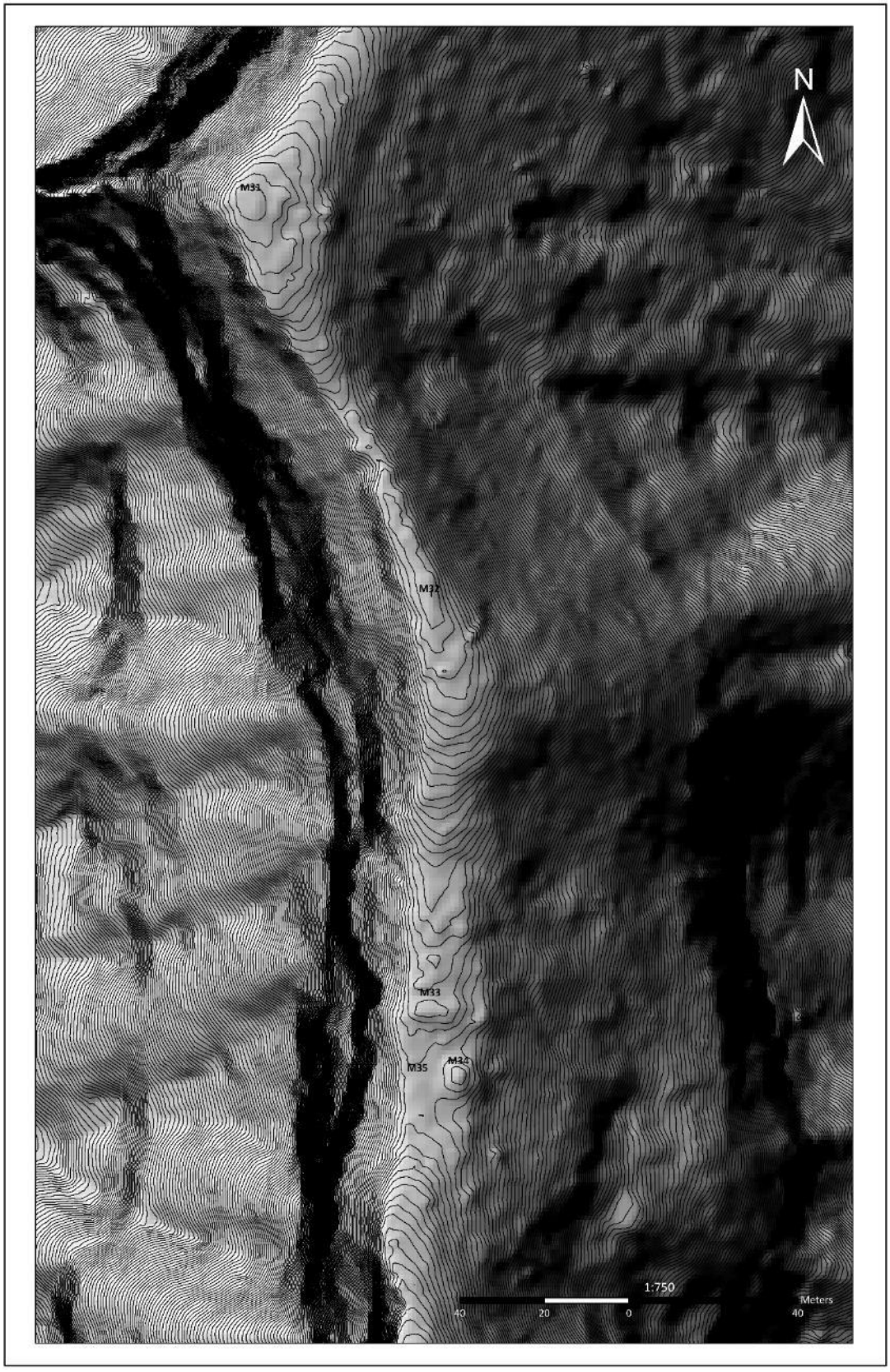

Figura 22. Group G. El Panteoncito

Summarizing, the Balsam Coast has a very particular topography due to the fact that it is a Quaternary volcanic formation. This characteristic has allowed that through geological times the landscape has been changing, transforming the conical morphology of the Jayaque volcano to an irregular topography in which small canyons stand out, allowing small rivers and streams run. These small canyons are the product of millenary erosion which produced the formation of *lengüetas* or finger projections.

During the Epiclassic and Postclassic periods, the Nahua-Pipils discovered a very particular cultural landscape on the Balsam Coast. Probably, this particular topography offered to the Nahua-Pipils a desired cultural landscape in which they could emulate or replicate cultural practices associated with their homeland. In practical terms, the irregular topography offered safeguards due to the difficult access, allowing to appropriate a defensive spatiality in the upper parts of the *lengüetas*. However, not only did the defensive position attract the Nahua-Pipils to the Balsam Coast, but there were probably also symbolic reasons associated with the mountain cultural landscape that were decisive in the establishment of settlements on the Balsam Coast which not only they were thought in militaristic or defensive terms but in symbolic terms for the practice of mountain rituals associated with water. This idea will be discussed in detail in Chapter 6.

CHAPTER III

MIGRATION, DIASPORA AND SYMBOLIC LANDSCAPE

The purpose of this chapter is to describe, analyze and discuss the concepts of migration and diaspora, the main differences among them and how these concepts are related with the construction of identity. The idea is to explain and apply the concept of diasporic migration to the Nahua-Pipil phenomenon occurred during the Epiclassic and Early Postclassic periods. Further, this chapter will discuss the concepts of landscape in archaeology along with the different kinds of landscape. The main idea is to explain the concept of symbolic landscape and how this can be applied to Early Postclassic settlements located in the Balsam Coast Range. At the end of the chapter, the connotations of symbolic landscape in Nahua-Pipil behavior are discussed.

Migration and Archaeology

Although *migration* is considered as an important aspect of human life throughout space and time, this process had been avoided in the archaeological research probably because of the lack of methods that allow the identification and record of it. David Anthony states that "Migration is a structured and well-studied aspect of human behavior" (Anthony 1990), unfortunately this statement is not reflected in the archaeological research in the past. Probably the migration approach began in European archaeology during the late 19th century.

During the 19th and the first half of the 20th century, theories of migration were extremely

popular in archaeology (Lyman et al.1987; Trigger 1989). In the early 20th century, the words migration and diffusion were common to explain cultural change throughout the ancient world: movement as *deus ex machina*. During that time, most scholars, such as Petrie (1939) and Reisner (1909), interpreted cultural shifts as the replacement of one group of people with another. Other scholars, looked to the Near East as the so-called Cradle of Civilization from all innovation sprang. This theory, referred to as *ex oriente lux*, pointed to the diffusion of populations from the Near East and the subsequent radiating waves of their cultural influence as the mechanism that generated the layers of material cultures encountered in African and European soils. Gordon Childe (1928, 1930) supported this model, along migration patterns and trade networks, as the imagined channel through which various distillations of culture, such as agricultural ingenuity and bronze technology, flowed. A few years later Gordon Childe (1950) highlighted the importance of migration and diffusion studies, tracing the migration of archaeological cultures through ceramic vessels and metal tools. These early archaeologists interpreted movement as the vehicle that transported culture-saturated people across the globe (Beaudry and Parno 2013).

During the early 20th century, cultural changes identified within the archaeological record were used to associated with migration. The main idea was that innovation it was not a common practice in the past, conversely it was supposed that new ideas usually had a single place of origin and then spread them through migration or diffusion (McSparron 2020). In the early decades of the twenty century, these ideas were so popular with the hyper-diffusionism advanced by Grafton Elliot Smith and Lord Raglan (Trigger 2008).

During the first half of the 20th century, migration and diffusion were part of the main

subjects of research and continued to be used by archaeologists. However, it was never clearly defined as a concept other than as an implicit one that involved long range, mass population movement that often resulted in population replacement (Clark 1994). During the second half of the 20th century migration was irrelevant due to the influence of neofunctionalism paradigm in American archaeology of the 1960s. In the 1970s migration reemerged as a subject of archaeological research (Anthony 1990).

After being rejected by processual archaeology, migration as a means of cultural change, has been embraced again by archaeologists interested in population movement. Over the last decades the anthropology of movement had been considered an important subset of study of population. Analysis of people traveling through the landscape is increasingly gaining importance in different disciplines such as geography, politics, and social sciences in general. The idea is to encompass considerations of travel and motion through open and meaningful space. Movement of individuals is fundamentally concerned with the relationships among person, object and space (Beaudry and Parno 2013).

This resurgence of migration theory in archaeology can be associated with the work accomplished by David Anthony who states that a theory of migration had to be in place before a methodological approach. Anthony (1990) advocated examining the structure of migrations separately from the cause. He argued that it may be possible to identify migration events from their structural signature, without any notion of the reason for the migration being apparent. In Anthony's (1990) concept of stream migration, migrants proceeded along a well-defined migration route, with well-specified origin and destination points. Earlier migrants became founders of *apex families* and provided information and infrastructure to facilitate later migrants. Artifacts from the point of origin should be initially replicated at the destination location, but possibly with rapid

evolution in form and design subsequently occurring (McSparron 2020).

Additionally, the work of Stefan Burmeister (2000) is important to migration theory within archaeology, he argues that it is not possible to develop a theory of migration in isolation of data. Burmeister proposed developing middle-range theory that distinguishes transformations caused by migration from other cultural transformations. He suggested a hermeneutic circle defining two domains of migrant culture, an internal and external domain, both conditioned by the *habitus* (Bourdieu 1977). He argued that a greater degree of adaptation to the host culture is evident in the external domain of migrants, but greater adherence to traditional practices exists within the internal domain suggesting that it is in the archaeology of the internal domain that indications of migration should be sought (McSparron 2020).

A new theoretical model has been proposed by McSparron (2020) which related migration with *group agency*. Most contemporary migration theory seems to consider the arrival of migrants groups with limited agency into a strong society. However, there is a set of variations in the relationships between migrants and host communities, related to the strength or weakness of the migrating group. This new model states that group agency can be used to investigate the collective power of a migrant group, identifying four groupings into which migration relationships may be placed: (1) Very High Group Agency: in this group the migrant group has an overwhelming advantage over the host population in terms of numbers, organization and technology. The migrant group achieves complete dominance over the host community. (2) High Group Agency: also in this group, the migrant group has a clear advantage over the host community, however, they are unable to dominate completely and need the assistance of elements within the host community. This community may feel pressure to accept aspects of the culture and technology of the migrant group but may also stubbornly resist change. (3) Medium Group Agency: in this scenario, the

migrant group has strengths, skills, technological knowledge and superior organization skills but it lacks the capacity to dominate the host community. Groups with Medium Group Agency, therefore, are not dominant but are not entirely powerless either. (4) Low Group Agency: in this group the migrant group may be large in numbers but with few marketable skills, or it may not be particularly well-organized. Alternatively, it may have skills and marketable talents, but the numbers of migrants are very small. Such groups may be able to survive within the host community but will remain insecure and it is likely that they would seek to be accepted. The group agency model includes both the migrant group and the host community and the interaction between both, offering a new theoretical model for examining migration.

Over more than one hundred years, the advances of migration theory are notorious. Summarizing, it is clear that migration is an essential part of being human evolution. Human mobility is not exclusively related to physical movement from point A to point B, bit it also entails several activities associated with biological, sociocultural, and linguistic behaviors (Cabana and Clark 2011). Based on this, it is necessary to understand that a set of variabilities exists in relation to the migration phenomenon. In general, it is possible to talk about two probable types of population movements: a voluntary migration of people and an involuntary displacement caused by different reasons. Consequently, a discussion between these two dissimilar cultural processes is fundamental in order to understand the migration phenomenon.

Migration vs. Diaspora

A definition of *migration* requires a multidisciplinary discussion. Biological anthropologists analyze migration from a genetic perspective based on genes moving,

archaeologists are interested in the distribution of material culture, and linguists are interested in the circulation and distribution of languages.

Renfrew (1988) in his study of Indo-European linguistics linked the transference of language to the spread of agriculture from Anatolia to Europe. For Renfrew, movement was complex, executed locally in fits and starts, but discernible globally in patterns. It was driven not only by migration but also by the distribution of technology and passage of linguistic traits from people to people. Renfrew´s hypothesis succeeded in demonstrating that movement is a complicated process involving innumerable factors shifting at different rates (Beaudry and Parno 2013).

Mobility and movement has been a focus of archaeological study since the field began, in order to understand how different cultural groups, develop and populate regions, from the earliest human's migrations to diasporas of all forms in more recent times. Some of the topics related with movement throughout archaeology's history as a discipline have included migration and diffusion; invasion, conquest, and imperial imposition; colonialism; trade and the movement of goods, people, and animals; seafaring and its associated technologies; and nomadism (Beaudry and Parno 2013). Cabana and Clark (2011) argue that the movement of multiple individuals in two ways: (1) as a series of small groups or individuals who are acting independently but they have common motives; and (2) as a large social group that is coordinated and directed by a central authority.

During the past decades, movement had been analyzed from a landscape perspective. Movement through the landscape allowed new interpretations from different social theories such as phenomenology (Ingold 1993; Tilley 1994; Thomas 1996). This approach is closely related and influenced by Bourdieu (1977) and de Certeau (1984) who argued that repeated movement through

a given space has transformative effects on an individual's identities. The sensory engagements made while moving, whether those of sight, sound, smell, touch, or taste, have the cumulative effect of structuring one's experiences in meaningful spaces. From a phenomenological perspective, the physicality of surrounding spaces, and by extension movement through them, does as much to habituate cultural practices and memory creation as do the more abstract aspect of cultural influence, such as tradition, values, or laws. For instance, movement is transformative because it exposes the individual to new experiences (Beaudry and Parno 2013).

Movement through the landscape involved different aspects of human life. Stanley Tambiah (2000) identifies two possible types of population movements: (1) a voluntary migration of people carrying with them a variety of occupational skills and cultural practices, in search of better economic opportunities and life chances, and with a view to permanent or temporary settlement; and (2) an involuntary displacement caused by political turmoil and civil war or by natural disasters. Both voluntary and involuntary migrants may be labeled as forming diaspora communities. In recent years, the cultural process of migration and diaspora has been discussed (Anthony 1990; Burmeister 2000; Baumann 2000), therefore it will be useful to examine the main differences between these two dissimilar cultural processes, and a brief review of the genealogies of semantics of both processes is fundamental.

The identification and the several possible reasons that motivated a migration process are difficult issues to deal with in the archaeological research in general. However, some models and theories of migration have been proposed. One of the most applied in migration is the *push-pull theory* which view migration processes as result of push factors in the emigration area or pull factors in the immigration area, in this model migration is conceptualized as an individual reaction to spatial imbalance or inequality. However, this inequality related to a scarcity situation does not

necessarily lead to emigration. Unlike push-pull theory, *decision theory* proposes that individuals have the capabilities of evaluating the location, increasing the decision of a possible emigration. This model integrates subjectivity into the explanation of behavior (Burmeister 2000).

David Anthony (1990) highlights the differences between short-distance migration and long-distance migration. Within the short-distance migration is located the *wave-of-advance* model describe by Ammerman and Cavalli-Sforza (1984) which posits that locally high birth rates among pioneer agriculturalist at the wave front (the frontier) would result in movement toward less-settled locations. On the other hand, long-distance migration is dependent on the long-distance transmission of information concerning potential destinations; this transmission should be reflected in changes.

The etymology of the *diaspora* concept comes from the Greek composite verb "dia" and "speiren", adopting meanings of "to scatter", "to spread" or "to disperse". Robin Cohen suggested "the expression was used to describe the colonization of Asia Minor and the Mediterranean in the Archaic period (800-600 BC)" (Cohen 1997). Based on this, the earliest application of the term is not related to a Jewish origin, which tends to be the general interpretation. However, Jews and Judaic scholars used the term diaspora to refer to Jews who lived outside the "promised land." Until the 1960's the term was distinctly confined to the histories of Jewish and Christian traditions. The term *diaspora* began to develop in the 1950s, when the use of diaspora emerges directly out of the growing scholarly interest in the Pan-African movement in particular, and in black internationalism in general (Edwards, 2001). George Shepperson, in analogy to the expulsion of Jews in early times, suggested the concept of "African diaspora" (Shepperson 1966) for the dispersion of sub-Saharan Africans through the colonial slave trade. Since the 1990's some post-modernist and culture critical authors such as Homi Bhabha and James Clifford adopted the

diaspora term expressing notions of hybridity, heterogeneity, identity fragmentation and reconstruction and so forth (Baumann 2000).

Judith Shuval (2000) states that diaspora migrations differ from other types of migration in that in many cases it is based on claims to a *natural right* to return to an historic homeland. In this type of migration an ascriptive, ethnic or religious criterion is used to claim the right of return and entitlement to specific benefits. Samir Dayal (2000) states that the concept of diaspora is most useful as a discursive category that sheds some light on the complex issues of cross-cultural or multicultural complicity. William Safran (1991) argues that communities dispersed from an original *center* to *peripheral* places maintain a memory or myth about their original homeland, but they believe they are not, and perhaps cannot be, fully accepted by their host country. Therefore, they see the ancestral homeland as a place of eventual return and a place to maintain or restore. Safran labels this memory or myth as *ideal-type* representation of diaspora.

Robin Cohen (1997), following Safran's definition of diaspora, suggests that diasporas are highly variable, however the majority involve the following common features: (a) dispersal from an original homeland, often traumatically, to two or more foreign regions; (b) a collective memory and myth about the homeland, including its location, history and achievements; (c) a strong ethnic group consciousness sustained over a long time and based in a sense of distinctiveness, a common history and the belief in a common fate; and (d) a troubled relationship with host societies, suggesting the lack of acceptance at the least or the possibility that another calamity might befall the group.

Migration and diaspora studies are important and close related with core-periphery relationships associated with all type of society. Specifically, in archaeology the examination of

movement departs from physical remains. Tim Ingold highlights the imperative nature of paths for people to arrive and depart from destination and origin respectively (Ingold 2000).

Nahua-Pipil Population Movements

One of the best known examples of large-scale population movements in New World culture history is the Postclassic-period (AD 900-1524) migrations of Nahua-speaking groups from Mexico to Central America. Historical, linguistic, and archaeological evidence indicate that the early Nahua-Pipil migrations to Central America were a complex series of population movements that occurred from about AD 900 until perhaps AD 1350. At the time of the Conquest (1524), Nahua-Pipils were located in the southeast Pacific coast and southeastern highlands of Guatemala and in western and central El Salvador (Fowler 1989). The reasons why Nahua-Pipil groups moved into this particular landscape in El Salvador and the sociopolitical situation that emerged from these population movements are still unclear. Based on this, several intriguing questions emerge. Are these population movements the result of migration process? Or are the population movements associated with a migratory diaspora process? If so, which type(s) of diaspora conditions occurred? What were the social and political implications of this migratory diaspora?

Bruce Owen (2005) suggests that the archaeological correlates of diasporas should be recognizable in the following way: (a) the dispersal of material culture from an original homeland could be associated when this appears abruptly in permanent settlements as a long-term sequence in the periphery. This material culture operates in communicative realms (e.g. clothing, ceramic decoration) and in realms of habitus (e.g., house and ceremonial center plans, burial practices); (b) the collective myth and memory about homeland should be associated with the appearance of

particular iconography or ritual practices; (c) the strong ethnic group consciousness maintained over long time, should be associated with the permanent identity sustained for a generation or more by shared material culture particularly those associated with a distinctive style of identity-signaling features (e.g. clothing, ceramic decoration); (d) the troubled relationship with host societies should be associated with intrusive settlements in defensible locations (e.g. hilltop sites, walled sites). The collective identities of diasporic communities are fundamentally defined by a continuing relationship with the homeland. Importantly, this collective identity could be constructed on the basis of emulation from homeland to a new territory.

Scholars have debated the cultural affiliation of Nahua-Pipil people, the location of archaeological sites, and the geomorphological characteristics of the landscape chosen by them. The available evidence indicates that during the Early Postclassic (AD 900-1200) Pipil settlements were distributed throughout the central and western El Salvador. Two of the main characteristics of these settlements are their location on hilltops and walled architecture, which reflect defensive considerations (Fowler 1989a). These settlements were erected on pristine soils, meaning that no occupation dating before AD 900 has been recognized at any of these centers. Nevertheless, reasons why Pipil groups appropriated this particular defensive geomorphology are still unclear. What was the sociopolitical situation that emerged as a result of the Nahua-Pipil population movements to El Salvador during the Early Postclassic (AD 900-1200)? Why did they choose defensive locations? Are there non-defensive sites associated with Pipil culture? Who was the social group living in the area before the Pipils? Did the Pipils displace non-Pipil local communities? Did Pipil groups engage in conflict with each other in order to control land and trade? Is this physical appropriation of a particular defensive geomorphology based on emulation from homeland to the new territory? The implications of these questions are important, since they

highlight cultural transformations appropriating the geomorphology and imposing a fresh template on the landscape.

William Fowler (1981; 1989a; 1989b; 1989c; 1995) has offered a useful discussion about the Nahua-pipil population movement based on his research on the southern Mesoamerica. He concluded that these migrations were a complex series of displacements of Nahua peoples to southern Mesoamerica. These migrations started during the Late Classic period in central Mexico. Subsequently, tNahuas moved to the Gulf Coast region, then to the Chiapas region, and ultimately reached Central America during the Early and Late Postclassic periods. Fowler (1989a) attributes either direct or indirect political and economic expansion as the cause of early Nahua relocation to southern Mesoamerica.

Additionally, Fowler (2001, 2019) in recent publications presented two contrasting interpretations of the nature of the Pipil migrations which consider a combination of economic, social, political, and ideological factors. The first interpretation is called the "colonization model," would see the Pipil centers of Epiclassic and Early Postclassic El Salvador as intentional, state-sponsored Toltec trading colonies. Conversely, the second interpretation is called the "independent expansion" model, would view the evidence as indications of gradual, independent, expansionist movements of Nahuat-speaking populations which had, in effect, separated from the Toltec state.

For Fowler (1989a), the earliest presence of Nahua populations in Central America is dated to the Early Postclassic period (ca. A.D. 900-1200). At this time the Nahua-Pipil settlements in El Salvador were dense and the archaeological remains (e.g., l-shape ballcourts, Chacmool sculptures, and Xipe Totec ceramic statues) show affinities with the Gulf Coast and Central Mexican regions. On the basis of this observations and glottochronological reconstructions of

Nahuat language dialectic divergences, Fowler (1989a) concluded that the Nahua-Pipil moved from the Gulf Coast to Chiapas, Mexico, and then southward to the Pacific coast corridor of Guatemala and into western El Salvador between A.D. 900-1100. These dates are based mainly on archaeological evidence from El Salvador.

In the central Pacific coast of Guatemala, Oswaldo Chinchilla Mazariegos found that there is no similar or comparable evidence that shows the Nahua-Pipil arrival at this time (Chinchilla Mazariegos 1996) because Nahua-Pipil evidence from the Early Postclassic period has not been found (Bove 2002; Bove, et al. 2004). Fowler (1989a) ultimately concluded that a second intrusion by Nahua-Pipil populations into Central America occurred in the Late Posclassic period (A.D. 1200-1524) and resulted in the establishment of the Nahua-Pipil settlements along the Pacific Coast of Guatemala. The absence of Nahua-Pipil evidence during the Early Postclassic period in the central Pacific coast of Guatemala is particularly relevant.

Probably this absence of archaeological evidence in the area is associated with two reasons: (1) a lack of extensive archaeological research or (2) a lack of the landscape and geomorphology required by the Nahua-Pipil associated with the "ideal-type" representation of places in order to maintain a memory of their original homeland as a representation of diaspora process.

Although it is difficult to model a track or route of Nahua-Pipil migrations because of a lack of DNA analysis, the presence of material culture of Tollan phase could allow us to think about some possible paths of Nahua-Pipil movements. Tollan phase is generally absent in the Toluca Valley to the west and they are not common in Morelos to the south or in southern Puebla to the east. Diehl (1993) suggests various traits or objects constituting a horizon style emanating from Tula, but there is no definitive evidence that any of the traits involved specifically originated

in Tula. In fact, several are proposed to have been part of a Pan-Mesoamerican cult associated with the veneration of Quetzalcoatl (Ringle et al. 1998). There is, however, evidence that Tula's hegemony extended to the north and west well beyond its hinterland. Near the modern city of Queretaro, some 130 km to the northwest, are three sites previously reported to contain Tula-like ceramics and architectural features (Flores and Crespo 1988). Excavations at the largest of these, El Cerrito, recovered Terminal Corral/Tollan phase ceramics and Tula Grande-style sculpture, including a chacmool, the foot of an Atlantean-style ''colossal'' sculpture, and various diagnostic decorative architectural elements (Brambila 2001; Crespo 1991). Still farther north are several other sites, including Carabino in northern Guanajuato (Braniff 1972; Flores and Crespo 1988) and Villa de Reyes in southern San Luis Potosí (Braniff 1992; Crespo 1976), whose ceramic assemblages likewise contain substantial proportions of Terminal Corral and Tollan phase types. Like El Cerrito site, these are hilltop sites with monumental architecture and nucleated settlements, and the substantial representation of Terminal Corral and Tollan phase ceramics indicates regular, direct contact possibly involving enclaves from Tula (Healan, 2012; Brambila, 2001).

The existence of an archipelago of settlements with a strong Tula affiliation across the eastern Bajío and into the arid interior of north-central Mexico as far as San Luis Potosí recalls earlier arguments (Armillas 1969) of a ''northern oriented Toltec state'' based on initial accounts of sedentary sites in this area (Braniff 1961). However, recent lake core sediments (Metcalf and Davies 2007) indicate that this was one of the driest periods of the Holocene in central Mexico, although one core from a lake c. 120 km northeast of Tula showed a climate much like today. Even today's climate, however, would pose serious challenges to prehispanic settled life in the northern interior, perhaps somewhat mitigated by a subsistence strategy using a combination of seed and maguey cultivation and perhaps other xerophytic crops. There also is evidence suggesting some

type of direct interaction between Tula and areas of eastern and southern Mesoamerica, including the numerous architectural and sculptural elements shared with Chichen Itza (Healan, 2012). In addition, Fowler (2011) states that Cihuatan, an Early Postclassic Nahua-Pipil settlement in El Salvador shows evidence of close affinities with Tula. This includes the Guazapa complex that includes the principal forms, decorative modes, and technological characteristics of Tula's Tollan complex that Fowler argues indicates direct ties, perhaps of a commercial nature, that may have included colonization from Tula.

The Early Postclassic (ca. AD 850/900-1200) in El Salvador is called the Guazapa complex (Fowler 1989a). Guazapa complex sites, such as Cihuatan, Santa Maria, Las Marias and Cerro de Ulata are characterized by architecture in the Mesoamerican Postclassic international style, featuring I-shaped ball courts and stepped temple platforms with talud/tablero design. Most ceremonial centers are on platforms with walls and/or palisades surrounding the main buildings. The strong Mexican influence of the Guazapa complex indicates that El Salvador was a full participant in events to the north and west. Especially marked is a Gulf Coast influence. One can see this most clearly in the ceramics, which include depictions of Mexican deities, wheeled figurines of Gulf Coast type, ceramic flutes, Mazapan-style figurines, Tohil Plumbate ceramics, and painted pottery from Mexico and Guatemala as well as from lower Central America, all of which show that El Salvador was actively participating in the greater Mesoamerican economic and cultural sphere.

From research conducted in the Central Mexican highland Tula region--the possible origin place of the Nahua-Pipil people of Central America--Mastache and Cobean (1989) observed two settlements types associated with the Coyotlatelco complex: (1) hilltop communities; and (2) those located on a slope at lower elevations. Generally, hilltop sites are almost always surrounded by

cliffs or very steep slopes, this setting offers a good defensive and offensive position in a military sense. These defensive settlements could be related with the sociopolitical situation in the Tula region. Tula culture was centered on two ceremonial precincts: Tula Chico to the north and Tula Grande to the south. Early stages of Tula Chico were built and occupied during the Prado Phase (ca. AD 650-750) and it seems to have been the principal center through the Corral Phase (ca. AD 750-850). There is evidence that Tula Chico was abandoned between about AD 800 and 850, after which architectural construction intensified at the Tula Grande center to the south (Mastache et al. 2002). This sociopolitical situation between Tula Chico and Tula Grande could be associated with one of the reasons that motivated a diasporic migration from Central Highlands Mexico to Central America. Additionally, the defensive settlements characteristics are particularly important because could be related with a symbolic emulation practiced by the Nahua-Pipil in El Salvador during the Guazapa complex.

In order to determine if the Guazapa complex settlements are associated with a diasporic migration it is fundamental to explore the following aspects: (1) Dispersal of material culture in communicative and habitus realms. This could be analyzed in the ceramic and architecture features. The introduction of Nahua-Pipil ceramics in El Salvador such as wheeled figurines of Gulf Coast type, ceramic flutes, Mazapan style figurines, Tohil Plumbate ceramics, and painted pottery from Central Highlands of Mexico should be associated with an abruptly introduction of material culture. Nahua-Pipil architecture, such as I-shaped ball courts, stepped temple platforms with talud/tablero design, and walls and/or palisades surrounding the main buildings, and burial practices could be related with a long-term settlements of residents in exile in order to maintain a particular identity. Archaeological sites from the Central Highlands of Mexico such as La Mesa, are located on a hilltop and present architectural elements such as terrace walls, platforms, stairway

remnants, and numerous rectangular and circular foundations (Mastache and Cobean 1989); (2) Collective memory and myth about the homeland. Some material remains such as depictions of Mexican deities in ceramic, wheeled figurines of Gulf Coast type, ceramic flutes, Mazapan style figurines, Tohil Plumbate ceramics, and painted pottery from Central Highlands of Mexico could be related with a strong collective memory; (3) Strong ethnic group consciousness maintained over long time. The permanent occupation of the settlements could be associated with a strong ethnic group consciousness sustained over a long time and based on a sense of distinctiveness in order to maintain their homeland community identity sustained for a generation or more by shared material culture. The analysis of the stratigraphy can allow determining a permanent occupation of the sites; (4) Troubled relationships with host societies. The appropriation of defensive locations in order to build their settlements. This geomorphological appropriation of the landscape could be related to a troubled relationship with host societies and also could be related with a symbolic emulation from their homeland due to the fact that there are archaeological sites, such as La Mesa, Magoni, Atitalaquia, Batha, Tanthé, El Xithi, and El Aguila (Fournier and Bolaños 2007), from the same period of time in the Central Highlands of Mexico that shows the same settlement pattern. All the aspects explained above could be related with Safran's (1991) "ideal-type" representation of places in order to maintain a memory of their original homeland with the possibility of an eventual return.

