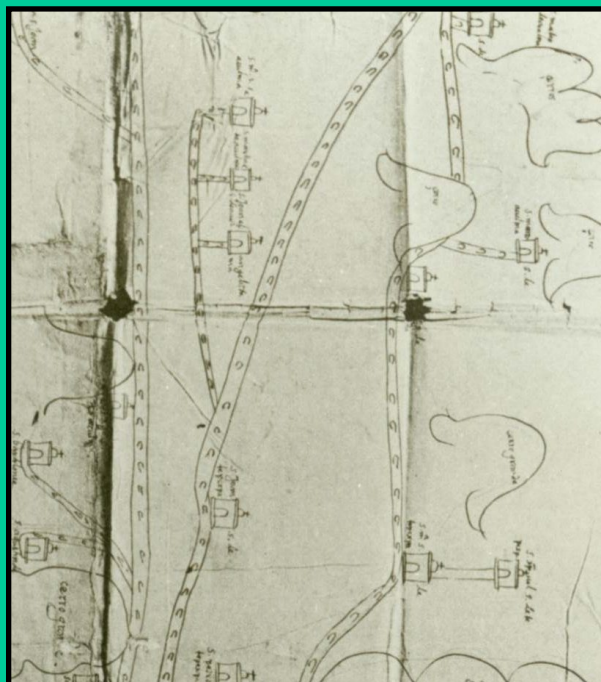




Prehispanic Settlement Patterns in the Temascalapa Region, Mexico

L.J. Gorenflo
William T. Sanders

Number 31

2022

Occasional Papers in Anthropology
Department of Anthropology
The Pennsylvania State University
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The *Occasional Papers in Anthropology* series is published by:

Department of Anthropology
The Pennsylvania State University
University Park, PA 16802
USA

814.865.2509
814.863.1474 (fax)

Department of Anthropology on the web: <https://anth.la.psu.edu>

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Citation: Gorenflo, L.J., and William T. Sanders, 2022. Prehispanic Settlement Patterns in the Temascalapa Region, Mexico. *Occasional Papers in Anthropology* No. 31. Department of Anthropology, The Pennsylvania State University, University Park, PA.

ISSN: 2380-4998

Cover map (left): Paso y Troncoso, F. del, 1979. *Relaciones Geográficas de México*. Editorial Cosmos, Mexico City.

Cover map (right): section from Figure 5.10 in this monograph, approximately corresponding to the area north of Cerro Gordo shown in the section of the sixteenth century map to the immediate left.

Printed by: Department of University Publications, The Pennsylvania State University, University Park, PA

Available from: Department of Anthropology
The Pennsylvania State University
University Park, PA 16802
USA

Dedicated to Mary H. Parsons, in recognition of
her enormous contributions to Basin of Mexico archaeology

TABLE OF CONTENTS

List of Tables	ii
List of Figures.....	iv
Acknowledgments	vi
Preface	vii
Chapter 1: Introduction.....	1
Chapter 2: Natural Environment.....	5
Chapter 3: Post-Hispanic Regional Demographics and Settlement in the Temascalapa Region.....	15
Chapter 4: Survey Methodology.....	25
Chapter 5: Site Descriptions	35
Chapter 6: Regional Demographics and Settlement in the Temascalapa Region	137
Chapter 7: Ecological and Settlement Patterns in the Temascalapa Region	163
Chapter 8: The Temascalapa Region in the Basin of Mexico and as an Extension of the Teotihuacan Region	183
Appendix A: Field Report Form, Temascalapa Region.....	203
Appendix B: Site Report Form, Temascalapa Region.....	205
Appendix C: Final and Temporary Site Numbers for Archaeological Sites in the Temascalapa Region	215
Appendix D: Survey and Preliminary Evaluation for the Site of San Miguel Eyecalco and its Surroundings	219
References Cited.....	223

LIST OF TABLES

Table 3.1. Population Based on Communities in the Temascalapa Region by Major Geographic Area: 1900, 1930, 1960, 1980, and 2010.....	19
Table 3.2. Population Density (persons/km ²) Based on Communities in the Temascalapa Region by Major Geographic Area: 1900, 1930, 1960, 1980, and 2010.....	19
Table 3.3. Population of Municipios Occurring at Least Partially in the Temascalapa Region: 1900, 1930, 1960, 1980, and 2010.....	20
Table 3.4. Average Annual Population Change (%) in Municipios Occurring at Least Partially in the Temascalapa Region Between Census Years: 1900, 1930, 1960, 1980, and 2010	20
Table 5.1. Tm-Cl-36 Architectural Features.....	51
Table 5.2. Tm-Cl-38 Architectural Features.....	53
Table 5.3. Tm-Lt-26 Architectural Features.....	62
Table 5.4. Tm-Lt-45 Architectural Features.....	67
Table 5.5. Tm-Az-8 Architectural Features.....	78
Table 5.6. Tm-Az-12 Architectural Features.....	79
Table 5.7. Tm-Az-15 Architectural Features	82
Table 5.8. Tm-Az-17 Architectural Features	83
Table 5.9. Tm-Az-29 Architectural Features.....	85
Table 5.10. Tm-Az-30 Architectural Features.....	86
Table 5.11. Tm-Az-42 Architectural Features	88
Table 5.12. Tm-Az-54 Architectural Features.....	90
Table 5.13. Tm-Az-81 Architectural Features.....	96
Table 5.14. Tm-Az-82 Architectural Features.....	97
Table 5.15. Tm-Az-103 Architectural Features.....	100
Table 5.16. Tm-Az-104 Architectural Features.....	101
Table 5.17. Tm-Az-105 Architectural Features.....	101
Table 5.18. Tm-Az-113 Architectural Features	102
Table 5.19. Tm-Az-114 Architectural Features	104
Table 5.20. Tm-Az-119 Architectural Features	104
Table 5.21. Tm-Az-135 Architectural Features.....	108
Table 5.22. Tm-Az-151 Architectural Features.....	113
Table 5.23. Tm-Az-157 Architectural Features.....	117
Table 5.24. Tm-Az-163 Architectural Features.....	119
Table 5.25. Tabular Presentation of Terminal Formative Settlement Data.....	122
Table 5.26. Tabular Presentation of Teotihuacan Period Settlement Data	124
Table 5.27. Tabular Presentation of Early Toltec Settlement Data.....	126
Table 5.28. Tabular Presentation of Late Toltec Settlement Data	127
Table 5.29. Tabular Presentation of Early Aztec Settlement Data.....	130
Table 5.30. Tabular Presentation of Late Aztec Settlement Data	131
Table 6.1. Rates of Change from Preceding Periods for Measures of Prehispanic Occupation in the Temascalapa Region.....	138
Table 6.2. Total Sites, and Percent of Sites by Categories of Population Size, for Prehispanic Occupations in the Temascalapa Region.....	140
Table 6.3. Total Sites, and Percent of Sites by Categories of Geographic Size, for Prehispanic Occupations in the Temascalapa Region.....	141
Table 6.4. Total Sites, and Percent of Sites by Site Type, for Prehispanic Occupations in the Temascalapa Region.....	142
Table 6.5. Total Population, and Percent of Population by Site Type, for Prehispanic Occupations in the Temascalapa Region.....	142
Table 6.6. Total Site Area, and Percent of Area by Site Type, for Prehispanic Occupations in the Temascalapa Region.....	142
Table 6.7. Total Sites, and Percent of Sites by Environmental Zone, for Prehispanic Occupations in the Temascalapa Region.....	150
Table 6.8. Total Population, and Percent of Population by Environmental Zone, for Prehispanic Occupations in the Temascalapa Region.....	151
Table 6.9. Total Site Area, and Percent of Site Area by Environmental Zone, for Prehispanic Occupations in the Temascalapa Region.....	151

Table 6.10. Population Density (persons/km ²) by Environmental Zone for Prehispanic Occupations in the Temascalapa Region.....	151
Table 6.11. Total Sites, and Percent of Sites, by Average Annual Rainfall for Prehispanic Occupations in the Temascalapa Region.....	153
Table 6.12. Total Population, and Percent of Population, by Average Annual Rainfall for Prehispanic Occupations in the Temascalapa Region.....	153
Table 6.13. Total Site Area, and Percent of Site Area, by Average Annual Rainfall for Prehispanic Occupations in the Temascalapa Region.....	153
Table 6.14. Total Sites, and Percent of Sites, by Distance from Lake System for Prehispanic Occupations in the Temascalapa Region.....	155
Table 6.15. Total Population, and Percent of Population, by Distance from Lake System for Prehispanic Occupations in the Temascalapa Region.....	156
Table 6.16. Total Site Area, and Percent of Site Area, by Distance from Lake System for Prehispanic Occupations in the Temascalapa Region.....	156
Table 7.1. Historic Settlement in the Temascalapa Region by Ecological Zone: 1980.....	169
Table 7.2. Late Aztec Occupation in the Temascalapa Region, by Ecological Zone	178
Table 7.3. Pre-Aztec Occupation in the Temascalapa Region, by Ecological Zone	180
Table 8.1. Rates of Change from Preceding Occupations for Measures of Prehispanic Occupation in the Basin of Mexico, Temascalapa Region, and Basin Excluding the Temascalapa Region	187
Table 8.2. Prehispanic Sites in the Basin of Mexico, Temascalapa Region, and Basin Excluding the Temascalapa Region, by Period of Occupation and Type of Site.....	189
Table 8.3. Prehispanic Population in the Basin of Mexico, Temascalapa Region, and Basin Excluding the Temascalapa Region, by Period of Occupation and Type of Site.....	190
Table 8.4. Prehispanic Sites in the Basin of Mexico, Temascalapa Region, and Basin Excluding the Temascalapa Region, by Environmental Zone and Period of Occupation.....	191
Table 8.5. Prehispanic Population in the Basin of Mexico, Temascalapa Region, and Basin Excluding the Temascalapa Region, by Environmental Zone and Period of Occupation.....	192
Table 8.6. Prehispanic Population in the Temascalapa Region, the Teotihuacan Region, and Both Regions Combined, by Period of Occupation and Type of Site	196
Table 8.7. Prehispanic Sites in the Temascalapa Region, the Teotihuacan Region, and Both Regions Combined, by Period of Occupation and Type of Site.....	197
Table 8.8. Rates of Change from Preceding Occupations for Measures of Prehispanic Occupation in the Temascalapa Region, the Teotihuacan Region, and Both Regions Combined.....	198
Table C.1. Final and Temporary Site Numbers, Temascalapa Region	216

LIST OF FIGURES

Figure 1.1. The Temascalapa Survey Region, in the Context of Other Survey Regions in the Basin of Mexico	1
Figure 2.1. Environmental Zones in the Temascalapa Region	7
Figure 2.2. Spatial Distribution of Average Annual Rainfall in the Temascalapa Region	8
Figure 3.1. Modern Communities in the Temascalapa Region	16
Figure 3.2. Population of Communities in the Temascalapa Region: 1900, 1930, 1960, 1980, and 2010	18
Figure 3.3. Municipios Lying at Least Partially within the Temascalapa Region.....	19
Figure 3.4. Population Density of Municipios Lying at Least Partially within the Temascalapa Region: 1900, 1930, 1960, 1980, and 2010.....	21
Figure 3.5. Percent of Area of Municipios that Lie at Least Partially within the Temascalapa Region Used for Agriculture: 2017.....	23
Figure 4.1. Air Photos Used in the Temascalapa Regional Survey	27
Figure 4.2. Major Chronological Periods in the Basin of Mexico	33
Figure 5.1. Terminal Formative Settlement in the Temascalapa Region.....	36
Figure 5.2. Teotihuacan Period Settlement in the Temascalapa Region.....	44
Figure 5.3. Tm-CI-36 Architectural Features.....	51
Figure 5.4. Tm-CI-38 Architectural Features.....	52
Figure 5.5. Early Toltec Settlement in the Temascalapa Region.....	54
Figure 5.6. Late Toltec Settlement in the Temascalapa Region	58
Figure 5.7. Tm-Lt-26 Architectural Features.....	62
Figure 5.8. Tm-Lt-45 Architectural Features.....	66
Figure 5.9. Early Aztec Settlement in the Temascalapa Region.....	74
Figure 5.10. Late Aztec Settlement in the Temascalapa Region	76
Figure 5.11. Tm-Az-8 Architectural Features.....	78
Figure 5.12. Tm-Az-12 Architectural Features.....	79
Figure 5.13. Tm-Az-15 Architectural Features.....	81
Figure 5.14. Mound 4 Architectural Details, Tm-Az-15.....	82
Figure 5.15. Tm-Az-17 Architectural Features	83
Figure 5.16. Tm-Az-29 Architectural Features	85
Figure 5.17. Tm-Az-30 Architectural Features	85
Figure 5.18. Tm-Az-54 Architectural Features	90
Figure 5.19. Tm-Az-81 Architectural Features	95
Figure 5.20. Tm-Az-82 Architectural Features	96
Figure 5.21. Tm-Az-114 Architectural Features.....	103
Figure 5.22. Tm-Az-133 Architectural Features	107
Figure 5.23. Tm-Az-135 Architectural Features	108
Figure 5.24. Tm-Az-151 Architectural Features	112
Figure 5.25. Tm-Az-157 Architectural Features	116
Figure 5.26. Room Details, Mound 10, Tm-Az-157	118
Figure 5.27. Room Details, Mound 26, Tm-Az-157	118
Figure 5.28. Tm-Az-163 Architectural Features	118
Figure 6.1. Prehispanic Population in the Temascalapa Region, by Period of Occupation	138
Figure 6.2. Number of Archaeological Sites in the Temascalapa Region, by Period of Occupation.....	138
Figure 6.3. Prehispanic Site Area in the Temascalapa Region, by Period of Occupation.....	139
Figure 6.4. Prehispanic Site Density in the Temascalapa Region, by Period of Occupation.....	139
Figure 6.5. Terminal Formative Settlement Types in the Temascalapa Region	143
Figure 6.6. Teotihuacan Period Settlement Types in the Temascalapa Region	145
Figure 6.7. Early Toltec Settlement Types in the Temascalapa Region	146
Figure 6.8. Late Toltec Settlement Types in the Temascalapa Region.....	147
Figure 6.9. Late Aztec Settlement Types in the Temascalapa Region.....	149
Figure 6.10. Distribution of Prehispanic Population in the Temascalapa Region, by 1-km Grid Cell	159
Figure 6.11. Mobility as a Possible Means of Prehispanic Population Change in the Temascalapa Region.....	161
Figure 7.1. Major Ecological Zones in the Temascalapa Region.....	164
Figure 7.2. Air Photo, Dating to the Early 1970s, Showing a Portion of Ecological Zone 1 of the Temascalapa Region.....	166

