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Archaeological Investigations of San Lorenzo's Northern Alluvial Floodplain



Research Year: 1998

Culture: Olmec

Chronology: Pre-Classic

Location: Veracruz, México

Site: San Lorenzo

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Introduction

The Olmec center of San Lorenzo is situated atop a large plateau located within the lower drainage system of the Coatzacoalcos river basin in southeastern, Veracruz, México ([Figure 1](#)). There the San Lorenzo plateau rises 50 meters above the surrounding floodplains. A complex pattern of ancient and modern meanders and oxbow lakes characterize the floodplains, indicating a continual change in hydrology. More importantly, the floodplains contain a pattern of low mound sites that vary in size, form, and height. The arrangement and location of the mounds is also variable. They occur in isolation, in groups of two, three, four or five around or near the ancient and present river channels. In some cases, the mounds are located next to or separated by low depressions that also vary in depth and size. The majority of the low mound sites occur within the alluvial floodplain north of the San Lorenzo plateau ([Figure 2](#)). This floodplain comprises at least 23 square kilometers of San Lorenzo's inner hinterland. Natural boundaries define the northern alluvial floodplain. The Tatagapa River and its tributaries; the Tatagapilla, the Largatero and the Paseo Arena Arroyo, define the western boundary. The Chiquito River defines the eastern boundary. The junction of the Tatagapa and Río Chiquito Rivers define the northernmost boundary; whereas an arbitrary east-west line north of the San Lorenzo plateau, extending from the Tatagapa River to the Chiquito River, represents the southern boundary ([Figure 2](#) and [Figure 3](#)).

A recent archaeological survey identified 106 low mounds in the surrounding floodplains, seventy of which occur in the northern floodplain (Lunagomez, 1993; 1995). In 1993, Cyphers investigated one of the low mound sites within the northern floodplain and uncovered seven fire pits within a six square meter area. Analysis of the ceramic material recovered from the associated stratigraphic layers have placed those fire pits within the Early Formative Period (1250 to 900 B.C.) (Cyphers, 1993; Lunagomez, 1995; Symonds, 1995). In 1998, I carried out an initial survey in the northern floodplain and determined that number of mounds is closer to 100. I also carried out test excavations at 15 of those low mound sites from February 28 to May 29, 1998. This archaeological research was carried out under the auspices of the San Lorenzo Tenochtitlán Archaeological Project with the permission of the Consejo Nacional de Arqueología of the Instituto Nacional de Antropología e Historia in México. The Foundation for the Advancement of Mesoamerican Studies Incorporated funded this archaeological research. This report is a summary of the methods and results of the excavations carried out during the three-month period of excavations.

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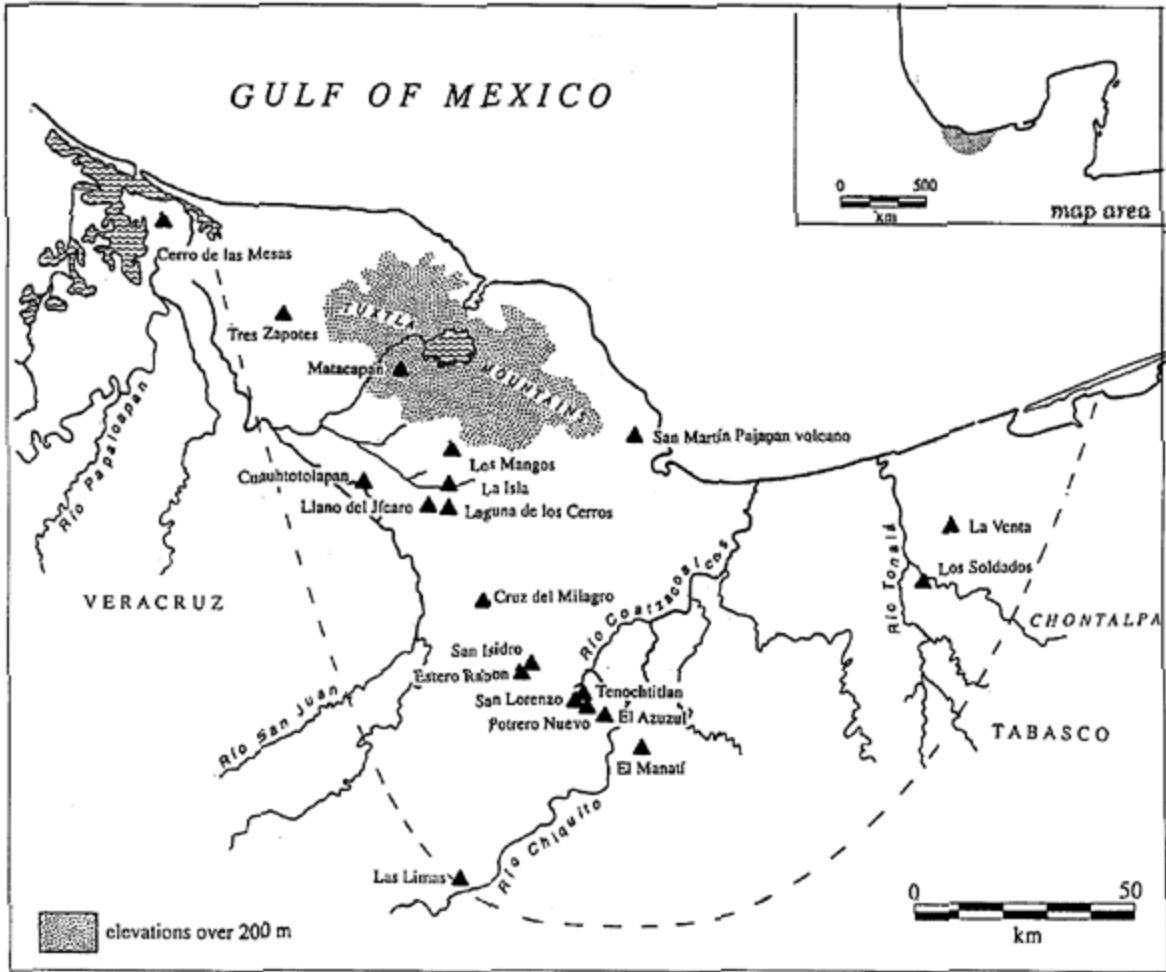