The Archaeology of Landscape

Landscape as a concept has grown to carry a broad array of significance, with greater ranges in variation. The most common understanding is related with a dichotomy process among natural and cultural emphasize. Contrasting with views of the landscape as natural, there is an

understanding of landscape as a cultural construct, and one, which theoretically bridges the relationship between human and nature together with the relationship between agent and structure, while contributing to social science and the humanities. Landscape is understood as the product of social factors and human agency, as well is considered to be an anthropogenic product, and as such, a complex structure, fed by continuous changes, contradictions, idealizations, reflections, symbolisms, historical contingencies and materiality.

Robert Preucel and Ian Hodder (1996) have pointed out that ontological differences exist between those who consider landscape as an entity independent from humans, or, contrastively, as constructed by human agency. One can argue together with Bernard Knapp and Wendy Ashmore (1999) that as long as archaeologists have been concerned with societies and the space they occupy; they have been concerned with landscape. However, it seems that the degree to which landscape becomes a useful analytical tool in social thought depends on how scholars frame the relationship between humans and nature. Knapp and Ashmore (1999) emphasize the differences in the use of landscape concept in archeology as a transition from landscape conceptualization as something passive to an active perception that goes beyond a complex entity related to the daily life of human beings.

Accordingly, the Marxist school is concerned with the degree to which nature becomes humanized, that relationship is expressed by an anthropogenic modification of the environment, which reflects back on the structural relationships between different segments of society. In a rather different kind of consideration, scholars focused on a culture-centric approach derived from an anthropological tradition, would argue that Marx's concept of the "humanized nature" is missing an appreciation of the "constituting role of the symbolic system" (Lansing 1991). In fact, anthropology has argued for a long time that the symbolic aspects of human relationships to both

the environment and other humans have a greater impact in the world than that allowed by the materialist perspective alone, which considers symbolism as an epiphenomenal process. In order to move forward in the discussion of the placement of landscape as a concept in social thought, recognition of a greater degree of complexity towards the relationship between human and nature needs to be introduced. This complexity is given by the recognition that a theory of symbolism and a theory of social relations of production need not be mutually exclusive or intrinsically hierarchical.

In the recent past, productive lines of research are developed through asking questions about the particular characteristics of different human-made environments and the symbolic influence of these characteristics on specific social formations. Accordingly, current notions of landscape favor socio-symbolic dimensions (Knapp and Ashmore 1999), as exemplified by the current exploration of ancient landscapes and historical memory, conducted by Payson Sheets (2008). Historical memory as a rather subjective aspect of human lives has nevertheless a direct impact on the nature of social and spatial arrangements; these arrangements may leave permanent marks in the landscape and may be subject to archaeological examination.

One of the most useful concepts for analyzing human peopling of the landscape over time is the concept of palimpsest. Originally used to denote a writing surface that is constantly erased and written over; in landscape studies the term palimpsest is used to describe multiple overlaying patterns inscribed on the surface of the earth through time. Accordingly, the archaeological landscape is also described as a palimpsest of cultural residues resulting from natural and cultural processes operating at different spatial and temporal scales (Anschuetz et al. 2001).

Carl Sauer, an American geographer who first formulated the concept of cultural landscape (Knapp and Ashmore 1999) provides a good understanding of cultural palimpsests. He claims that the introduction of an "alien" culture in any given setting results in the rejuvenation of the cultural landscape. Thus, the introduction of foreign ideas results in a new landscape superimposed on an older one. David Browning, a British geographer concerned with the differences in cultural appropriations of the land in El Salvador from the colonial period to the late 20th century, recognizes that "a great deal of the value of reconstructing landscapes of the past is obtained through considering the survival of their influence in the shapes of the current landscape" (Browning 1975).

The theoretical approach of landscape archeology is based on the idea that human beings build and transform their environment in a fundamental way. These manifestations of adoption and transformation of the landscape are often the product of migratory processes and symbolic appropriations of desired places and spaces. In this sense, the anthropology of movement constitutes a valuable theoretical tool, since it explores movement from an anthropogenic perspective of the landscape. The movement across the landscape includes a vast spectrum of human experiences related to different perceptions of the world and different daily action and reaction strategies.

Kurt Anschuetz et al. (2001) identify four premises with the purpose of delimiting and outlining the concept of landscape in archeology which are interrelated and provide the main foundations of the landscape paradigm:

(a) Landscapes are not synonyms of natural environments. What does this mean? Landscapes are synthetic, structured cultural systems that organize the interactions of human beings with their

environment. Knapp and Ashmore (1999) add that the landscape acts as mediation between nature and culture, and at the same time they are an integral part of the *habitus*, conceptualized by Bourdieu (1977);

(b) Landscapes are cultural products. Cosgrove (1988) emphasizes that the landscape is not necessarily the world that we see and perceive, but a construction, a composition of that world. Therefore, landscape is not the same as environmental buildings, which refer to physical constructions, which have been designed;

(c) Landscapes are arenas for different social and community activities. Therefore, landscapes are not only constructions made by human beings but are also all environmental conditions in which populations survive and support themselves; and

(d) Landscapes are dynamic constructions, in which each community and each generation imposes their own cognitive map in their anthropogenic world of morphology, plans, and coherent significance, all interconnected. The landscape is understood as a system for the manipulation of symbolic meanings in human actions and their materiality. Therefore, any landscape is a cultural process.

A landscape perspective attempts to form linkages among material, social, behavioral, ideological, and natural elements in a region of study (Sampeck 2007). In such a consideration, the landscape approach is understood as having a broad scope. Archaeologists using a landscape approach would often rely less on units of analysis such as the "site." The site as an architectural unit lacks sophistication to add content to dynamics of human appropriations of the land, or human relationships with non-architectural settings, like agricultural fields, gardens and even the woods or the desert. As discussed by Robert Dunnel (1992), in a site-less conception of the archaeological

record, the archaeologist may still base his observations on artifact distribution, but the interest on breaking apart clusters is less important. Artifact distribution can easily be merged with feature distribution, looking at the whole planet as a continuum of spatial aggregates.

Payson Sheets (2011) defines the range of landscape conceptualizations as encompassing scientific (physical and social science) through humanistic approaches. His research in the Arenal area, in Costa Rica, exhibited extraordinary persistence in landscape use and social memory, in spite of repeated catastrophes caused by explosive volcanic eruptions. Scientific landscape studies can focus on geomorphologic analyses of the terrain in order to determine the structure and context of a given regional record. The work by Russell Stafford (1995) is a good example of the scientific attempt to understand the landscape evolution of a region and the depositional status of human dynamics represented by artifact distribution, within a given sedimentary matrix. Stafford developed techniques of sub-surface distributional analysis in order to track artifact density and compositional differences across surfaces of different ages. While Stafford's proposal illuminates the archaeological record from a processualist perspective, incorporating the use of space by communities, together with their comprehension and engagement with the world proves to be a complex endeavor.

Archaeological approaches to the relationships between human societies and their environment in the past have taken an ecological and environmental perspective; some of this work has seen human behavior as determined by environmental constrains; accordingly, culture has been framed in a rather functionalist way as a means of adaptation to the environment. These perspectives tend to minimize human agency in its role of shaping up the environment. Historical ecology, in turn, introduces human agency to understanding human activities as they leave physical, patterned and permanent signatures to the landscape.

Carole Crumley and William Marquardt (1990) highlight the relationship between physical and socio-historical structures. Crumley's view of historical ecology (1994) describes humans as having adapted to and being the periodic instigators of ecosystemic change for at least a million years. In her view, an interdisciplinary approach is needed, including ethnography, ethnohistory, and archaeology together with history, geography and environmental sciences in order to offer a holistic view of past human choice and environmental change.

The landscape perspective constitutes a paradigm of great applicability in archaeological interpretation, which allows exploration of various interpretations related to the practices and behaviors of ancient societies. Currently, only a few archaeological investigations have achieved and developed a theoretical approach from a landscape perspective in relation to how the Nahua-Pipils perceived and interacted with spaces, places and landscapes during Postclassic period in El Salvador (Sampeck 2007). However, archaeological remains and historical records show that the current landscape of western El Salvador, by the end of the 16th century, was a product of social, economic, and symbolic networks of the prehispanic Nahua-Pipils. The landscape perspective attempts to open up new currents of interpretation that allow the interrelation of material, social and ideological areas in relation to the appropriation of spaces and landscapes.

Phenomenological approaches to landscape have also contributed to the interpretative focus of social use and space building by communities. Christopher Tilley (1994) introduces landscape as a social construct that is never completed, and constantly being added (see also Snead and Preucel 1999). This process is mediated by human experiences and narratives involving the body, both in an individual sense and as a social group. In this view, the relationship between people and the landscape is a constant dialectic, a process of structuration. Most importantly, kinetic and synesthetic human experiences play a determinant role in shaping up the landscape as

a human landscape. This approaches, including Barbara Bender's (1998) emphasis on perceiving, experiencing, and remembering the world in its political dimension have opened room for a discussion on ideological, aesthetic, religious and symbolic interpretations about human appropriations of the landscape.

Currently, scholars, with the recognition that landscape is a conceptual and behavioral process, understand that the analysis should encompass not only what is on the land, but also human perceptions about the land. As Knapp and Ashmore (1999) suggest, landscapes are created by human activity, which is influenced not only by the distribution of resources on the land, but also by cultural perceptions of human relationships to those resources. If in fact, landscape can be explored through cultural constructs, it is valuable to introduce the concept of symbolic landscapes in recognition of the importance of the ideological framework in human behavior, and the anthropogenic landscapes of movement.

Ritual landscapes are made up through the physical, imaginary and symbolic appropriation of a specific space for a specified time in the which various dynamics of social practices were developed (Montero 2008). The appropriation of a given landscape allows cultural groups to develop particular perspectives legitimizing their territory, their historical memory, their prestige and their power. Every raised surface offers multiple scenarios which were interpreted in prehispanic times as places to evoke deities (Arreola 2011). Likewise, there are cognitive constructions in migrant groups in search of specific landscapes to settle. Within of these cognitive constructions stand out three causalities, which are interrelated: gestation, passage and arrival to environments containing remembrances or evocations of the place of origin (García 2006).

An archaeological examination of movement departs from physical remains. Tim Ingold states the importance of paths for people to arrive and depart from destination and origin respectively (Ingold 1993). Indeed, James Snead (2002) agrees with Tilley (1994) that social relations need some kind of physical route in order to be exercised. Accordingly, Snead et al. (2009) contend that a current development of the scholarship on landscapes of movement is a focus on scales, contexts and patterns, rather than a focus on defining what a trail, a path or a road mean in terms of social evolution.

Clark Erickson and John Walker (2009) propose that social relationships can be examined by looking at causeways, canals, trails, paths, and roads as physical landscape features. Moreover, examination of where trails, paths, and roads do not go (Erickson 2009) can also provide understandings of boundaries and demarcated territories. Additionally, Erickson argues that although movement through already established roads is often unconscious, circulation involves decision-making, which involves the consideration of physical contingencies of movement and other natural obstacles; it also involves negotiation processes. This is an important recognition, since it gives insights to unravel aspects not often explored. Portions of the landscape that certain groups stay away from due to particular relations, land tenure and other social contingencies are concepts that can be discussed from a perspective of contested landscapes.

Societies are arenas for power negotiation. Groups and individuals engage in constant disputes about the nature of their often juxtaposed value systems. Contested landscapes are used to refer to the development of processes of disputing or arguing about landscape in its physical and symbolic dimensions, by two different groups. The strategies played out in scenarios of cultural resistance or the historical contingencies influenced by the "resistance of culture" (Sahlins 2005, Wernke 2007) can be evaluated under a scope of contested landscapes. Crumley (1994) sees

landscapes as the resolutions of several contradictions generated through the interaction of human groups, and between humans and their physical environment. In fact, following a neo-Marxist approach, Crumley sees contradictions as the raw material of change, and landscapes as the result of these contentious relationships. The concept of contested landscapes can be applied to describe the course of action during which different worldviews collide in a friction process (e.g., during a migration or diaspora process, colonialism, and culture contact among others)

Indeed, as noted by Deetz (1990), cultural landscapes are the results of modifications to the space when a particular group makes the land useful to itself, even if that land has different uses and meanings for different groups. In this process, landscape modification can entail functions that are strictly technomics in addition to other social and ideological dimensions. Indeed, even if technomics act as passive statements of cultural identity, Deetz argues that they are "out there" to be seen and understood by others. Furthermore, they create dynamics in colonial settings that are embedded with meaning. With the appropriate framework, these meanings can be studied through archaeological examination. Adding to the task, Barbara Bender (1998) argues that one can only understand the contestations and appropriations of a landscape by means of careful historical contextualization. Only with such fine-grained data, the disjuncture caused by migration or colonization of a previously occupied and symbolized landscape can be observed.

Based on this, the exploration of prehispanic landscapes from the Early Postclassic (AD 900-1200) period represents an interesting case study to examine symbolic landscape and anthropogenic landscape of contention, particularly in El Salvador. This anthropogenic landscape of contention in El Salvador is the product of a series of historical contingencies emerging out of the Early Postclassic period (AD 900-1200) due to the Nahua-speaking groups migrations from Mexico to Central America. William Fowler (1989) has shown that during the Early Postclassic

Pipil settlements were distributed in the central and western portion of El Salvador. One of the main characteristics of these settlements is that the location and the architecture reflect defensive considerations, however there is a symbolic connotation in the landscape of Balsam Coast Range as well.

The Nahua Symbolic Landscape

The Postclassic period stood out from earlier periods in a number of ways, especially in social, political, economic, and ideological patterns. Compared with earlier time periods, Postclassic Mesoamerican societies were characterized by larger regional populations, smaller polities, a higher volume of long-distance exchange, a greater diversity of trade goods, a more highly commercialized economy, new standardized forms of pictorical writing and iconography, and new patterns of macroregional stylistic interaction.

The Early Postclassic (ca. AD 900-1200) in El Salvador is referred to as the Guazapa complex (Fowler 1989) after the Volcán de Guazapa, around which there are many sites of this time period. Guazapa complex sites are characterized by architecture in the Mesoamerican Postclassic International style, featuring I-shaped ball courts and stepped temple platforms with talud/tablero design. Most ceremonial centers are on platforms with walls and/or palisades surrounding the main buildings.

Conversely, the Late Postclassic marks a rupture with most of the cultural materials of the previous phase, characterized for most of the central and western territories in archaeological terms as the Guazapa complex (AD 900- 1200). Interpretations suggesting that Early Postclassic

settlements of the Guazapa complex pertained to Nahua-speaking populations have been generally accepted, based on the spatial overlap with Nahua-speaking populations recorded at the arrival of the Spaniards during the 16th century.

Nahuat, sometimes referred to as Pipil in early Spanish accounts, is a language derived from the Uto-Nahua family, the widest distributed linguistic family in the American continent (Campbell 1985), and one very different from the neighboring Maya linguistic family disseminated in Guatemala, Yucatan and adjacent lands. Fowler (1989) has proposed that the Early Postclassic complex is indeed an early stage of Nahua speaking populations, even if he recognizes that the end of this occupation was rather abrupt, as opposed to gradual, and has little resemblance with the latter phase (Late Postclassic). As for the foundation of these settlements, it can be stated that they were erected on pristine soils, meaning that no occupation before AD 900 has been recognized at any of the ceremonial centers of the Guazapa complex. The implications of these data are important, since they highlight cultural formations appropriating the landscape and imposing a rather fresh template on it. Fowler's arguments are based on material culture, which shows resemblance to central Mexican archaeological materials.

By the time of the Late Postclassic, the settlements of the Guazapa complex were rapidly abandoned, and replaced with new population centers. Two social formations or polities have been recognized during this period, the Cuscatan province (Amaroli 1992) and the Izalco province (Fowler 1989, Sampeck 2007). These settlements are archaeologically less known. However, there is strong linguistic and ethnohistoric evidence that both spoke Nahuat.

The Pipil settlements in El Salvador, based on material evidence, demonstrate differences between the Early Postclassic period and the Late Postclassic. For example, settlement pattern,

architecture, sculpture, pottery, and so on. In relation of settlement pattern, during the Early Postclassic reveal a clearly militaristic strategy in location. Defense was an important issue during that time. In contrast, Late Postclassic period does not have these architectural characteristics.

By analyzing patterns of indigenous appropriation of the landscape in Postclassic El Salvador, and their patterns of movement through landscapes of contention, it is necessary to analyze concepts of Nahua social and political organization. Models of the *altepetl* and *calpolli* have been assumed in previous research on prehispanic Salvadoran Nahua populations. The *altepetl* is described as the ethnic state in Nahua society; as a territorial unit encompassing a defined and symbolized landscape, which subdivides into smaller *calpolli* units. The term altepetl is composed of the Nahuatl particles *yn atl* (water) and *yn tepetl* (hill), which reveals the ideological characteristics of the desired landscape (Fernández and García 2006).

As argued by phenomenological approaches to landscape studies, movement and vision are the primary means by which humans experience and give meaning to landscape. Therefore, a further study of locatives and toponyms related to anthropocentric and gravitational uses of language is necessary to be addressed.

Toponyms are of great value for the examination of socially constituted landscapes. Although it is by no means a generalized case, it is often found that by naming and re-naming the landscape, social groups affirm their relationship with the land, they impose humanness to the space and the resources found within it. In an analogous way to how palimpsests operate within the material record, toponyms can easily be replaced, overlaid or joined to previous place names. Colonial settings offer a great example to evaluate how different groups negotiate their access to the landscape by naming it. El Salvador offers a rich collection of Nahuat names still attached to

the landscape (rivers, mountains, lakes, cliffs, and valleys). In addition to the Nahuat toponyms, Spanish names are also frequent, and they often present themselves as composites, as in Santa Lucía Chiltiupán or Santa Isabel Ishuatán. Other examples kept their Nahuat names without Spanish additions, like in Teotepeque, Jicalapa, and Tamanique, among others.

In this respect, Vivó (1972) was concerned with the cultural and ideological issues related to naming the landscape. In his interpretation, Nahua toponyms in Central America are the product of several human migrations from the Mexican Central Plateau and the Gulf Coast, and perhaps most importantly, of recurrent patterns of symbolic naming of the landscape. Vivó provided a set of examples that highlight the importance of symbolism in naming the physical and ideational landscape.

Vivó presents several Nahua toponyms associated to the root *siwa* (woman). The importance of the root in naming the landscape is common in several Nahua settings across Mesoamerica. Most prominently the iced peak volcano in central Mexico: *iztaccihuatl* (white woman), and the archaeological site in El Salvador called *Cihuatan* (place near or under the woman) located on a plateau facing the Guazapa volcano, a tectonic formation of woman shape in the eyes of indigenous people. The importance of the root *Cihua* (woman) in place naming should be further studied for the Salvadoran case. The goddess of the earth in central Mexico for the Aztecs is known to be *Tlaltecutli.* Several monumental representations of this female earthly goddess have been unearthed in the archaeological works of El Templo Mayor, the Aztec capital in central Mexico. In spite of the rich information about the Aztec Tlaltecuhtli, El Salvador lacks any parallel monumental representation thus far. What can be inferred is that Nahua ideology was of primary importance in naming the landscape, as seen in the recurrent toponyms containing the root *Cihua.*

The linguistic evidence supports the notion that Nahua ideology is present in landscape naming across Mesoamerica. Whether these names are applied to the same kind of geographical arrangements or not, needs further research, however, Vivo´s proposal seems to suggest precisely that. Archaeological evidence for Nahua migrations can be seen in the material culture of the Guazapa complex (Fowler 1989), as discussed above. However, Nahua movements into Central American territories could date to earlier periods, as suggested by linguistic evidence (Campbell 1985, Dakin and Lutz 1996).

Landscape as a theoretical approach departs from the idea that humans structure their environment in fundamental ways, and are, ultimately instrumental in the outcome of their own fate. Moving through the landscape, include a vast spectrum of human experiences related to worldviews, and daily strategies of action and reaction, the study of which archaeology is only recently being able to contribute to. Through the incorporation of a theory of social relationships that opens space for subjectivities in the appropriation of the landscape, and through framing human actions as conscious decisions of the individual who in turn is restricted by structural conditions, archaeology may be able to examine the material record with a fresh view.

The symbolic landscape of Nahua is related with aspects of movement. The linguistic information often provides insights about ideological aspects of human behavior, as human name the landscape and these toponyms are long-lasting evidence of ideological appropriations of the built environment.

The *altepetl* is described as the ethnic state in Nahua society. It is interpreted as a territorial unit which encompasses a defined and symbolized landscape. This native state name could be conveying the ideological characteristics of the desired landscape. According to Lockhart (1994),

the *calpolli* or ‘big house” consists of a defined territory within the altepetl that ensures defined groups controlling defined croplands. These groups are generally kin-related and practice endogamous marriage; they are also referred to as groups that migrate together. The altepetl thus functions as both a symbolic and a political model of society, structuring the landscape accordingly (Hirth 2008).

Probably Pipil settlements were established in the western part of El Salvador, during the Postclassic period as a cultural process of symbolic appropriation of the landscape based on Nahua *altepetl* and *calpolli* organization (Lockhart 1994, Sampeck 2007). Although the geomorphology creates problems of access, which were exploited defensively, it also offers abundant water resources in the form of permanent springs. These geomorphological characteristics formed part of the processes that were marked by material and symbolic appropriations of the cultural landscape by Nahua societies. It also suggests that patterns of movement and circulation within the Salvadoran prehispanic Nahua world were produced and enhanced by cultural perception (Knapp and Ashmore 1999). This proposition may be tested through intensive studies of survey results. The fundamental inquiry of this research is informed by the impact of the symbolic aspects of human behavior in the archaeological record, particularly those related to movement patterns, including circulation and travel, and also settlement distribution.

Summarizing, the archaeological sites of Balsam Coast allow us to corroborate a cultural pattern of appropriation of the landscape during the early Postclassic, within Nahua-Pipil groups were adopting and building their settlements on the narrow plains of the ridges (*lengüetas)* of Balsam Coast. Regarding the sociocultural reasons that led to adoption, appropriation and transformation of this particular landscape, there are two possible interpretations why the Nahua-Pipils decided to settle on the crest of the narrow plains of the Balsam Coast: one associated with

defensive motifs and another associated with symbolic and ritual motivations. Probably, the Nahua-Pipils, in their migratory process, found in the geomorphology of the Balsam Coast the ritual landscape desired to evoke their deities and legitimize their own historical memory through of cognitive constructions associated with their homeland. This idea will be discussed in more detail in the following chapters.

CHAPTER IV

ARCHAEOLOGICAL SURVEY AND EXCAVATIONS

This chapter will discuss the research methods employed in the study area; describing the surface survey design and strategies and the test excavations. The purpose of this chapter is to describe, analyze, and discuss the methodological approach to diasporic migration and symbolic landscape perspectives in the Balsam Coast Range. Furthermore, the dissertation research questions and archaeological correlates are described.

As presented in the Introduction, the general question of this research was: What are the possible reasons why the Nahua-Pipils decided to settle in the Balsam Coast Range during the early Postclassic period? More specifically, this research question is related with two specific objectives: (1) to determine to what extent the settlement pattern of archaeological sites in Balsam Coast Range, are the reflection of emulation associated with a diasporic migration; and (2) to determine to what extent the locations of archaeological sites in Balsam Coast Range are part of a cultural process of symbolic appropriation of the landscape.

Before the discussion of methodological issues, it is pertinent to discuss briefly the concepts of *diasporic migration* and *symbolic landscape*, both presented in the previous chapter, in order to build a connection between the research question and the research methods. Stanley Tambiah (2000) points out two possible kinds of population movements: (1) a voluntary migration of people carrying with them a variety of occupational skills and cultural practices, in search of better economic opportunities and life chances, and with a view to permanent or temporary

settlement, and (2) an involuntary displacement caused by political turmoil and civil war or by natural disasters. Both voluntary and involuntary migrants may be labeled as forming diaspora communities.

Samir Dayal (1996) states that the concept of diaspora is most useful as a discursive category that sheds some light on the complex issues of cross-cultural or multi-cultural complicity. Particularly important for the research is William Safran's (1991) "ideal-type" representation of diaspora, Safran argues that communities dispersed from an original "center" to "peripheral" places maintain a memory or myth about their original homeland, however, they believe they are not, and perhaps cannot, be fully accepted by their host country; and they see the ancestral home as a place of eventual return and a place to maintain or restore.

Additionally, based on Safran's definition of diaspora, Robin Cohen (1997) suggests that diasporas are highly variable, however the majority involve the following common features: (a) dispersal from an original homeland, often traumatically, to two or more foreign regions; (b) a collective memory and myth about the homeland, including its location, history and achievements; (c) a strong ethnic group consciousness sustained over a long time and based in a sense of distinctiveness, a common history and the belief in a common fate; and (d) a troubled relationship with host societies, suggesting the lack of acceptance at the least or the possibility that another calamity might befall the group. All of the above features should be identifiable in the archaeological record.

On the other hand, Christopher Tilley (1994), based on a phenomenological approach, introduces landscape as a social construct that is never completed, and constantly being added. This process is mediated by human experiences and narratives involving the body (Merleau-Ponty

2005) both in an individual sense and as a social group. In this view, the relationship between people and the landscape is a constant dialectic, a process of structuration. These approaches, including Barbara Bender's (1998) emphasis on perceiving, experiencing and remembering the world in its political dimension have opened room for a discussion on ideological, aesthetic, religious and symbolic interpretations about human appropriations of the landscape.

The movement of human body through landscape, in some cases, is related with the practice of rituals which operate in specials spaces and places. Phenomenological experience plays a key role in the process of landscape and space appropriation by a cultural group. Rappaport (1985, 1987) argue that territorial maintenance and group identification is achieved through a system of mythical/historical knowledge, performing key actions and practices such as planting, looking and walking or traversing, that allow an appropriation of a territory.

Additionally, Santos Granero's (1998) term of "topographic writing" is particularly important related to the appropriation of places and features of the landscape through performing some practices like traditions, myths, remembrances, rituals, body practices such as walking, pilgrimage, offerings in ceremonies at sacred places, among others. Granero argues that topographic writing is an "identifying-mnemonic device" which is based on topograms, defined as "…elements of the landscape that have acquired their present configuration as a result of the past transformative activities of human or superhuman beings" (Santos Granero 1998).

Granero states that topograms can be interpreted as features that "evoke a single thing, event or idea" (1998). Likewise, topograms ascribed to supernatural beings are natural elements that are clearly distinguishable in the landscape due to their characteristics. On the other hand, topographs are defined "as landscape signs that stand in opposition to or in conjunction with other

such signs, forming a wider semiotic system" (Santos Granero 1998). Therefore, topograms become topographs when combined in sequential form or in other various ways (Montenegro, 2010).

The phenomenological relation between places and symbolic landscape features can be perceived in the Early Postclassic settlements located in the Balsam Coast Range. The appropriation of specific spatiality by the Nahua-Pipils can be related to Safran's (1991) concept of "ideal-type" representation of diaspora connected with Granero's (1998) concept of "topographic writing" in order to preserve their memory or the feeling of a "homeland".

Research Questions and Archaeological Correlates

In order to attempt answering the research questions presented at the beginning of this chapter the scenarios envisioned about a diasporic migration phenomenon is related with Safran's (1991) argument that communities dispersed from an original *center* to *peripheral* places maintaining a memory or myth about their original homeland. Moreover, these communities believe they are not, and perhaps cannot be, fully accepted by their host country or place, and they see the ancestral home as a place of eventual return and a place to maintain or restore. Safran labels this memory or myth as *ideal-type* representation of diaspora.

In order to determine if the settlements, registered in the Balsam Coast Range research, are associated or not with a diasporic migration, the scenarios proposed are the following:

First, I explore the following common features of diasporas suggested by Robin Cohen (1997), and based on Safran's definition of diaspora:

(1) Dispersal from an original homeland, often traumatically, to two or more foreign regions. is analyzed on the basis of ceramic and architectural features. The dispersal of material culture in communicative and habitus realms could be related to the introduction of the Guazapa complex in the Balsam Coast Range, associated with an abruptly introduction of material culture. Architecture such as stepped temple platforms with talud/tablero design, and walls and/or palisades surrounding the main buildings, and circular structures could be related with long-term settlements of residents in exile in order to maintain a particular identity. Archaeological sites from the Central Highlands of Mexico such as La Mesa, are located on a hilltop and present architectural elements such as terrace walls, platforms, stairway remnants, and numerous rectangular and circular foundations (Mastache and Cobean 1989).

(2) Collective memory and myth about the homeland, including its location, history and achievements. The introduction and veneration of a new pantheon of deities of Mexican deities in the Balsam Coast Range, could be related with a strong collective memory.

(3) Strong ethnic group consciousness maintained over a long period of time and based in a sense of distinctiveness, a common history and the belief in a common fate. The permanent occupation of the settlements could be associated with a strong ethnic group consciousness sustained over a long time and based on a sense of distinctiveness in order to maintain their homeland community identity sustained for a generation or more by shared material culture. Stratigraphic analysis will permit determination of the degree of permanence in the occupation of the sites.

(4) Troubled relationship with host societies suggesting the lack of acceptance at the least or the possibility that another calamity might befall the group; appropriation of defensive locations

and the construction of defensive sites. The geomorphological appropriation of the landscape could be connected with a troubled relationship with host societies and could also be related to a symbolic emulation from their homeland due to the fact that there are archaeological sites, such as La Mesa, Magoni, Atitalaquia, Batha, Tanthé, El Xithi, and El Aguila (Fournier and Bolaños 2007), from the same time period in the Central Highlands of Mexico that show the same settlement pattern.

All the aspects enumerated above could be related to Safran's (1991) "ideal-type" representation of places in order to maintain a memory of their original homeland with the possibility of an eventual return. It should also imply a lack of hybridization process or influence of local pottery, technologically, and stylistically, as well as in the settlement pattern and architecture.

A second scenario considers a close process of interaction between Nahua-Pipils and local groups. This scenario implies a strong process of hybridization and influence in material culture. Technological and stylistics features of the Guazapa Complex defined by William Fowler (1981) should not be present in ceramic and architecture as well, or could be present in a low percentage. If this were the case, the settlements registered in the Balsam Coast Range would not be associated with a diasporic migration process due to the fact that the process of maintaining a memory or myth about their original homeland did not materialize. Conversely, a cultural hybridity process could have occurred.