Figure 7.3. Section of the 1:50,000 Topographic Map (Comisión de Estudios del Territorio Nacional 1976), Based on 1971 Aerial Photography, Corresponding to a Portion of Ecological Zone 1 of the Temascalapa Region	167
Figure 7.4. Air Photo, Dating to the Early 1970s, Showing a Portion of Ecological Zone 2 of the Temascalapa Region.....	170
Figure 7.5. Section of the 1:50,000 Topographic Map (Comisión de Estudios del Territorio Nacional 1976), Based on 1971 Aerial Photography, Corresponding to a Portion of Ecological Zone 2 of the Temascalapa Region	171
Figure 7.6. Air Photo, Dating to the Early 1970s, Showing a Portion of Ecological Zone 3 of the Temascalapa Region.....	172
Figure 7.7. Section of the 1:50,000 Topographic Map (Comisión de Estudios del Territorio Nacional 1976), Based on 1971 Aerial Photography, Corresponding to a Portion of Ecological Zone 3 of the Temascalapa Region	173
Figure 7.8. Air Photo, Dating to the Early 1970s, Showing a Portion of Ecological Zone 4 of the Temascalapa Region.....	174
Figure 7.9. Section of the 1:50,000 Topographic Map (Comisión de Estudios del Territorio Nacional 1976), Based on 1971 Aerial Photography, Corresponding to a Portion of Ecological Zone 4 of the Temascalapa Region	175
Figure 7.10. Air Photo, Dating to the Early 1970s, Showing a Portion of Ecological Zone 5 of the Temascalapa Region.....	176
Figure 7.11. Section of the 1:50,000 Topographic Map (Comisión de Estudios del Territorio Nacional 1976), Based on 1971 Aerial Photography, Corresponding to a Portion of Ecological Zone 5 of the Temascalapa Region ..	177
Figure 7.12. Political Divisions in the Sixteenth Century Temascalapa Region, Shown with Late Aztec Settlement and Political Affiliations.....	179
Figure 8.1. The Basin of Mexico and Near Vicinity Showing Locations of Places Mentioned in Text	184
Figure 8.2. Prehispanic Population Based on Intensive Archaeological Survey in the Basin of Mexico, the Temascalapa Region, and the Basin Outside the Temascalapa Region, by Period of Occupation	187
Figure 8.3. Prehispanic Archaeological Sites in the Basin of Mexico, the Temascalapa Region, and the Basin Outside of the Temascalapa Region, by Period of Occupation	188
Figure 8.4. Prehispanic Population Density in the Basin of Mexico, the Temascalapa Region, and the Basin Outside of the Temascalapa Region, by Period of Occupation	188
Figure 8.5. Distribution of Prehispanic Population in the Basin of Mexico by 4-km Grid Cell	193
Figure 8.6. Four-km Grid Cells in the Basin of Mexico that Likely Experienced Mobility Between Periods of Prehispanic Occupation.....	194
Figure 8.7. Terminal Formative Sites in the Temascalapa and Teotihuacan Regions	195
Figure 8.8. Population Estimates for the Temascalapa and Teotihuacan Regions, Individually and Combined	195
Figure 8.9. Total Sites in the Temascalapa and Teotihuacan Regions, Individually and Combined.....	195
Figure 8.10. Population Density in the Temascalapa and Teotihuacan Regions, Individually and Combined.....	196
Figure 8.11. Teotihuacan Period Sites in the Temascalapa and Teotihuacan Regions	200
Figure 8.12. Early Toltec Sites in the Temascalapa and Teotihuacan Regions	200
Figure 8.13. Late Toltec Sites in the Temascalapa and Teotihuacan Regions.....	201
Figure 8.14. Late Aztec Sites in the Temascalapa and Teotihuacan Regions.....	201
Figure D.1. Main Prehispanic Architectural Features at San Miguel Eyecalco	220
Figure D.2. Main Prehispanic Architectural Features at Santa María Mogotes.....	221
Figure D.3. Main Prehispanic Architectural Features at El Rey	222

ACKNOWLEDGMENTS

This monograph presents prehispanic settlement pattern data from the Temascalapa region, collected during an archaeological survey conducted in 1974 and 1975. The Temascalapa region was the last of eight regions in the Basin of Mexico examined through intensive settlement pattern surveys begun in 1960 in the Teotihuacan Valley (Sanders 1965). Along the way, one or both of us have benefited greatly from interaction with others having research interests in the Basin of Mexico or topics relevant to its study, including Jeffrey Parsons, René Millon, Pedro Armillas, Elizabeth Brumfiel, Thomas Charlton, George Cowgill, Richard Diehl, Susan Evans, Charles Gibson, Peter Gould, Kenneth Hirth, Mary Hodge, Charles Kolb, Deborah Nichols, Angel Palerm, Mary Parsons, Ian Robertson, Robert Santley, Waldo Tobler, Eric Wolf, and Henry Wright. If there is a benefit from publishing this study so many years after completing the fieldwork, it may be the increased opportunity to consider and incorporate some of the ideas and perspectives of these and other scholars.

During the main survey of the Temascalapa region in 1975, several individuals assisted in data collection: Humberto Dominguez, Michelle Hayward, Graciela Lechuga, Deborah Nichols, Lili Sanders, Theresa Sanders, Chris Stilson, Lee Stilson, Deborah Wagner, and Elizabeth Will. Several other Mexican students also assisted in the 1975 season; although their first names appear on site recording forms, their surnames do not and have been lost to the decades since the survey. In the interest of acknowledging all participants to fieldwork, we list those other Mexican students here as well: Lula, Guillermo, Jaime, and Fermín. A few sites were recorded in 1974 as part of an examination of the northwestern portion of the region by N. Freedman and Michael Smith. Preliminary site descriptions and analyses of the pre-Aztec settlement in the Temascalapa region appeared in the master's thesis of Melissa Diamante, providing a useful starting point for several of the descriptions presented below (Diamante 1980).

The fieldwork for this project benefited from the cooperation of the Instituto Nacional de Antropología e Historia in Mexico City, and we acknowledge their granting the necessary research permit for data collection. The presidents of the Axapusco, Nopaltepec, Tecámac, Temascalapa, Teotihuacan, Tizayuca, Villa de Tezontepec, and Zumpango *municipios* also played a central role in the study of the Temascalapa region, permitting fieldwork in their jurisdictions. Residents of the many villages, small towns, ranches, and homesteads in the region allowed project personnel to walk over their land, examine any archaeological remains encountered, and inquire about archaeological remains as well as modern land use. The tolerance of archaeological field crews by residents of the Temascalapa region ultimately made fieldwork possible, and we gratefully acknowledge their willingness to accommodate our work.

Financial support for the Temascalapa settlement pattern survey in 1975 was provided primarily by the

National Science Foundation. Facilities at the Pennsylvania State University Department of Anthropology and Department of Landscape Architecture, the Centro de Investigaciones Arqueológicas de Teotihuacán, and the Environmental Assessment Division and Information and Publication Division of Argonne National Laboratory facilitated data analysis and manuscript preparation. Mark Denil recommended several improvements for graphics in this monograph, particularly maps. Kimberly Meek helped design the cover and the layout of the overall monograph. Susan Evans read the proofs, catching typos and suggesting some final improvements. Chris Keeler arranged for the printing of the monograph.

PREFACE

Bill Sanders and I assembled this monograph over many years, largely working on it as time permitted given the constraints of his schedule and mine. Unfortunately, Bill did not live to see its publication, passing in July 2008. At that time the document was largely completed, though a few pieces remained to be written. I pursued those tasks over the ensuing years, again as time permitted amid fieldwork and other research endeavors. The other commitments never eased, but frustration over not having completed this monograph also persisted, eventually moving it to the front of my queue of tasks to complete.

Finalizing the document fell to me. I had led its assembly from the very beginning, though in close collaboration with Bill. Ultimately, the monograph that you read includes many of Bill's ideas, introduced as we finalized and discussed survey data over many years. But the final form of the volume, as well as decisions about what information to include, how to structure and interpret analyses, and the evaluation of pre-Columbian settlement in the Temascalapa region alone and with respect to settlement in the Teotihuacan region and the Basin of Mexico as a whole, are my responsibility. I have tried to remain faithful to what I believe Bill would have included, or would have wanted to include. But he was a tough act to follow, and the monograph surely would have benefitted immensely from his involvement in its completion.

L.J. Gorenflo, Martignano, Alto-Adige, Italy, February 2022

CHAPTER 1: INTRODUCTION

The Temascalapa Region Settlement Survey

This monograph presents a primarily descriptive summary of archaeological settlement patterns in the Temascalapa region in the northeastern Basin of Mexico. The Temascalapa region consists of two geographically separate sections, a larger northern tract and a smaller western tract, which in essence represent extensions of the previously surveyed Teotihuacan region (Figure 1.1; see Sanders et al. 1979:201). The monograph discusses information on prehispanic settlement patterns obtained during two field seasons in the mid-1970s: a short, one-month preliminary effort in August 1974, during which part of the northern portion of the Temascalapa region was surveyed; and a three-month season from September through November 1975, during which the remaining, vast majority of the region was surveyed. The Temascalapa survey was the last of eight intensive settlement pattern surveys in the Basin of Mexico, begun by Sanders in the Teotihuacan Valley in 1960 (Sanders 1965; see Evans et al. 2000; Kolb and Sanders 1996; Marino 1987; Sanders et al. 1975). Other archaeological surveys focused on the Texcoco region in 1967 (Parsons 1971), the Ixtapalapa region in 1969 (Blanton 1972), the Chalco and Xochimilco regions in 1969 and 1972 (Parsons et al. 1982), the Zumpango region in 1973 (Parsons 2008), and the Cuautitlan region in 1974 (Sanders and Gorenflo 2007).

This volume constitutes the final report on the Temascalapa survey. Although a lengthy delay between completing fieldwork and publishing the results is never desirable, the monograph has benefited greatly from an increased understanding of the prehistoric Basin of Mexico developed over the past four decades. In contrast to many earlier publications on regional settlement in other portions of the basin, written in the absence of detailed knowledge of the region's prehistory, this presentation of data from the Temascalapa settlement pattern survey appears after all archaeological settlement surveys in the Basin of Mexico have been completed in areas where surface reconnaissance was possible. Moreover, this monograph benefits from excavation data from selected sites, supplementing our understanding of surface remains. Although site descriptions for the Late Aztec occupation of the Temascalapa region appear elsewhere (Gorenflo and Sanders 2000), as do preliminary descriptions of pre-Aztec settlement (Diamanti 1980), the data never were compiled for all occupations in their final form and presented in a systematic manner until now. In addition to revised interpretations and descriptions of pre-Aztec settlement, we also present Late Aztec site descriptions in the pages below, in the interest of publishing all prehispanic settlement pattern data and preliminary analyses of these data for the region in a single volume.

For the most part, the monograph emphasizes the Temascalapa region itself, presenting prehispanic settlement data from the region in detail and examining these data for any clues they might provide on prehispanic cultural ecology and evolution. However, in recognition that the Temascalapa region was part of larger sociocultural and sociopolitical contexts during prehistoric times, the monograph also examines settlement data from this region with respect to two other areas. One considers the Temascalapa data in terms of settlement remains from the Teotihuacan region, in recognition that the Temascalapa region is not easily separated geographically from the Teotihuacan region and indeed was closely integrated politically and economically with that region during Late Aztec times (Gorenflo and Sanders 2000:576). The second places the Temascalapa region in the broader context of the Basin of Mexico as a whole. Because the Temascalapa region differs in important ways from other survey regions in the basin, including its geographically peripheral location and comparatively low annual rainfall, the study of prehispanic settlement patterns in this survey region with respect to the entire basin reveals differences with cultural adaptation in those other areas, in some cases suggesting topics requiring further attention. We feel that a perspective that examines archaeological settlement patterns in the Temascalapa region, but recognizes the area's role in the Teotihuacan region and the entire Basin of Mexico, provides the greatest chance for understanding prehispanic regional adaptation and sociocultural evolution in this small portion of the northeastern basin.

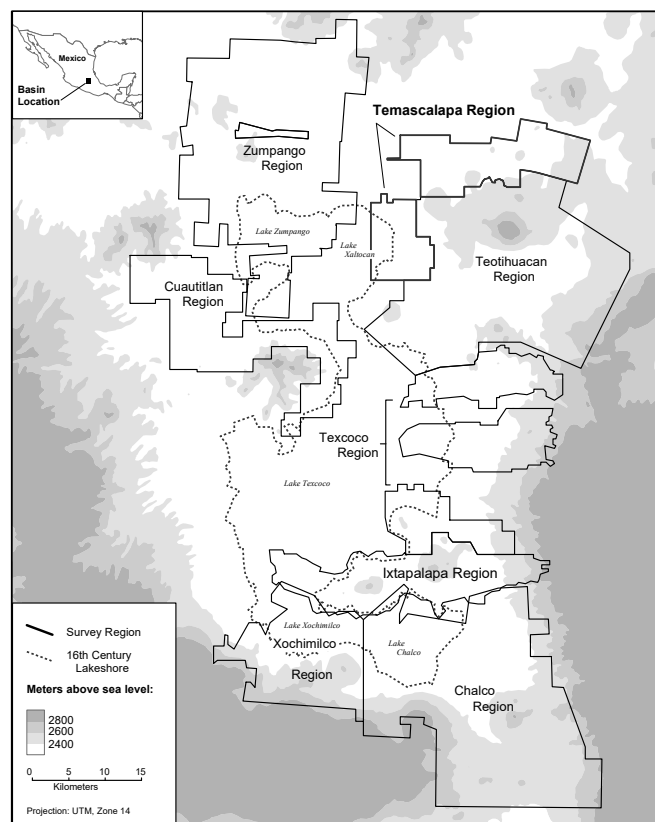


Figure 1.1. The Temascalapa Survey Region, in the Context of Other Survey Regions in the Basin of Mexico

The Temascalapa Project: Research Objectives, Limitations, and Assumptions

As the final intensive settlement survey in the Basin of Mexico, the Temascalapa project capitalized on 15 years of experience examining archaeological surface remains in the basin. That experience including the trial-and-error that characterized initial survey efforts as researchers developed and refined survey methods, and lessons learned from subsequent settlement pattern surveys in the basin to improve data consistency and reliability. A thorough understanding, and in a sense *appreciation*, of the data presented and analyzed below requires familiarity with the key considerations underlying the organization and implementation of the Temascalapa survey—most notably, research objectives, recognized limitations, and underlying assumptions.