Figure 1. Olmec Archaeological Sites in Southern Veracruz and Eastern Tabasco, México (After Grove 1997).

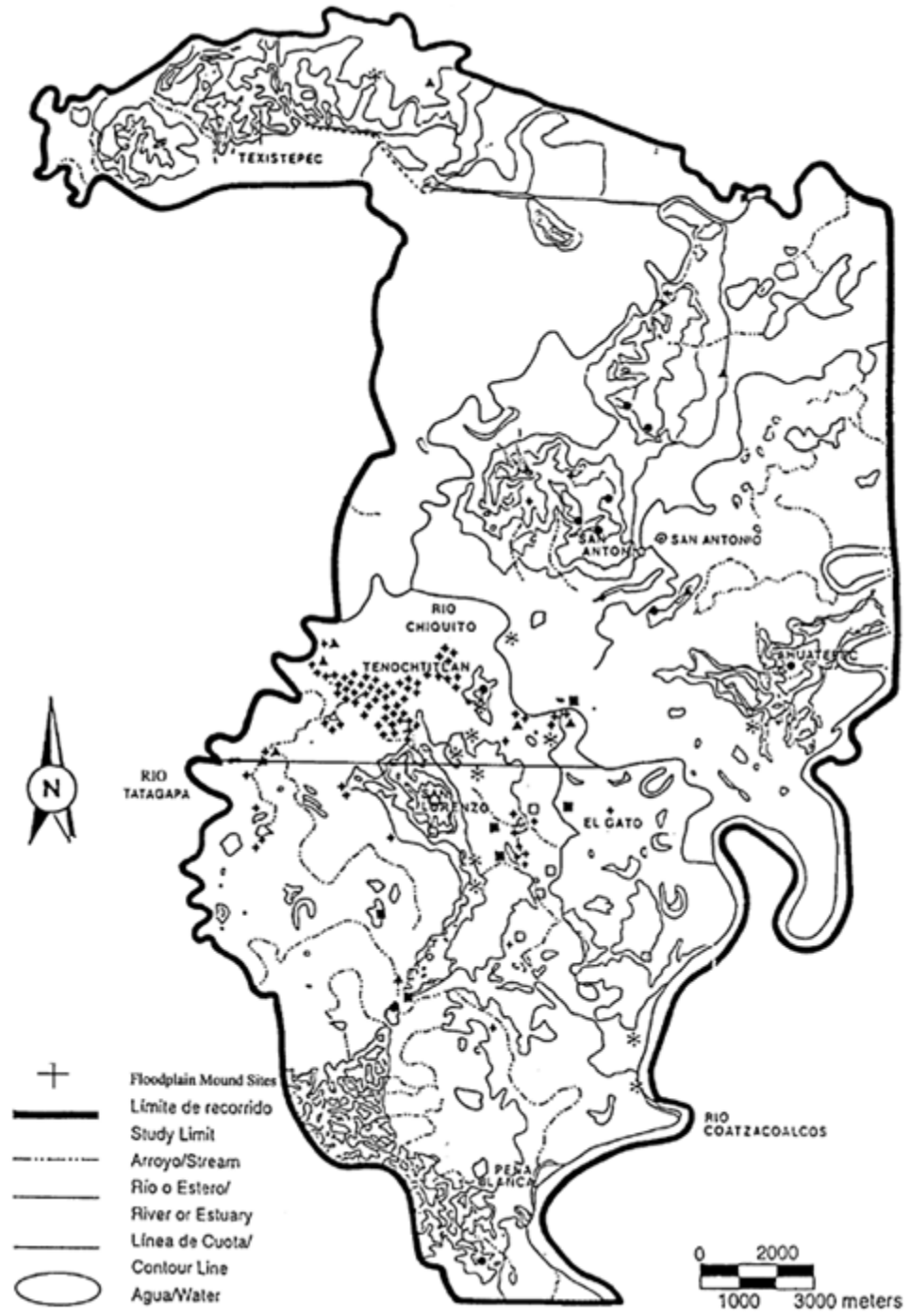


Figure 2. San Lorenzo's Northern Alluvial Floodplain and Associated Archaeological Sites (After Cyphers 1997a, figure 5.4).



Figure 3. Location of 1998 Test Units 1 through 18 within the Northern Alluvial Floodplain at San Lorenzo, Veracruz, México (Topographic Map from Coe and Diehl 1980a).

Research Objectives

The objectives of the 1998 archaeological project were and are as follows; (1) to investigate 30% (twenty-two) of the low mound sites; (2) to determine the stratigraphic and cultural history of the mounds; (3) to determine the stratigraphic and depositional history of the floodplain; (4) to determine the relationship between the mounds and floodplain; (5) to determine if additional fire pits occur within other mounds and determine their function; (6) to determine if additional features (e.g., floors) occur in association with the fire pits; (7) to determine the function of the mounds (e.g., households); and (8) to determine the mounds relationship with the San Lorenzo plateau.

Field Methods

Sample. Prior to excavations, permission from the three principal landowners, Mr. Ángel Herrera, Mr. José Manuel Gutiérrez and Mr. Fernando García was sought and granted. These three landowners presently own and cultivate (sorghum) 15 square kilometers of the northern alluvial floodplain. An initial survey of the northern floodplain was carried out to identify and determine the number and size of the mounds present. This survey provided information necessary to modify the original sampling strategy and to determine which mounds were to be investigated. The initial sample was based on the overall dimensions of the mounds which include the variables, length, width, height, and form. These variables were chosen on the basis of preliminary statistical analysis that suggests mound size is an important indicator. This statistical analysis thus suggests a possible relationship between mound size and site function. The mound sites were then divided into categorical intervals (e.g., 0-49 sq. meters; 50-99 sq. meters; and etc.). This group frequency distribution resulted in a total of eight groups. The mean of each group was calculated to help determine if the mounds clustered around a particular size, which appears to be the case. Thus, attempts were made in the field to investigate mounds that represent each of the eight groups. This sampling strategy also provides a degree of flexibility in case of logistical factors.