Finally, a third scenario considers the absence of material culture related with Guazapa Complex. This could be related with a non-diasporic migration phenomenon. It should imply total absence of an abrupt introduction of material culture. Moreover, this scenario implies the absence of defensive sites located on hilltops in the Balsam Coast Range. Conversely, sites registered in

the study area should be readily accessible with no evidence of sites located in strategic defensive areas. If this were the case, the settlement pattern and the architectonic features of the archaeological sites may show clear traditional signatures of local traditions.

Concerning symbolic landscape, as explained in Chapter II, the Balsam Coast consists in the remnants of the Jayaque stratovolcano (Lexa et al., 2011) with a complex geomorphology composed by ridges with narrow plateaus and small plains between the ridge systems. The conditions to build settlements and live in the area are not optimal. The main problems for establishing permanent settlements included the absence of lasting water sources at the narrows plateaus area, the lack of extensive plain areas to build the settlements and to practice agriculture, and the possible floods.

The Balsam Coast constitutes an area with difficult conditions to deal with, which is indicated by the fact that important settlements belonging to the Preclassic and Classic periods in the Balsam Coast have not been documented yet, with the exceptions of some sites located on the coast, such as Sunzal, El Zonte, and Punián, among others. Despite the lack of a concentration of Preclassic and Classic settlements in the area, during the Postclassic period this situation totally changed. The irregular topography of rugged volcanic range that intersects the coast in a series of southwest-trending ridges separated by deeply incised linear and small canyons (Marshall, 2007) somehow attracts nahua-pipil group.

Specifically, during the Early Postclassic period the Nahua-Pipils decided to establish their settlements in the Balsam Coast, mainly at the top of the narrows plateaus area. Probably the use of the space during Early Postclassic period, under these hard environmental conditions, was related with a process of conceptualization of the space from a symbolic landscape perspective. It

is important to determine the cultural occupation of these archaeological sites located in the Balsam Coast Range. Did the Nahua-Pipils build their settlements on previously occupied space? If this were the case, the reason of building their settlements probably is not related to a symbolic appropriation of landscape. Conversely, if the Nahua-Pipils decided to build their settlements on previously unoccupied space, the reasons for choosing this type of spatiality could be related to a symbolic appropriation of landscape.

Furthermore, the high density of annual rainfall in the area could be an attractive determinant for Nahua-Pipil group to settle in the area. This may be related to the different cultural practices developed during the Postclassic period associated with the veneration cult of Tlaloc, deity associated with water, rain, and war, among other invocations. These venerations were usually carried out on the uppermost hill of the mountains in order to be close to the rain-laden clouds. This implies that cultural practices may be associated with an emulation process in order to preserve their ethnic identity. Probably the cultural landscape played a decisive role in the settlements established in the Balsam Coast range during the Early Postclassic period. This particular landscape, constituted a symbolic element of great importance in the decision to build the settlements in order to enact their cultural practices evoking their homeland.

Surface Survey Design

The first step of the archaeological project was to design a strategy of the research which involved meetings and consultations with the national and local government institutions and officials from the *Secretaría de Cultura de la Presidencia* and *Alcaldías Municipales* of Santa Isabel Ishuatán, Cuisnahuat, San Julián, Tepecoyo, Jayaque, Talnique, Tamanique, Chiltiupán,

Jicalapa and Teotepeque, This integral activity was carried out throughout the period of the research which involved constant communications with the national authorities and local governments.

The second step was the survey design, in order to attempt to answer the research questions, a broad area was delimitated. Based on this, I collected and analyzed the pertinent cartographic and aerial photos of the research area. A set of 10 topographic maps from the study area were purchased. The maps were in 1:25,000 scale and published from *Instituto Geográfico y del Catastro Nacional* of the *Centro Nacional de Registros* (CNR). Specifically, the maps analyzed for the survey design were the following: 2256 I Río Banderas SW, 2256 I Río Tazula NW, 2256 I Jicalapa SE, 2256 I Cuisnahuat NE, 2257 II San Julían SE, 2356 IV Río El Sunzal SW, 2356 IV Tamanique NW, 2357 III Tepecoyo SW, 2356 III Puerto La Libertad NE and 2356 IV San José Villanueva SE.

The next step in the surface survey design was to solve logistical problems. One of the most important were the location of the headquarters of the project with the aim of optimizing time in the field. Ideally, a central location in the fieldwould have been preferred for the headquarters. However, the need for electricity, running water, and security dictated that during the first stage of the archaeological project, the crew drove daily from the capital city of San Salvador to the Balsam Coast Range. The drawback of daily travel was the varying amount of time needed each day to get to the different survey units. Another problem related to security was the concentration of *pandillas* or *maras* (gangs) in the research area.

Based on these factors, I had to design a strategy in which the crew did not repeat travel on the same roads in a single day. This logistics were challenging but at same time useful because it

was necessary to make a detailed analysis of the existing roads and paths. As a crew, we decided to access the survey units early in the morning using one road, previously selected, and leave the area using another road in the late afternoon. The idea was that the gang members would not be able to identify a pattern of access or egress.

During the second stage of the archaeological project, the location of *Playa El Palmarcito* located in Tamanique, La Libertad, was selected as the location for the field camp, solving the logistical problems of electricity, running water, and time needed daily to get to the different survey units. The security problem was partly solved due to the fact that *Playa El Palmarcito* is a tourist beach for surfing practice, although the logistical issue of avoiding gang members in the field persisted.

Once these logistical problems were solved, the methodology and field strategies options became the next step in the survey design. The options of designing a systematic archaeological survey were between undertaking a sampling survey or a full-coverage survey. Sampling survey consists of a survey or certain portions of an area conducted in different parts of the research area by location of sampling units of different sizes and shapes, mainly quadrants or transects, sampled through different sampling procedures and undertaken at a certain degree of intensity. Mainly, a sampling survey is conducted to estimate population parameters through statistical procedures. On the other hand, full-coverage survey is the complete survey of a certain area with a relatively high degree of intensity (e.g., the distance between surveying crew members).

The advantages and disadvantages of both approaches have been discussed over the years. One of the main critiques to sampling survey focuses on the area surveyed; the smaller the area surveyed, the fewer the sites discovered. It is less likely to find rare sites or items with a sampling

survey approach. Some scholars (Kowalewski 1990; Kowalewski and Fish 1990) argue that full-coverage survey ensures the discovery of the totality of the recognizable sites in a population within a certain area. Therefore, full-coverage survey allows recovery of a large and broader range of data than sampling survey. Additionally, full-coverage survey has been conducted in archaeological projects in which research questions required the most complete inventory of archaeological sites within a certain area or region.

Based on the fact that population estimates were not a research goal of this dissertation a sampling survey approach was not carried out. Rather, as explained above, in order to answer the general research question related with the two main objectives, to determine a diasporic migration process and a symbolic appropriation of landscape, it was required to register the maximum number of archaeological sites possible in the Balsam Coast Range. Accordingly, a variation of full-coverage survey approach was the strategy I pursued. Surface strategies vary depending on the diverse research questions and also vary according to the type of environment and surface terrain on which pedestrian surface survey will take place.

As was explained in Chapter I, this dissertation research focused its investigation in four municipalities of the department of La Libertad located on the Balsam Coast: Teotepeque, Jicalapa, Chiltiupán and Tamanique. The total area of the four municipalities covers approximately 350 km2. A full coverage survey focused on selective transects were located in order to record all possible detectable archaeological remains in the study area of 350 km² of the Balsam Coast Range.

Full-coverage survey techniques described in Kowalewski (1990), Finsten and Kowalewsky (1999) and Balkansky et al. (2000) include methodology designed to recover

information about site size over time, surface architecture plans, ceramic and lithic distribution, modern place names, trails, administrative boundaries, ancient and modern agricultural fields, and physical environment data. The strategy carried out was a walking strategy that aimed to cover the maximum area possible, this strategy was based on the topographic characteristics of the terrain, which were explained in Chapter I. Taking into account that almost no archaeological research had been conducted in the Balsam Coast Range, and only a few Postclassic sites have been recorded in this region, the application of a full-coverage survey concentrated on selective transects through a pedestrian survey, focusing in the upper parts (fingers-like projections) of the Balsam Coast Range, allowed to conduct a systematic survey in order to understand the cultural landscape of the Balsam Coast Range during the Early Postclassic. This systematic survey was conducted by transects located in zones with an elevation between 300 and 1500 masl.

A crucial aspect of the survey strategy was the knowledge of local inhabitants. Often, the information about the location of archaeological sites came from the local crew members or from farmers encountered during survey. Besides contributing with important information about archeological sites, local inhabitants helped us develop a perception of the landscape. This information was facilitated through daily walking along the same paths local inhabitants take, daily encounters, and casual conversations with them, learning from their experience with space, place, and landscape.

The survey took advantage of qualitative data derived from satellite imagery analysis. The walking transects consists of teams of 3 to 5 crew members advancing simultaneously along 10 m-spaced parallel lines, when it was possible. Transects were designed to cover areas opportunistically. By using a compass, 2 GPS hand units, and radio communication devices and controlling coverage areas in real time guided by the GPS screens, the team could complete the

survey in the proposed time. One GPS was used to mark specific locations of artifacts and feature distributions (location, expressed in coordinates x, y, z; the data format is a point). The second GPS unit was used to keep track of the covered area, with special attention to recording mound shapes, roads, trails and other linear features (the output is a line shapefile with x,y,z coordinates for a sequence of points that form lines). While the first GPS collected provenience data for an artifact and feature distributional database, the second one recorded topographic information as well as provided visual aids for the survey. Attention to digital file naming and feature descriptions in the field is fundamental for systematic survey procedures.

Additionally, a collection of surface diagnostic materials (ceramics and lithics) was carried out. The team was trained in the field to collect artifacts from the surface, and to recognize diagnostic ceramic fragments (morphology and decoration) mainly comprised of rims, bases, decorated sherds, among others. Surface ceramics were collected primarily to help date the archaeological sites. All survey team members carried plastic bags and labeling equipment to record the location of the sample. All surface materials collected were separated by category (ceramic, lithic, and so on) and bagged. All tags associated with artifact distribution contain point provenience coordinates and other pertinent information.

The survey thus recorded artifact and feature locations on the landscape. The crew members were trained in the field to recognize modern and ancient features in the landscape while simultaneously entering data in GPS hand units. Architectural features such as plazas, mounds, and platforms were recorded and mapped. Once an archaeological site was found a systematic survey was implemented, focusing on the internal characteristics of the site in order to identify architecture and spatial patterns that allowed determination of the degree of homogeneity of each site. The pedestrian survey consisted of teams of 3 to 5 crew members advancing simultaneously

along 2 m-spaced parallel lines in order to recover material remains on the surface and record architectural features. In addition, other visible architectural features and all possible anthropogenic modifications to the landscape were recorded.

Satellite imagery and aerial views are fundamental components of a complete landscape survey. They can provide evidence of human modifications of the environment in fundamental ways. Less visible traces of human behavior are also recoverable with appropriate observation skills and multispectral image classification. The human landscape is shaped by ancient trails, paths and roads, which are simultaneously expressions of agency, practice and structure (Snead et al 2009). These features leave permanent traces on the land even if modern uses have altered the topsoil.

The nature of this research demands an efficient integration of the spatial data and the artifact data recovered from survey and excavations. Survey is greatly benefited by the use of Global Positioning Systems (GPS) as well as Geographic Information Systems (GIS). The efficient recording and integration of georeferenced data offers accurate control of spatial dimensions, combining aspects of storage, retrieval and analysis. GPS and GIS provide spatial control through a combination of vector and raster information and statistical operations. Raster analysis has been employed in the past with success in predicting the location of Maya archaeological sites under the rain forest (Saturno et al 2007, Estrada Belli and Koch 2007) through the manipulation of high resolution satellite imagery with panchromatic and multispectral sensors.

Recently, archaeological research has been benefited by the use of a revolutionary technology known as LiDAR (Light Detection and Ranging). Inomata et. al (2020) uncovered the oldest and largest known Maya structure from Aguada Fénix site. Likewise, Sprac et. al. (2022)

conducted a research in the Calakmul Biosphere Reserve, of a large area of 240 km^2 using LiDAR data that located Chactún, Tamchén, and Lagunita, three major Maya centers in the central lowlands of the Yucatán peninsula. These are examples of how LiDAR is contributing to archaeological research in forested regions. This technique was also implemented in the study area of the Balsam Coast Range in order to register archaeological sites.

Mapping

The archaeological sites were located on digital maps of 1:25,000 scale, and mapping of architecture was accomplished by recording the present dimensions of structures without attempting to estimate original shapes. Both minor and major architecture were mapped using a combination of compass and measuring tape procedures, generating acceptable maps of architectural features, such as house mounds found during surveys. When enhanced with GPS provenience, minor features become both georeferenced, and suitable for digitizing procedures. Accuracy rates of GPS measurements generally vary from 2 to 5 m. However, GPS and GIS technologies allow superimposition of map data on aerial photographs and site plans, allowing time-saving manual corrections (e.g., conforming crop marks to mapped features), reducing error to negligible amounts.

In addition, the implementation of LiDAR technology in some specific spots of the Balsam Coast Range, specifically in areas where archaeological sites are located, allowed the accuracy of the location and morphology of the structures and others architectonic features of settlements, such as plazas, among others.

Test Excavations

Previous researches in the area (Fowler et. al 1989; Escamilla 2011) had registered archaeological sites from the Early Postclassic period. But no excavation in these sites in the Balsam Coast Range had been conducted in the past. The BCAP conducted two independent excavation programs in the study area, one in the core area of registered settlements, and the other in the areas surrounding the sites, specifically in the lower part of the slopes.

In order to document and refine local chronology, ceramic and lithic evidence from both programs were retrieved and analyzed. The definition of local settlement patterns and hierarchical differentiations were addressed by the excavation programs, as well as by focusing on building history and techniques. Identity formation hypotheses were addressed by horizontal excavation of specific contexts.

Core area excavations

Excavations within the core area looked to determine chronological sequences, cultural affiliation, and the use of space. In order to accomplish these goals, test excavations were placed in open plazas facing standing architecture and approximation trenches were executed in order to locate and understand the architecture of the structures and recoverable data from refuse activities outside the structure.

The test excavation program was designed to conducted at the following archaeological sites: Caballito, Texisio, Cerro de Ulata, Jicalapa, Zinacantan, El Panteoncito and Miramar. The idea was to implement 2 x 2 meters test pits placed at open plazas and mounds. Additionally, some

trenching across the structures (as mentioned above, the size of the structures tends to be small) in order to expose previous or later architectural phases. Expansions were executed according to the complexity of the architecture. Particularly important is to determine that these settlements have a Nahua-Pipil cultural affiliation and that they were established on pristine soils, meaning no previous occupation. The implications of these data are important, since they highlight cultural formations established on the landscape and imposing a fresh template on it, associated not just with defensible reasons but an emulation from the Nahua-Pipil homeland.

Down-slope excavations

The down slopes excavations were designed to conducted at the down slopes of the area where the archeological sites are located. The objective was to look for potential agricultural areas and material remains eroded. The idea was to implement a series of 2x2 meters test pits placed at each side of finger-like projection.

All the artifacts, features and details of excavations were recorded in *fichas de excavación* annotating information on location (unit, layer, depth, and so on), type of feature or artifact, pictures and shots taken, numbering of drawing (profiles, plans, maps), description of layers excavated, number of bags tagged and bag numbers during the day, number of artifacts, and preliminary observations on the materials recovered, the architecture and features related to the context, with the spatiality and the landscape of the area.

Both excavation programs looked to establish whether these sites were occupied briefly or for long periods of time. Additionally, it was important to determine if different functionalities existed among the structures within the sites. The recognition of civic-ceremonial centers in the Balsam Coast Range with a permanent occupation during the Early Postclassic period is a key element in

order to suggest that there was a symbolic emulation from their homeland embodied in the landscape of the area. A detailed discussion of the excavation process along with the ceramic analysis and the classification of sites and settlements will be addressed in Chapter 6.

CHAPTER V

SPATIAL ANALYSIS OF LANDSCAPE

This chapter will discuss the spatial structure of the landscape, as well as the different spatial analysis conducted with the archaeological sites of the Balsam Coast Range area. The first part of this chapter I will discuss the use of LiDAR (Light Detection and Ranging), and derived products such as Digital Elevation Models (DEM) and Hillshade, in the Balsam Coast Range. The purpose of the second part of this chapter is to describe and discuss the different analyses based on Geographic Information Systems (GIS) such as Least Cost Path (LCP), Intervisibility, and Viewshade applied in the archaeological sites of Balsam Coast Range.

Before the discussion of spatial analysis of landscape, it is pertinent to discuss briefly the concepts, methods, and geospatial technologies applied in archaeology in order to identify the importance of these tools as essential components of archaeological research used mostly in landscape archaeology. Additionally, it will discuss how these sets of tools improve the identification of archaeological settlements and hidden archaeological features in the Balsam Coast Range.

Spatial Analysis in Archaeology

Spatial analysis has been used in archaeology to infer past sociocultural behavior since the origin of the modern discipline (Kroll and Price 1991; Seibert 2006). During the rise of

functionalism in the 1950s and 1960s, spatial analysis became a main topic of archaeological research, the work of Clark (1954) in Europe and Willey (1953) in South America (Seibert 2006), among others, are evidence. Spatial analysis began to address settlement patterns related to ecological questions in order to understand how past societies functioned as systems (Arias 2013). This interest in spatial relationships continued into the New Archaeology of the 1960s, developing more scientific and objective analytical methods based on quantitative analysis and statistical testing (Binford 1964; Clarke 1968; Cowgill 1968). But these early studies explored spatial relationships as secondary to sociological, economic, and ecological research objectives (Clark 1977; Arias 2013).

The interest of New Archaeologists and processualists in developing more scientific and objective analytical methods based on quantitative analysis and statistical testing were found to be inadequate for spatial data (Green 1990) with limitations such as the inability to incorporate contextual information about point locations into the statistical analyses (Lock and Harris 1992). Currently, spatial research in archaeology is diverse with different theoretical perspectives and methods routinely applied (Arias 2013). Archaeological research focuses on qualitative analysis of sociopolitical organization within a spatial context rather than on pure spatial modeling or the map-based approach (Ashmore and Knapp 1999).

The emphasis placed on space and spatial analysis in archaeological research has been largely dictated by the changes in theoretical paradigms and, to an extent, the development and refinement of field techniques and analytical methods (Aldenderfer 1996; Clarke 1977; Seibert 2006). During the last three decades, archaeological research has incorporated GIS analysis as a tool in order to develop new paradigms related to socio-cultural dynamics of the past.

In addition, over the past two decades, the use and application of Light Detection and Ranging (LiDAR) has found increasing popularity in archaeology. The popularity is related to the fact that this laser-based remote-sensing technology is capable of penetrating the vegetation cover and forest canopies, thus providing information in areas where other technologies are ineffective and in places where field surveys are particularly difficult such as the Balsam Coast Range.

LiDAR is changing the nature of archaeological research fundamentally. This technology facilitates detailed study of large areas allowing to document and register archaeological settlements and their context. Moreover, LiDAR permits archaeologists to document the landscape in the same way that it is experienced by people in multiple dimensions, producing a huge volume of 3D measurements called “point cloud data” that is transforming the understanding of past societies and their cultural landscape (Chase et al. 2012).

In El Salvador, LiDAR is a very recent technology with restrictions on use. At the beginning of 2014, the *Ministerio de Medio Ambiente y Recursos Naturales* (MARN) began mapping the entire national territory through LiDAR. The project was conducted by the Brazilian company *Servicios Aéreos Industriales* (SAI) and had a cost of 3.2 million dollars. At that time, El Salvador would become the first country in Latin America to have a total survey of the national territory using LiDAR. The plane flew at a maximum height of 2000 m above the ground, obtaining three types of high-resolution maps: (1) color digital aerial photography, which obtains information on infrastructure such as the road network; (2) digital elevation model, which obtains the topography of the surface, called "bare ground"; and (3) the surface elevation model, which obtains infrastructural elements such as buildings, bridges, and other features.

The overflights were carried out in a period of approximately eight months and 350 flight

hours were required to be able to scan the two million hectares that cover the entire country. The objective was to obtain data that would help the analysis of threats and vulnerability due to floods, landslides, tsunamis; land use change analysis; and updating basic digital and analog cartography. The entire process, from obtaining data in the field to data processing and the creation of the database lasted approximately 3 years, starting in 2014 and ending in 2016. This database has been completed and ready to use since the beginning of 2017.

Specifically, in the Balsam Coast Range, the use of LiDAR enables obtained digital terrain models, microtopography, and geomorphological details otherwise not obtainable with traditional survey methods. Moreover, this technology allows identification of the presence of archaeological features and reconstructions of past settlements obscured by vegetation and the volcanic topography. In order to obtain best results in the spatial analysis of the archaeological sites of the Balsam Coast Range, the LiDAR-derived Digital Elevation Models DEM were processed using the Hillshade method. In this method a light source is fixed and shadows created by the terrain morphology are calculated. Hillshade depends on the illumination direction, consequently there will be a position of the light source that is able to enhance the researched features (Danese 2020).

GIS in Archaeology

The term GIS was introduced in archaeology over 30 years ago. During the last decade the incorporation of geospatial technologies in archaeology has increased and the use of these tools is standard in archaeological research and are essential to explore, analyze, and interpret spatial data (Howey 2011; Vergahen 2018). The origins and development of GIS in North American archaeology emerged as a management tool within government agencies and CRM firms tasked

with managing very large tracts of federal land in the 1970s and 1980s (Arias 2013). In the twenty-first century, GIS has become as an almost indispensable research tool of archaeological projects dealing with spatial archaeological data and used mostly in landscape archaeology, predictive modeling, and cultural resource management (Church et al. 2000; Westcott and Brandon 2000; Wheatley and Gillings 2002; Zubrow 2005).

In the following sections I describe and discuss three different analysis based on Geographic Information Systems (GIS) such as Least Cost Path (LCP), Intervisibility, and Viewshade. Each model was applied in nine archaeological sites of Balsam Coast Range: Caballito, Texisio, Cerro de Ulata, Jicalapa, Letrero del Diablo, El Letrero, Zinacantan, Miramar, and El Panteoncito.

Least Cost Path (LCP) Analysis

During the last three decades, an increasing number of archaeological least cost path (LCP) studies have been conducted and published. Mostly, these studies are focused on reconstructing ancient routes and route networks (Herzog 2013). However, the LCP analysis included in GIS software was not developed for archaeology; the LCP technology was developed mainly with a focus on minimizing travel time and fuel consumption, modern highway planning, shipping companies, and military purposes (Longley et al. 2005).

However, it is necessary to recognized some limitations of LCP software. LCP modeling assumes that a traveler has complete knowledge of the landscape they are walking (McRae et al. 2008) and operates under the assumption that they will be both able and willing to select the lowest

single path cost based on this knowledge. Nevertheless, individuals can be isolated in landscapes, unaware of potential matrix heterogeneity they will experience as they disperse across a landscape, making them unable to select a single optimum route. Even when individuals have landscape knowledge, various factors can lead to divergences from optimum path selection (Howey 2011).

Despite these limitations with least cost path modeling, it is necessary to begin the analysis from two premises that underlie LCP modeling: (1) to pass between two points involves encounters with topographic, natural, and/or cultural features that impede movement and (2) the optimal path of travel can be calculated by finding the one that passes between points with the minimum accumulation of these impediments or cost (Howey 2011).

Movement through landscape has been a constant behavior of human history. However, this model may not apply to once-in-a-lifetime journeys such during a mass exodus, a crusade, or some of the behaviors of soldiers at war. Most probably, people on such journeys used existing roads, but in spite of some guidance or advice by locals or experienced travelers in the area, the optimal route is rarely taken on these occasions (Herzog 2013).

In contrast, the mobility between the archaeological sites of the Balsam Coast Range constitutes an excellent opportunity to apply LCP spatial analysis. Taking into account that the sites are contemporary and coexisted during the Early Postclassic period. Mobility within the Costa del Balsamo had a certain frequency, therefore it was not an unknown landscape for the ancient settlers. The LCP analysis carried out between each of the sites studied on the Balsam Coast range consist of Cost Surfaces, rasters showing the amount of time in seconds it takes to get from a site to a given location; Movement Directions, rasters showing the directions to move to get to the endpoint most efficiently: and Paths, vectors of the shortest paths to a site. The analysis is presented

below.

Caballito

The archaeological site of Caballito is located in the municipality of Teotepeque, department of La Libertad, on the upper part of the Loma del Caballito at an altitude of 500 meters above sea level. It was discovered in 2012 by the BCAP directed by Marlon Escamilla (Escamilla and Fowler 2013). Currently the site is bounded to the north by the prolongation of the plateau, and to the south by Loma Los Encuentros. The east boundary is marked by the Mizata River where the piedmont spur descends from 500 meters above sea level (masl) to 150 m.a.s.l., and the western side is marked by the end of the piedmont spur which descends from 500 m.a.s.l. to 259 m.a.s.l. to El Tambor creek. Caballito is composed of ten mounds distributed in two concentrations, which were denominated as North Group and South Group. Four mounds constitute the North Group, which forms a small plaza. The South Group consists of six mounds, which are oriented on a northeast-southwest axis and separated into groups of two, forming at least three small plazas. The southern limit of the site shows a small burned surface area forming lumps about the size of a fist. It is difficult to establish if this burning trace is associated with practices developed in prehispanic times or due to current agricultural practices (Escamilla 2013).

In the case of the archaeological site of El Caballito, 3 exit points are marked (See figure 23). The first exit point is located at the southern end of the site. From this point the routes that connect with archaeological sites of Texisio and Cerro de Ulata are established with an orientation towards the south. The second exit point is established in the middle of the settlement of El Caballito. From that point the route that connects with the rock art site of El Letrero del Diablo is oriented to the southeast. The third exit point is established from the north end of the site, from

this point 5 routes are derived: the first oriented to the south-east connecting with the north end of Jicalapa site; the remaining 4 routes are oriented towards the east, connecting with the sites of El Letrero, El Panteoncito, Miramar and Zinacantan.

It is interesting to note that for the model applied to El Caballito, no route was established through the coastal zone. The marked routes are using the small canyons that form between the *lengüetas* and crossing the *lengüetas* transversely as well. It is interesting to note that the same route is used for El Letrero, El Panteoncito, Miramar and Zinacantan sites, with minor variations when approaching each of the sites.

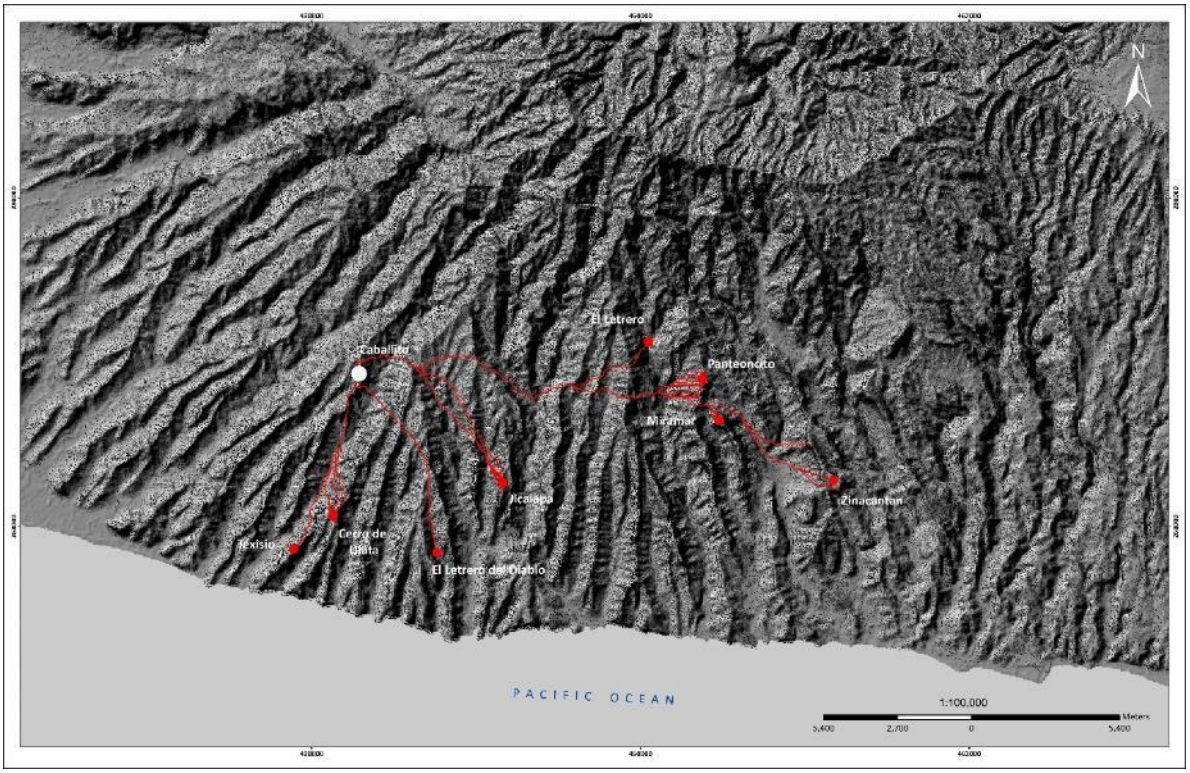

Figure 23. LCP analysis from Caballito site.

Texisio

The archeological site of Texisio is located in the municipality of Teotepeque, department of La Libertad, on the upper part of the Texisio plateau at a height of 281 m.a.s.l. It was discovered in 2012 by the BCAP directed by Marlon Escamilla (Escamilla and Fowler 2013). Currently the site is bounded to the north by the hill El Cerro, south by the end of the piedmont spur. Texisio stream, where the plateau descends from 281 m.a.s.l. to 50 m.a.s.l., marks the east boundary. The end of the piedmont spur, which descends from 281 m.a.s.l. to 29 m.a.s.l. to the Mizata River, marks the western end. The Texisio site consists of three mounds, which form a small plaza (ibid).