The main objective of the Temascalapa project was to increase our shared understanding of the cultural ecological processes underlying the evolution of complex societies, both in the northeastern Basin of Mexico and in the basin as a whole. The Basin of Mexico witnessed the emergence of two complex states that played central roles in Mesoamerica from about 100 BC until the Spanish Conquest in AD 1521. As part of the basin, the Temascalapa region has the potential to provide insights on the development of highly evolved sociocultural systems, though from the perspective of an area with relatively limited agricultural productivity potential in the northeastern part of the basin. Consistent both with an ecological approach and the explanatory potential of regional surface survey data, the project focused on issues associated with regional demographics, land use, economy, and political development. It attempted to extract greater understanding of sociocultural evolution from the types, sizes, and spatial arrangement of settlements at certain points in the region's prehistoric past. A major lesson learnt in the Teotihuacan region settlement pattern survey was the tradeoff between the amount of detailed information collected from individual settlements and the extent of spatial coverage. The Temascalapa project continued to emphasize the latter over the former, consistent with the approach that emerged during the Teotihuacan region survey during the early 1960s (Sanders 1965) and that guided all subsequent surveys in the Basin of Mexico (Sanders et al. 1979). The approach to surface survey employed in the Temascalapa region, presented in Chapter 4, provided a limited amount of data on a large number of sites, in the process sacrificing insights on site composition and function that often would have been possible through more thorough, careful examinations of surface material or test excavations. Certain researchers have criticized this approach (e.g., O'Brien and Lewarch 1992; Tolstoy and Fish 1975)—noting inherent shortcomings of surface data as a basis for archaeological interpretation, the importance of individual settlement function in understanding regional settlement systems, and so on. But the need to document a large number of archaeological sites in a limited amount of time helped shape the methods

employed. Nonetheless, the lack of systematic understanding of site structure and function constrains this study and limits more detailed evaluations of regional organization. Such limitations become particularly obvious when we try to interpret the resulting settlement data, notably in chapters 6, 7, and 8.

Despite an approach to data collection that emphasized broad geographic coverage at the expense of examining individual settlements, we are confident in the accuracy of many of the data recorded and the assessments of prehispanic regional settlement and cultural ecology that emerged from their examination. To begin with, we believe the survey located virtually all archaeological sites dating between 1500 BC and AD 1521 in the Temascalapa region. The survey probably missed a few smaller sites, mainly hamlets or temporary settlements, which fell between the paths of fieldworkers or possibly were obscured or otherwise so ephemeral that survey crews did not note them. Surface survey also likely did not detect some sites in the deep soil alluvium, an environmental zone in the western part of the survey region where deep soil deposited primarily after the Spanish Conquest undoubtedly buried some prehistoric remains. And the survey may have missed sites that were components of larger, more dominant multi-component sites, remains from the dominant occupations possibly obscuring less obvious evidence of one or more other occupations. Second, for the 341 sites recorded during survey, we are confident in the reliability of three fundamental types of information: areal extent, age, and environmental zone. Again, we acknowledge certain complications. In the case of areal extent and age, evaluations were less certain for multi-component sites—where even when survey crew members identified less dominant occupations, assessments of the areal extent of those occupations often was difficult to define accurately due to mixing of surface material and the dominance of material from one or more periods of occupation over another. In the case of assignment to environmental zones, evaluations in many ways reflect the modern Basin of Mexico rather than the natural environment at the time of occupation, recognizing that the basin natural environment changed considerably during prehispanic and historic occupations (see Cook 1949; McClung de Tapia 2015; Melville 1994). Finally, we are confident in two key assessments for all sites discovered during survey: population and *general* site function. We discuss these two topics in detail in Chapter 4. For the present, we note limitations in both of these assessments. Population figures probably best represent *estimates of relative population differences* among sites in the basin, rather than absolute population figures (see Sanders et al. 1979:39–40). The basic determination of administrative versus residential site function relies entirely on the presence of what we perceive to have been public (administrative) architecture, which doubtless misses sites where such architecture was subsequently modified or destroyed and sites with administrative roles that did not involve more substantial architecture.

Certain assumptions about the ability of the survey

data to provide evidence of past behavior underlie our presentation of the Temascalapa settlement data in this monograph. Both the description of resulting data and the analyses based upon them—that is, the bulk of the following volume—rely on the validity of these assumptions, the most important being the following:

1. We assumed that surface remains provide a strong indication of past behavior, notably that ceramics found on the surface beyond certain densities indicate some sort of focused activity, often habitation. Moreover, we assumed that surface remains reflect all periods of occupation at a particular site. These complementary propositions provide a basis for believing that intensive archaeological surface survey can discover the locations of all archaeological sites in an area. The presence of overburden, as well as human disturbance during prehistoric and historic times, clearly undermines the validity of this assumption. Nevertheless, this general proposition underlies most archaeological surveys and is supported by excavation data from other parts of the Basin of Mexico.
 Parsons et al. (1982:3) based their presentation of the Chalco-Xochimilco survey data on a similar assumption, expanding their discussion to the problem of defining discrete Late Aztec sites amid what often appeared as a continuous scatter of Late Aztec pottery in the southern Basin of Mexico. Because the Late Aztec occupation in the Temascalapa region was not as geographically continuous as in many other parts of the basin, the challenge of defining separate sites dating to this period of occupation was not as great. In the Temascalapa region, with few exceptions we defined residential sites as having, minimally, very light-to-light surface pottery (see Chapter 4 for definitions of pottery densities). The presence of domestic architecture, in the form of *house mounds*, provided the most compelling evidence for such sites. Surprisingly few sites had such features, the introduction of mechanized plowing over the decade or so since completion of the Teotihuacan region survey having taken a marked toll on architectural remains. We designated very light surface scatters as *questionable* sites, in the absence of architecture, for all periods of occupation, likely the remains of temporary residences or localities with special functions used for brief periods.
2. We assumed that surface pottery density in the Temascalapa region reflected prehistoric population density for the occupational period(s) represented at any site. As discussed in greater detail in Chapter 4, the basis for this assumption is studies of modern rural settlement in the Teotihuacan region (Sanders 1965), making it likely more valid in the Basin of Mexico (and, particularly, the Temascalapa region, adjacent to the Teotihuacan region) than elsewhere in Mexico and beyond. Nevertheless, a number of complications—differing conditions during survey (e.g., amount of vegetation), post-depositional modification of densities (e.g., due to plowing or erosion), and the degree of

consistency among different observers judging pottery densities—all can compromise the validity of this proposition. Site formation processes also can undercut the accuracy of this assumption—greater duration of occupation, for instance, yielding the impression of denser occupation at a single time than might actually have occurred (Tolstoy and Fish 1975). Acknowledging the validity of such criticisms, we would stress that we equate pottery density with population very generally to provide a rough indication of a range of past settlement size rather than a precise interpretation of past demographics.

3. We assumed that the size of prehispanic architecture at a site, represented by mounds, indicated its function. For all periods of occupation found in the Temascalapa region, we used this assumption to distinguish between domestic architecture associated with common people and civic architecture associated with ceremonial or (especially) administrative functions or elite members of society. The presence of civic architecture helped to identify settlements with administrative roles during various periods of occupation in the region. We considered both horizontal and vertical dimensions, as well as any additional information provided by remains of buildings and associated artifacts, in evaluating mound type. In lieu of other information beyond dimensions, we assumed a domestic role for mounds of modest size, generally 1 m high or less, interpreting them as the remains of a collapsed house. For mounds higher than 3 m, in turn, we assumed some function as public architecture. We were less certain of the roles of mounds between these heights, and although we evaluated each discovered by the survey the accuracy of these interpretations can be questioned. One exception to these interpretive guidelines is that during the Teotihuacan period occupation of the Temascalapa region, we considered larger architecture as multi-family residential structures characteristic of those found in the Teotihuacan region during the same period, with final assessment based on associated artifacts and the configuration of architectural remains.
4. Finally, we assumed that the ecological implications of site location defined during the late twentieth and early twenty-first centuries played some role at the time of site occupation. This general assumption provides the basis for interpreting the regional data collected, notably regional settlement patterns. Key components of this assumption probably hold, in the sense that certain environmental characteristics of the Temascalapa region—such as annual rainfall and the timing of spring and fall frosts—would have affected these economic options in a fairly understandable and consistent manner. The main problem comes in our documenting particular environmental variables, particularly soil characteristics, which likely changed dramatically since prehispanic times, as well as climate, vegetation (and land cover in general), and possibly other key components of the region's physical geography.

This collection of assumptions provides the basis for proposing that intensive surface survey discovered all prehistoric archaeological sites of any consequence in the Temascalapa region, provided a reasonable approximation of site populations, and generated fundamental information about domestic versus civic functions as well as the ecological context of each site. We believe that the project yielded a rich body of data that can serve as the basis of further study of settlement on the northeastern periphery of the Basin of Mexico, contribute to our understanding of regional settlement in the basin as a whole, and support comparisons to information on regional settlement from other areas both within and beyond the bounds of the basin. One aim of this monograph is to explore selected aspects of regional adaptation and sociocultural evolution in the Temascalapa region. Another is to make these data accessible to other researchers interested in conducting their own studies of prehistoric cultural adaptation and evolution in the northeastern Basin of Mexico and the basin as a whole.

CHAPTER 2: THE NATURAL ENVIRONMENT

Introduction

The Temascalapa region lies in the northeastern portion of a larger physiographic unit called the Basin of Mexico. Formation of this larger unit, and the development of several environmental zones and other key environmental characteristics, helped shape the Temascalapa region as a natural setting that presented certain challenges and opportunities to residents both past and present. Before we discuss the natural environment of the Temascalapa survey region, we examine the Basin of Mexico and some of its key characteristics to place the survey region in context.

The Basin of Mexico lies just south of Mexico's central plateau, the Mesa Central, in the Trans-Mexican Volcanic Belt. The depression underlying the basin dates to tectonic processes from the Oligocene or Eocene (Arce et al. 2019; Ferrari et al. 2003; Gómez-Tuena et al. 2007), an area formed by the intensive volcanic activity that affected much of Middle America during the Late Tertiary (Ferrari et al. 1999; Lugo 1984:5-6; Maldonado-Koerdell 1964:19-24; Mann 2007; Mooser 1961, 1963). As the geology of this area evolved, volcanoes rose to define a closed physiographic unit, or basin. Subsequent erosion further modified the region, producing thick deposits in its central depression. In the lowest parts of this depression, water eventually accumulated in a system of shallow lakes. The result was a complex natural setting—an elevated basin both delineated and dissected by ranges of volcanic mountains, with a series of interconnected lakes in its center. It was in this complicated geographic and environmental setting that some of the most complex prehistoric cultures in the world emerged.

The closed physiographic unit comprising the Basin of Mexico covers an area of roughly 7,000 km² (Sanders et al. 1979:81). Due to the geological processes described above, the region consists of a high plain surrounded by even higher elevations (see Figure 1.1). On the west, south, and east, massive volcanic mountain ranges define the boundary of the basin—the Sierra de las Cruces, Sierra de Ajusco, and the Sierra de Nevada mountain ranges, respectively—their maximum elevation exceeding 5,800 m above sea level in the southeast. To the north, the basin is delimited less clearly by low, discontinuous ranges of hills, separating it from the more arid Mezquital drainage further north. Although these various physiographic features do not pose impassible barriers to human movement, they serve as effective boundaries to agriculture and certainly hinder transportation over land by foot (see Gorenflo and Gale 1990; Hassig 1985; Sanders and Santley 1983). Thus, in addition to the hydrographic corollary of defining a closed drainage system, the main physical features of the Basin of Mexico also have likely sociocultural corollaries that make the region a useful unit for anthropological research.

One of the most notable characteristics of the prehispanic Basin of Mexico was the system of shallow,

interconnected lakes that occurred in its central depression. Many characteristics of the lake system remain unclear—in part because their shallow bottoms could lead to substantial changes in shape and extent with relatively slight fluctuations in water depth, and in part because the prehispanic inhabitants of the basin had begun to regulate the lake system at least by Late Aztec times to serve their own purposes (Calavera 1991; Palerm 1973; Rojas et al. 1973; Tellman et al. 2018). Following centuries of historic efforts to drain or otherwise modify the lake system to help control flooding in Mexico City, only remnants of the lakes exist today—as small bodies of water and wetlands (see Cruickshank 1995).

As a result of the above geographically broad processes and localized anthropogenic modifications, the Basin of Mexico emerged as a geographically and environmentally intricate setting. The natural environment varies both with elevation and with latitude, and includes considerable regional variability (e.g., progressively less annual rainfall as one proceeds from the southwest to the northeast; see Kovar 1970:19) as well as local variability. For present purposes, it is useful to view the natural environment of the basin and its various subsections, including the Temascalapa region, as posing a series of challenges to strategies of cultural adaptation, both in the past and in the present. To help understand the nature of these challenges, previous research defined 10 environmental zones in the Basin of Mexico (Sanders et al. 1979:Map 1): lakebed, island, saline lakeshore, deep soil alluvium, thin soil alluvium, upland alluvium, lower piedmont, middle piedmont, upper piedmont, and sierra. Seven of these zones occur in the Temascalapa region.