Excavations. A north south transect was established with the O/O coordinate at the center of one of the mounds. This datum was linked to natural and cultural features located within the area of investigation. A total of 18 test units were placed in relation to this north-south transect and given the appropriate coordinates ([Figure 3](#)). Three of the test units, one in a mound and two in the flat areas of the floodplain, were located directly on the north south transect. The purpose of this transect was to determine the depositional, stratigraphic, and cultural history of the mound and floodplain as well as determine the relationship between these two features. Fourteen test units were also located at independent mound sites, while an additional test unit was located in the floodplain. These test units spread across a six square kilometer area of the floodplain. The majority of units were oriented north south; however, two of the units were oriented east west.

Location of test units was based on the presence and absence of artifacts on the surface and the crest of the mound. The units were generally placed within the center of each mound, which was determined from measuring the mound's long and short axis. These measurements were determined by a pace-and-compass method. The dimensions of the units varied in size depending on the mound's location and size. The test units measured 1.5 x 4 m, 1.5 x 3 m, and 1.5 x 1.5 meters. The standard test unit measured 1.5 x 3 meters. This dimension provides the following advantages: (1) adequate space for excavation, sampling, interpretation of features, and photography; and (2) increase in horizontal coverage. The discovery of features (e.g., fire pits) resulted in the expansion of some of the test units. Eight of 18 test units were expanded. These expansions allowed for complete description and sampling of features (e.g., fire pits). Expansions also contributed to the discovery and identification of other features (e.g., floors) and artifacts that occurred in association with the fire-pits and floors.