In the case of the archaeological site of Texisio, 4 routes are marked (See figure 24). The first route is oriented towards the south which runs along the coast and deviates towards the northeast connecting with Zinacantan site. The second route is oriented towards the east connecting with El Letrero del Diablo site. The third route is oriented towards the northwest, connecting El Caballito site. The fourth route is oriented towards the northeast connecting with Cerro de Ulata, Jicalapa, El Letrero, El Panteoncito and Miramar sites, this route is very similar to the one traced from El Caballito site.

Unlike the model applied to El Caballito site, in the routes established from Texisio, a route along the coast was marked. However, most of the marked routes are using the small canyons that form between the *lengüetas* and crossing the *lengüetas* transversely as well. It is interesting to note that the same route is used for El Letrero, El Panteoncito and Miramar sites, with minor variations when approaching each of the sites.

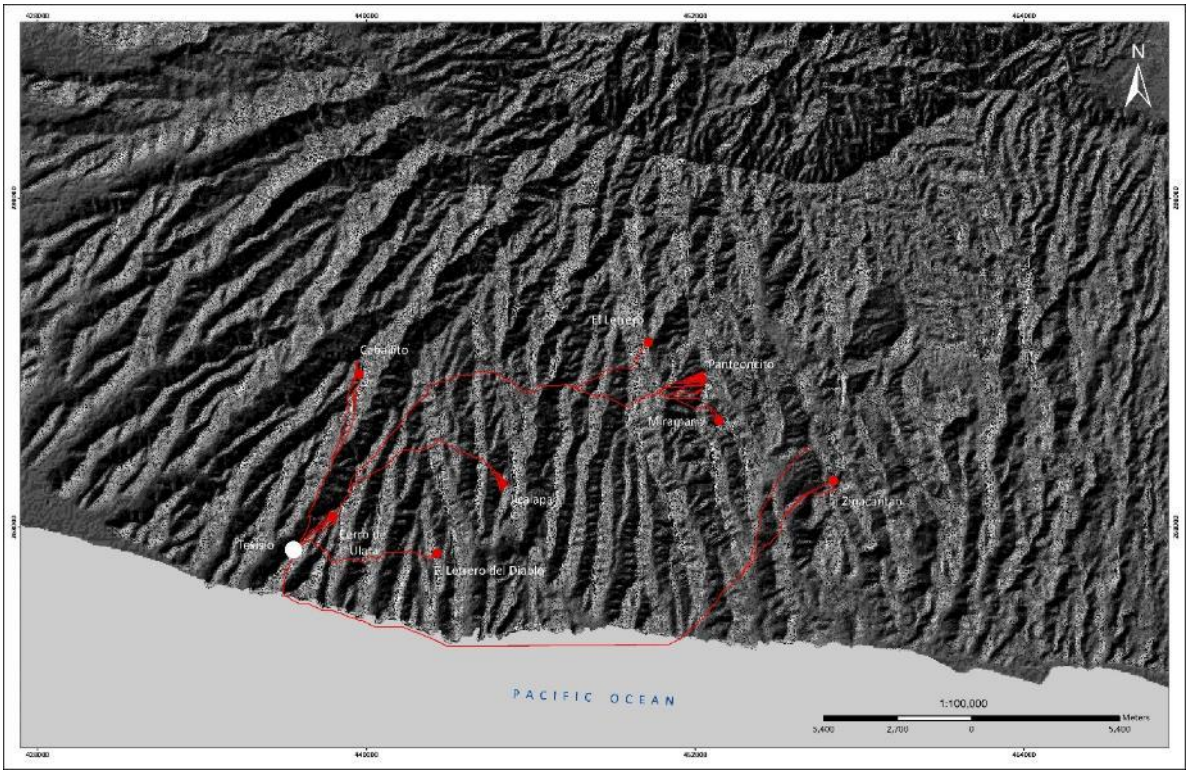

Figure 24. LCP analysis from Texisio site.

Cerro de Ulata

The archaeological site of Cerro de Ulata is located in the municipality of Teotepeque, department of La Libertad at an altitude of 410 m.a.s.l. The site was registered by Jorge Lardé (1926) and mentioned by John Longyear (1944), however, the site was described and mapped for the first time by the researchers of the Izalco Project interpreting it as a settlement of the Guazapa phase and contemporary to the Cihuatán site based on its settlement pattern and its ceramics (Fowler et al., 1989). The site is composed of at least twenty-five mounds with a spatial distribution of the structures along the bifurcation of a plateau on two north-south oriented axes, the distribution is determined by the topography of the crest of the same plateau. The site is divided into two large

concentrations of mounds, which have been called East Group and West Group. The East group was identified and mapped by the Izalco Project. This group consists of at least eleven mounds distributed on a north-south axis forming small plazas. The West Group is composed of at least fourteen mounds distributed over a north-south axis and forming at least three small plazas (Escamilla 2013).

In the case of the archaeological site of Cerro de Ulata, 5 routes are marked (See figure 25). The first route is oriented towards the south which connects with the Texisio site. The second route is oriented towards the south as well, which runs along the coast and deviates towards the northeast connecting with the Zinacantan site. The third route is oriented towards the east connecting with the El Letrero del Diablo site. The fourth route is oriented towards the northwest connecting with the El Caballito site. The fifth route is oriented towards the northeast connecting with the Cerro de Ulata, Jicalapa, El Letrero, El Panteoncito and Miramar sites.

Unlike the model applied to El Caballito, in the routes established from Cerro de Ulata, a route along the coast was marked. However, most of the marked routes are using the small canyons that form between the *lengüetas* and crossing the *lengüetas* transversely as well. It is interesting to note that the model applied to Cerro de Ulata is quite similar to the routes established from the Texisio site. The routes for El Letrero, El Panteoncito and Miramar sites use the same route, with minor variations when approaching each of the sites.

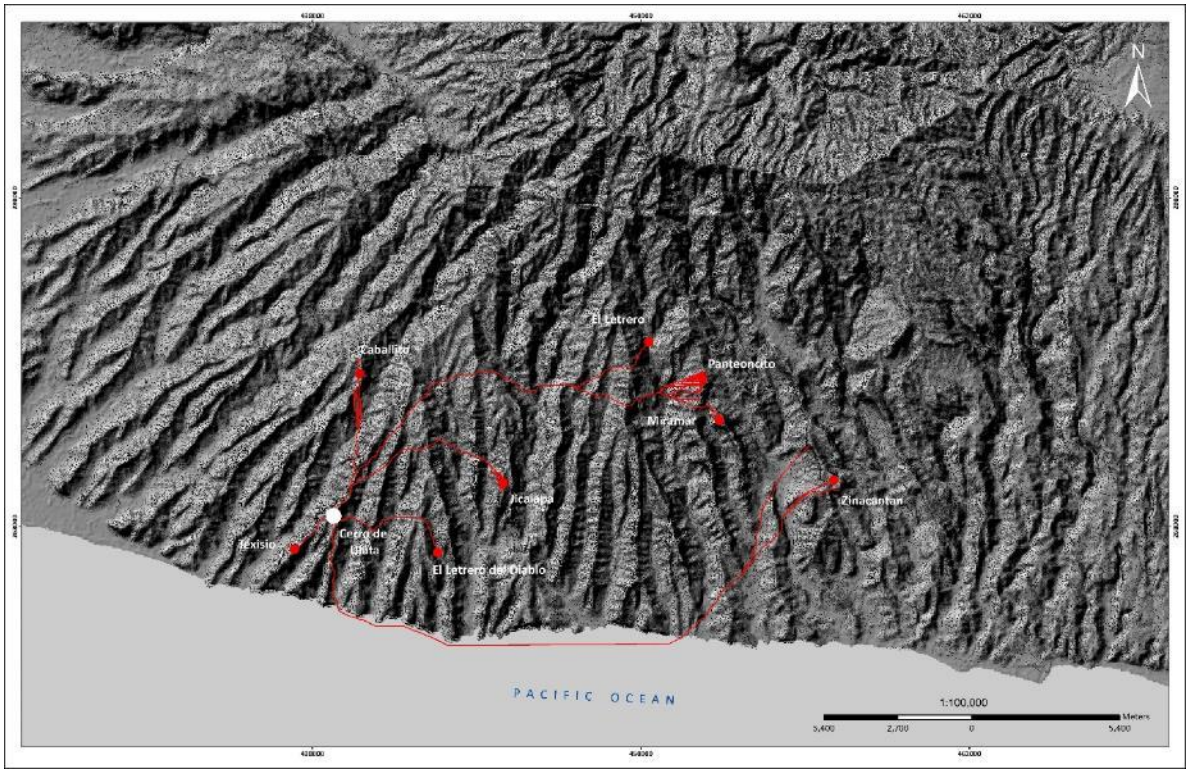

Figure 25. LCP analysis from Cerro de Ulata site.

Jicalapa

The Jicalapa archaeological site is located in the municipality of Jicalapa, department of La Libertad just south of the current town of Jicalapa. It was discovered in 2010 by the BCAP directed by Marlon Escamilla (Escamilla 2011). The site is located on the upper part of La Nancera hill at a height of 475 m.a.s.l. The settlement is delimited towards the north by the current town of Jicalapa, to the south by the end of the plateau known as La Nancera hill, which descends from 475 m.a.s.l. to 100 m.a.s.l until the place where San Pedro River converges with Cupa River which

together with El Carrizo River are tributaries of La Perla River. To the east it is bounded by San Pedro River and to the west by El Carrizo River. The site is composed of eighteen structures of which fifteen are mounds and are divided into three groups and distributed over three different terraces. The spatial distribution of the structures occurs along the north-south axis, determined by the topography of the narrow plateau. Group A, located on the southern boundary, has seven mounds distributed on terrace one. Similarly, group B is composed of seven mounds located on Terrace two. Group C is located in the northern limit, which contains a mound associated with a rock with a concave depression, like a dome in its upper part. For the most part, the mounds are low with heights ranging from 0.5 m to 1 m, with the exception of mound 14, which has an approximate height of 2 m. In some cases, it was possible to document the limits of rectangular platforms and stone alignments located in the limits of the narrow plateau of the crest of the plateau (Escamilla 2011).

In the case of the archaeological site of Jicalapa, 2 exit points are marked (See figure 26). The first exit point is located at the southern end of the site. From this point the route that connects with Letrero del Diablo is established with a south-west orientation. The second exit point is established from the north end of the site, from this point 3 routes are derived: the first oriented to the south-west connecting with the north end of Cerro de Ulata and Texisio sites; the second is oriented towards the north-west, connecting with El Caballito site; the third is oriented towards the north-east connecting with El Letrero, El Panteoncito, Miramar, and Zinacantan.

It is interesting to note that for the model applied to the Jicalapa site, no route was established through the coastal zone. The marked routes are using the small canyons that form between the *lengüetas* and crossing the *lengüetas* transversely as well.

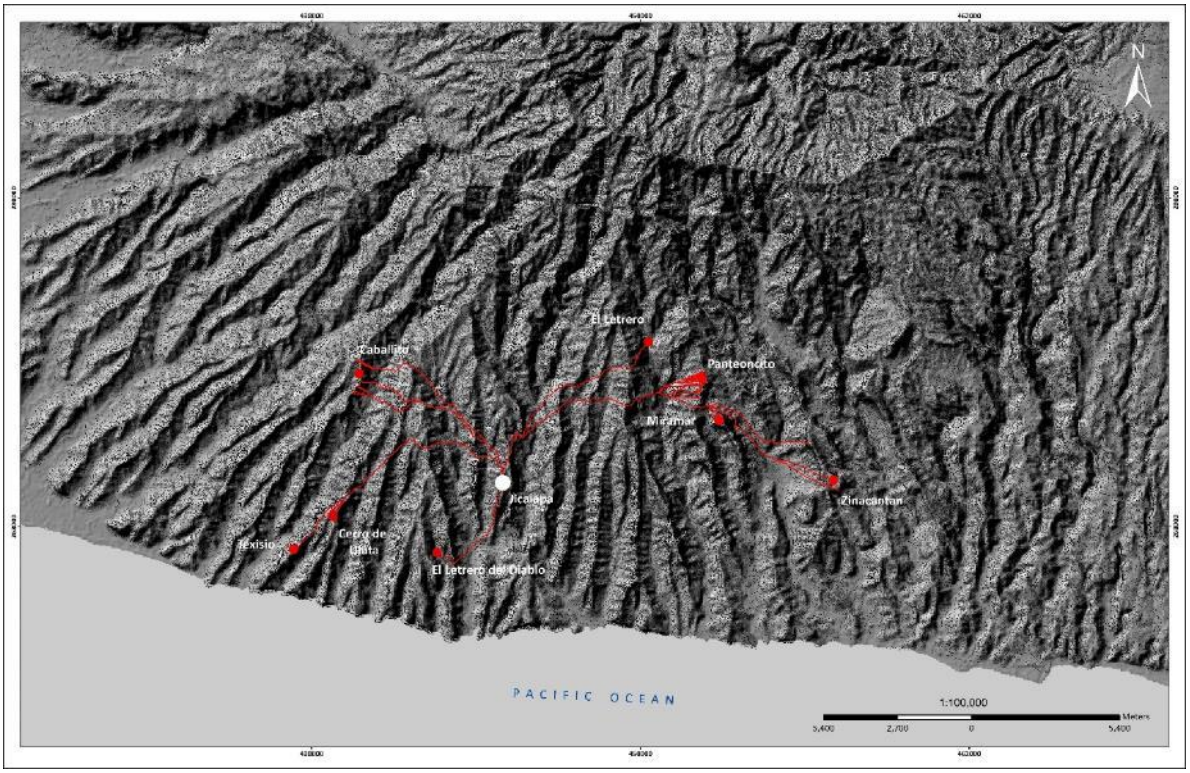

Figure 26. LCP analysis from Jicalapa site.

Letrero del Diablo

The archeological site Letrero del Diablo is located in the municipality of Jicalapa, department of La Libertad at an altitude of 140 m.a.s.l. The site was first registered by Jorge Lardé (1926). The Ministry of Environment and Natural Resources (MARN) classifies the area where the site is located as a protected area. Letrero del Diablo is a rock art site, which consists of a concentration of petroglyphs carved on a rocky wall with dimensions of 50 m long and 8.5 m high. The petroglyphs are oriented to the west, covering an area of 10 m long and 2.7 m high. In general

terms, the petroglyphs present an abstract style highlighting mostly geometric figures and in lesser percentage anthropomorphic and zoomorphic figures. The most relevant petroglyph is the stylized representation of a Tlaloc deity. It should be noted that the site is located on the eastern side of Iscacuyo or El Cacao stream. In terms of conservation, the petroglyphs are in bad conditions due to the fact that have been painted with chalk and red and white oil paint. As part of the project, a photographic survey of all the petroglyphs was carried out as well as a digital mosaic survey to obtain a panoramic image using a GigaPan EPIC Pro, this survey was done with the support of Dr. Fabio E. Amador, program officer of National Geographic Society (Escamilla 2013).

In the case of the archaeological site of Letrero del Diablo, 4 exit points are marked (See figure 27). The first exit point is located at the southern end of the site. This first route is oriented towards the south which runs along the coast and deviates towards the northeast connecting with Zinacantan. The second exit point is established from the west end of the site, from this point 2 routes are derived: the first oriented to the north-west connecting with the east end of Cerro de Ulata; the second is oriented towards the south-west, connecting with Texisio. The third exit point is established from the north end of the site, from this point one route is derived: oriented to the north-west connecting with El Caballito. The fourth exit point is established from the east end of the site, from this point three routes are derived: oriented to the north-east connecting with Jicalapa, El Letrero, El Panteoncito, Miramar, and Zinacantan.

Unlike the model applied to Jicalapa site, in the routes established from Letrero del Diablo, a route along the coast was marked. However, most of the marked routes follow the small canyons that form between the *lengüetas* and crossing the *lengüetas* transversely as well.

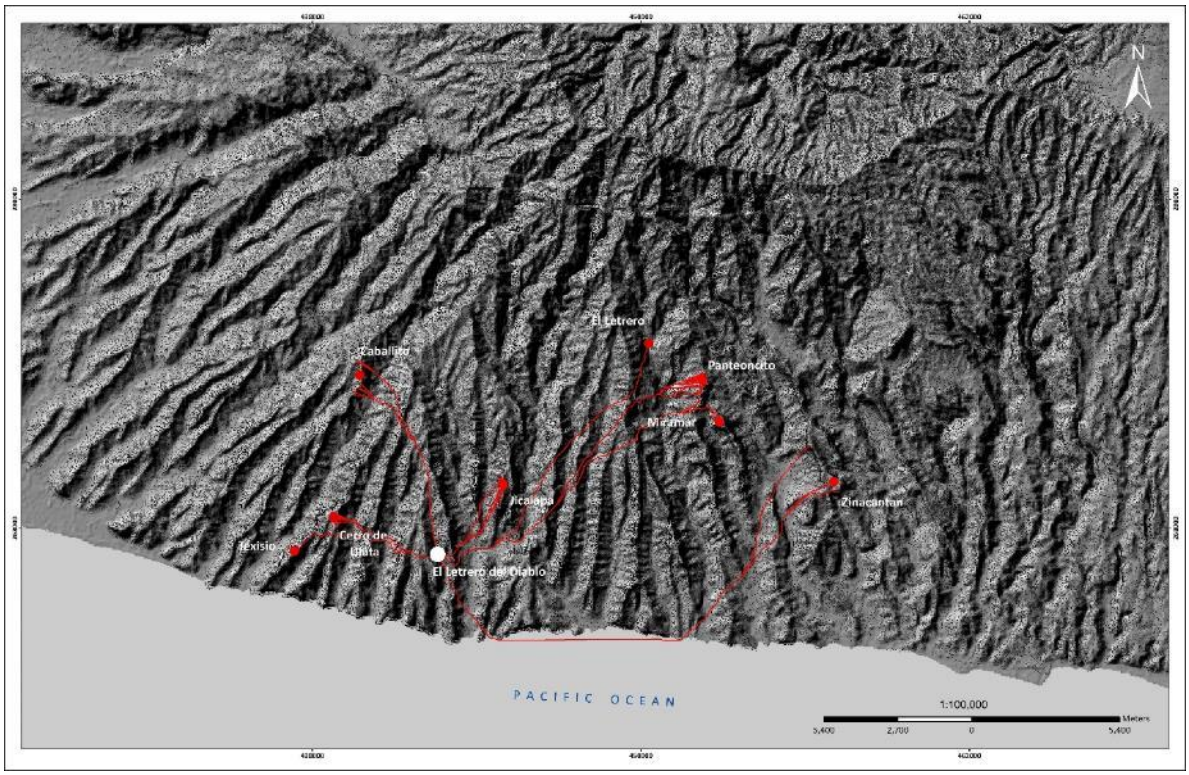

Figure 27. LCP analysis from Letrero del Diablo site.

El Letrero

The archaeological site of El Letrero is located in the municipality of Chiltiupán, department of La Libertad, in Finca Guadalupe Arriba of Cantón and Caserío Cuervo Abajo, at an altitude of 400 m.a.s.l. The site was discovered by the BCAP directed by Marlon Escamilla (Escamilla and Fowler 2013). Finca Guadalupe Arriba bounds the site to the north and El Zonte River to the south. The east boundary is marked by Pájaro León River and the west edge is marked by El Zonte River. El Letrero is a rock art site, which is formed by a concentration of petroglyphs

on a rock with dimensions of 15 m long by 12 m high. The petroglyphs are oriented to the east, covering an area of 3 m long and 2 m high. The petroglyphs mainly present an abstract style highlighting mostly geometric figures such as concentric circles and spirals as well as a concentration of domes. Although in a smaller frequency, anthropomorphic and zoomorphic figures were recorded. The most salient petroglyph is the stylized representation of a Tlaloc deity. It should be noted that the site is located at the point of convergence of Pájaro León and El Zonte Rivers. Approximately 200 m north of the rock with the petroglyphs, a small rectangular platform was recorded which most probably served as a shrine during the ritual practices performed in prehispanic times. As part of the project, a digital photographic survey of all petroglyphs was carried out. In terms of conservation, the site is in poor conditions due to the fact that the incisions have been painted with chalk and some petroglyphs exhibit fracture damage, including a portion of the Tlaloc image (ibid).

In the case of the archaeological site of El Letrero, 4 exit points are marked (See figure 28). The first exit point is located at the south-west end of the site. This first route is oriented towards the south-west connecting with Jicalapa, El Letrero del Diablo, Cerro de Ulata, Texisio, and El Caballito. The second exit point is established from the west end of the site, from this point 1 route is derived: oriented to the west connecting with the north end of El Caballito site; the second is oriented towards the south-west, connecting with Texisio. The third exit point is established from the north end of the site, from this point one route is derived: oriented to the north-west connecting with El Caballito. The fourth exit point is established from the east end of the site, from this point three routes are derived: oriented to the south-east connecting with El Panteoncito, Miramar, and Zinacantan.

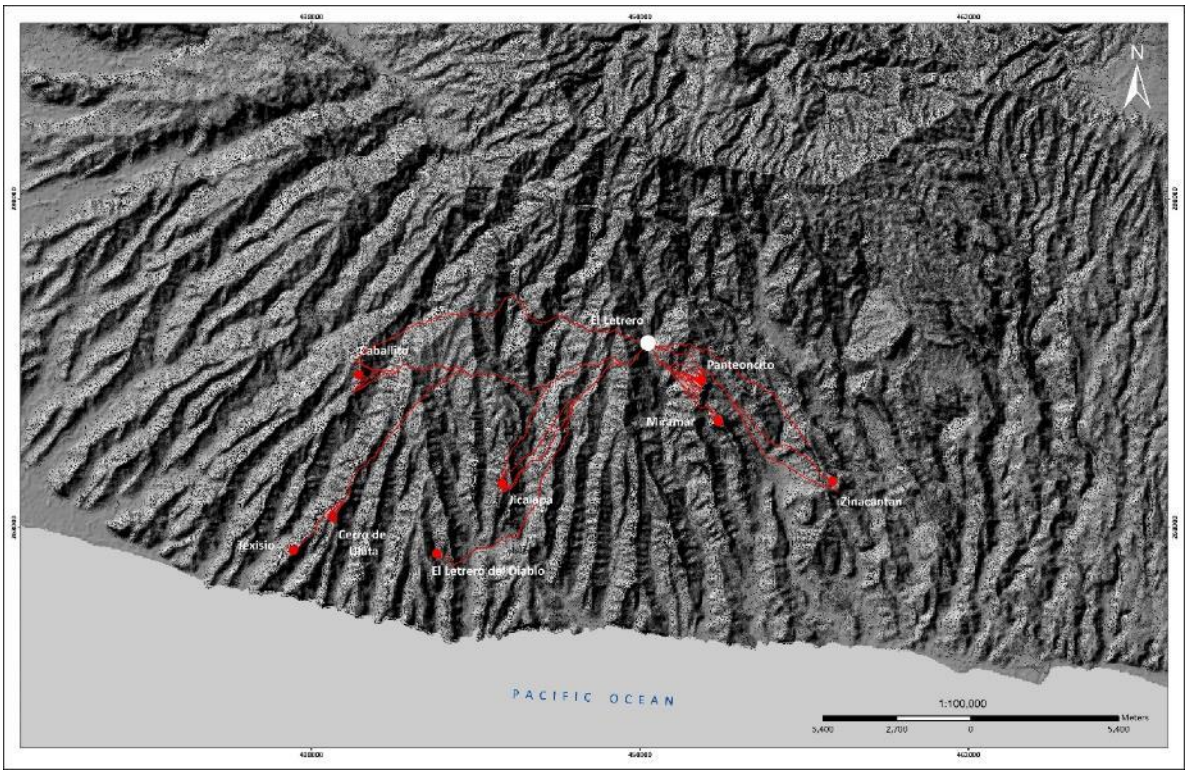

Figure 28. LCP analysis from El Letrero site.

Zinacantan

The archaeological site of Zinacantan is located in the municipality of Tamanique, department of La Libertad, on the top of Pueblo Viejo hill at an altitude of 460 m.a.s.l. The settlement is delimited on the north by the prolongation of the plateau and by Cantón and Caserío Tarpeya; to the south by the Redondo Hill or Peñol de Zinacantan. The end of the plateau, which descends from 460 m.a.s.l. to 250 m.a.s.l. to La Joyona or El Tacuacín stream, marks the east

boundary. The west limit is marked by the end of the plateau, which descends from 460 m.a.s.l. to 250 m.a.s.l. to Pozo Hondo stream.

During the surveys of the Izalcos Project in 1989, William Fowler heard about the existence of an archaeological site in a location known as Pueblo Viejo, also referred to locally as Zinacantan. Later the site was visited and registered by Fowler, Gallardo and Hamilton (Hamilton 2009). During 2001 and 2002, Zinacantan was georeferenced and mapped with an electronic total station by Conard Hamilton (2009). Hamilton divided Zinacantan into three sectors. Site 1 is made up of eight mounds distributed on the narrow tongue and forming at least two small plazas. Site 2, located at the southern end of the tongue, is made up of seven mounds distributed forming at least three small plazas and delimited by a low wall built around the narrow plateau. Site 3, located at the north end, is made up of eleven mounds forming at least two plazas. In total, Zinacantan consists of at least twenty-six mounds, constituting, together with El Panteoncito, one of the sites with the largest number of structures registered so far on the Balsam Coast. Based on the ceramic analysis done by Hamilton, the site probably has Late Postclassic occupation, however it cannot be ruled out that Zinacantan has a long occupation from the Early Postclassic, through the Late Postclassic, to the early sixteenth century (Escamilla and Fowler 2013).

In the case of the archaeological site of Zinacantan, 2 main exit points are marked (See figure 29). The first exit point is located at the southern end of the site. From this point the route that connects with Letrero del Diablo, Cerro de Ulata and Texisio is established with a south-west orientation. The second exit point is established from the north end of the site, from this point 3 routes are derived: all of them oriented to the west connecting with Miramar, El Panteoncito, El Letrero, Jicalapa, and El Caballito.

It is interesting to note that for the model applied to Zinacantan site, a route was established through the coastal zone. However, mostly of the marked routes follow the small canyons that form between the *lengüetas* and crossing the *lengüetas* transversely as well. The same route is used for El Letrero, El Panteoncito, and Miramar sites, with minor variations when approaching each of the sites.

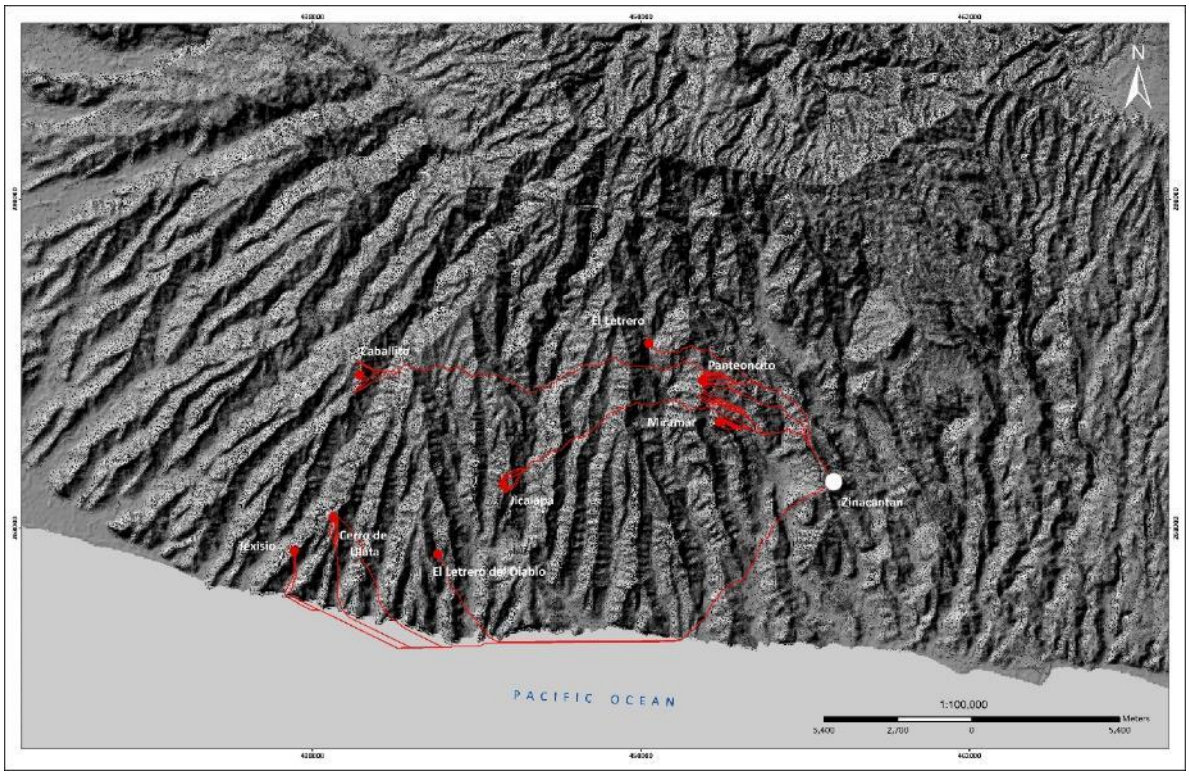

Figure 29. LCP analysis from Zinacantan site.

Miramar

Miramar is located in the municipality of Tamanique, department of La Libertad on Acahuaspán Cooperative lands. The site is located approximately 1 km northwest of Peñon El

Cabro on a short and narrow high plain of Loma El Cabro at a height of 605 m.a.s.l. The settlement is delimited towards the north by the prolongation of the plateau, to the south again by the prolongation of the plateau and by Peñon El Cabro. Towards the east El Cusuco stream limits it descending from 605 m.a.s.l. to 400 m.a.s.l. and towards the west with Acahuaspán River also descending to 400 m.a.s.l. The site is composed of fourteen mounds with a spatial distribution of the structures along the northwest-southeast axis, determined by the topography of the plateau. The southeast end of the site has a distribution of grouped structures consisting of five mounds, which seems form a small plaza. The remainder of the mounds are aligned along the northwest-southeast axis and distributed over the narrowest sector of the plateau. Based on its location, apparently some structures served as observation points. The height of the mounds varies between 1 and 2 m (Escamilla 2011).

In the case of the archaeological site of Miramar, 2 exit points are marked (See figure 30). The first exit point is located at the east end of the site. From this point 2 routes are derived oriented towards the south-east connecting with Zinacantan. The second exit point is established from the north-west end of the site, from this point 5 routes are derived, oriented to the west connecting with El Panteoncito, El Letrero, Jicalapa, El Letrero del Diablo, El Caballito, Cerro de Ulata, and Texisio.