Because the aim of this particular study is to improve our understanding of the ecological processes underlying prehispanic complex societies in the northeastern Basin of Mexico, this chapter summarizes briefly the natural environment of the Temascalapa region. We particularly emphasize the potential of the survey region to support prehispanic agriculture, the economic foundation for past complex societies in central Mexico. Ideally, such a discussion would emphasize the paleoenvironment characterizing the basin during its prehispanic occupation. Unfortunately, details of the past environment prior to the Spanish Conquest remain sparse—though centuries of intensive prehistoric and historic agriculture, the degree of historic environmental change documented just north of the basin (Melville 1994), and the high number of exotic plant species present in the modern basin (Sánchez 1968) suggest that differences with the past are considerable (see also Kovar 1970:21; Sanders et al. 1979:230). In lieu of adequate information on prehispanic environment, our discussion emphasizes the main physiographic components presently composing the survey region with an eye towards how they would affect agricultural activities, considering paleoenvironmental specifics when such information is available.

The Temascalapa Survey Region

The 229.5 km² of the northeastern Basin of Mexico composing the Temascalapa region occur in two separate surveyed tracts, a small western tract and a much larger northern tract. Each is located in a separate hydrological sub-region of the basin. The western tract (77.0 km²) lies within the immediate drainage of Lake Xaltocan. The environmental zones present in this smaller tract consist of lakebed, saline lakeshore, deep soil alluvium, thin soil alluvium, and lower and middle piedmont (Figure 2.1). The northern tract (152.5 km²), in turn, occurs in the drainage of Barranca Avenidas de Pachuca (also known as Arroyo Papalote). This tract represents a portion of the basin where, despite its aridity, rainfall collected in Avenidas de Pachuca contributed to major floods in Mexico City prior to drainage of the lake system in the nineteenth century (Gorenflo and Sanders 2000:576). The northern tract includes four main environmental zones: thin soil alluvium and lower, middle, and upper piedmont.

The physical geography of the Temascalapa region varies markedly, and this variability likely had important repercussions for prehispanic adaptation, as it continues to have today. The western tract of the survey area lies largely within the lakeshore plain and alluvium immediately above Lake Xaltocan. This area is basically flat, with soil generally 1.0 m or more deep. The northern tract has two major physiographic components. The northernmost part of the northern tract occurs in the broad alluvial plain of Barranca Avenidas de Pachuca, for the most part a gently undulating area interrupted occasionally by small hills featuring several basalt outcrops. The southern part of the northern tract, in turn, contains more relief due to the influence of three extinct volcanoes, Cerro Gordo (maximum height of 3,050 m above sea level), Cerro Paula (2,630 m above sea level), and Cerro Verde (2,560 m above sea level). All three of these volcanic mountains have broad piedmont flanks that extend well into the survey region, among other things leading to considerable water runoff during storms that would support rainfall irrigation along these flanks. This potential for irrigation is important, for as noted the Temascalapa region lies in the most arid section of the Basin of Mexico. Average annual rainfall in the survey region ranges from approximately 610 mm to as little as 475 mm in the northeast (Figure 2.2). Such limited precipitation would have made prehispanic agriculture a risky endeavor in the absence of irrigation for most of the crops grown in prehispanic times. Unfortunately, the absence of a permanent source of water and much relief in the northern part of the northern tract and most of the western tract limits potential irrigation in these areas to the flanks of larger mountains (see Chapter 7), placing agricultural success more at the whim of low and often fluctuating rainfall (see Charlton 1970:197-198).

In the remainder of this chapter, we summarize the most important characteristics of each environmental zone in the Temascalapa survey region and suggest the potential role that each may have played in prehispanic adaptation. Because these environmental zones occur elsewhere in the

Basin of Mexico as well, we begin each discussion with a brief overview of the zone in general. Specifics unfortunately tend to be few for key variables, both because of the limited understanding of past environment in the basin in general and because much of what is known pertains to the southern part of the basin.

Lakebed

When Spanish *conquistadores* first entered the Basin of Mexico in 1519, they found a system of five large, interconnected, shallow lakes (Cortés 1962:85-87; Díaz 1956:192). Water from precipitation as well as from a variety of other sources—notably ground water, rivers, springs, and snowmelt from the tops of the massive volcanoes Popocatepetl and Ixtaccihuatl on the southeastern edge of the basin—collected to form these lakes. Although their geographic extent varied considerably depending on water availability (Tellman et al. 2018), in the early sixteenth century the lakes stretched about 70 km north-south and covered roughly 1,000 km² (Sanders et al. 1979:84-85). Lake Texcoco, in the center of the basin, covered the largest area (see Figure 1.1). Lying to its south were lakes Chalco and Xochimilco, with lakes Zumpango and Xaltocan lying to its north. Although all five were shallow, their depths generally ranging from 1.0 to 3.0 m, other characteristics varied, causing the various lakes to play different roles in prehispanic cultural adaptation. Lake Texcoco occurred at the lowest elevation in the drainage compared to the remaining four, causing the other lakes to drain into Lake Texcoco where they deposited accumulated minerals. Due to this hydrological pattern, Lake Texcoco was saline. Lakes Xochimilco and Chalco, which drained year-round into Lake Texcoco, contained fresh water. Lakes Zumpango and Xaltocan, which drained into Lake Texcoco during the rainy season, were more brackish than the southern lakes, but were less saline than Lake Texcoco.

Because the water in the lakes differed in important ways, the resources supported by the lakes differed as well. These contrasts in resources provided varying opportunities for prehispanic economies. Various types of fish, amphibians, crustaceans, mollusks, and insects occurred in the lakes, while assorted plant resources occurred along the shores surrounding the lakes (e.g., Orozco y Berra 1864:153-163; Parsons 2006; Millhauser 2017). During the spring and fall, birds migrating north and south used the lake system as a waypoint, filling a role similar to that played by remnants of these lakes today (Leupold 1959:126-198; see Arellano and Rojas 1956). Migratory fowl would have been dominated by the family Anatidae, notably teals (*Anas spp.*), baldpates (*Mareca americana*), canvasbacks (*Arythya valisineria*), and redheads (*Arythya americana*). Reeds probably dominated aquatic vegetation, most likely of the genus *Typha* (such as *Typha angustifolia* and *Typha latifolia*; Sánchez 1968:25-26), documented elsewhere in the lakes during Colonial times (Gibson 1964:364).

A small section the Lake Xaltocan lakebed occurs in the western tract of the Temascalapa region. Lying at the

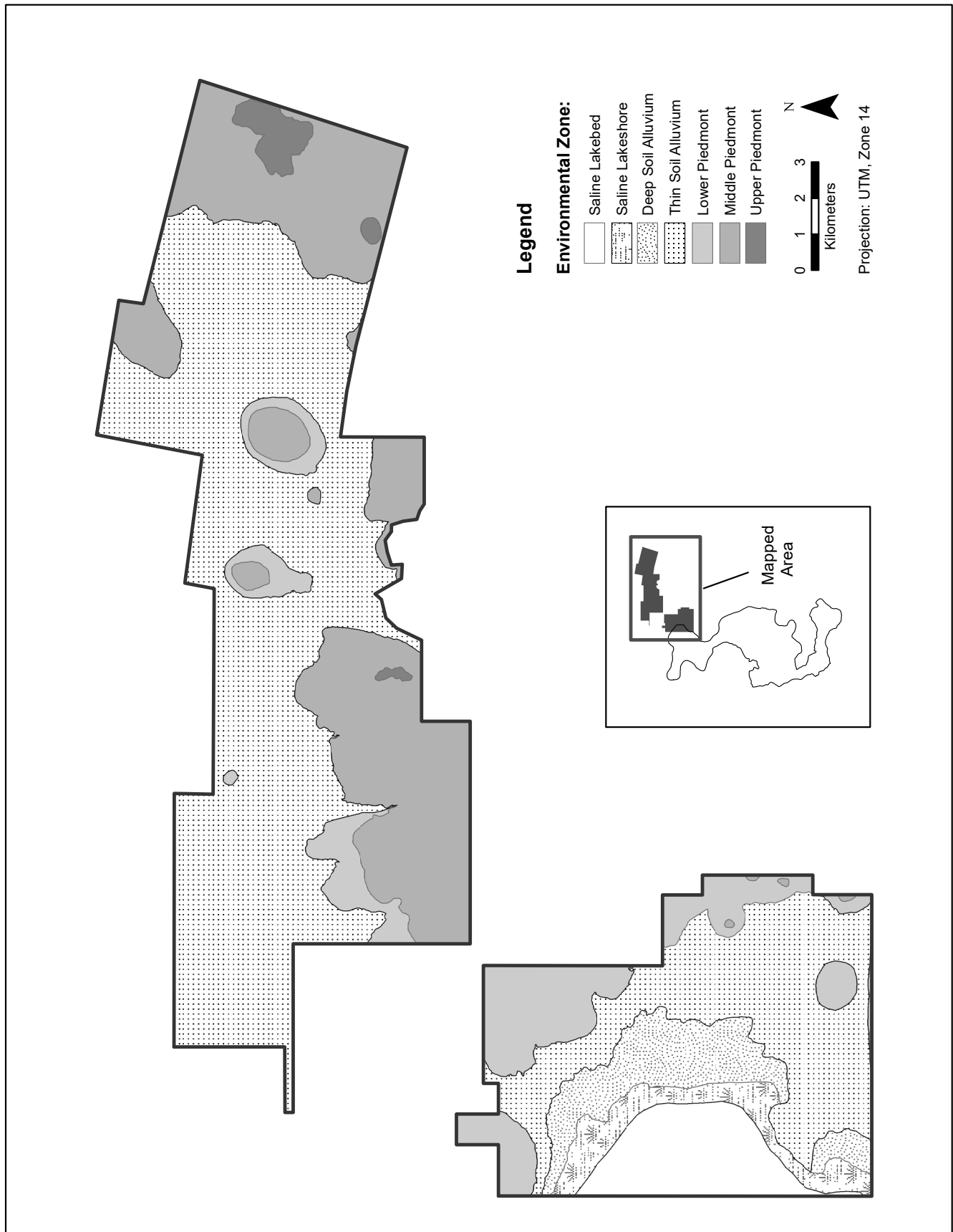


Figure 2.1. Environmental Zones in the Temascalapa Region

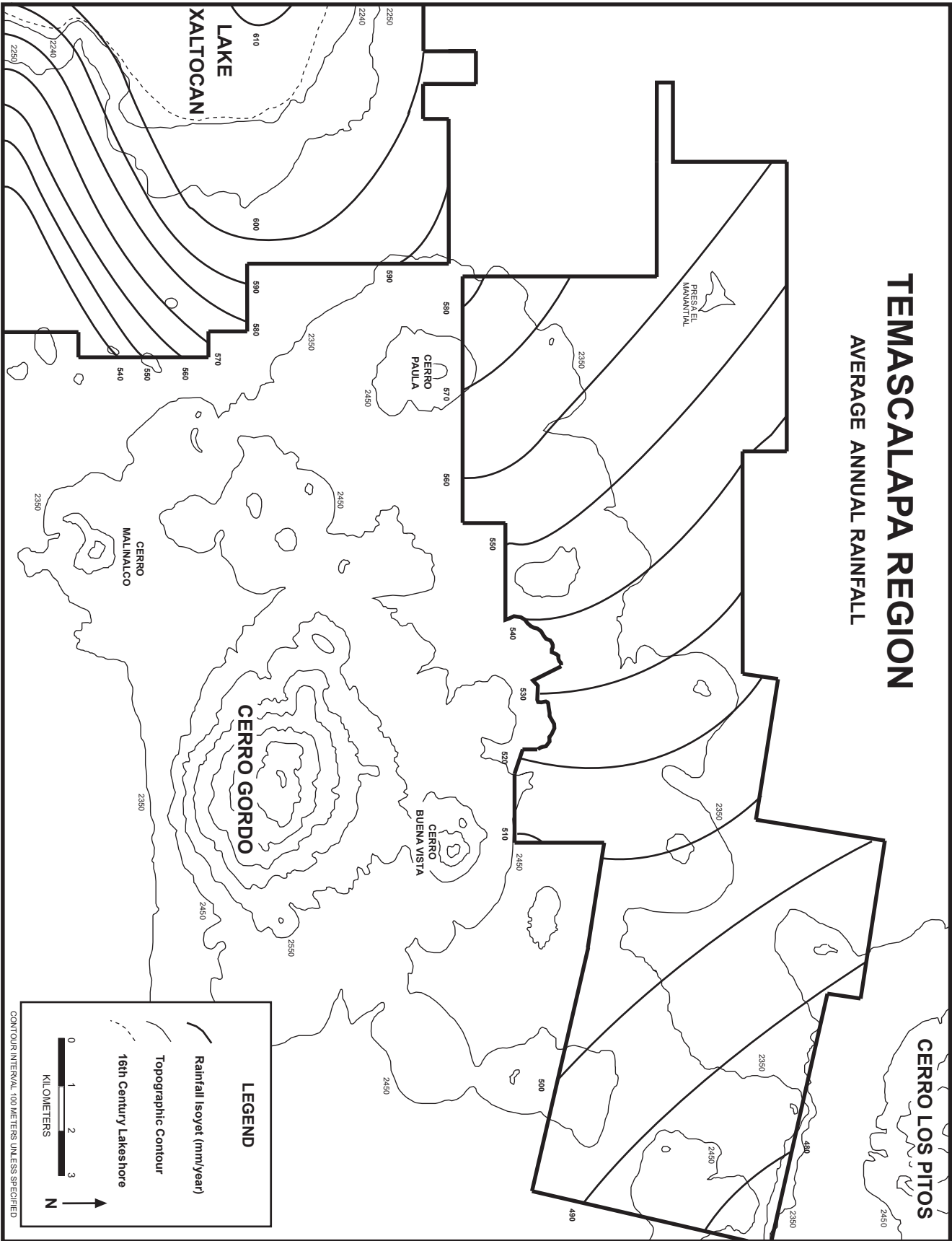


Figure 2.2. Spatial Distribution of Average Annual Rainfall (mm) in the Temascalapa Region

western edge of this tract, the lakebed covers about 11.3 km² (roughly 5% of the total survey region; see Figure 2.1). When it existed as a body of water, this portion of Lake Xaltocan would have been brackish except for that portion immediately surrounding the mouth of Barranca el Muerto, which during the rainy season receives much of the runoff from the western slopes of Cerro Gordo and associated ridges. Today only small remnants of the lake system occur in the Temascalapa region, as 1.0-2.0 km²-wetlands and seasonally inundated areas of the lakebed located in the westernmost part of the survey area.