Test units were excavated following natural and cultural stratigraphic layers. Each layer was further divided into 20-centimeter intervals to allow for maximum vertical control. The color, texture, composition of soil was described and recorded for each stratigraphic layer and 20 centimeter level. All soil was screened to insure maximum artifact recovery. Artifacts recovered from each test unit and 20 cm level were collected and separated into different artifact types (e.g., ceramic, obsidian, ground stone, wood, and bone) in the field. Artifacts were drawn, piece-plotted, and photographed *in situ*.

Features were also described, mapped, photographed, and sampled. Floors, fire pits, and occupational surfaces were sectioned into quadrants. Quadrant size directly depended on the dimensions of the feature being sampled. Floors were sectioned into quadrants of 50 centimeters. Soil samples were taken from each quadrant for pollen, phytolith, chemical, and floatation analysis. Multiple samples were taken from each quadrant depending on the depth or thickness of the features. This method of sampling is designed to determine if different activity areas are present within the floors and to determine if activities and/or function of the fire pits and floors changed over time. A stratigraphic profile from each of test unit was also sampled for pollen, phytolith, and floatation. These samples are complemented by a series of soil samples that were taken from each stratigraphic layer for particle size analysis. Additional soil samples were also extracted every 10 centimeters from one stratigraphic profile for lithofacies and particle size analysis.

Summary of Test Excavation Results

A total of 18 test units were placed within San Lorenzo's northern alluvial floodplain ([Figure 3](#)). Excavations at 15 of the low mounds sites uncovered evidence of Early and Middle Formative period living floors and/or occupational surfaces with associated artifacts (e.g., figurines, ceramic, *manos*, and *metates*) and other features (e.g., fire pits, postmolds, and possible adobe walls). Evidence of fire pits and floors occurred within 13 of the 15 mounds tested. A total of 32 floors or occupational surfaces and 30 fire pits

were uncovered. The fire pits varied in size (60 to 180 cm in length, 30 to 60 cm in width, and 18 to 23 cm in depth) and form (oval, kidney, and rectangular). The fire pits contained burned clay, burned soil, and artifacts (e.g., ground stone, figurines, ceramic, and *metate* and *mano* fragments). Variation in the floors was also present. The floors and/or occupational surfaces consisted of earthen, clay, and gravel. Preliminary ceramic analysis has dated some of the floors and fire pits to the pre-San Lorenzo or Ojochi (1500-1350 B.C.) and Bajío (1350-1250 B.C.) phase. Floors and fire pits have also been dated to the San Lorenzo (1150-900 B.C.) phase. Evidence of later occupation (Villa Alta A.D. 900-1100) was also found. Furthermore, two of the mounds are presently occupied all year round, while others are used seasonally. These features and associated artifacts provide the evidence to suggest that the mounds are sites of permanent occupation, perhaps, households that played an important role in the procurement of food resources from the floodplain (e.g. cultigens in the dry season and aquatic resources in the wet season) during the Early and Middle Formative period.

In conclusion, occupation of the mounds and floodplain extends over a period of 3500 years. The presence of Ojochi and Bajío phase occupation suggests that early settlement at San Lorenzo began within the floodplains and river—levees. In addition, early occupation in the floodplain suggest that Olmec society was the result of local development (e.g., Coe, 1970; Coe and Diehl, 1980a; Grove, 1981a; 1981b; 1997) rather than externally influenced (e.g., Blake, 1989; Clark, 1990; 1994). Secondary sites, as defined by Symonds 1995, such as El Bajío may have been primary sites of occupation during the Ojochi and Bajío (1500-1250 B.C.) phase, prior to the modification and occupation of the San Lorenzo plateau. More importantly, the Bajío settlement is located within the floodplain and more than likely had an important relationship with the mound sites. Furthermore, indirect and direct evidence suggests that a "true, mixed subsistence economy", as proposed for the Pacific Coast (Clark, 1991:16; 1994:239; Coe, 1987:35; Clark and Blake, 1989:389), may also have been practiced at San Lorenzo during the Early and Middle Formative period. Coe and Diehl (1980b:139) have postulated that "the earliest sedentary villages in the Río Chiquito area were probably based on a mixed economy of farming, fishing, wild plant food collecting, and hunting." Thus, the key to understanding the social development and lifeways of the Olmec may rest within the mound sites distributed throughout the surrounding alluvial floodplains at San Lorenzo, Veracruz, México.

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[Figure 3](#). Location of 1998 Test Units 1 through 18 within the Northern Alluvial Floodplain at San Lorenzo, Veracruz, México (Topographic Map from Coe and Diehl 1980a).

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