For the model applied to the Miramar site, a route was established through the coastal zone. However, mostly of the marked routes follow the small canyons that form between the *lengüetas* and crossing the *lengüetas* transversely as well. Moreover, some routes are shared with the El Letrero site.

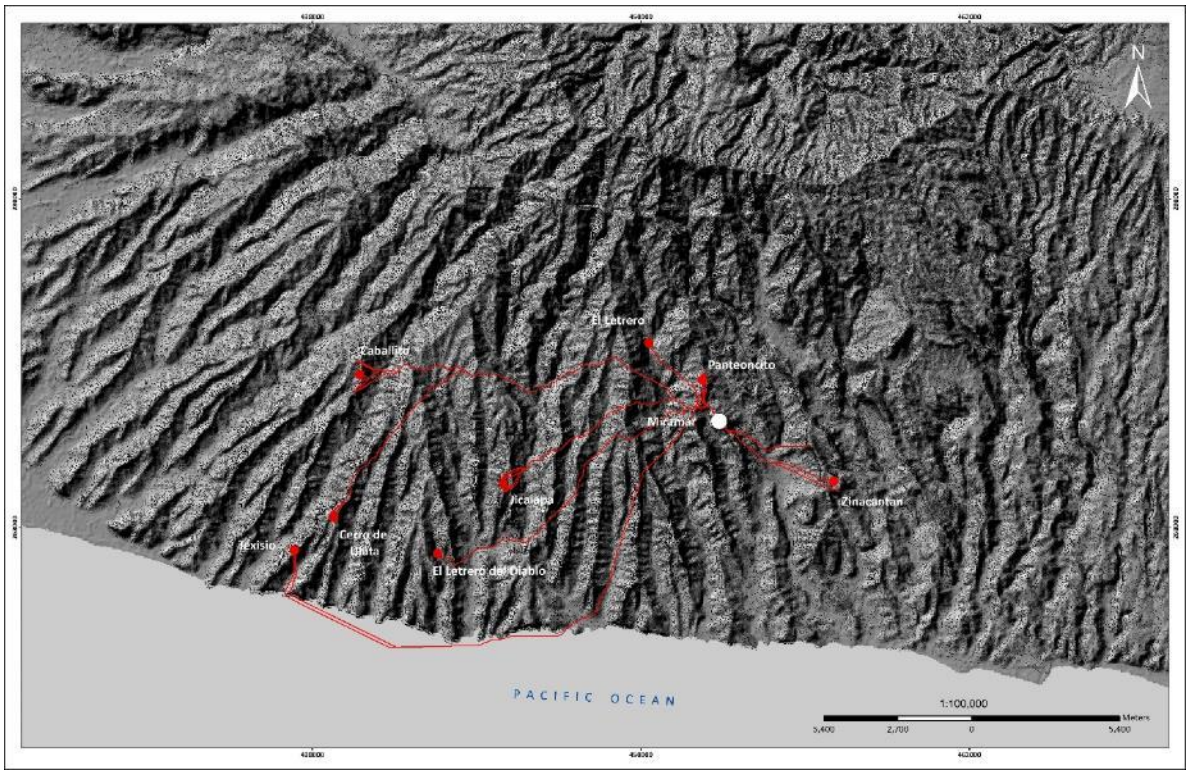

Figure 30. LCP analysis from Miramar site.

El Panteoncito

The archaeological site of El Panteoncito is located in the municipality of Tamanique, department of La Libertad at Cooperativa San Isidro lands. The site is located on the upper part and in the northern sector of Loma El Cabro at an altitude of 610 m.a.s.l. The settlement is bounded to the north by the extension of the plateau and by Cantón and Caserío San Isidro, and to the south by the prolongation of the plateau. Panteoncito is located approximately 1.5 km north of the Miramar site, on the same plateau. The end of the piedmont spur, which descends from 610 m.a.s.l. to 541 m.a.s.l., marks the western limit. The eastern end has a small extension of the plateau which has an east-west axis and ends down from 610 m.a.s.l. to 400 m.a.s.l.

The site consists of thirty-five structures, constituting the site with the largest number of structures registered in the Balsam Coast. These structures are divided into seven groups of

mounds. The spatial distribution of the structures occurs along the bifurcation of a plateau on two axes, a long axis oriented north-south and a short axis oriented east-west; both axes form an inverted L which is determined by the topography of the plateau. Group A, located on the northern limit, has three mounds (M1-M3) distributed on a platform forming a plazuela. Group B, located on the eastern border, is composed of two mounds (M14-M15) forming a plazuela. Group C, is located on the north-south axis and is composed of ten mounds (M4-M13) which form at least two small plazas. Group D is located on the north-south axis and is composed of two mounds (M16-M17) built on a platform forming a small plaza. Approximately 0.5 km north of group D, on the north-south axis, is group E, composed of eight mounds (M18-M25) forming a small plaza. Group F is composed of four mounds (M26-M29) on a platform, forming a small plaza. Mounds 30, 31 and 32 are isolated and dispersed between groups F and G. Finally, group G constitutes the southern limit of the site and consist of three mounds (M33-M35). It should be noted that the groups C, F and G mounds have a similar distribution, highlighting a low circular platform in front of the mounds and located towards the west side.

In the case of El Panteoncito, 4 exit points are marked (See figure 31). The first exit point is located at the south-east end of the site. From this point 2 routes are derived oriented towards the south-east connecting with Miramar and Zinacantan. The second exit point is established from the south-west connecting with El Letrero del Diablo. The third exit point is established from the west end of the site connecting with Jicalapa. The fourth exit point is established from the north-west end of the site from this point 4 routes are derived, oriented to the west and south connecting with El Letrero, El Caballito, Cerro de Ulata, and Texisio. For the model applied to El Panteoncito, most of the routes are shared with the routes of Miramar site.

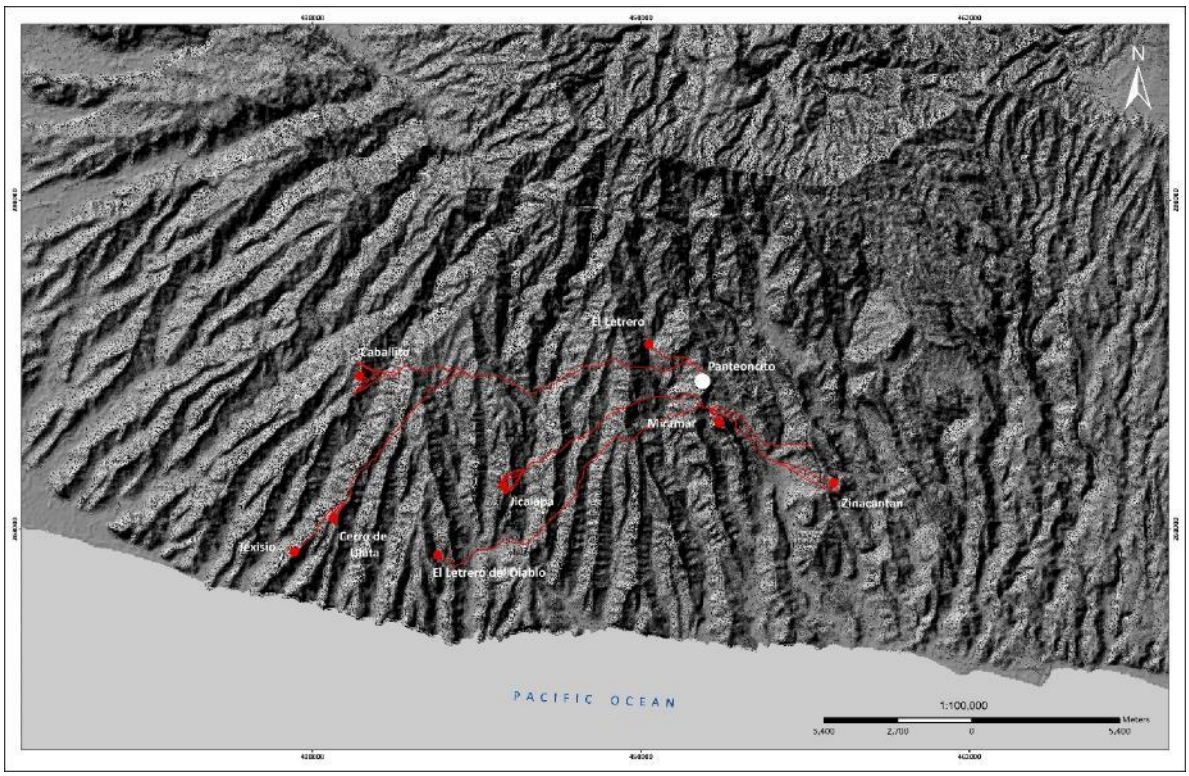

Figure 31. LCP analysis from El Panteoncito site.

Intervisibility and Viewshade Analysis

Visibility is a concept related to GIS data processing. Currently, landscape visibility and feature visibility are popular in archaeological research, is concerned with determining whether features are located in order to see positions at lower elevations, and potentially vice-versa (Conolly and Lake 2006). Interdivisibility analysis is used to determine whether features at relatively similar elevations might have been constructed in their given locations in order to facilitate their ability to see one another. In both cases, the viewshade is considered a tangible cultural asset, worthy of enhancing or restricting for some socially important reason (Wright et al. 2014).

The fundamental principle of visibility and intervisibility in GIS is to generate lines of sight between given points on a landscape. In the case of two feautures (Point A and Point B), a line of sight is created as a straight vector between A and B and the topography which would prohibit or facilitate intervisibility is generated from a Digital Elevation Model (DEM) of the terrain. (Wright et al. 2014). A specific type of visibility analysis includes the ability of observers to see points on a landscape from archaeological features (Fisher et al. 1997, Ogburn 2006, Llobera 2001). Good visibility of a landscape to and from an archaeological site or feature has been argued to have military applications of site defensibility (Kay and Sly 2001), resource acquisition (Llobera et al. 2011), or to solidify some aspect of social power/cohesion through a feature's visibility (Chapman 2003, Bongers et al. 2012).

In the case of the Balsam Coast archaeological sites, 2 intervisibility analysis models were carried out: (1) within each settlement and (2) between settlements. In the first case, the intervisibility model was established between each of the site's structures, with the aim of identifying possible areas without visibility, which could be interpreted as possible shelter areas or possible ritual areas. Regarding the second case, an intervisibility model was established between each of the 9 archaeological sites. The purpose of this analysis was to identify possible defensive aspects and social/power cohesion.

Regarding the analysis of intervisibility within the site, in general terms the different structures of the sites maintain visual control. But there are two interesting exceptions. The first case is related to El Panteoncito, specifically in the southern sector of the site, there is a small sunken *plazuela in* an area in which there is no visual control. The second case is found at Zinacantan, where there is no visual control between the 3 areas of identified structures.

In relation to the analysis between the sites, some interesting information was extracted. Apparently, 2 settlement clusters can be identified, one in the West and the other in the East. The western cluster is made up of El Caballito, Texisio, Cerro de Ulata, and Jicalapa. All of the above sites have visual control among them. The eastern cluster is made up of El Panteoncito, Miramar, and Zinacantan, all of which have visual control among them. However, visual control also exists between Jicalapa and one of the 3 groups of structures at Zinacantan. This would be the only existing line of visual connection between both clusters. Regarding the 2 rock art sites, El Letrero and El Letrero del Diablo, they have no visual connection, and they are totally isolated. This is due to the fact that both sites are located on the banks of rivers that form small canyons.

The viewshade analysis conducted at the Balsam Coast provided interesting data. Taking into account that most of the archaeological sites are located in the upper parts of the *lengüetas*, there is visual control of the upper parts of the Balsam Coast Range. Likewise, an interesting result is that, with the exception of the rock art sites of El Letrero and El Letrero del Diablo, all sites have visual control of the Pacific Ocean. Both rock art sites are the only archaeological sites that are isolated, meaning that they cannot be seen from any of the analyzed sites.

The discussion and interpretation of these visual aspects will be presented in Chapter 6.

CHAPTER VI

ANALYSIS AND INTERPRETATION

This chapter will analyze the data recovered in order to offer an interpretation of the archaeological sites located in the Balsam Coast Range during early postclassic. The first part of this chapter will discuss the topographic characteristics of the Balsam Coast range including the physiographic landscapes of the area and the implications of these environmental features for human existence. The second part of this chapter will focus in the test excavation program, discussing the excavation process along with the ceramic analysis, and the settlement pattern of the archaeological sites. Finally, the third part of this chapter will describe and discuss the different analyses based on Geographic Information Systems (GIS) such as Least Cost Path (LCP), Intervisibility, and Viewshade applied in the archaeological sites of Balsam Coast Range.

Geomorphology of Balsam Coast Range

As discussed in Chapter 1, the Balsam Coast range consists of the remains of several strata of an ancient volcano from the Quaternary period. Known as Jayaque volcano, it is estimated to have had a diameter of up to 30 km and a height between 3000 and 4000 masl, significantly exceeding the parameters of any active volcano in El Salvador during the Quaternary (Lexa et al., 2011). The southern sector of Jayaque volcano, that ascends from sea level to 1500 masl, is known as the Balsam Coast, which conforms an irregular and complex topography of rugged volcanic ranges that intersect the coast in a series of southwest-trending ridges separated by deeply incised

linear and small canyons (Marshall, 2007).

In terms of resources, the location of Balsam Coast is strategic due to the fact that forms a mountainous barrier that interacts with the Pacific Ocean and the internal valleys of the Central Graben. This position would have allowed accessibility to marine and mountain resources to ancient cultural groups of the area. But despite the resources that the area could have provided to ancient societies, the conditions to build settlements and live in the area are not optimal. The main problems to establishing permanent settlements were the absence of permenent water sources at the narrows plateaus area, the lack of extensive plain areas to build the settlements and to practice agriculture, and possible flooding.

As discussed in Chapter 1, the natural hydrological threats mainly occurred in the upper part of the area, specifically in the municipalities of Teotepeque, Jicalapa, Chiltiupán, Tamanique, Comasagua, Panchimalco, Rosario de Mora, Huizúcar, and part of the municipality of San José Villanueva. These locations correspond to the area of greater slope, greater intensity of rain, and high susceptibility to landslides, when heavy rains of high intensity with unstable soils can give rise to debris flow. The debris flows would constitute a natural catastrophe that would affect people and agricultural fields. Debris flows can also cause unstable dams that become a threat of greater magnitude to collapse, generating a flow of debris of great magnitude and speed. The threat of instantaneous landslides has also been identified; in the case of high storms intensity and short duration in the upper part, which can affect river users in the middle zone and low of the aforementioned municipalities, because of the shape of the elongated basins they have to give a rapid response to the drainage of the rain generating large fluxes and kinetic energy originated for the slopes of the high zone. This type of rapid response to storm drainage occurs in all subbasins of the area (Viceministerio de Vivienda y Desarrollo Urbano, 2005).

Based on this, the Balsam Coast constitutes an area with hard conditions to deal with; as greater slope, greater intensity of rain and high susceptibility of landslides triggering debris flow. Probably, these hard conditions are one of the reason of the lack of important settlements belonging to the Preclassic and Classic periods at the Balsam Coast. However, during Postclassic period, the Balsam Coast Range somehow attracked the Nahua-Pipiles.

Specifically, during the Early Postclassic period the nahua-pipil decided to establish their settlements in the Balsam Coast, mainly at the top of the narrows plateaus area. Why this cultural group decided to build their settlements during the Early Postclassic in the Balsam Coast? The hard conditions of the area explained above did not attract any cultural group during Preclassic and Classic periods. Probably the use of the space during Early Postclassic period, under these environmental conditions, was related with a process of conceptualization of the space from a defensive perspective and from a symbolic perspective as well.

Despite the harsh living conditions in the Balsam Coast, the high density of annual rainfall in the area could have been an attractive determinant for Nahua-Pipils to settle in the area. This may be related to the different cultural practices developed during the Postclassic period associated with the veneration cult of Tlaloc, the Nahua deity associated with water, rain, and war, among other invocations. These venerations were usually carried out at the top hill of the mountains in order to be close to the rain-laden clouds. Likewise, these cultural practices may be associated with an emulation process in order to preserve their identity as an ethnic group. The cultural landscape could have played a decisive role in the settlements established in the Balsam Coast range during Early Postclassic period. This particular landscape, constituted a symbolic element of great

importance in the decision to build the settlements in order to developed their cultural practices evoking their homeland.

Test Excavations

One of the main goals of test excavation program was to determine that these settlements have a Nahua-Pipil cultural affiliation and that were established on pristine soils, meaning that no occupation dating before AD 900 has been recognized. The implications of this data are important, since they highlight cultural formations establishing on the landscape and imposing a fresh template on it, associated not just with defensible reasons but an emulation of the Nahua-Pipil homeland. Additionally, excavations looked to determine chronological sequences and the use of space. In order to accomplish these goals, test excavations were placed in open plazas facing standing architecture and trenches were executed in order to locate and understand the architecture of the structures and recoverable data from refuse activities outside the structure. Unfortunately, El Panteoncito archaeological site was the only site that could be excavated for the reasons explained below.

It was planned to conduct two independent excavation programs in the study area, one in the core area of registered settlements, and the other one in the surrounding areas of the archaeological sites, specifically in the down part of the slopes. Down-slope excavations were not possible, however, because of the following reasons: (1) the owners of the land did not grant permission to dig test excavations, and (2) some archaeological sites of the study area are located in land dominated by *maras* or *pandillas*. Core area excavations were partially conducted because of the same reasons.

The Panteoncito site was selected for excavation. Following is a description of the test units.

Test Unit 1

Test Unit 1 (TU1) was located in the center of the plaza of complex A between mounds 1, 2 and 3. The objective of test unit 1 was to understand the conformation of the plaza and its potential use. TU1 is oriented north-south with dimensions of 2 x 2 m. It was possible to document 2 strata, the first one was a humus layer with a thickness of 0.20 m, and the second one by a layer of volcanic tuff. It was decided to excavate a small area of 2 x 0.50 m of the tuff to obtain data of the layer thickness, it was excavated to 1 m and the same layer of tuff continued, therefore it was decided not to go deeper. During the excavation no remains of cultural materials were found (See figures 32 and 33).

Figure 32. TU1. Surface of volcanic tuff.

Figure 33. TU1. Two strata, humus layer and volcanic tuff.

Although any cultural remains were documented in TU1, the surface of the volcanic tuff, just below the humus layer, was observed to be relatively leveled, which opened the possibility that this volcanic stratum had been leveled by the ancient inhabitants of the site to use it as the floor of the plaza and develop different activities related to civic-ceremonial events. However, there is not much data in this regard, therefore it was decided to open more operations in the area of the plaza. One of the big questions was the absence of cultural material, which could have been related to the geomorphology of the area, that is, to the narrowness of the plateau, which probably facilitated the dragging of cultural materials as a result of the annual rainfall cycle. Based on the above, test units 2 and 3 were located to the north and east of the plaza, respectively, in areas where the topography of the area descends abruptly in order to find cultural drag material accumulated by erosion caused by rain.

Test Unit 2

Test Unit 2 (TU2) was located on the east side, outside of the complex A *plaza*, specifically where the topography of the narrow plateau slopes down. The objective of TU2 was to recover cultural material that would make it possible to identify diagnostic ceramic types. TU2 was oriented north-south with dimensions of 1 x 1 m. It was possible to document 3 strata, the first one was a clayey layer, the second one was a blackish brown earth and the third one was a clayey earth. TU2 excavated to 1 m. As a result of the excavation, it was possible to recover non-diagnostic cultural material and in very low density (See figure 34).

Based on the preceding, the hypothesis that the absence of cultural materials in the *plaza* was due to the dragging of cultural materials by the rain seemed to be true, however the density of cultural materials continued to be too low. Therefore, it was decided to open TU3 in the lower area

of structure 1, just to the north of the site.

Figure 34. TU2. Three strata documented.

Test Unit 3

Test Unit 3 was located on the north side of structure 1, outside the *plaza* of complex A, specifically where the topography of the narrow plateau descends. The objective of TU3 was to recover cultural material that would make it possible to identify diagnostic ceramic types. TU3 is oriented north-south with dimensions of 1 x 1 m. Two strata were documented, the first was made up of a layer of humus and the second by a layer of clay soil. TU3 excavated to 1 m. As a result of the excavation, it was possible to recover non-diagnostic cultural material and in very low density.

Like TU2, the density of cultural materials was still too low. The previous led to raising various questions in this regard. If the low density of cultural material was not associated with the topographical dynamics of the area, could it be associated with the spatial use of certain cultural

practices developed at the site? Based on this, it was decided to excavate at the bottom of structures 1 and 2 in order to learn about the construction system and confirm whether the leveled volcanic tuff recorded in TU1 corresponded to the floor of the plaza of complex A.

Test Unit 4

Test Unit 4 (TU4) was located in front of structure 1 of complex A. TU4 was located on the south side perpendicular to structure 1 and oriented north-south. This test unit had dimensions of 5 x 2 m. The objective of TU4 was to understand the construction system of structure 1 and to find the connection of the leveled volcanic tuff with the start of structure 1 in order to corroborate the use of tuff as a floor.

As a result of the excavation of TU4, it was possible to document and register the main stairway of structure 1, composed of 4 steps. The construction system is composed of volcanic stones without plaster. Likewise, the connection of the volcanic tuff with the start of structure 1 was recorded, verifying that the ancient inhabitants of the El Panteoncito site adapted the surface of the tuff by leveling it to be able to build the structures on the tuff and use it as a floor of the plaza (See figure 35 and 36).

One of the interesting features of structure 1 is the alignment of stones that it presents in the upper part. This alignment is oriented on an east-west axis, in total 20 stones were counted. TU4 extended to this feature in order to understand its function. Based on the excavations, it was possible to determine the small size of the stones, proposing that the alignment of stones did not fulfill structural functions, probably that feature fulfilled ornamental or possibly ceremonial functions. It should be noted that this feature of aligned stones in the upper part of the structures is repetitive in several Postclassic sites that have been documented on the Balsam Coast.

Regarding cultural materials, it was possible to document fragmented material belonging to the postclassic period. However, the material registered was in low density taking into account the dimensions of the TU4 of 5 x 2 m.

Figure 35. TU4. Main stairway of Structure 1.

Figure 36. TU4. Volcanic tuff floor. Structure 1.

Test Unit 5

Test Unit 5 (TU5) was located in front of structure 2 of complex A. TU5 was located on the west side parallel to structure 2 with dimensions of 2 x 1 m and oriented north-south. The objective of TU5 was to record the volcanic tuff floor on the south-east side of the complex A plaza in order to corroborate the continuity of the tuff floor. It deepened 0.15 m and it was possible to document the volcanic tuff floor (See figure 37). Regarding the cultural materials, it was not possible to document any remains of ceramic and lithic materials.

Based on the data collected in TU1 and TU5, it was possible to record a slight unevenness of the plaza towards the west side, this was probably done with the intention of using this

unevenness as a drainage to avoid the accumulation of water in the plaza.

Figure 37. TU5. Volcanic tuff floor.

Test Unit 6

Test Unit 6 (TU6) was located on the west side at the bottom of structure 4 of complex C. TU6 was oriented north-south and with dimensions of 2 x 2 m. The objective of TU6 was to record the possible volcanic tuff floor of the plaza of complex C as well as the recovery of cultural materials. The excavation deepened to 0.50 m, no volcanic tuff floor was recorded, however, an alignment of large stones oriented at 40º North Azimuth was identified (See figure 38).

The alignment of stones documented in TU6 are probably the foundations of a possible retaining wall to prevent erosion, since structure 4 is located on the edge of the plateau, specifically

where the *lengüeta* divides. Regarding the cultural materials, it was not possible to document any remains of ceramic and lithic materials.

Figure 38. TU6. Alignment of large stones.

Test Unit 7

Test Unit 7 was located perpendicular to structure 4 on the north side at its base. TU7 was oriented north-south and with dimensions of 6 x 2 m. The objective of TU7 was to record the construction system of structure 4 of complex C, as well as the recovery of cultural materials. During the excavation it was possible to document a stone wall with an approximate height of 1 m, however a good percentage of the wall was collapsed towards the outside of the structure. Based on the above, the collapsed stones of the wall were lifted in order to continue deepening the excavation and to be able to document some floor. However, it deepened to 0.50 m below the wall

and no volcanic tuff floor was recorded, only a layer of reddish-brown clay soil with the presence of volcanic tuff fragments. The construction system of structure 4 is made up of volcanic stone without plaster (See figure 39 and 40).

After the excavation of the wall, it was decided to place an extension of TU7 to the south of it, right in the center of structure 4. The extension was 2 x 1.5 m in area and deepened to 1.2 m. It was possible to document a single layer of highly compacted silt-clay brown soil.

Figure 39. TU7. Collapsed stone wall. Structure 4.

Figure 40. TU7. Structure 4.

Although in the superficial survey structure 4 was the one with the greatest ceramic material on the surface, highlighting diagnostic material such as fragments of early postclassic incense burners, during the excavations it was possible to document very low-density cultural materials (See figures 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55 and 56).

Figure 41. Las Lajas ceramic fragment. Panteoncito site.

Figure 42. Las Lajas ceramic fragment. Panteoncito site.

Figure 43. Las Lajas ceramic fragment. Panteoncito site.

Figure 44. Las Lajas ceramic fragment. Panteoncito site.

Figure 45. Las Lajas ceramic fragment. Miramar site.

Figure 46. Guazapa Complex ceramic fragment. Miramar site.

Figure 47. Guazapa Complex ceramic fragment. Cerro de Ulata site.

Figure 48. Guazapa Complex ceramic fragment. Cerro de Ulata site.

Figure 49. Guazapa Complex ceramic fragment. Cerro de Ulata site.

Figure 50. Guazapa Complex ceramic fragment. Cerro de Ulata site.

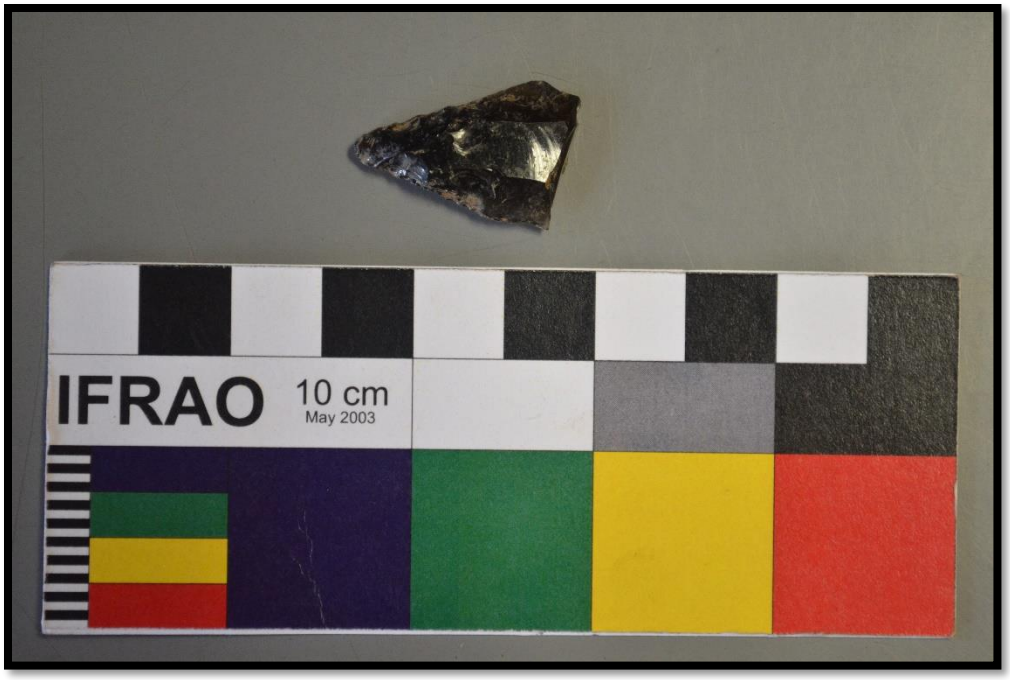

Figure 51. Obsidian arrow. Panteoncito site.

Figure 52. Obsidian prismatic blade. Panteoncito site.

Figure 53. Obsidian prismatic blade. Miramar site.

Figure 54. Obsidian arrow. Miramar site.

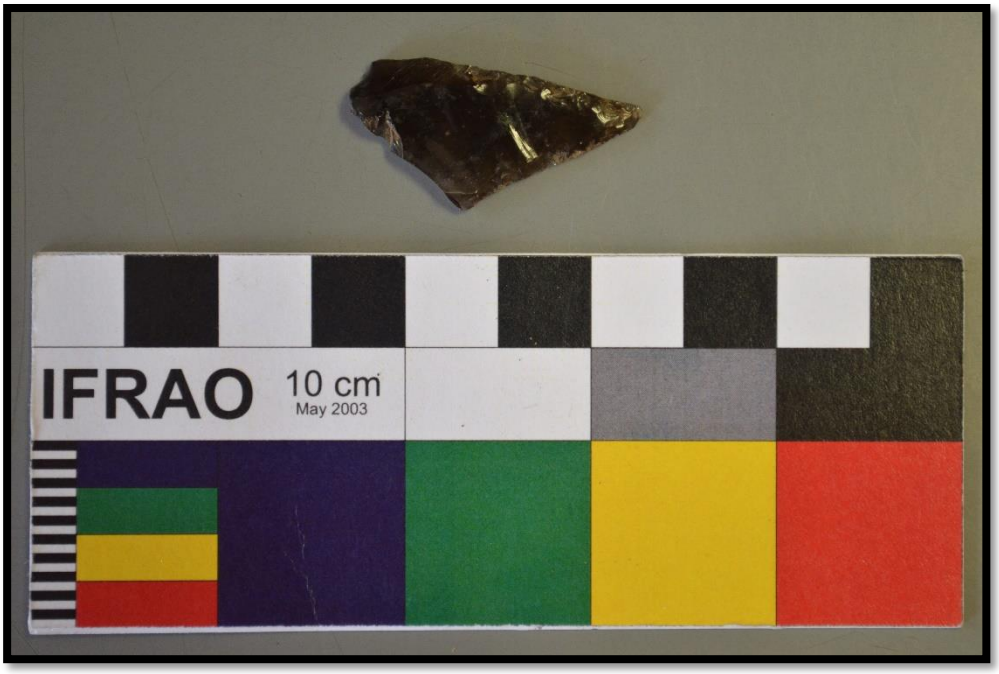

Figure 55. Obsidian arrow. Miramar site.