The lakebed in the Temascalapa region comprises flat land covered by deep soil that reaches several meters in places. Because the lakebed is flat, virtually no erosion occurs throughout this environmental zone, though much of the soil deposited in the lakebed is a consequence of erosion from higher elevations that surrounded the ancient lake system. Human disturbance of the basin piedmont began as early as the Middle Formative period (Nichols 1980), presumably associated with agriculture (see also McClung de Tapia 2012). Erosion surged during historic times with changes in land use patterns and with the deterioration of erosion controls, beginning shortly after the arrival of Spaniards in the early sixteenth century (Cook 1949). This deposition may help explain the lack of prehispanic remains recorded in the lakebed portion of the Temascalapa region, though subsequent research in the lakebed of Lake Texcoco indicates that when present archaeological evidence of limited, special activities in the prehistoric lakes is indeed visible (Parsons and Morett 2005).

Modern land use in the lakebed portion of the Temascalapa region generally consists of irrigated agriculture, modern residences, and unused land. A small area of irrigated farmland occurred at the time of survey in the southwestern part of the lakebed. Such a limited amount of crop production in an area of deep soil where farming generally is quite important in Mexico likely is due to soil quality in fields formed at the bottom of a formerly brackish lake, coupled with low precipitation. These conditions probably also explain the large amount of unused land observed during the survey in the mid-1970s. In the past four decades, growing demand for food and expansion of commercial agriculture have increased pressure to bring more land into production; as a result, a larger amount of the lakebed in the Temascalapa region supports crop production than at the time of survey. In 1975, the lakebed contained scattered houselots, mainly on the northeastern edge of the surveyed lake area north of the area mentioned above that is seasonally inundated. Modern roads cross the lakebed in an irregular pattern, though in the mid-1970s only the east-west connection to Mexico 85 was paved. An abandoned airfield occurs in the southwestern portion of the Lake Xaltocan lakebed lying in the Temascalapa region.

The lake system in the Temascalapa region would have served as a source of fish, waterfowl (primarily migratory ducks and geese; see Leupold 1959:126-198), and likely certain other aquatic resources during prehispanic times. The brackish water in Lake Xatocan likely probably

limited the food resources it provided. The Temascalapa settlement survey discovered no prehispanic sites in the lakebed which seems to be consistent with the nature of the lakes in the northern Basin of Mexico (though the late prehistoric occupation of the site of Xaltocan, west of the Temascalapa region, featured chinampa agriculture; see Morehart 2018; Morehart and Frederick 2014). The absence of archaeological remains may also be a consequence of the historic accumulation of overburden in the area, as surrounding higher elevations eroded during prehispanic occupations and (especially) following the Spanish Conquest.

Saline Lakeshore

Just above the shore of lakes Zumpango, Xaltocan, and Texcoco occurred a strip of poorly drained, salinized soil ranging in width from about 500 to 1,000 m and designated as *saline lakeshore* (Sanders et al. 1979:85). Although in modern times sections of this lakeshore have supported crop production, the utility of this environmental zone remains limited for agriculture due to salinity in the soil. In the past, pre-Columbian residents used the lakeshore in certain parts of the basin for salt production, particularly along the edge of Lake Texcoco (Baños and Sánchez 1998; Blanton 1972:31, 176; Parsons 1971:5, 216, 225-226; Parsons 2001:6; Sanders and Gorenflo 2007:9-10). Archaeological evidence of such activity occurs as large mounds and, during the Late Aztec period, scatters of Texcoco Fabric Marked pottery—a ceramic type associated with salt making—both absent in the Temascalapa region. When the lake system was intact prior to the Spanish Conquest, a small fluctuation in water level could modify the horizontal extent of the lakes considerably due to their broad, shallow configuration, thereby affecting the location and width of the saline lakeshore plain. Vegetation would have been sparse throughout most of this area, with the exception of salt-resistant grasses such as *Sporobolus plumbens*, *Distichlis prostrata*, and *Distichlis spicata*, and various reeds of the genus *Typha* (e.g., *Typha angustifolia* and *Typha latifolia*; Kovar 1970:22-23; see Sánchez 1968:25-26) which occurred at the shoreline. The mouths of rivers and streams that emptied into the central and northern lakes, in contrast, likely featured dense hydrophytic vegetation. Reeds and other vegetation adapted to waterlogged conditions likely grew along the shoreline of the southern freshwater lakes as well, unless purposefully cleared.

A narrow band of saline lakeshore occurs along the shore of Lake Xaltocan, once again confined to the western surveyed tract of the Temascalapa region. Varying in width from roughly 50 to 800 m, with its upper boundary in general equivalent with the 2,240-m contour line, this zone covers only about 6.8 km² of the entire area surveyed, approximately 3% of the total (see Figure 2.1). The Temascalapa saline lakeshore consists of a flat-to-gently sloping area immediately above the lakebed. Slope tends to increase in narrower sections of the lakeshore, notably in the northern quarter and southern third of the area, and

decrease in the two comparatively broad sections of the saline lakeshore. Soil depth in this environmental zone tends to be deep, generally 1.0 m or more. Limited erosion affected the saline lakeshore because it usually is flat. But the lakeshore has received soil eroded from higher locations, notably piedmont zones. The depth of deposits from erosion likely varied with the topography of higher slopes and the lakeshore itself, deeper deposition tending to occur on flatter sections of lakeshore below comparatively steeper slopes.

When field crews surveyed the Temascalapa region in the mid-1970s, rainfall agriculture characterized the lakeshore plain. Drainage ditches in some cultivated fields testified to the importance of removing excess water in certain localities. Survey crews also noted a small amount of modern irrigated land in this zone. Crops in 1975 consisted primarily of maize (*Zea mays*) and alfalfa (*Medicago sativa*); maguey (*Agave spp.*) and nopal (*Opuntia spp.*) also occurred, though they were scattered and sparse. The paucity of crop production, and the limited number of crops grown despite deep soil and relatively greater rainfall, likely reflect soil salinity, similar to the lakebed of Lake Xaltocan itself. Although several modern residences occurred on the lakeshore plain at the time of survey, most represented the lower peripheries of communities centered in the deep soil alluvium immediately inland, including San Lucas Xolox, Los Reyes Acozac, San Pedro Potzohuacán, and Santa Cruz Tecámac, though in the case of the last community, modern lakeshore plain settlement occurred as semi-separate barrios such as Tlazintla and La Escondida. Several modern roads cross the lakeshore, including Mexico 85, as well as the northern rail spur that connects the Teotihuacan Valley to Mexico City.

Although the saline lakeshore served as an important zone of salt making along Lake Texcoco, lower salinity in Lake Xaltocan seems to have reduced the frequency with which this activity occurred in the Temascalapa region, a proposition borne out in the archaeological data presented in Chapter 5. No salt-making mounds occurred along the saline lakeshore. The three small sites discovered in this zone all occurred in its northern reaches and appear as the remains of small residential settings with unknown (if any) special functions.

Deep Soil Alluvium

The *deep soil alluvium* occurs inland from the shore of the Basin of Mexico lake system in generally flat localities that occasionally reach widths of several kilometers (Sanders et al. 1979:85-86). Lying between 2,240 and 2,300 m in elevation, soil deposits in this environmental zone often exceed 4.0-5.0 m. The broadest expanses of deep soil alluvium in parts of the basin occur along the courses of rivers that flow into the central lake system, notably the Amecameca, Cuautitlan, Papotla, and Teotihuacan rivers. Along rivers, sandy loam soils predominate; away from watercourses, main soils consist of loam and clay-loam. Major occurrences of deep soil alluvium include the eastern edge of lakes Chalco and Texcoco, the northwestern corner

of Lake Texcoco, and the southwestern edge of Lake Zumpango (Sanders et al. 1979: Map 1).

Although at first blush the deep soil alluvium would seem to be highly productive agriculturally, frosts, that often settle in low-lying areas, and drainage problems would have reduced crop production. Unfortunately we do not understand much about the limitations of this zone, given the deposition accompanying the broad erosion that followed the Spanish Conquest and associated erosion due to deteriorating terraces and grazing of animals introduced from Europe (see Córdova 1997; Córdova and Parsons 1997; Melville 1994:101-115; Simpson 1952). Modern agricultural techniques, particularly drainage and irrigation, overcame many of the challenges to agriculture posed by the deep soil alluvium, and much of it is intensively cultivated today.

More than 2,000 years of cultivation make the natural vegetation in this area difficult to reconstruct. The northern, more arid part of the basin probably featured scrubby flora characterized by mesquite (*Prosopis juliflora*), maguey, and nopal, along with patches of assorted grasses and bare ground. The moister southern basin likely featured oak (*Quercus spp.*) (particularly in higher elevations) and cypress (*Cupressus lusitanica*) forests and woodlands, interspersed with assorted grasses and shrubs. Fauna in the deep soil alluvium would have included game animals such as cottontail rabbit (*Sylvilagus spp.*), jackrabbit (*Lepus callotis*), and whitetail deer (*Odocoileus virginianus*), as well as various rodents, birds, and reptiles, though the numbers of these species would have been higher in areas with greater precipitation and denser vegetation. In marshland sections of this environmental zone, migratory waterfowl would have been prevalent and an important food source, as depicted on a mid-sixteenth century map of the basin (Linné 1948:Mapas II, V, VI, IX, and X).

Deep soil alluvium occurs in the western surveyed tract of the Temascalapa region, distributed in a broad swath along the saline lakeshore (see Figure 2.1). This environmental zone covers about 11.9 km², approximately 5% of the total surveyed area. Although greater than 2.0 km wide at one point, the deep soil alluvium in the Temascalapa region generally ranges between 0.5 and 1.5 km in width. It is interrupted near its southern extreme by a narrow extension of the thin soil alluvium that extends all the way to the lakeshore plain. The deep soil alluvium in the Temascalapa region usually is characterized by gently sloping ground with small, localized undulations that slightly increase slope. Soil tends to be deep, 1.0 m or more, although in a few places soil decreases to shallow-to-moderate (0.25 to 0.5 m) depths. Erosion has had a minimal direct impact on the deep soil alluvium, as with the preceding two zones due primarily to the absence of much slope. However, this zone has been the recipient of considerable eroded soil from localities upslope, yielding the deep soil deposits that inspire its name.

Modern land use in the deep soil alluvium of the Temascalapa region consists mainly of settlement, primarily villages and hamlets, and crop production. The deep soil and flat terrain found in this zone has attracted considerable

agricultural activity. At the time of survey, roughly half of the zone hosted rainfall (*temporal*) agriculture, with the remaining cultivated area irrigated. No obvious geographic pattern of irrigated land emerged, suggesting that when people could afford to irrigate they did so to compensate for the low rainfall. As one would expect, the modern communities that occur in this environmental zone tend to consist of agricultural settlements. Large portions of San Lucas Xolox, Los Reyes Acozac, San Pedro Potzohuacán, La Luz, Tres Marías, and San Nicolás Redonda occur in the deep soil alluvium, along with smaller parts of San Jerónimo Xonacahuacán and Santa Cruz Tecámac. Several modern roads cross the generally flat deep soil alluvium, including Mexico 85 and Cuota Highway 85 as well as smaller paved and unpaved roads. The northern rail spur connecting the Teotihuacan Valley with Mexico City also crosses this zone.

Evidence of prehispanic settlement in the deep soil alluvium of the Temascalapa region is sparse, consisting of only a few small archaeological sites for all periods of occupation. This lack of prehistoric settlement may indicate an inclination to avoid this environmental zone, possibly due to problems with frost and drainage mentioned above. However, one cannot discount the possibility that deposition from prehistoric and historic erosion may have buried archaeological remains. The correct explanation for sparse archaeological sites probably requires consideration of both possibilities.

Thin Soil Alluvium

Inland from the lake system in the northern Basin of Mexico lies a band of *thin soil alluvium*, generally narrower than the deep soil alluvium, less than 1.0 m in depth and dominated by loam and sandy loam soils (Sanders et al. 1979:86). The thin soil alluvium is restricted to the northern basin, where precipitation generally is low and evaporation high. Other key characteristics of this zone are shallow soil and high incidence of frost (cold air settling in its low elevation), combining with lack of water to make prehispanic agriculture a risky endeavor. In part because of its restriction to more arid sections of the Basin of Mexico, natural vegetation in the thin soil alluvium would have been sparse and scrubby. Mesquite, scrub oak (*Quercus mexicana*), and other small shrubs and trees likely occurred prior to the first heavy encroachment of human settlement during Late Toltec times, along with maguey, nopal, and assorted other cacti mixed with small patches of grass (see Sánchez 1968:107-108, 133-134). Trees and relatively denser vegetation would have been limited largely to drainage channels, where surface water occurred with greater frequency and where the water table was closer to the surface. Fauna would have consisted primarily of smaller animals, such as jackrabbits, cottontail rabbits, and other rodents; larger game animals, such as whitetail deer, would have been scarce and limited primarily to the few areas with denser vegetation.