Figure 56. Obsidian scraper. Miramar site.

As a result of test excavation program conducted at El Panteoncito site (See figure 57) could be determinate, based on ceramic material and the settlement, that the site belongs to Guazapa complex, meaning that has a Nahua-Pipil cultural affiliation. Additionally, the site was built on pristine soil, meaning that no occupation dating before AD 900 has been recognized. The implications of this data are important, since they highlight cultural formations establishing into the landscape and imposing a fresh template on it. The settlement pattern of most of the early postclassic sites associated with the Guazapa complex shows a tendency to be located in high places such as at the top of hills, hills or islands, probably associated with an eminently defense and shelter strategy, with the objective of controlling its accessibility. In general, these settlements present two relevant characteristics: a strategically defensive location and architecture with defensive and militaristic features (Fowler et. al. 1989). However, this settlement pattern could be associated not just with defensible reasons but an emulation from Nahua-Pipil homeland. From research conducted in the Central Mexican highland Tula region – the possible origin place of the Nahua-Pipil people - Mastache and Cobean (1989) observed two settlements types associated with the Coyotlatelco complex: (1) hilltop communities; and (2) those located on a slope at lower elevations. Generally, hilltop sites are almost always surrounded by cliffs or very steep slopes, this setting offers a good defensive and offensive position in a military sense. Additionally, these defensive settlements characteristics are particularly important because could be related with a symbolic emulation practiced by the Nahua-Pipil in El Salvador during the Guazapa complex.

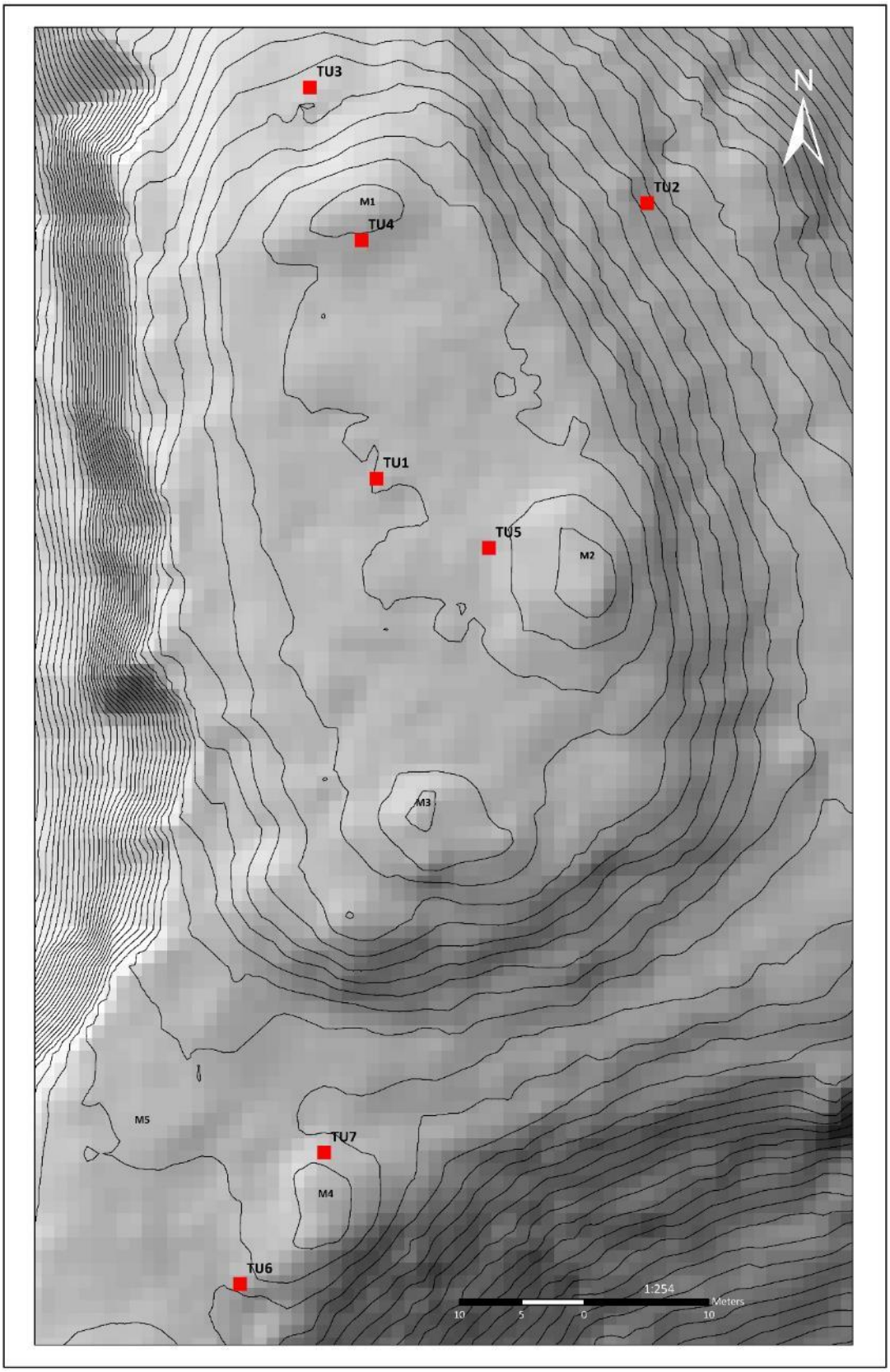

Figure 57. Test Unit distribution.

Settlement Pattern

The new archaeological data obtained through the BCAP support the proposition of a cultural pattern of appropriation of the landscape during the Early Postclassic in which the Nahua-Pipil groups adopted and built their settlements in the narrow plains of the ridges of the Balsam Coast Range system (Fowler, 2011; Escamilla, 2011).

Regarding the sociocultural reasons that originated the adoption, appropriation and transformation of the particular landscape of the Balsam Coast, and based on the data obtained by the Project, the interpretation proposed by Escamilla (2011) is supported. This interpretation postulates two possible interpretations: one associated with defensive reasons and another associated with ritual and symbolic reasons. It is important to emphasize that these two interpretations are not mutually exclusive.

On one hand, the defensive characteristics offered by the topography of the Balsam Coast are obvious, which could have been exploited by the Nahua-Pipil groups from a militaristic perspective, adopting strategically defensive places such as the crests of the *lengüetas*. As an example it can mention the following sites: Caballito, Cerro de Ulata, Texisio, Jicalapa, El Panteoncito, Miramar, Acahuaspán, and Zinacantan. All of them are located in strategically defensive areas, mostly with 360° visual control, and in some cases with remains of wall constructions, such as at Zinacantan. The extreme defensive characteristics of these sites suggest hostile sociopolitical activity, the context in which the Nahua-Pipil established their cultural

practices.

On the other hand, the location and spatial distribution of the settlements may be associated with a possible symbolic and ritual connotation that the Nahua-Pipil groups took advantage of the landscape of the Balsam Coast. In this sense, the El Letrero del Diablo and El Letrero sites are particularly important due to the petroglyphs they exhibit: a stylized representation of Tlaloc, the deity associated with water and rain, and the location of the sites associated with aquatic contexts such as rivers and streams. Likewise, the Caballito, Cerro de Ulata, El Panteoncito, Acahuaspán and Zinacantan sites have a spatial distribution that suggests that the occupation of the settlements was not only residential, but could also be related to civic-ceremonial governing site functions from which elites controlled both political and ceremonial practices.

The appropriation and modification of this type of high-altitude landscape is probably associated with a symbolic emulation of the Nahua-Pipil groups in relation to their place of origin, the central Mexican highlands, with the aim of preserving their identity and developing cultural practices that differentiate them from other contemporary cultural groups. Probably, this particular topography offered to the Nahua-Pipils a desired cultural landscape in which they could emulate or replicate cultural practices associated with their homeland.

In summary, the irregular topography offered safeguards due to the difficult access, allowing the appropriation of a defensive spatiality in the upper parts of the *lengüetas*. However, this defensive advantage was not the only factor that attracted the Nahua-Pipils to the Balsam Coast. Symbolic associations with the mountainous cultural landscape were also decisive in the establishment of settlements on the Balsam Coast in order to practice mountain rituals associated with rain and water.

All the aspects explained above could be related with Safran's (1991) *ideal-type* representation of places in order to maintain a memory of their original homeland with the possibility of an eventual return. It should also imply a lack of hybridization process or influence of local pottery, technologically and stylistically; as well as in the settlement pattern and architecture. Probably, one possible reason why the Nahua-Pipil decided to settle down in the Balsam Coast Range is associated with a diasporic migration.

Least Cost Path (LCP) Analysis

The LCP analysis carried out between each of the sites studied on the Balsam Coast range consist of Cost Surfaces, rasters showing the amount of time in seconds it takes to get from a site to a given location; Movement Directions, rasters showing the directions to move to get to the endpoint most efficiently: Paths, vectors of the shortest paths to a site. This analysis was applied in nine archaeological sites of Balsam Coast Range: Caballito, Texisio, Cerro de Ulata, Jicalapa, Letrero del Diablo, El Letrero, Zinacantan, Miramar, and El Panteoncito.

The LCP model applied between the sites of Balsam Coast provided different results than expected. Before applying the LCP analysis, it was believed that the easiest routes to connect the sites were two: one through the coast and the other using the small canyons that were formed by the erosion of the volcanic soil. However, based on the model, these were the least used routes.

Intervisibility Analysis

Landscape visibility and feature visibility are concerned with determining whether features are located in order to see positions at lower elevations, and potentially vice-versa (Conolly and Lake 2006). Intervisibility analysis determines whether features at relatively similar

elevations might have been constructed in their given locations in order to facilitate their ability to see one another. In the BCAP research, intervisibility analysis models were carried out for intrasite and intersite spaces. In the first case, the intervisibility model was established between each of the site's structures, with the aim of identifying possible areas without visibility, which could be interpreted as possible shelter areas or possible ritual areas. Regarding the second case, an intervisibility model was established between each of the 9 archaeological sites. The purpose of this analysis was to identify possible defensive aspects and areas that fostered social power or cohesion.

Regarding with the analysis of intervisibility within the site, in general terms the different structures of the sites maintain visual control (See figures 58, 59, 60 and 61). However, there are some interesting exceptions. The first case is related with El Panteoncito site, specifically in the southern sector of the site, there is an area in which there is no visual control, it is a small sunken *plazuela*. The second case is related with Miramar site, specifically in the northern part of the site, there is an area in which there is no visual control, it is a small *plazuela*. The third case is related with Zinacantan site, there is no visual control between the 3 areas of identified structures.

At El Panteoncito the sunken *plazuela with no visual control* consists of three mounds (M33-M35) designated as group G. It constitutes the southern limit of the site. It should be noted that groups C, F, and G mounds have a similar distribution, highlighting a low circular platform in front of the mounds and located towards the west side. This southern part of the site could be interpreted as a sacred area of the settlement without any visual control and associated with a circular platform.

At Miramar site, this small *plazuela*, with no visual control, it is formed by to mounds (M12-M13), and constitutes the northern limit of the site (See figure 63). Probably, this northern part of the site could be interpreted as a sacred area of the settlement without any visual control.

At Zinacantan site, it is interesting the fact that there is no visual control between the 3 areas (See figure 64). Although Zinacantan is a single settlement divided into three areas in which different structures are distributed, it is interesting that the applied intervisibility analysis gave results of no visibility between the three areas. The above can be interpreted as areas that belong to a single settlement but that developed independent ritual activities, allowing them to be developed in a private space.

In relation to the analysis between the sites, interesting information was extracted. Apparently, 2 settlement clusters can be identified, one in the West and the other in the East (See figure 65). The western cluster is made up of El Caballito, Texisio, Cerro de Ulata and Jicalapa sites. All of the above sites have visual control between them. The eastern cluster is made up of El Panteoncito, Miramar and Zinacantan sites, all of which have visual control between them. However, visual control exists between the Jicalapa site and one of the 3 groups of structures at the Zinacantan site. This would be the only existing line of visual connection between both clusters. Regarding, El Letrero and El Letrero del Diablo, they are totally isolated without visual connection.

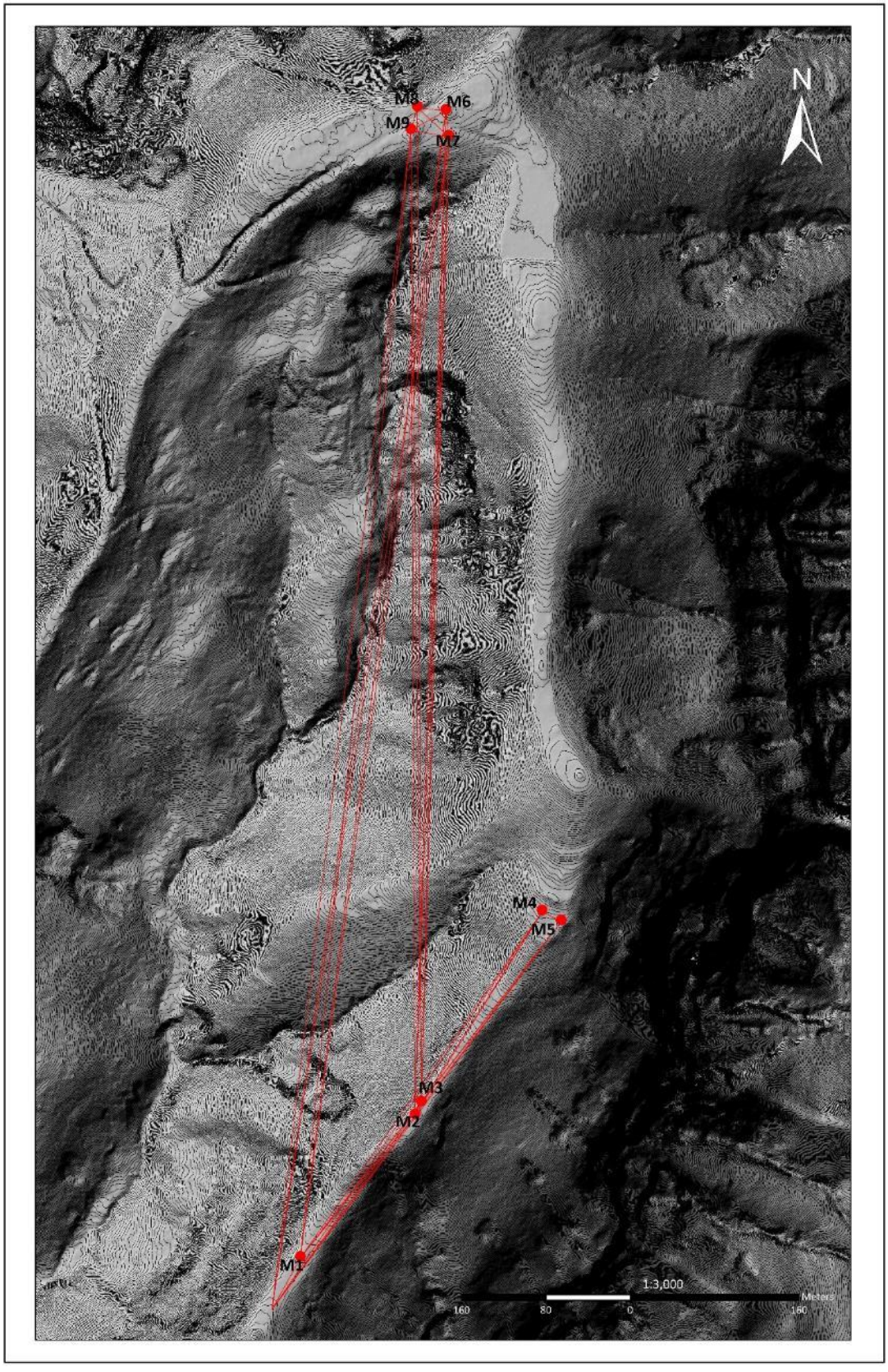

Figure 58. Intervisibility analysis at Caballito site.

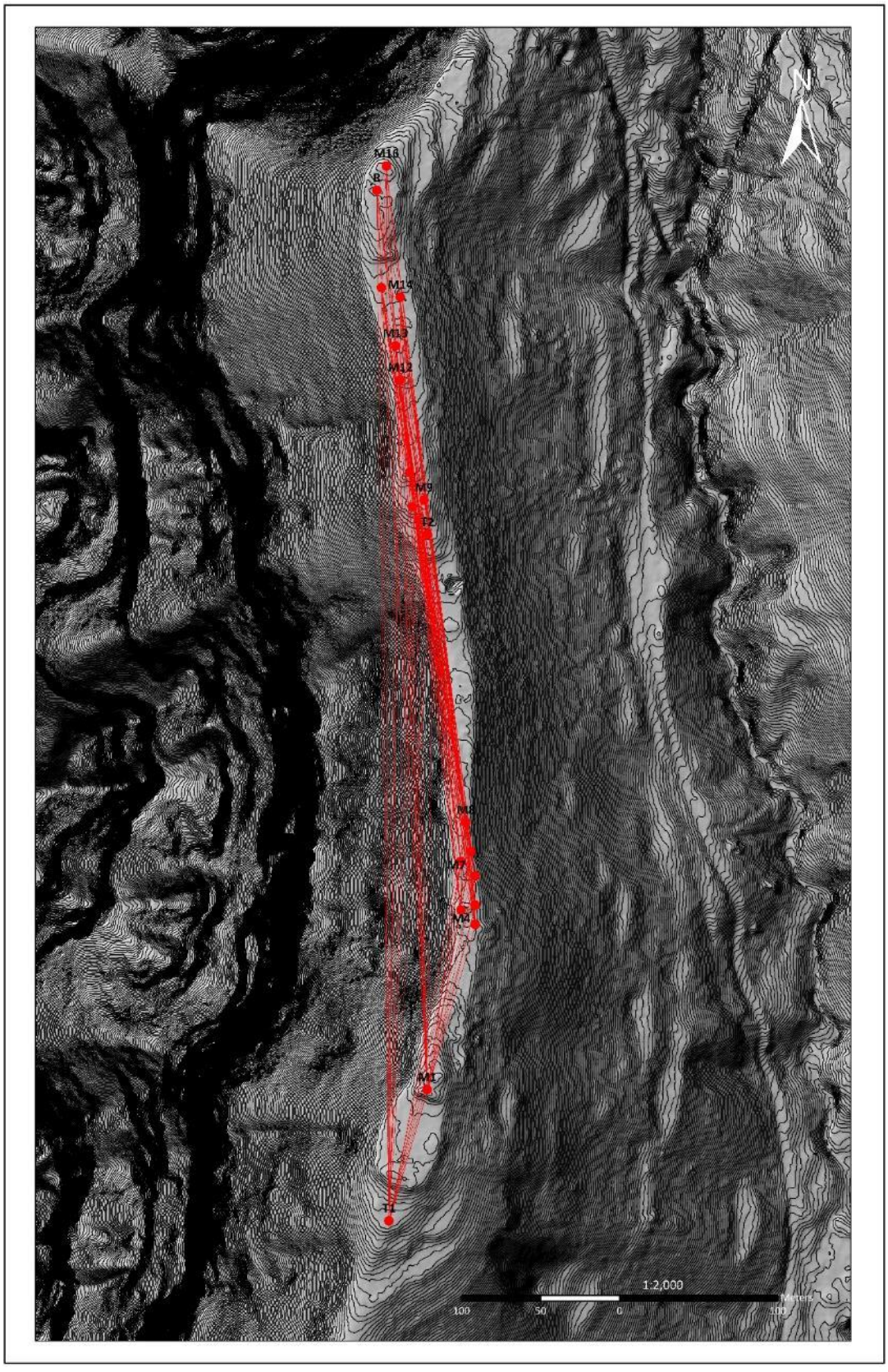

Figure 59. Intervisibility analysis at Jicalapa site.

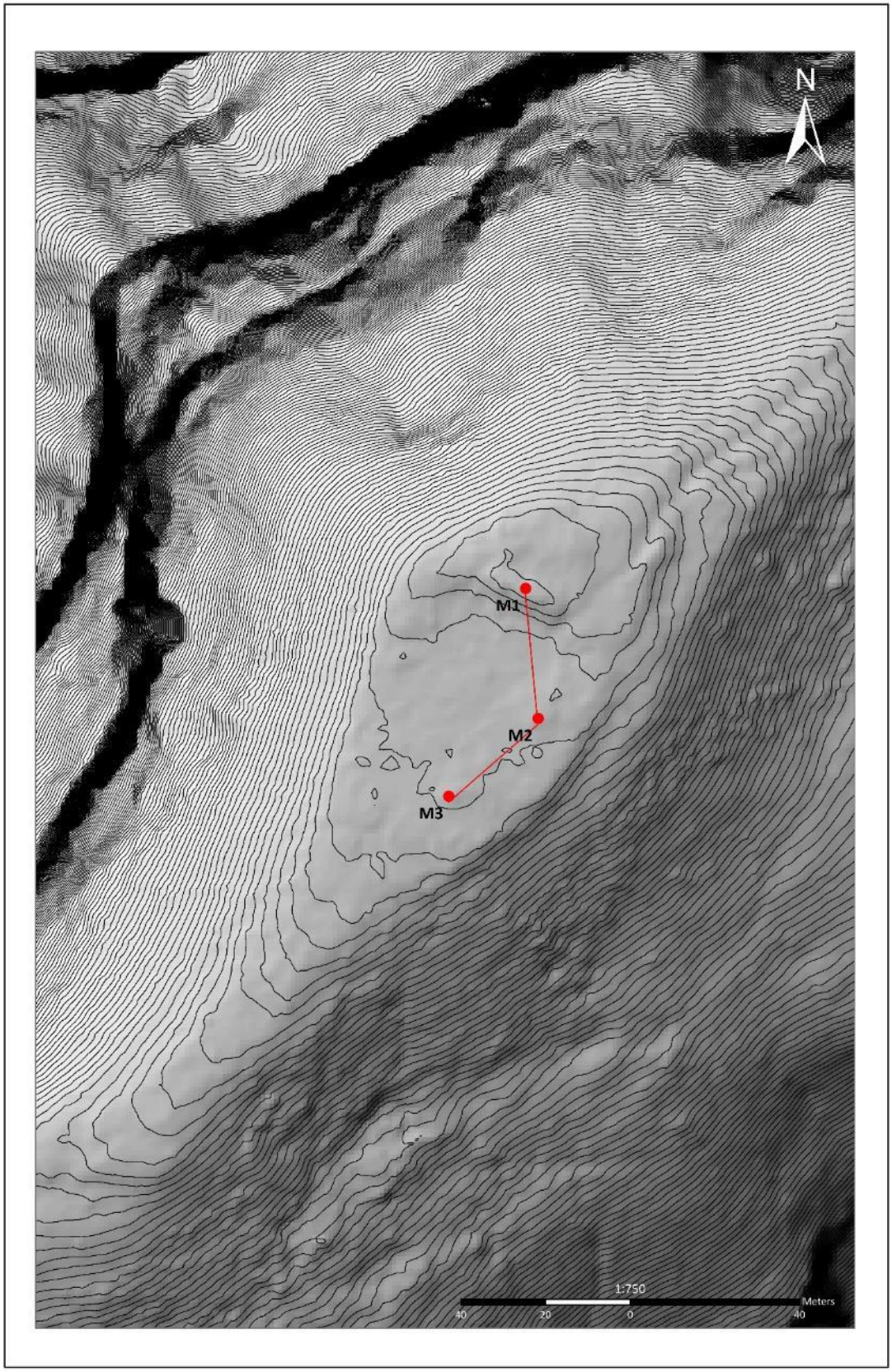

Figure 60. Intervisibility analysis at Texisio site.

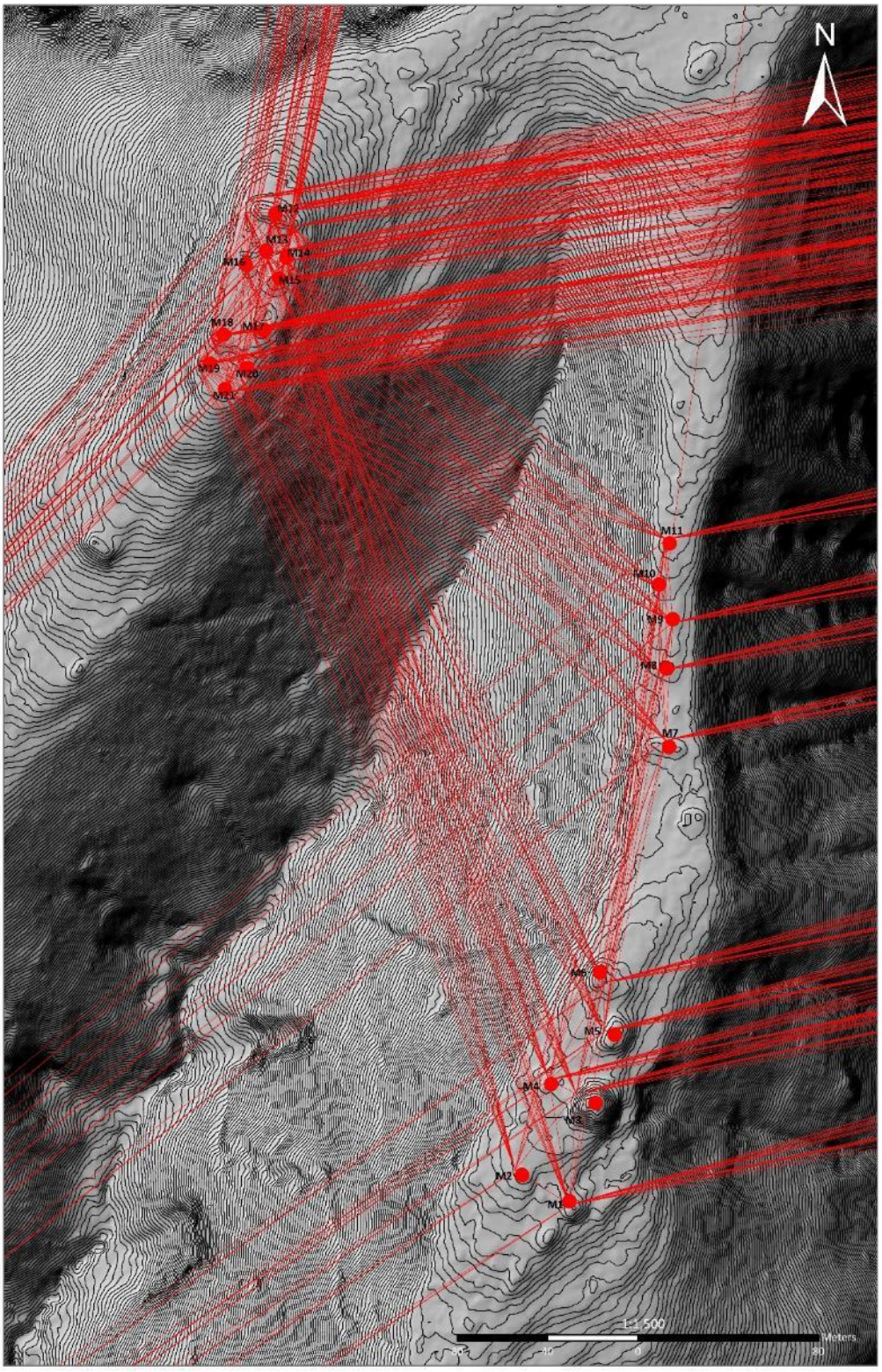

Figure 61. Intervisibility analysis at Cerro de Ulata site.

Figure 62. Intervisibility analysis at El Panteoncito site.

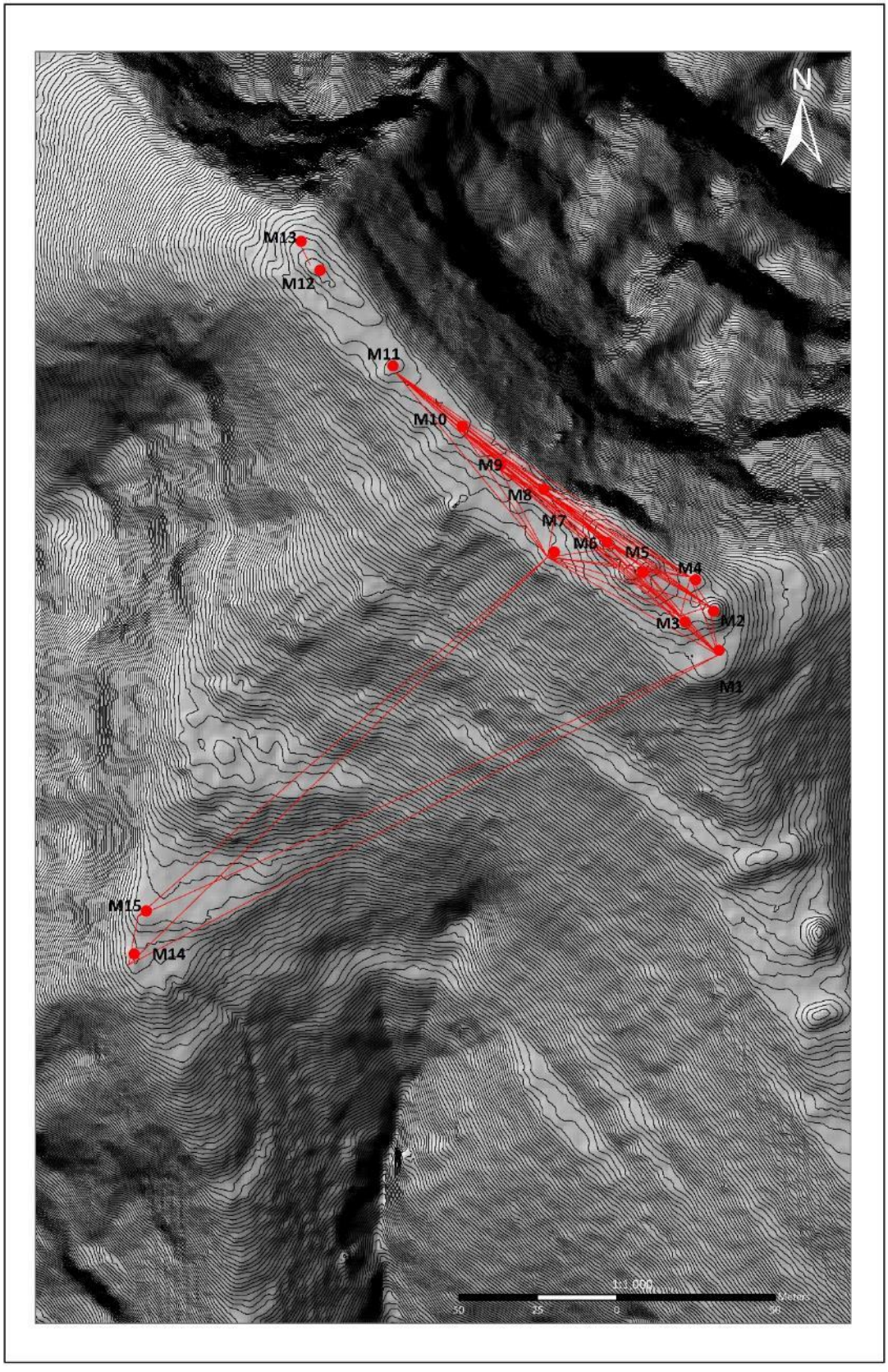

Figure 63. Intervisibility analysis at Miramar site.