Thin soil alluvium occurs in both the western and northern surveyed tracts in the Temascalapa region. Covering 121.1 km² in all (about 53% of the surveyed

area), this environmental zone is the most prominently represented in the survey region. In both surveyed tracts, most of the thin soil alluvium lies immediately below the slopes that terminate ultimately at Cerro Gordo and Cerro los Pitos. Thin soil alluvium occurs further upslope north of Cerro Gordo, largely a consequence of the complex natural drainage system found in that area. Slope in the thin soil alluvium tends to range from flat to gently sloping, with little of this environmental zone becoming much steeper. True to its name, soil depth in the thin soil alluvium tends to be shallow, on the order of 0.25 m in depth. However, in particularly flat areas soil depth can increase, reaching moderate depths and, on rare occasion, deep deposits of 1.0 m or more, though these deeper deposits of soil are rare. In other areas soil is non-existent, exposing underlying *caliche* or (on hill flanks) vesicular basalt outcrops. Erosion also varies, being generally slight but becoming medium or deep in a few areas where gully erosion intrudes from higher elevations.

In 1975, survey crews recorded rainfall agriculture throughout the thin soil alluvium. Irrigated (both floodwater and rainfall irrigation) agriculture also occurred, though much less frequently, despite the zone's receiving on average less than 500 mm of precipitation annually in its eastern portions. Cultivated crops included barley (*Hordeum vulgare*), wheat (*Triticum spp.*), maize, alfalfa, bean (*Phaseolus spp.*), maguey, oats (*Avena sativa*), and nopal. Stone terraces and earth banks helped to control erosion and preserve the generally thin soil deposits. The survey crews also noted a small amount of grazing in this environmental zone. Several modern communities occur in the thin soil alluvium. Most of these consist of agrarian settlements—many of them small—including Juárez, Tlaxpa, San Felipe Zacapec, Temascalapa (northern part), Mogotes, La Presa del Rey, Emiliana Zapata, Santo Domingo Ajoluapán, San Pedro Potzohuacán, San Jerónimo Xonacahuacán, San Miguel, San Miguel Atlamahac, and Santa Cruz Tecámac.

Many of the archaeological sites discovered during the Temascalapa survey occurred in the thin soil alluvium, including sites dating to all periods of occupation documented for the region. The sites located in this zone tend to run the gamut of sizes and types, from very small hamlets to large centers. The number and variety of sites identified in the thin soil alluvium make the situation too complex to summarize here; Chapter 6 provides greater detail of the range of site types, sizes, and populations occurring in this and other environmental zones. As in other zones, given the nature of remains recovered during survey we feel that these sites largely were involved in agricultural activity. Small-scale rainfall irrigation systems would have been possible in the thin soil alluvium north of Cerro Gordo, though only in localities near its boundaries with lower and middle piedmont where slope angle would have been sufficient to move water. Further north, the absence of relief to provide predictable runoff, coupled with limited rainfall, would have provided very little opportunity for such water control.

Lower Piedmont

Much of the prehispanic settlement in the Basin of Mexico occurred in the piedmont lying between the alluvial plain surrounding the lakes and the mountain peaks. Piedmont occurs between elevations of about 2,260 and 2,700 m above sea level throughout much of the basin, though the contours defining this physiographic unit vary in different parts of the region. Sanders et al. (1979:87-88) defined *lower*, *middle*, and *upper piedmont*, based on differences in elevation and slope. Lower piedmont generally consists of gentle slopes beginning above between about 2,260 and 2,300 m above sea level, an increase in slope and the onset of notable erosion distinguishing it from the alluvium immediately below. The width of the lower piedmont varies, primarily depending on the steepness of the slopes where it occurs, extending to as wide as 4.0 km both east and west of Lake Texcoco but becoming less than 1.0 km wide in the southern basin.

This lowest piedmont zone was very important to prehistoric agriculture. Prehispanic occupants of the Basin of Mexico could have worked its sandy loam soils easily with available hand tools. The risk of frost declined slightly, and rainfall increased slightly, with its elevation above the basin floor. Moreover, elevation above the basin floor coupled with the gentle slopes throughout much of this region improved drainage. Possible problems with erosion in the lower piedmont would in part have countered these potential benefits, though terracing in various forms likely held soil loss in check during prehispanic times. We lack detailed knowledge of natural vegetation in the lower piedmont due to many centuries of intensive human settlement and related activities; small pockets of relatively undisturbed areas in the southern basin suggest the presence of oak forest in this environmental zone prior to clearing for agriculture and fuel wood extraction, though the reduced rainfall in the north may have limited the occurrence of such forest. Whitetail deer, jackrabbits and (especially) cottontail rabbits, raccoons, (*Procyon lotor*), opossums (*Didelphis spp.*), grey squirrels (*Sciurus aureogaster*), and fox squirrels (*Sciurus oculatus*) would have provided sources of animal protein, particularly in more heavily forested areas (see Leupold 1959). More xerophytic vegetation likely occurred in the Temascalapa region, largely due to the low rainfall in the area.

As is the case with thin soil alluvium, lower piedmont also occurs in both surveyed tracts in the Temascalapa region. Covering about 23.7 km² in all (roughly 10% of the surveyed area), lower piedmont is the third most prevalent environmental zone in the survey region. This environmental zone lies at the lower reaches of the piedmont, and as in other portions of the basin serves as an important transition zone between the more mountainous portions of the Temascalapa region and the alluvium. Most of the lower piedmont in the Temascalapa region lies on gently sloping ground, though inclines vary from essentially flat to moderate slopes. Soil depth most often is fairly shallow, about 0.25 m, although this can vary widely—from no soil in areas of exposed bedrock (caliche, or *tepetate*,

and basalt), to areas of moderate-to-deep soil where depth reaches nearly 1.0 m. Both gully and sheet erosion occurred in the lower piedmont at the time of survey, though with a few notable exceptions both usually were localized. The amount of erosion tended to be slight-to-moderate in the mid-1970s, but varied from virtually none to severe depending on slope and soil depth.

Within the lower piedmont, agriculture was the dominant land use in the Temascalapa region. Most modern cultivation relied on rainfall, though some floodwater irrigation also occurred at the time of survey. Farmers grew barley, wheat, oats, maguey, maize, and nopal in the lower piedmont in 1975. Fields occasionally featured erosion controls, primarily earth banks and maguey banales but also stone terraces. Survey crews noted the presence of a few drainage ditches, to promote the removal of water from locally low-lying areas, their rarity consistent with the low magnitude of such a problem in an arid part of the basin. As occurs throughout much of the Basin of Mexico, in places where soil or other conditions would not support crop production grazing occasionally occurred, primarily of goats and sheep but also cattle, horses, mules, and burros. Some modern settlement occupied the lower piedmont of the Temascalapa region, the most notable being parts of Temascalapa town and San Bartolo Actopan.

Prehistoric settlement occurred in the lower piedmont during all periods of occupation in the Temascalapa region, generally in all places where the zone is present. Most of these sites were hamlets, though a few villages occurred as well (particularly around Cerro Coayucán), all most likely settlements containing agriculturalists. Although survey crews noted very few instances of irrigated modern agriculture in the lower piedmont, sites in this zone would have been good candidates for small-scale rainfall irrigation during prehispanic times, capitalizing on runoff from higher elevations, though low precipitation would have greatly limited the contribution of such irrigation to crop production.

Middle Piedmont

Middle piedmont occurs in the Basin of Mexico between about 2,350 and 2,500 m above sea level in terrain generally steeper than the lower piedmont. Soil and rainfall in the middle piedmont resemble those of the lower piedmont. But erosion tends to exceed that found in the lower piedmont, likely having an adverse impact on agriculture in the past and present, though erosion controls such as terraces could have reduced its impact. Both sheet and gully erosion currently occur in the middle piedmont, the latter primarily in *barrancas* (seasonal watercourses) which often are deeply incised in this environmental zone. Prior to clearing for farming or other reasons, natural vegetation probably comprised broadleaf oak forest—likely becoming more sporadic as one proceeds further towards the arid north, with larger trees and greater numbers of trees in drier sections of the basin increasingly confined to drainages. Game animals would have included whitetail deer, red and fox squirrels,

opossums, raccoons, and cottontail rabbits, with greater presence occurring in areas where forest was denser.

In the Temascalapa region, the middle piedmont environmental zone occurs exclusively in the northern surveyed tract, where it lies in a generally broad east-west band covering roughly 51.8 km² (about 23% of the total surveyed area). Most of the middle piedmont occurs on ridges extending northward from Cerro Gordo, including the northern flanks of Cerro Paula and Cerro Verde, the upper reaches of Cerro Coayucán and the hill immediately to its west, and most of the eastern part of the survey region. A small amount of middle piedmont also occurs southwest of Cerro los Pitos, on the spur known locally as Cerro Tlexta. With few exceptions, middle piedmont in the Temascalapa region occurs in areas of topographic transition, connecting lower elevations with higher areas, though the latter often lie outside the survey region. As a result, much of the middle piedmont has a gentle-to-moderate slope, flatter areas tending to occur along contours (*saddles*) between higher elevations and the steeper areas near higher elevations. In a few local settings, survey crews recorded moderate-to-steep and steep slopes, but these are the exception in the Temascalapa region.

Middle piedmont soils in the Temascalapa region often are shallow, about 0.25 m deep, though varying from no soil (exposed bedrock) to moderate-to-deep soil (0.5 to 1.0 m deep). No large-scale geographic pattern in soil depth is apparent for the survey region, apart from the obvious tendency for soil to be deeper in areas with gentler slope. Erosion in the survey region also varies widely, from virtually none to medium-to-deep, but we would characterize most of the middle piedmont as having slight-to-medium erosion. Both channelized and sheet erosion occur in the area. Channelized erosion is particularly a problem on the slopes of hills in this zone, especially Cerro Paula, Cerro Verde, and Cerro Coayucán.

At the time of survey, both rainfall and floodwater irrigated agricultural occurred in the middle piedmont of the Temascalapa region. Crops included maize, beans, barley, maguey, and nopal. Several erosion control devices were in place, including maguey banales, stone terraces, and earth banks. A few drainage ditches also existed, to help run water off of locally low-lying areas. Scattered *jagüeyes* (hand-dug catchment ponds) provided sources of water to help compensate for low rainfall in the area. Grazing also occurred sporadically throughout the middle piedmont at the time of survey, primarily in areas of greater slope and thinner soil where crop production is not practical.

A few modern settlements lie at least partially within the middle piedmont in the Temascalapa region, including sections of the towns of Temascalapa and Santa María Aticpac and the hamlets Paula, La Puerta, and Zacatepec. All of these settlements were largely agrarian communities in the mid-1970s. Both paved and unpaved roads exist, to provide general access to this portion of the Temascalapa region as well as to connect the various modern communities to one another.

A number of prehispanic settlements occurred

in the middle piedmont. Included are sites from all time periods represented in the Temascalapa region, although by far the best represented are those from the Late Aztec occupation. The archaeological sites in this environmental zone run a broad range of types and sizes, including Tm-Az-151, the only Late Aztec provincial center recorded for the Temascalapa region. Once again, the survey crews documented little irrigation at the time of fieldwork. The topography of the middle piedmont, coupled with water runoff from higher elevations, would have made rainfall irrigation a possibility. That stated, the middle piedmont occurs in part of the survey area receiving the lowest average annual rainfall, so the contribution of rainfall irrigation to agriculture would have been small.

Upper Piedmont

The upper piedmont in the Basin of Mexico, lying between roughly 2,500 and 2,700 m above sea level, features steeper slopes than the middle piedmont and generally thin, clay-textured soil frequently affected by considerable erosion (Sanders et al. 1979:88). Most upper piedmont in the Basin of Mexico occurs in the southern part of the region. Upper piedmont does not tend to support agriculture, the increased amounts of rainfall it receives countered by an increased threat of frost at high elevations, poor soil, and severe erosion. Prior to widespread erosion and broad deforestation to meet human needs for wood, the upper piedmont probably featured a mixed forest of oak, pine (*Pinus leiophylla*), cypress, alder (*Alnus spp.*), tepozan (*Buddleja spp.*), and madroño (*Arbutus xalapensis*), mixed with assorted shrubs and grasses (Kovar 1970:33; Parsons 1971:11; Sears 1952:244; Tolstoy and Fish 1973:2; Sánchez 1968:19-23, 126-135, 297). Supported by this broad floral inventory, the upper piedmont in the basin likely featured a wide assortment of fauna, including whitetail deer (defining the upper range of this game animal), cottontail rabbits, opossums, gray squirrels, fox squirrels, and raccoons (see Leupold 1959).

Upper piedmont only occurs in the northern surveyed tract in the Temascalapa region, in three small areas covering about 3.0 km² in all (slightly more than 1% of the total area surveyed). All three of these areas lie near the end of ridges extending northeast (one area) and northwest (two areas) of Cerro Gordo. The two smaller areas compose the rounded tops of the ridges on which they lie; the larger area lies on the amorphous summit of a ridge and includes a small, elevated area to its southwest. The few occurrences of upper piedmont in the Temascalapa region generally lie on gently sloping ground. Soil depth ranged from shallow to medium in 1975, which at the time of survey had experienced only slight (sheet) erosion. Modern land use consisted primarily of grazing, and survey crews noted no modern settlement or other types of land modification (e.g., modern roads) in this environmental zone.

The settlement survey of the Temascalapa region recorded only two small sites in the upper piedmont, in the largest of the three occurrences of this zone. Both sites dated

to the Late Aztec occupation and represented hamlets or questionable (probably temporary) occupations.

The Potential of the Temascalapa Region in Prehispanic Economy

Pre-Columbian inhabitants cultivated a broad range of plants within the diverse natural setting of the Basin of Mexico. Throughout most of the prehistoric basin, the most important cultigen was maize (Sanders et al. 1979:222). Despite enormous changes in the region's crop production over the past five centuries, maize remains the foundation of central Mexican agriculture. In the 1970s, roughly 65% of agricultural land in the basin was planted in maize; despite fairly stringent requirements for soil fertility, moisture, and temperature, half to two-thirds of peasant agriculturalist diet in the 1960s consisted of maize or something made from it (Sanders et al. 1979:233). Pre-Columbian residents of the basin grew a range of other crops to supplement maize both nutritionally and calorically, including beans, squash (*Curcubita* spp.), tomato (*Physalis* spp.), chili pepper (*Capsicum* spp.), maguey, nopal, amaranth (*Amaranthus* spp.), chenopodia (*Chenopodium* spp.), chayote (*Sechium* spp.), verdolaga (*Portulaca* spp.), and capulin (*Prunus capuli* spp.).