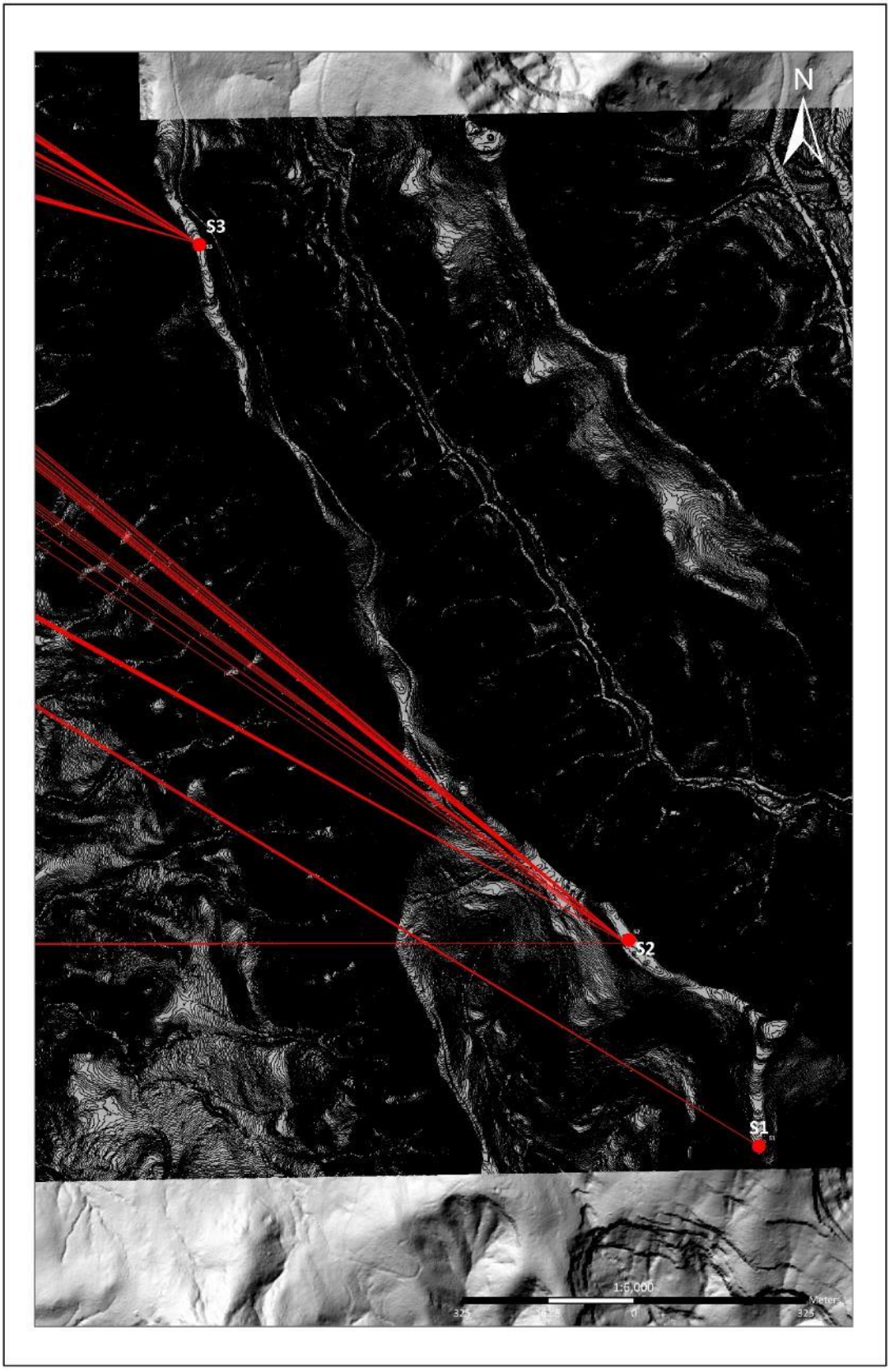

Figure 64. Intervisibility analysis at Zinacantan site.

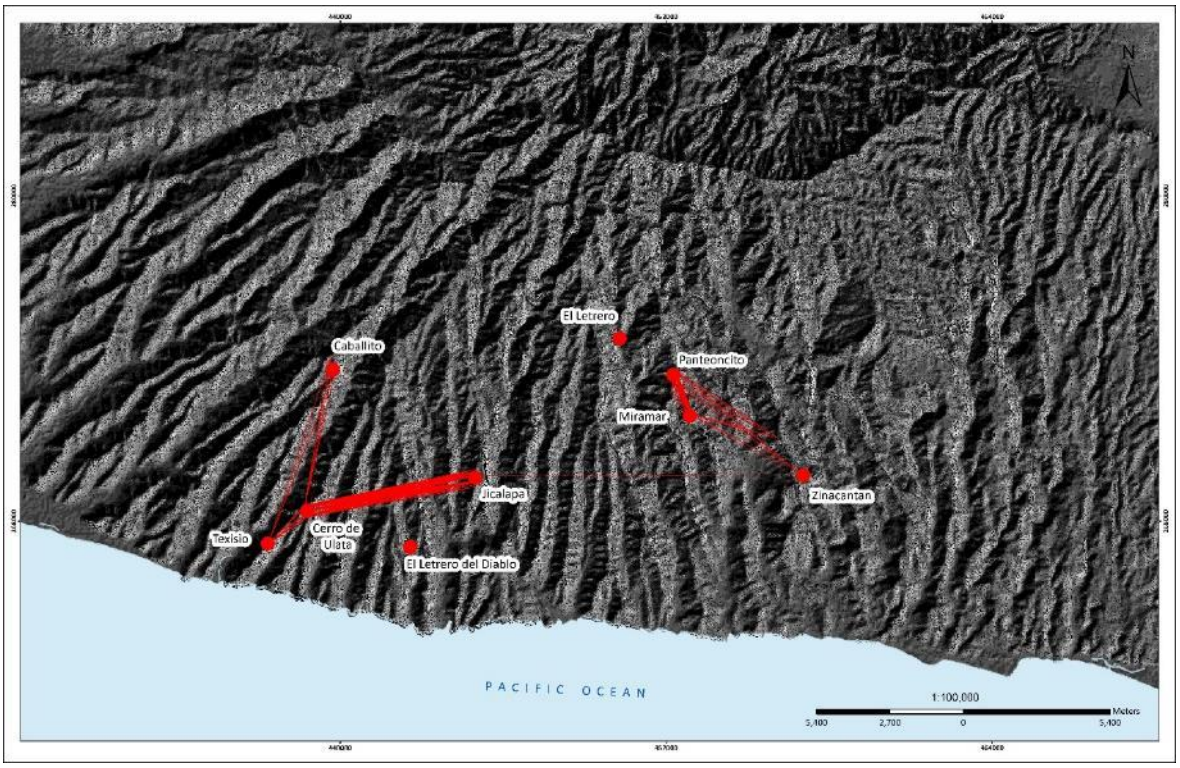

Figure 65. Intervisibility analysis inter sites.

Viewshade Analysis and Accessibility

The Viewshade Analysis carried out between each of the sites was applied in nine archaeological sites of Balsam Coast Range: Caballito, Texisio, Cerro de Ulata, Jicalapa, Letrero del Diablo, El Letrero, Zinacantan, Miramar and El Panteoncito.

As it was explained above, 2 settlement clusters can be identified, one in the West and the other in the East (See figure 65). The viewshade analysis conducted gave the same results. The western cluster composes by El Caballito, Texisio, Cerro de Ulata and Jicalapa sites, have view control among them. In the case of Caballito site, has a view control of Cerro de Ulata and Texisio sites (See figure 66). Texisio site, has a view control just of two sites: Cerro de Ulata and Caballito

sites (See figure 67). From Cerro de Ulata site, there is a view control of Caballito, Texisio and Jicalapa sites (See figure 68). And from Jicalapa, the last site of the western cluster, there is a view control just of Cerro de Ulata site (See figure 69). Regarding the landscape, from all of the sites mentioned above, there is visual control of the upper part (1,500 masl) of southern sector of ancient Jayaque volcano, as well as the Coast and the Pacific Ocean.

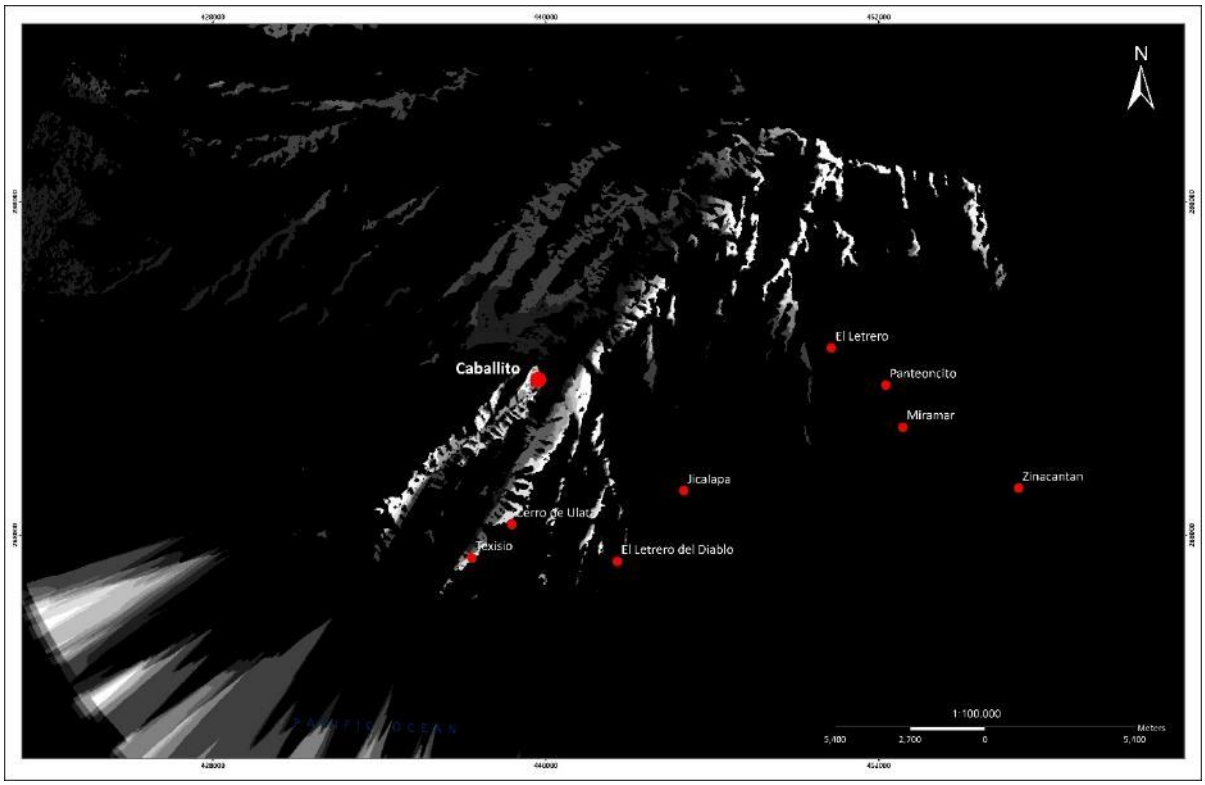

Figure 66. Viewshade analysis from Caballito site.

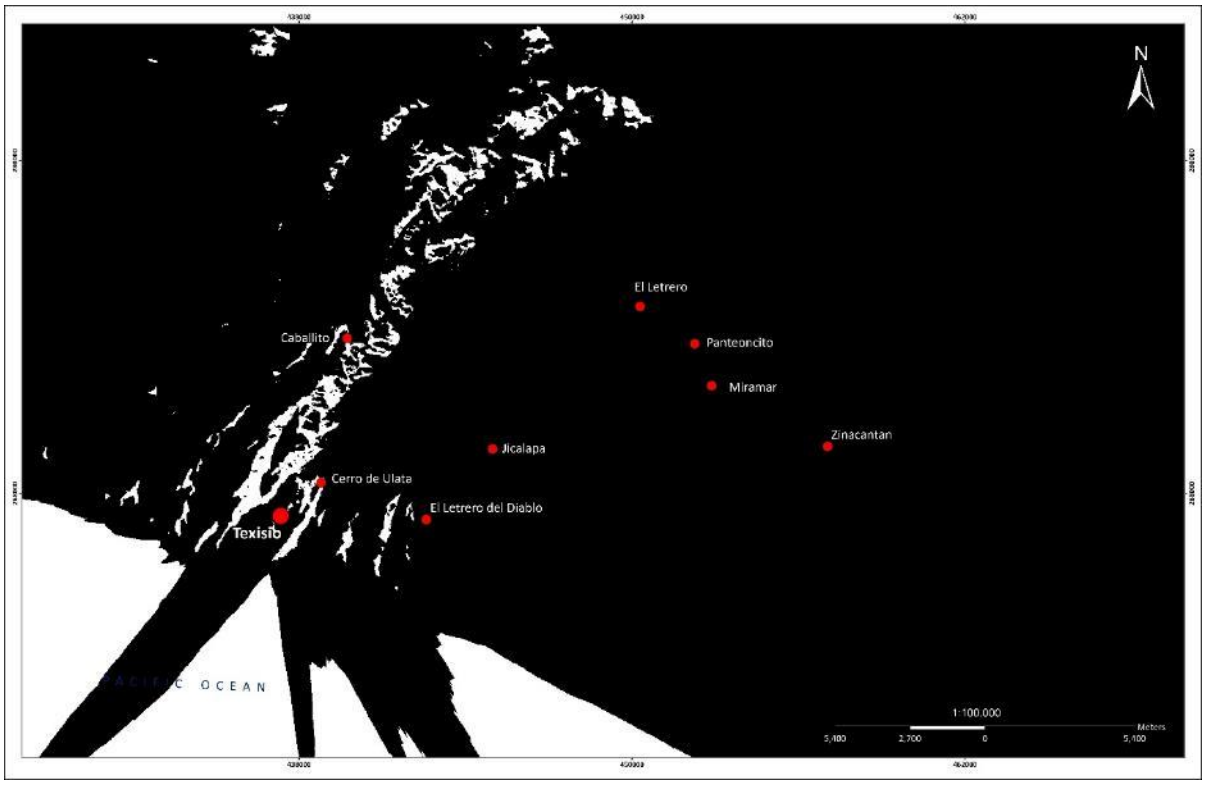

Figure 67. Viewshade analysis from Texisio site.

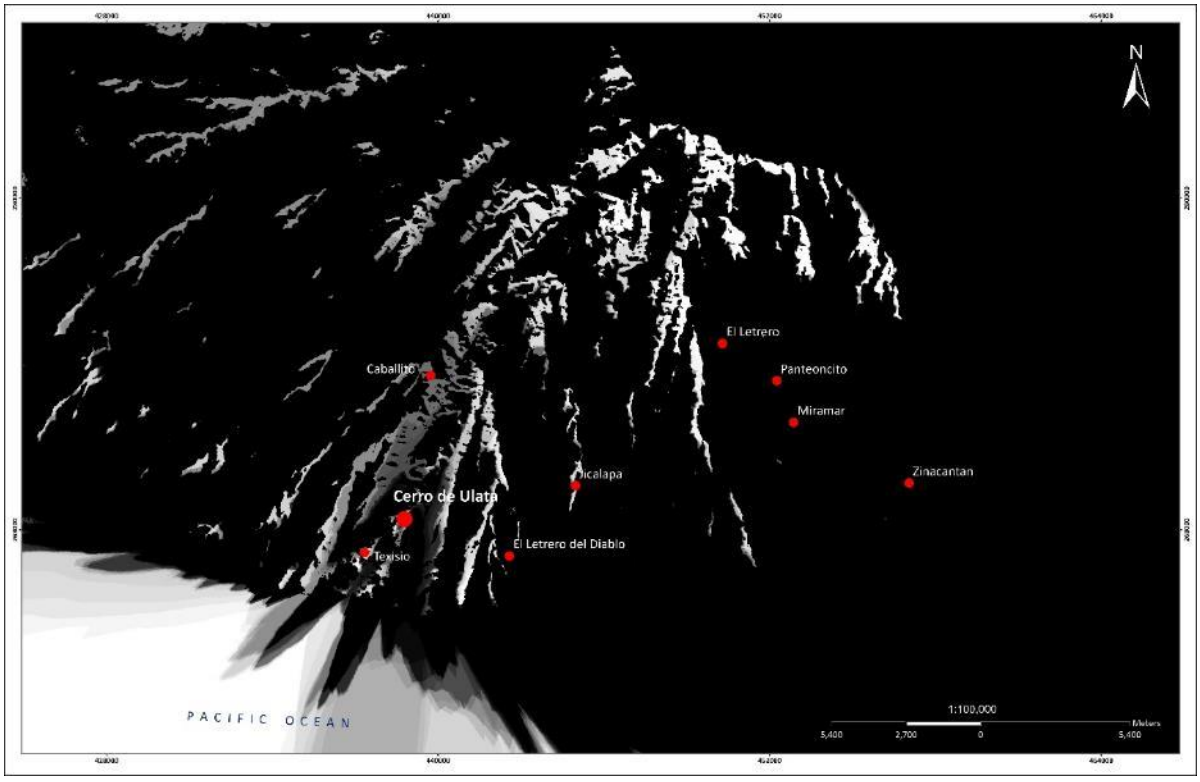

Figure 68. Viewshade analysis from Cerro de Ulata

The eastern cluster composes by El Panteoncito, Miramar and Zinacantan sites, all of which have visual control between them. In the case of El Panteoncito site, has a view control of Miramar and Zinacantan site (See figure 70). From Miramar site, there is a view control of El Panteoncito and Zinacantan site (See figure 71). And from Zinacantan site, there is a view control of El Panteoncito and Miramar site (See figure 72). Regarding the landscape, all of them have visual control of the upper part (1,500 masl) of southern sector of ancient Jayaque volcano, as well as the Coast and the Pacific Ocean.

In the case of El Letrero del Diablo and El Letrero sites, do not have visual control with any site (See figures 73 and 74). Regarding the landscape, from both sites there is no visual control with any part of the southern sector of ancient Jayaque volcano, as well as the Coast and the Pacific Ocean.

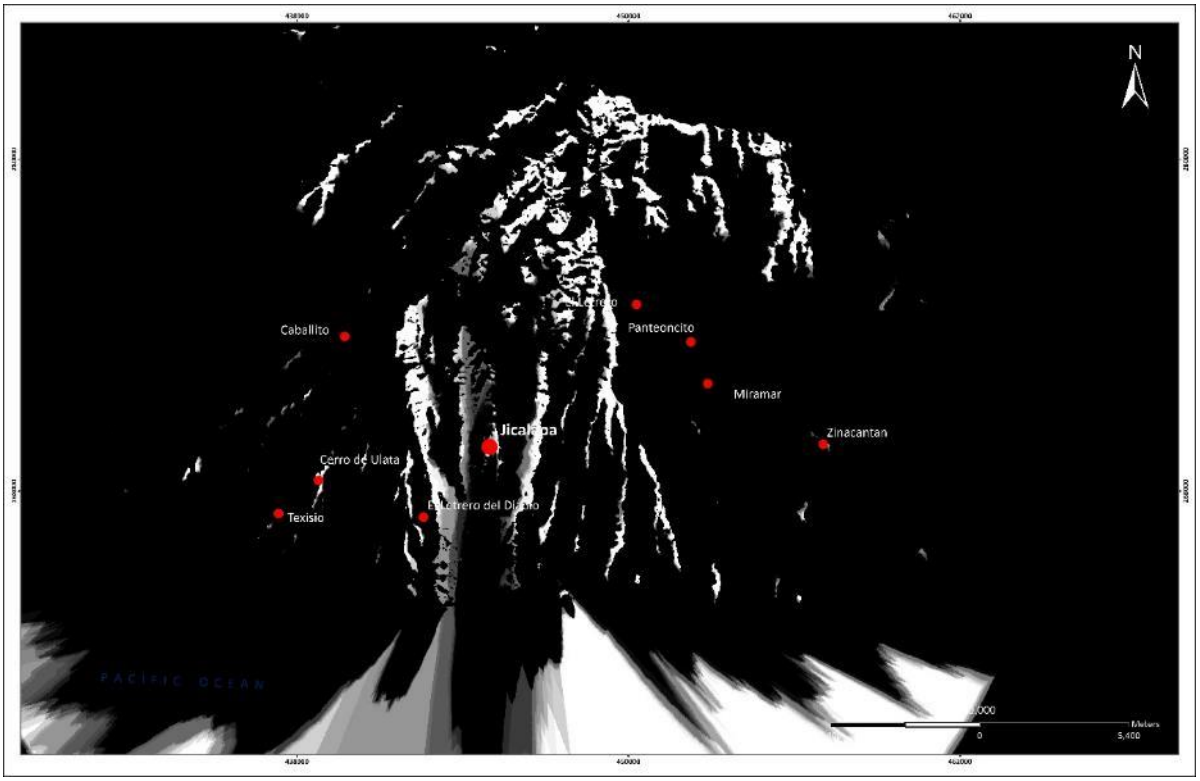

Figure 69. Viewshade analysis from Jicalapa site.

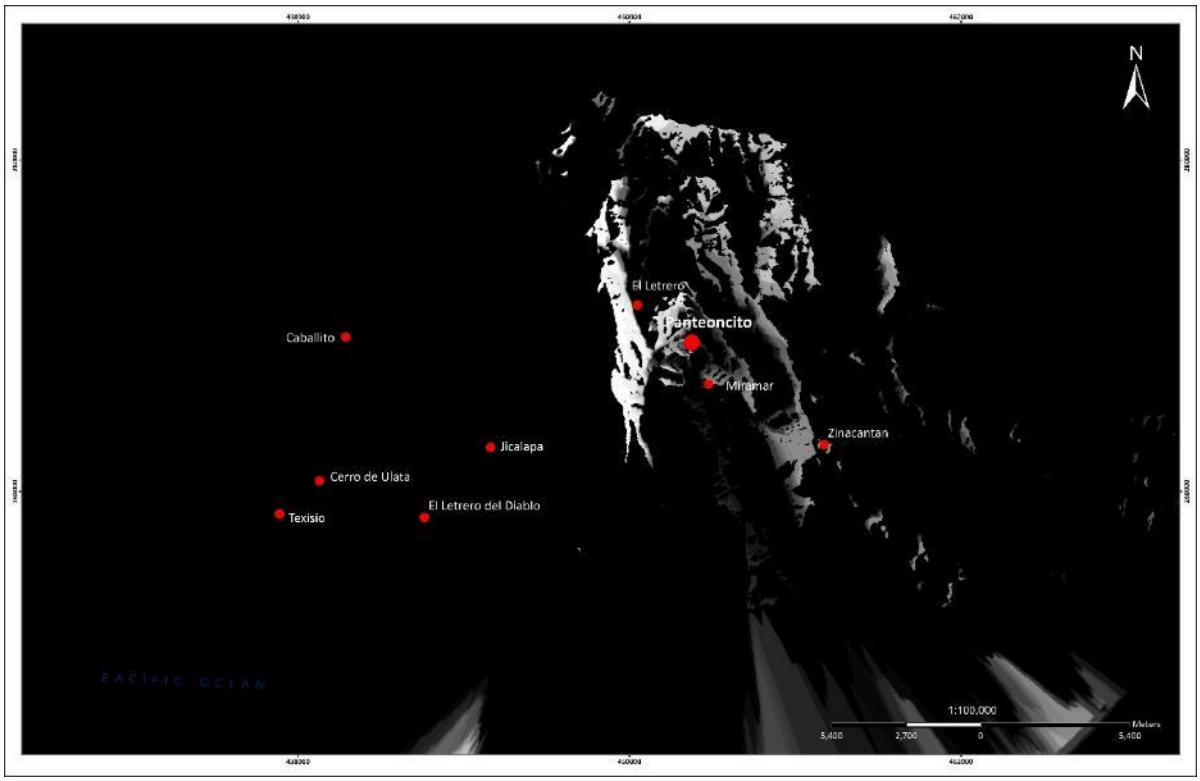

Figure 70. Viewshade analysis from El Panteoncito site.

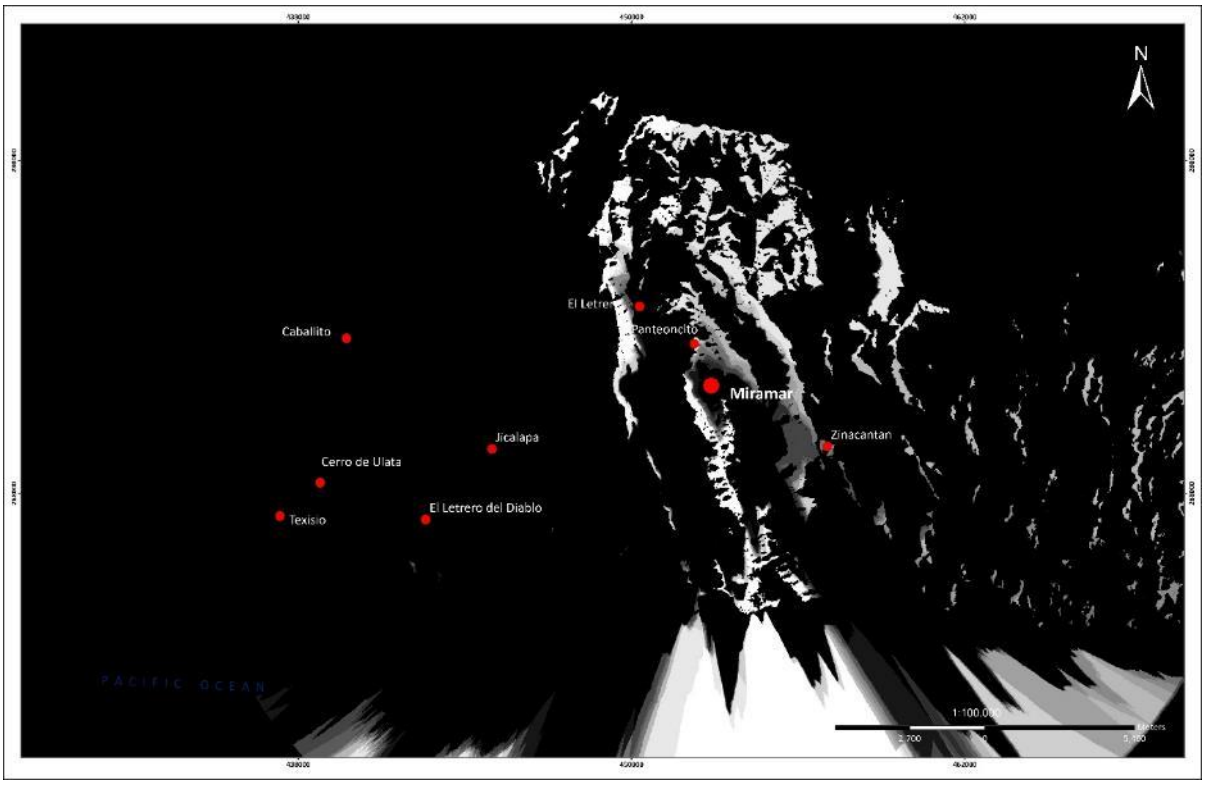

Figure 71. Viewshade analysis from Miramar site.

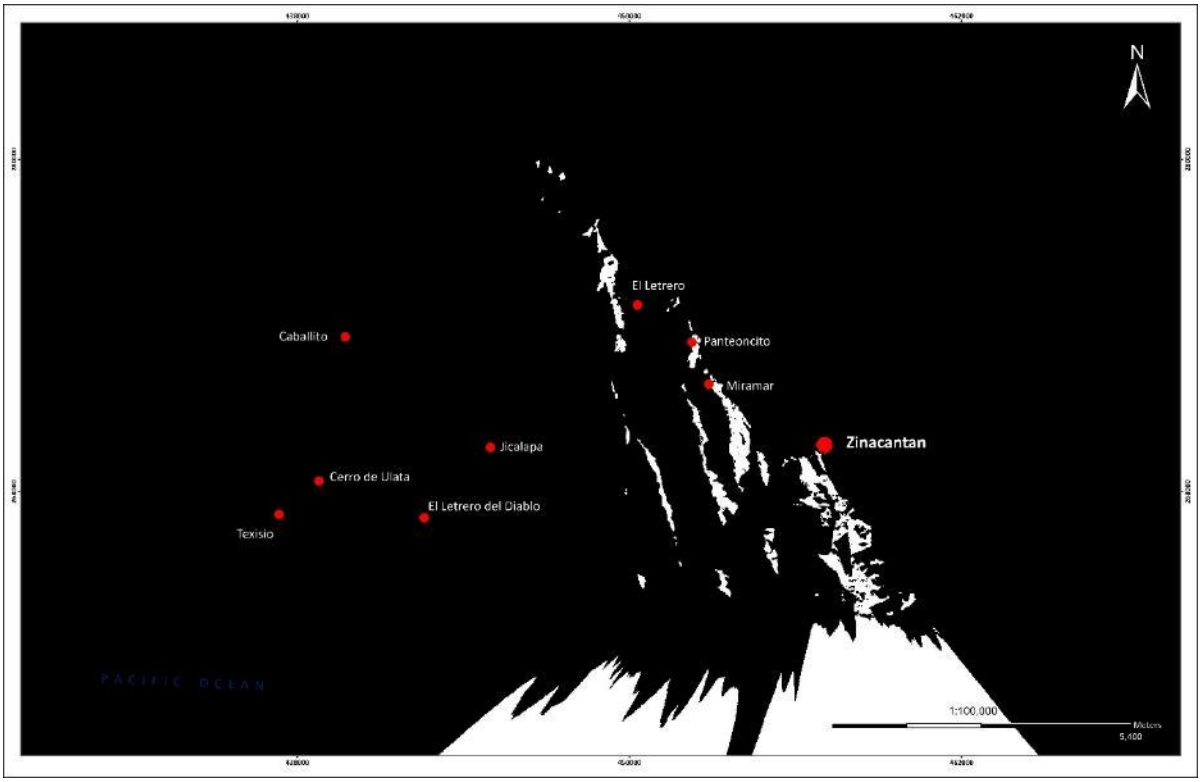

Figure 72. Viewshade analysis from Zinacantan site.