Some of the domesticated plants grown throughout much of the Basin of Mexico would have occurred in the Temascalapa region as well. However, this northeastern portion of the basin featured certain challenges to growing many of the main cultigens in the region, notably precipitation and frost. The risk of frost in the Temascalapa region is comparable to the risk found in other parts of the basin, in particular affecting high elevations and low elevations (where heavier cold air can settle). Maize is susceptible to frost, the six-month frost-free growing period required for a successful crop threatened in the spring and fall (Sanders et al. 1979:222-233). However, the most important, widespread challenge to crop production in the Temascalapa region is low rainfall, introducing considerable risk to producing many of the crops that do well in other parts of the basin. Irrigation can reduce such risk, but the small-scale rainfall irrigation likely possible in the pre-Columbian Temascalapa region likely would have had little impact, forcing residents to rely mostly on limited, fluctuating rainfall.

Modern agriculture in the Temascalapa region tends to emphasize grain crops with relatively lower water requirements, such as barley. Also found with great frequency, particularly in the far eastern portion of the region, is maguey. Research in the northern part of the Teotihuacan region indicates similar constraints due to limited rainfall (Evans 1992). One possible agricultural solution to limited precipitation proposed in that study was intercropping of maize and maguey, a strategy that would reduce risk of complete crop failure while increasing overall caloric yield (see also Sanders and Evans 2001:1002-1007). Ethnoarchaeological research north of the basin confirms the importance of maguey as a means of bringing into

production land too arid for reliable production of seed crops (Parsons and Parsons 1990:3-6, 363-366). Similar increased reliance on maguey, possibly combined with other crops requiring less water, may have occurred in the prehispanic Temascalapa region.

Prehispanic inhabitants of the Basin of Mexico would have supplemented their diets with naturally occurring foods that they hunted or collected. Many of these resources—fish, amphibians, crustaceans, and water-dwelling insects (see Gibson 1964:339-344; Linné 1948:Mapas II, V, VI, IX, and X; Ortiz de Montellano 1978:612; Parsons 2006:11-36; Tamayo and West 1964)—would have come from the central lake system. Large numbers of waterfowl would have provided an important source of animal protein, some wintering in the lake system or passing through on their annual migration cycle, others year-round residents. Terrestrial environmental zones in the basin supported other animals that were used as food, though only whitetail deer and cottontail rabbit appear to have been of much dietary importance, and the low rainfall and xerophytic flora would not have supported many of these animals. Domesticated animals—dogs and turkeys—could have supplemented the wild animal species that played an important role in the prehispanic diet (Sanders et al. 1979:324).

Ultimately, with the exception of the small section of Lake Xaltocan falling within the western surveyed region, access to animal resources likely would have been limited throughout the prehispanic Temascalapa region. This limitation would have been the case in absolute terms and in comparison to the numbers found in the larger, denser forests in the southern basin. Of course, with the advent of widespread intensive agriculture throughout the basin, habitat destruction coupled with over-harvesting would have further reduced populations of native species in the basin, including the Temascalapa region.

Many other resources required by the inhabitants of the Basin of Mexico were widespread, such as the volcanic rock *tezontle* frequently used for construction during prehispanic times. One noteworthy exception to this tendency for ubiquitous distribution is salt, already mentioned as refined from the saline waters of (primarily) Lake Texcoco. Another is obsidian, important primarily as a material for stone tools. One obsidian source is known in the Basin of Mexico, near the town of Otumba in the Teotihuacan survey region (Charlton 1978; Johnson and Hirth 2019). All other sources of this important resource occur beyond the bounds of the basin, though the important Pachuca source lies only a short distance northeast of the Temascalapa region (Pastrana 1998).

CHAPTER 3: POST-HISPANIC REGIONAL DEMOGRAPHICS AND SETTLEMENT IN THE TEMASCALAPA REGION

Introduction

In this chapter we examine the historical demography of the Temascalapa region, from the Colonial period through the most recent *available* census data from 2010. Through the second decade of the 2000s, the Temascalapa region continued to host communities whose economies relied largely on agriculture, in a sense providing a connection with the distant past (Gorenflo 2022). Although settlement, land use, and many aspects of life have changed dramatically since pre-Columbian times, the persisting reliance on crop production in an area of low rainfall continues to characterize this region, providing a basis for potential insights on prehispanic occupations through the study of the more recent historic past and present. As we seek to understand prehistoric settlement patterns in the Temascalapa region in this monograph, we occasionally look to historic settlement for clues on the spatial arrangement of population in the area.

When available, we present historical demographic data in tabular and map form in the following pages. Our aim is to provide evidence on the size and geographic arrangement of population, showing total inhabitants as well as how that total changed over time. An important recurring theme in this monograph is the location of the Temascalapa region in the far northeastern Basin of Mexico, a marginal area agriculturally compared to the southern basin. One consequence of this is limited occupation, in both prehistoric and historic times, compared to other parts of the basin. Another consequence is an absence of data on Colonial period demographics, in part because of likely limited occupation in the sixteenth through nineteenth centuries.

When writing this chapter, the most recent census data available were from 2010. The Instituto Nacional de Estadística y Geografía conducted a decennial census in March 2020, though complications with the Covid-19 pandemic extended the enumeration period in Mexico and delayed the release of preliminary population counts (Instituto Nacional de Estadística y Geografía 2020). Results from the 2020 census at the municipality (*municipio*) and community level will not appear until completion of data editing and review; as a result, the most recent population data available are more than one decade old, an unfortunate problem when one examines demographic data near the date of a new decennial census. The 2010 data describe recent settlement patterns, something we augment with 2017 statistics on agriculture in the Temascalapa region. We present data from four earlier censuses as well—1900, 1930, 1960, and 1980, selected to provide an overview of population change in the region at important points in the demographic history of the Basin of Mexico during the twentieth century.

We begin this chapter with a summary of population data from a few Temascalapa region settlements in sixteenth and seventeenth centuries. Details of Colonial period demographics in the Temascalapa region are not particularly well documented or understood and require additional research well beyond the scope of this monograph. In this chapter we briefly discuss Colonial period demographics in the Temascalapa region in comparison to the broader basin population, providing a sense of how survey region population fared during Colonial times with respect to a larger, better understood geographic context. We then turn attention towards twentieth and twenty-first century demographics, tracing historic settlement patterns as well as population statistics over slightly more than 100 years. Examining data from five censuses spanning 1900-2010 offers a glimpse of shifting occupation from what was a more dispersed arrangement of small settlements likely pursuing subsistence agriculture to much denser settlement with an increasingly intensive commercial agricultural base. A brief discussion of recent crop production data provides a sense of the amount of farming that persists in this agriculturally challenging area. Although the purpose of this study is to improve our understanding of prehispanic occupations of the Temascalapa region, this effort is furthered through examining recent demographics and land use, though these data reveal impacts of recent human presence and activity on the archaeological record even on the northeastern fringe of the basin (Gorenflo 2022; see Sanders et al. 1979:411-413).

Demographics in the Temascalapa Region, 16th-19th Centuries

As discussed in chapters 5 and 6 below, the Late Aztec period hosted a much larger pre-Columbian population in the Temascalapa region than any preceding period. The Late Aztec containing more than twice the estimated population and number of sites than any other prehispanic occupation, with settlement occurring throughout the entire region. This broad geographic distribution of sites contrasts sharply with the arrangement of communities during the Colonial period, if availability of demographic data from the latter are any indication of occupied localities. For purposes of geographic orientation, Figure 3.1 shows the locations of settlements in the Temascalapa region during the early twenty-first century, enabling one to identify the communities discussed below. We have very little data on Colonial period populations for any of these communities: most did not exist at that time, in part due to the dramatic depopulation that followed the Spanish Conquest and in part to the basin residents either choosing less challenging environmental settings or being placed in other locations by Spanish authorities as part of resettlement campaigns, such as *congregación* (Gibson 1964:282-288).

Secondary sources provide population figures for few communities in the Temascalapa region during the Colonial period:

- Tecámac de Felipe Villanueva:

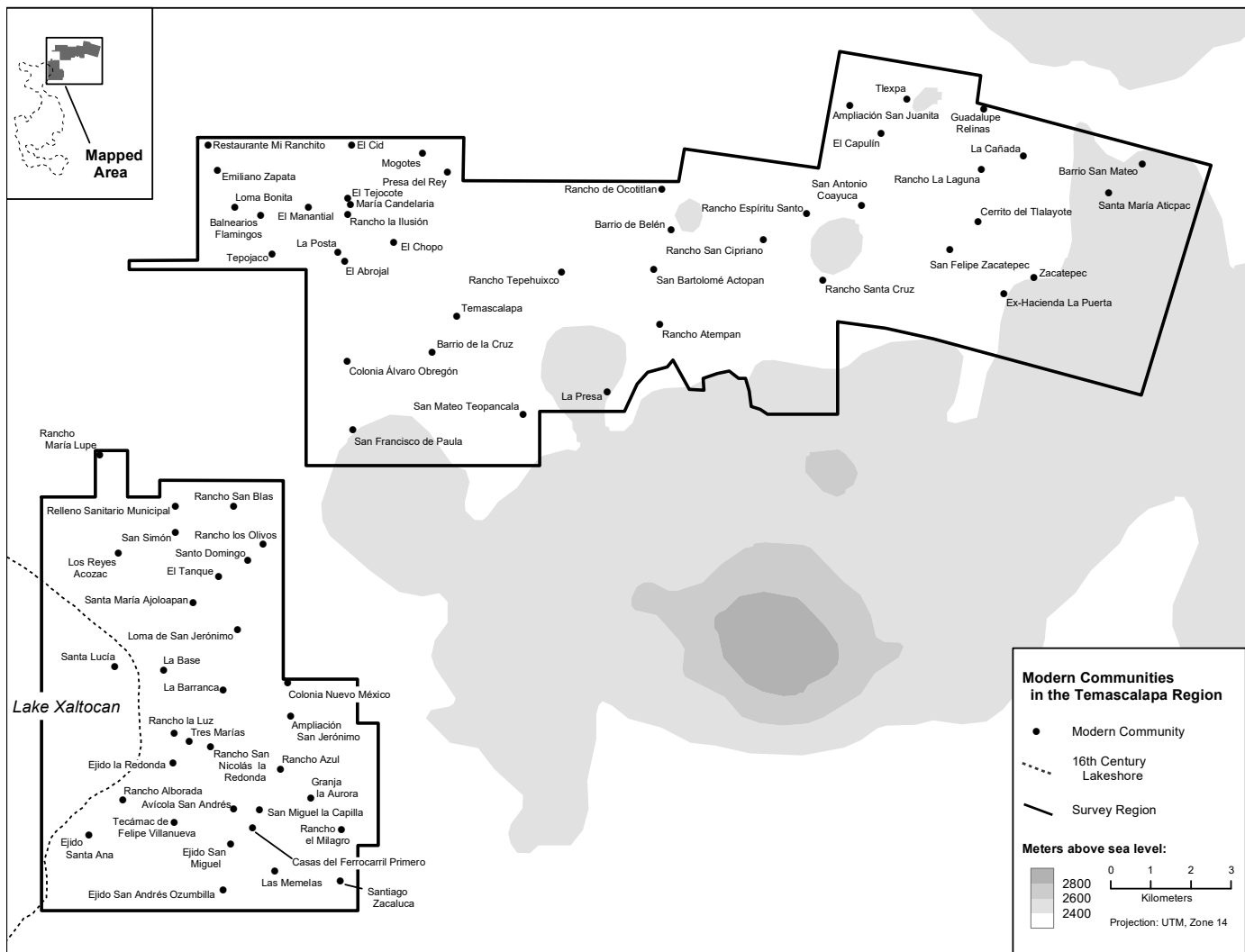


Figure 3.1. Modern Communities in the Temascalapa Region

- 1,815 in 1548 (Borah and Simpson 1960:153)
- 1,782 in 1568 (Cook and Borah 1979, Vol. 3:20)
- 37 in 1646 (Cook and Borah 1979, Vol. 3:20)
- Temascalapa (town): 551 in 1568 (Sanders 1970:414)
- Santa María Ajoloapán: 63 in 1646 (Cook and Borah 1979, Vol. 3:23).

This paucity of data contrasts sharply with much more extensive demographic data from other parts of the Colonial basin. Although this absence of demographic figures may indicate that the data simply have not yet been identified, it also may indicate that the Colonial period Temascalapa region did not host much population due to its limited potential for agricultural production compared to other areas that were more densely settled.

Population data from the Colonial period primarily come from three sources: estimates from conquistadores of the sizes of Indigenous armies during battles associated with the Conquest; government censuses, conducted primarily to organize the extraction of taxes; and ecclesiastic censuses, conducted primarily to organize the administrative system of the Catholic Church in New Spain (Sanders 1970:389-393). The first source of data clearly is of questionable accuracy, in the absence of any systematic method for assembling estimates and involving situations (battles) that would not

have been conducive to generating accurate population estimates. Moreover, military estimates would be of limited use in the current study because they would not associate population sizes with individual settlements. The second source of data was plagued by inaccuracy, both purposeful to create erroneous taxation records and because of the many arising from untrained individuals collecting demographic data amid enormous logistical hurdles (Sanders 1970:393-395). Ecclesiastic censuses would have faced the same problems with untrained data collectors. These various sources of inaccuracy, coupled with the need to convert data collected for purposes of tax collection (e.g., heads of households) into population figures in the absence of standardized conversion guidelines, undermine the veracity of Early Colonial data despite thorough examination by the main researchers on Colonial Mexican demographics—Cook, Borah, and Simpson—of these sources (Cook and Borah 1960, 1963, 1979; Cook and Simpson 1948).