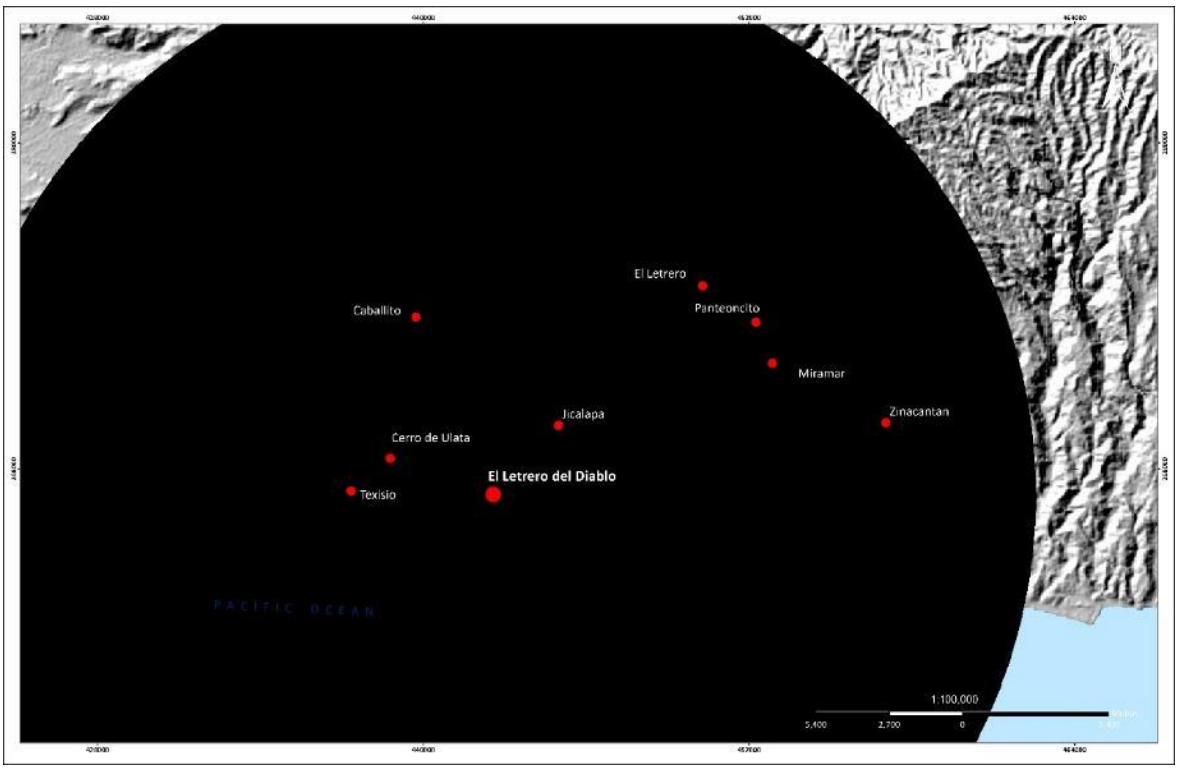

Figure 73. Viewshade analysis from El Letrero del Diablo site.

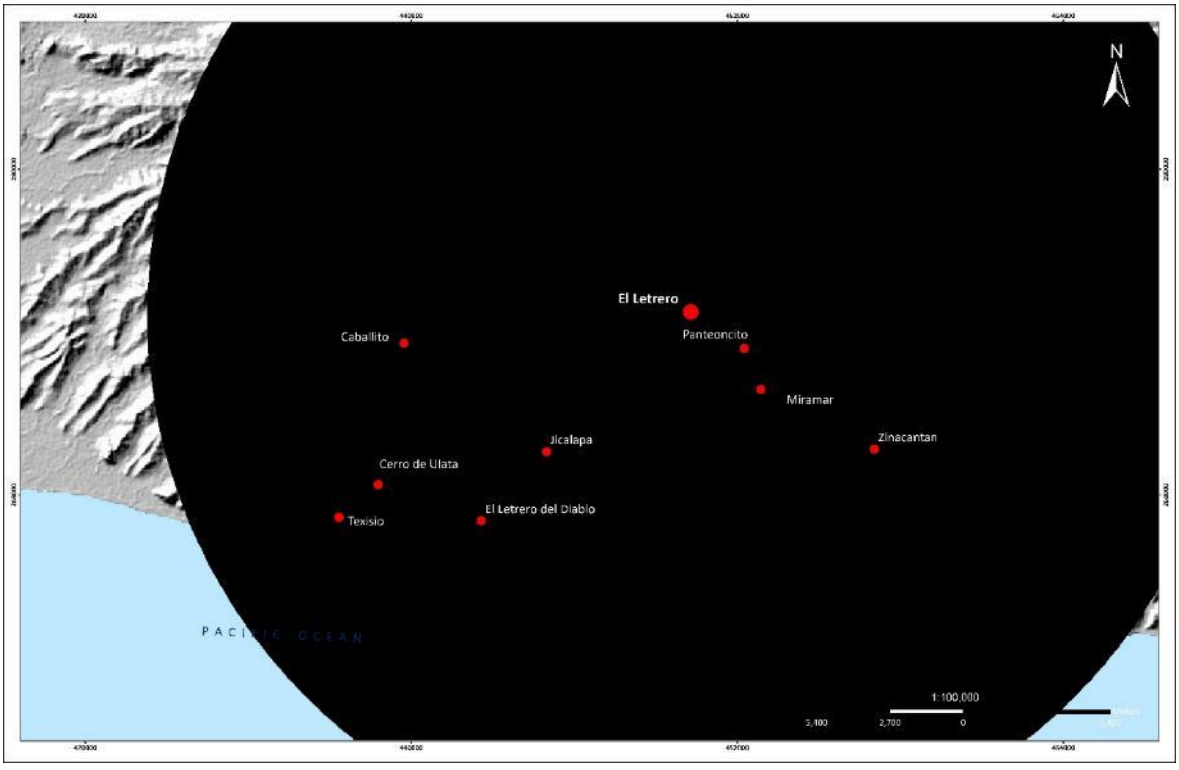

Figure 74. Viewshade analysis from El Letrero site.

The viewshade analysis conducted at the Balsam Coast provided interesting data. Taking into account that most of the archaeological sites are located in the upper parts of the *lengüetas*, there is a visual control of the upper parts of the Balsam Coast Range. Likewise, an interesting result is that, with the exception of the rock art sites of El Letrero and El Letrero del Diablo, all sites have visual control of the Pacific Ocean. Both rock art sites are the only archaeological sites that are isolated, meaning that they cannot be seen from any of the analyzed sites.

In terms of accessibility, the analysis conducted at the Balsam Coast provided interesting data (See figure 75). Zinacantan constitutes the archaeological site with the greatest difficulty of access of the nine sites analyzed. On the other hand, the two archaeological sites of rock art, El Letrero and El Letrero del Diablo, constitute the sites with the greatest ease of access.

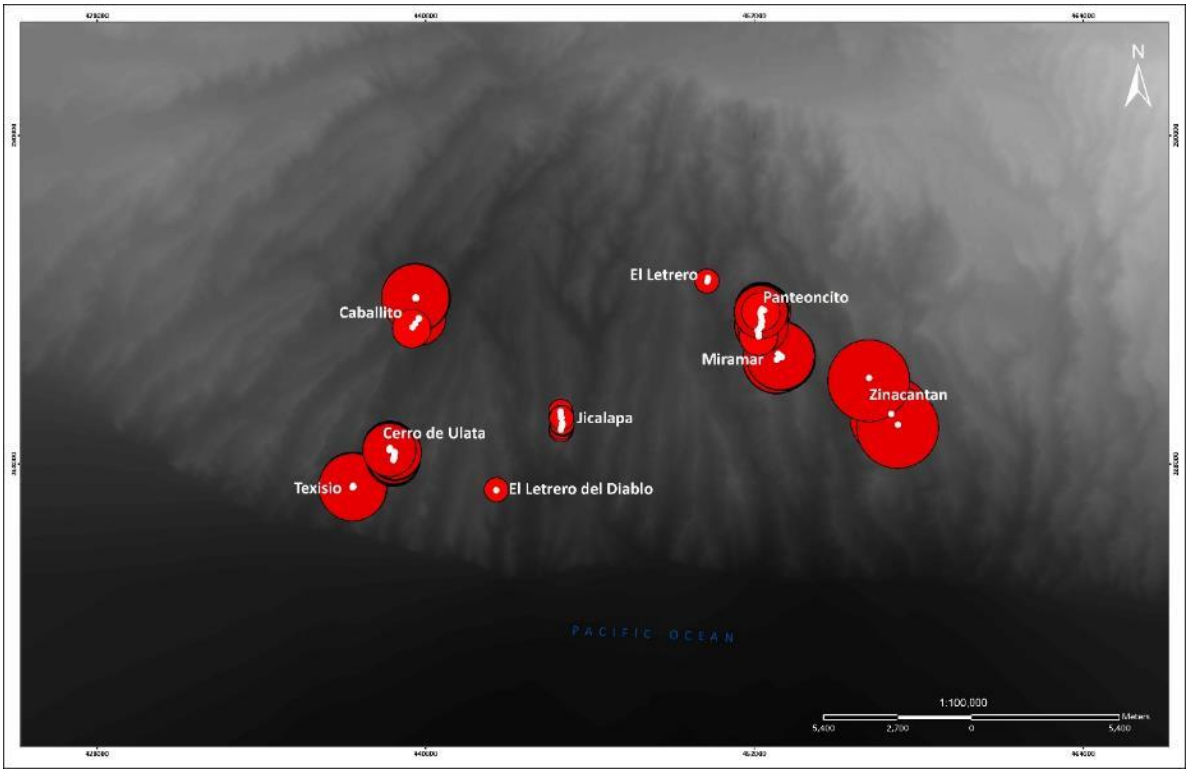

Figure 75. Accesibility analysis

CHAPTER VII

DISCUSSION AND CONCLUSIONS

This chapter will discuss the possible reasons why the Nahua-Pipils decided to settle down in the Balsam Coast Range during the Early Postclassic period and the cultural process of appropriation of this particular volcanic landscape of Balsam Coast Range. This chapter also provides the conclusions of this dissertation.

As discussed above, the Balsam Coast is a difficult area in which to live and make a living. The irregular topography of the rugged volcanic range did not attract cultural groups during the Preclassic and Classic periods. In contrast, during the Early Postclassic period the Nahua-Pipils established settlements in the Balsam Coast, mainly at the top of the narrow plateaus area. Why did this cultural group build settlements during the Early Postclassic in the Balsam Coast? Probably the use of the space during Early Postclassic period, under these environmental conditions, was related to a process of conceptualization of the space from both a defensive perspective and a symbolic perspective, within the context of a diasporic migration phenomenon.

Diasporic Migration

As discussed in Chapter 3, diaspora migrations differ from other types of migration. In general terms, in migration processes, identity tends to become permeable and over time a hybridization process could be developed. On the other hand, during diaspora processes, identity and memory or myth about their original homeland tends to be maintained and consolidated. This

is related with the concept of *ideal-type* representation of diaspora. Particularly important for this research is the interpretation of diaspora discussed by Robin Cohen (1997). Cohen based on Safran's definition of diaspora, suggests that diasporas are highly variable, however the majority involve the following common features: (a) dispersal from an original homeland, often traumatically, to two or more foreign regions; (b) a collective memory and myth about the homeland, including its location, history and achievements; (c) a strong ethnic group consciousness sustained over a long time and based in a sense of distinctiveness, a common history and the belief in a common fate; and (d) a troubled relationship with host societies, suggesting the lack of acceptance at the least or the possibility that another calamity might befall the group.

The presence of Nahua populations in Central America is dated to the Early Postclassic period (ca. A.D. 900-1200). At this time Nahua-Pipil settlements in El Salvador were dense and the archaeological remains (e.g., l-shape ballcourts, Chacmool sculptures, and Xipe Totec figurines) show affinities with the Gulf Coast and Central Mexican regions. On the basis of these observations and glottochronological reconstructions of Nahua language dialectic divergences, Fowler (1989a) concluded that the Nahua-Pipils moved from the Gulf Coast to Chiapas, Mexico, and then southward to the Pacific coast corridor of Guatemala and into western El Salvador between A.D. 900-1100.

Nahua-Pipil evidence from the Early Postclassic period has not been found yet in the Pacific Coast of Guatemala, there is no similar evidence that shows the Nahua-Pipil arrival during this cultural period (Bove 2002; Bove, et al. 2004; Chinchilla, 1996). Fowler (1989a) concluded that a second intrusion by Nahua-Pipil populations into Central America occurred in the Late Posclassic period (A.D. 1200-1524) and resulted in the establishment of the Nahua-Pipil settlements along the Pacific Coast of Guatemala.

The absence of Nahua-Pipil evidence during the Early Postclassic period in the central Pacific coast of Guatemala is particularly relevant. Probably this absence of archaeological evidence in the area is associated with two reasons: (1) a lack of extensive archaeological research or (2) a lack of the landscape and geomorphology required by the Nahua-Pipil associated with the *ideal-type* representation of places in order to maintain a memory of their original homeland as a representation of a diaspora process.

Tula is considered the homeland of Nahua-Pipil (Fowler, 2011) and is located in the Central Highlands of Mexico. Archaeological sites from this area, such as La Mesa, are located on a hilltop and present architectural elements such as terrace walls, platforms, stairway remnants, and numerous rectangular and circular foundations (Mastache and Cobean, 1989). These topographical features are particularly important to the identity of the Nahua-Pipil. Probably these geomorphological characteristics are the ones found on the Balsam Coast Range. There is evidence that Tula Chico was abandoned between about AD 800 and 850, after which architectural construction intensified at the Tula Grande center to the south (Mastache et al. 2002). This sociopolitical situation between Tula Chico and Tula Grande could be associated with one of the reasons that motivated a diasporic migration from Central Highlands Mexico to Central America. Additionally, the defensive settlements characteristics are particularly important because could be related with a symbolic emulation practiced by the Nahua-Pipils in El Salvador during the Guazapa complex.

In order to determine if the Guazapa complex settlements register in the Balsam Coast Range, are associated or no with a diasporic migration, it is fundamental to explore the following aspects:

(1) Dispersal from an original homeland, often traumatically, to two or more foreign regions. The dispersal of material culture in communicative and habitus realms could be related to the introduction of the Guazapa complex in the Balsam Coast Range, associated with an abruptly introduction of material culture. Architecture such as stepped temple platforms with talud/tablero design, and walls and/or palisades surrounding the main buildings, and circular structures could be related to long-term settlements of residents in exile in order to keep a particular identity. Archaeological sites from Central Highlands of Mexico such as La Mesa, are located on a hilltop and present architectural elements such as terrace walls, platforms, stairway remnants, and numerous rectangular and circular foundations (Mastache and Cobean 1989).

During the surface survey and excavations conducted in the archaeological sites, it was possible to collect ceramic specimens, highlighting diagnostic material such as fragments of Early Postclassic incense burners. However, during the excavations it was possible to document only low-density cultural materials. As a result of the excavation of TU4, at El Panteoncito, it was possible to document and register the main stairway of structure 1, composed of 4 steps. The construction system is composed of volcanic stones without plaster. Likewise, the connection of the volcanic tuff with the start of structure 1 was recorded, verifying that the ancient inhabitants of the El Panteoncito site adapted the surface of the tuff by leveling it to be able to build the structures on the tuff and use it as a floor of the *plaza*. In the case of El Panteoncito site, it should be noted that the groups C, F and G, the mounds have a similar distribution, highlighting a low circular platform in front of the mounds and located towards the west side. This southern part of the site could be interpreted as a sacred area of the settlement without any visual control associated with a circular platform. As discussed above, this evidence is an archaeological correlate of an abrupt introduction of cultural material and architecture. This could be related to long-term

settlements of residents in exile in order to maintain their particular identity.

(2) Collective memory and myth about the homeland, including its location, history and achievements. The introduction and veneration of a new pantheon of deities of Mexican deities in the Balsam Coast Range, could be related to a strong collective memory. This aspect is related to Letrero del Diablo and El Letrero archaeological sites.

Letrero del Diablo is a rock art site, which is conformed by a concentration of petroglyphs carved on a rocky wall with dimensions of 50 m long and 8.5 m high. The petroglyphs are oriented to the west, covering an area of 10 m long and 2.7 m high. In general terms, the petroglyphs present an abstract style highlighting mostly geometric figures and in lesser percentage anthropomorphic and zoomorphic figures. However, the most relevant petroglyph is the stylized representation of a Tlaloc deity. It should be noted that the site is located on the eastern side of Iscacuyo or El Cacao stream. The Tlaloc petroglyph constitutes an important representation for the interpretation of the site. Probably some ritual practices were developed in El Letrero del Diablo revealing the tlaloc deity, which were associated with the acclaim of water element. These rituals practiced during the postclassic period by the Nahua-Pipiles were possibly practiced relatively frequently in the low piedmont area or stream channels where rivers and winter arroyos are located, taking into account that most of the sites of the Guazapa complex located on the Balsam Coast were built in the narrow plains of the high ridge tops of the plateaus, where access to the water is difficult.

The archaeological site of El Letrero was discovered by the BCAP. El Letrero is a rock art site formed by a concentration of petroglyphs on a rock with dimensions of 15 m long by 12 m high. The petroglyphs are oriented to the east, covering an area of 3 m long and 2 m high. The petroglyphs mainly present an abstract style highlighting mostly geometric figures such as

concentric circles, spirals; as well as a concentration of domes. Although in a smaller percentage, anthropomorphic and zoomorphic figures were recorded. However, the most relevant petroglyph is the stylized representation of a Tlaloc deity. It should be noted that the site is located at the point of convergence of Pájaro León and El Zonte Rivers. Approximately 200 m north of the rock with the petroglyphs, a small rectangular platform was recorded which most probably served as a shrine during the ritual practices developed in prehispanic times. As part of the Project, a digital photographic survey of all petroglyphs was carried out. In terms of conservation, the site is in bad conditions due to the fact that the incisions have been painted with chalk and some petroglyphs exhibit fracture damage, including a percentage of the Tlaloc. The Tlaloc petroglyph constitutes an important representation for the interpretation of the site. As El Letrero del Diablo site, probably ritual practices were developed in El Letrero site, revealing the tlaloc deity, which were associated with the acclaim of the water element. These rituals practiced during the postclassic period by the Nahua-Pipils were possibly practiced relatively frequently in low piedmont area or stream channels where rivers and winter ravines are located, taking into account that most of the sites of the Guazapa complex located on the Balsam Coast were built in the narrow plains of the high ridge tops of the plateaus, where the access to the water is difficult.

(3) Strong ethnic group consciousness maintained over a long period of time and based in a sense of distinctiveness, a common history and the belief in a common fate. The permanent occupation of the settlements could be associated with a strong ethnic group consciousness sustained over a long time and based on a sense of distinctiveness in order to maintain their homeland community identity sustained for a generation or more by shared material culture. The analysis of the stratigraphy will allow to determine a permanent occupation of the sites.

During the surface survey and excavations conducted at the archaeological sites, we

collected cultural materials from only the Early Postclassic period. The excavation and the surface survey programs reveal a single-phase occupation of the archaeological sites. This means that during the Preclassic and Classic periods the area of the archaeological sites registered was not occupied.

(4) Troubled relationship with host societies suggesting the lack of acceptance at the least or the possibility that another calamity might befall the group. The appropriation of defensive locations and the construction of defensive sites. This geomorphological appropriation of the landscape could be related to a troubled relationship with host societies, and could also be related to a symbolic emulation from their homeland due to the fact that there are archaeological sites, such as La Mesa, Magoni, Atitalaquia, Batha, Tanthé, El Xithi, and El Aguila (Fournier and Bolaños 2007), from the same chronological period in the Central Highlands of Mexico that show the same settlement pattern.

The defensive characteristics offered by the topography of the Balsam Coast Range are obvious, exploited by the Nahua-Pipil groups from a militaristic perspective, led to settling in strategically defensive places such as the crests of the *lengüetas*. As examples consider the sites of Caballito, Cerro de Ulata, Texisio, Jicalapa, El Panteoncito, Miramar, Acahuaspán, and Zinacantan. All are located in strategically defensive areas, mostly with 360° visual control, and in some cases with remains of wall constructions, such as Zinacantan. The extreme defensive characteristics of these sites suggest hostile sociopolitical activity, in which the Nahua-Pipils established their settlements and cultural practices.

All the aspects explained above could be related to Safran's (1991) *ideal-type* representation of places in order to maintain a memory of their original homeland with the

possibility of an eventual return. It should also imply a lack of hybridization process or influence of local pottery, technologically and stylistically; as well as in the settlement pattern and architecture.

Based on this, the second scenario, explained in Chapter 3, which considers a close process of interaction between Nahua-Pipil and local groups, implying a strong process of hybridization and influence in material culture, is disregarded because technological and stylistics features of Guazapa Complex, defined by William Fowler (1981), should not be present in the archaeological sites of Balsam Coast Range. If this were the case, the settlements register in the Balsam Coast Range, were not associated with a diasporic migration process due to the fact that the process of maintaining a memory or myth about their original homeland did not materialize. Conversely, a cultural hybridity process could have happened.

Furthermore, the third scenario, explained in Chapter 3 which considers the absence of material culture related to the Guazapa complex is discarded as well. Due to the fact that this scenario should imply a total absence of an abruptly introduction of material culture, implying the absence of defensive sites located on hilltop in the Balsam Coast Range. Conversely, sites register in the study area should be readily accessible with no evidence of sites located in strategic defensive areas. If this were the case, the settlement pattern and the architectonic features of the archaeological sites may show clear traditional signatures of local traditions.

The LCP analysis carried out between each of the sites studied on the Balsam Coast range provided different results than expected. Before applying the LCP analysis, it was believed that the easiest routes to connect the sites were two: one through the coast and the other using the small canyons that were formed by the erosion of the volcanic soil. Regarding the first option, only 5

routes out of a total of 75 use the coast, that is, 6.66%. In relation to the second option, the use of small canyons, only in some cases they are used to travel very short stretches. There is no single route that takes advantage of an entire section of the small canyons to connect sites. In summary, based on the LCP analysis, it can be said that 93.34% of the routes use short sections of the small canyons in minimal cases and the vast majority use routes perpendicular to the *lengüetas*.

Likewise, it is important to note that in 7 analyses of the 9 carried out, routes are repeated in the northern part. This northern area was probably one of the highest human traffic areas during the Early Postclassic. Probably they were used to intercommunicate between sites. Based on the above, it is necessary to analyze and, above all, protect and conserve these routes and their landscapes, taking into account that they are part of the social and cultural dynamics that took place outside the sites. It is important to highlight that social relationships can be analyzed by looking at trails and paths. Perhaps this routes crossing perpendicular to the *lengüetas* were part of collective sacred paths, a landscape and geomorphology required by the Nahua-Pipil associated with the *ideal-type* representation of places in order to maintain a memory of their original homeland as a representation of a diaspora process.

Symbolic Landscape

The appropriation of a given landscape allows cultural groups to develop particular perspectives legitimizing their territory, their historical memory, their prestige, and their power. The creation of ritual landscapes through cognitive constructions in migrant groups in search of specific landscapes to settle are made up through the physical, imaginary and symbolic

appropriation of a specific space for a specified time while various dynamics of social practices were developed (Montero 2008).

The new archaeological data obtained through the BCAP corroborate a cultural pattern of appropriation of the landscape during the Early Postclassic, in which the Nahua-Pipil groups adopted and built their settlements in the narrow plains of the ridges of the Balsam Coast Range system. Regarding the sociocultural reasons that originated the adoption, appropriation, and transformation of the particular landscape of the Balsam Coast, and based on the data obtained by the project, I postulate two possible interpretations, one associated with defensive reasons and another associated with ritual and symbolic reasons.

On one hand, the defensive characteristics offered by the topography of the Balsam Coast are obvious. These could have been exploited by the Nahua-Pipil groups from a militaristic perspective, adopting strategically defensive places such as the crests of the *lengüetas,* as explained above.

On the other hand, the locations and spatial distribution of the settlements may be associated with a possible symbolic and ritual connotation that Nahua-Pipil groups took advantage of from the landscape of the Balsam Coast. In this sense, El Letrero del Diablo and El Letrero sites are particularly important due to the petroglyphs they exhibit: a stylized representation of Tlaloc, the deity associated with water and rain, and the location of the sites associated with aquatic contexts such as rivers and streams. Likewise, the Caballito, Cerro de Ulata, El Panteoncito, Acahuaspán, and Zinacantan sites have a spatial distribution that suggests that the occupation of the settlements was not purely residential, but could also be related to ritual functions from which elites controlled both political and ceremonial practices.

The appropriation and modification of this type of high-altitude landscape is probably associated with a symbolic emulation of the Nahua-Pipil groups in relation to their place of origin, the Central Mexican Highlands, with the aim of preserving their identity and developing cultural practices that differentiate them from other contemporary cultural groups. Probably, this particular topography offered to Nahua-Pipil a desired cultural landscape in which they could emulate or replicate cultural practices associated with their homeland.

It is important to point out that geomorphology to the west, to the north and to the east of Balsam Coast Range were open areas and uninhabited land during Early Postclassic with many more resources to developed agricultural practices and easy access to water. Therefore, why did the Nahua-Pipils decide to settled in the irregular topography of Balsam Coast Range? The GIS analysis conducted gave a set of interesting results.

The intervisibility analysis conducted was designed to determine whether features at relatively similar elevations might have been constructed in their given locations in order to facilitate their ability to see one another. This analysis allowed to identify possible areas without visibility, which could be interpreted as possible shelter areas or possible ritual areas; and identify possible defensive aspects and social/power cohesion.

Regarding the analysis of intervisibility within the site, it is important to highlight three archaeological sites: El Panteoncito, Miramar and Zinacantan. All of them have areas with no visual control. These areas can be interpreted as areas related with ritual activities, developed in a private spatiality. In relation to the analysis between the sites, interesting information was extracted. Apparently, 2 settlement clusters can be identified, one in the West composed by El Caballito, Texisio, Cerro de Ulata and Jicalapa sites; and the other in the East composed by El

Panteoncito, Miramar and Zinacantan sites. These two groups of archaeological sites can be interpreted as independent spatialities which belong to a single territoriality. It is important to note that each group is associated with one of the rock art sites with representations of Tlaloc.

Regarding the 2 rock art sites, El Letrero and El Letrero del Diablo, they are totally isolated with no visual connection. This is due to the fact that both sites are located on the banks of rivers that form small canyons. This isolated location probably is related to ceremonial and ritual use of the archaeological site associated with the representations of Tlaloc.

The viewshade analysis conducted determined that 7 out of 9 archaeological have visual control of the upper parts of the Balsam Coast Range and visual control of the Pacific Ocean as well. Both rock art sites, El Letrero and El Letrero del Diablo, are the only archaeological sites that are isolated, meaning that they cannot be seen from any of the analyzed sites.

In terms of accessibility, Zinacantan constitutes the archaeological site with the greatest difficulty of access of the nine sites analyzed. On the other hand, the two archaeological sites of rock art, El Letrero and El Letrero del Diablo, constitute the sites with the greatest ease of access.

Settlement Pattern

The settlement pattern of most of Balsam Coast archaeological sites tends to be located in high places such as at the top of hills. This tendency probably is associated with an eminently defense and shelter strategy, with the objective of controlling its accessibility; and a symbolic appropriation of landscape in order to developed ritual practices.

Regarding to the possible reason that the Nahua-Pipil settled in the Balsam Coast Range as a process of marginalization is disregarded. The argument to discard this possibility is based on the fact that during the Early Postclassic in El Salvador, the Maya population was demographically low perhaps small satellite groups or probably inexistent. Based on this I argue that the decision to settled in the Balsam Coast Range during the Early Postclassic period by Nahua-Pipils was a voluntary decision. This decision could be associated not just with defensible reasons but an emulation from Nahua-Pipil homeland.

As a result of the research conducted at the archaeological sites of Balsam Coast Range, these sites may have been seasonal with a ritual purpose. This interpretation is based on the hilltop location of the sites, the amount of structures, the site planning, the lack of water, the ceramic documented (censer) and the very low amount of cultural material register. However, although there are not archaeological correlates that indicates the location of households' areas in the Balsam Coast Range, probably the slopes were areas that Nahua-Pipils took advantage to build their houses and to practice agriculture.

In summary, despite the harsh conditions to build settlements and live in the Balsam Coast, the high density of annual rainfall in the area could have been an attractive determinant for Nahua-Pipils to practice rituals in the area. This may be related to the different cultural practices developed during the Postclassic period associated with the veneration cult of Tlaloc, the Nahua deity associated with water, rain and war, among other invocations. These venerations were usually carried out at the uppermost hill of the mountains in order to be close to the rain-laden clouds. Likewise, these cultural practices may be associated with an emulation process in order to preserve their identity as an ethnic group. The cultural landscape played a decisive role in the settlements established in the Balsam Coast range during Early Postclassic period.

The Balsam Coast Range landscape, constituted a symbolic element of great importance in the decision to build the settlements in order to developed their cultural practices evoking their homeland. The irregular topography offered safeguards due to the difficult access, allowing to appropriate a defensive spatiality in the upper parts of the *lengüetas*. However, the defensive factor was not the only consideration that attracted the Nahua-Pipils to the Balsam Coast. Symbolic reasons associated with the mountain cultural landscape also played an important role, associated with the *ideal-type* representation of places in order to maintain a memory of their original homeland as a representation of a diaspora process. These cultural practices were decisive in the establishment of settlements on the Balsam Coast Range in order to practice mountain rituals associated with water.

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