Specifics aside, we know that the Basin of Mexico suffered an enormous decline in population during the sixteenth century. Although there were many causes of this, including mortality during the conquest and mistreatment of the Indigenous population by the Spanish in the ensuing decades, the primary cause was a series of diseases

introduced by the Spanish to a population with no prior exposure to these maladies. Successive epidemics of what likely were smallpox, typhus, typhoid, and measles affected part or all of the region, the most destructive occurring in 1545-48 and 1576-81 (Gibson 1964:136-137, 448-451). The result was widespread depopulation during the sixteenth century, estimated at possibly 75% for *central Mexico* in general (Cook and Simpson 1948:17-46) and on the order of 90% for the entire Basin of Mexico, with the population of some communities virtually eradicated (Gibson 1964:138-139). The few data points that we have for the communities in the Temascalapa region are consistent with this general story of depopulation. Epidemics persisted through the eighteenth century (Gibson 1964:451), suppressing recovery of the Indigenous population as well as dampening the demographic contributions of immigrants from Europe and elsewhere.

For present purposes, such dramatic, long-lived depopulation likely meant relegation of the Temascalapa region to an even more peripheral role in the Basin of Mexico from the time of conquest through the early (and possibly late) nineteenth century. The challenges to crop production and animal husbandry in this arid region, coupled with an absence of economically valuable natural resources, would support favoring other parts of the basin for settlement throughout the Colonial period and for several decades following Mexican independence in 1821. Although additional demographic data likely exist for communities in the Temascalapa region, we did not examine primary sources for this information. Population figures from 1569 for Tizayuca (Sterpone 1996:10), formerly an Aztec city-state (*altepetl*) capital lying just beyond the western edge of the northern tract of the Temascalapa region, indirectly support the idea that additional data are available; data from a variety of sources for Tizayuca provide further evidence of continued occupation in this community beyond the Spanish Conquest (Sterpone 1996:10-18). Additional support for a continued presence in various localities in the northern basin sometime between the early sixteenth and early eighteenth centuries appears in the Codex of San Salvador Tizayuca in the form of Spanish chapels in the area, though only one ("San Francisco" [de Paula]) occurs for certain in the survey region (Sterpone 1996:3-4).

Demographics in the Temascalapa Region, 1900-2010

As is clear from the preceding discussion, population data for Mexico are limited and uneven from the Spanish Conquest in 1521 through the nineteenth century. National censuses, begun in 1895, provided a vehicle for systematically documenting population in the entire nation at various levels of disaggregation, as well as various measures of demographic composition (e.g., age, sex) and selected social characteristics (e.g., education, employment). These censuses presented population counts for states (and, in earlier censuses, territories when they still existed), municipios, and individual communities within municipios. Census geography occasionally was augmented with other

geographic units at different points in time, a particularly important one being *áreas geoestadísticas básicas* (Instituto Nacional de Estadística, Geografía e Informática 1998), the latter beginning in the 1990 census but inconsistently employed for rural areas in subsequent censuses. National censuses represent by far the most reliable sources of post-Conquest demographic data for the Temascalapa region, containing systematically collected population figures and avoiding any need to convert recorded data (e.g., number of *tribute payers*) into population counts.

In this section, we discuss five separate censuses: 1900, 1930, 1960, 1980, and 2010. We selected these census years for specific reasons:

- 1900: the second national census of Mexico, though more detailed and easier to use than the preceding census of 1895, and easier to compare with other censuses than its predecessor;
- 1930: the fifth national census and conducted roughly one decade after the end of the Mexican Revolution (1910-1920), providing several years for the nation to return to stability and generally considered more reliable than the 1921 census (McCaa 2003);
- 1960: the eighth national census, conducted the year that the Teotihuacan Valley archaeological survey began and occurring at the beginning of the major surge in modern population growth in the Basin of Mexico (Gorenflo 2022);
- 1980: the tenth national census, conducted shortly after the Temascalapa region archaeological survey ended in 1975 and at the end of two decades of rapid population increase in the basin (Gorenflo 2022); and
- 2010: the thirteenth national census and the most recent census data available at the time of finalizing this monograph.

Covering slightly more than one century, these five censuses document fundamental changes in Basin of Mexico demographics in general and the Temascalapa region in particular. The survey region evolved from a largely traditional agrarian economy to much more diverse economic base where crop production persisted but increasingly used mechanized techniques to pursue largely commercial agriculture.

Demographics in the Temascalapa Region in 1900

In 1900, the Temascalapa region contained 15 communities, their populations totaling 8,328 (Figure 3.2, Table 3.1). Although we are unaware of any studies of these communities, or the Temascalapa region in general at the beginning of the twentieth century, subsistence and small-scale commercial agriculture using traditional techniques of hand cultivation and draft animals would have characterized economic activities in this portion of the Basin of Mexico. Total population was only slightly greater than our estimate for the Temascalapa region during the Teotihuacan period occupation. Individual communities were small, the largest—the town of Temascalapa—containing fewer than 1,400 people, and all but four settlements hosting fewer

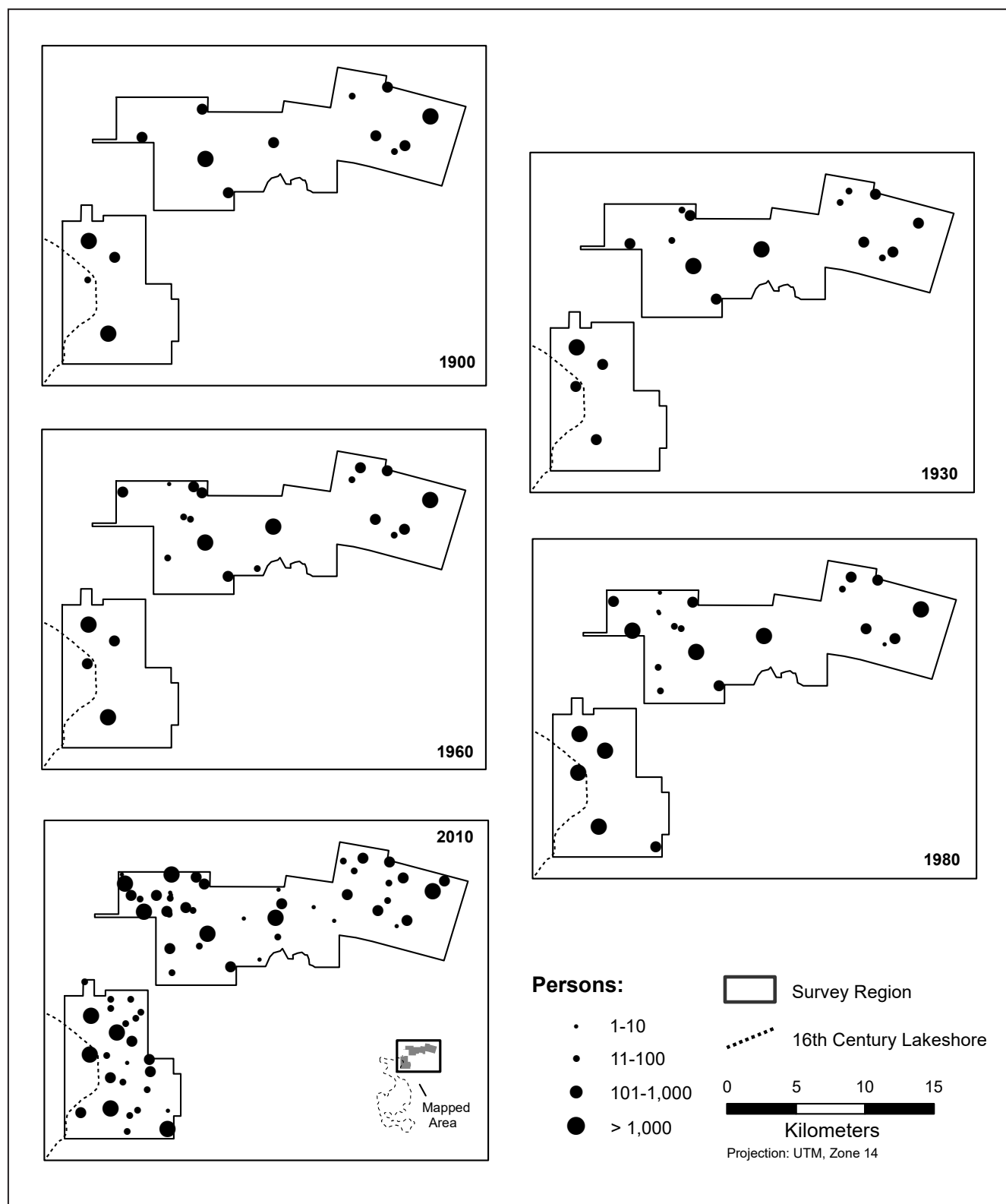


Figure 3.2. Population of Communities in the Temascalapa Region: 1900, 1930, 1960, 1980, and 2010; data sources: Dirección General de Estadística 1901a, 1901b, 1933, 1935, 1963a, 1963b; Instituto Nacional de Estadística, Geografía e Informática 1990a, 1990b; Instituto Nacional de Estadística y Geografía 2013. Note that the 1960 census reported no population for Tepojaco (see Figure 3.1) despite this community being inhabited since 1900; we suspect that this is an error in the 1960 census report (Dirección General de Estadística 1963a) rather than loss of that community's inhabitants.

Table 3.1. Population Based on Communities in the Temascalapa Region by Major Geographic Area: 1900, 1930, 1960, 1980, and 2010

Geographic Area	1900	1930	1960	1980	2010
Western Area	2,955	2,582	4,587	17,940	63,473
Northern Area	5,373	5,537	6,849	10,439	30,567
Total	8,328	8,119	11,436	28,379	94,040

Sources: Dirección General de Estadística 1901a, 1901b, 1933, 1935, 1963a, 1963b; Instituto Nacional de Estadística, Geografía e Informática 1990a, 1990b; Instituto Nacional de Estadística y Geografía 2013

than 1,000 individuals. Settlements occurred in both tracts of the region but were sparsely arranged. Four occurred in the smaller western tract and the remaining 11 located in the larger northern tract. Two of the four communities containing 1,000 or more people occurred in the western tract, which in all hosted 2,955 people. The other 11 communities, in the relatively drier northern tract, contained the remaining nearly 5,400 people. Despite the differences in total populations, population densities were comparable, the density of the smaller western tract (38.4 persons/km²) slightly greater than that in the larger northern tract (35.2 persons/km²) (Table 3.2).

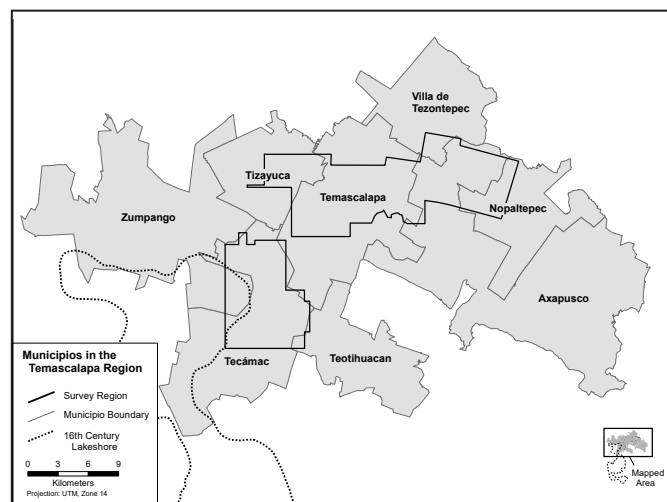
Table 3.2. Population Density (persons/km²) Based on Communities in the Temascalapa Region by Major Geographic Area: 1900, 1930, 1960, 1980, and 2010

Geographic Area	1900	1930	1960	1980	2010
Western Tract	38.4	33.5	59.6	233.0	824.3
Northern Tract	35.2	36.3	44.9	68.5	200.4
Total Region	36.3	35.4	49.8	123.7	409.8

Focusing on population by municipio provides a good means of visualizing the general geographic distribution of people in 1900 and how this distribution changed over the ensuing decades. Portions of eight municipios occur within the Temascalapa survey region (Figure 3.3). In 1900, population in these municipios was fairly small, with seven of the eight hosting fewer than 10,000 individuals (Table 3.3). Population density was uniformly low, less than 50 persons/km² except for Teotihuacan Municipio (which slightly exceeded the 50 persons/km² threshold; Figure 3.4), though because no Temascalapa region communities occurred in that municipio a very sparse occupation would have characterized that part of the municipio as well. Settlement and land use in this portion of the Basin of Mexico at the beginning of the twentieth century likely was not dramatically different from its pre-Colombian antecedents, the occupation of much of the area possibly reminiscent of Late Aztec period settlement (see Chapter 6), though involving less than half the number of people.

Demographics in the Temascalapa Region in 1930

The population of the Temascalapa region in 1930 slightly exceeded 8,100, declining by about 200 persons over the preceding three decades that, as noted, included the Mexican Revolution (see Table 3.1). Both the total population and the distribution of population between the two tracts in the survey region closely resembled the 1900 settlement pattern,

**Figure 3.3.** Municipios Lying at Least Partially within the Temascalapa Region

though three additional populated communities appeared, all in the northern tract (see Figure 3.2). Population densities also resembled those found in 1900, with the densities in the two tracts similar despite important differences in their physical geography (including precipitation). Only three communities contained more than 1,000 inhabitants, two of them in the northern tract, though the arrangement of population in dispersed, small communities persisted despite the three decades that had passed and the impacts of the revolution.

Mapping population at the municipio level supports the contention that demographics in the Temascalapa region in 1930 closely resembled those in 1900 (see Figure 3.4). Except for Zumpango Municipio, which in 1930 exceeded 50 persons/km² to join Teotihuacan Municipio in this density category, all resident municipios remained in the sparsest category mapped. Two municipios lost population over the preceding 30 years, though not large numbers and the rates of change were quite modest (Table 3.4). Again, we know of no descriptions of settlements in this part of the Basin of Mexico in 1930, but we assume that occupations and land use largely resembled those of 1900, which in turn shared several similarities in their reliance on (largely) subsistence agriculture in small agrarian settlements with prehispanic precursors.

Demographics in the Temascalapa Region in 1960

In 1960, the Temascalapa region contained 22 communities and nearly 11,500 people (see Figure 3.2, Table 3.1). Although more than 3,000 people and four communities were added to the survey region over the three decades

Table 3.3 Population of Municipios Occurring at Least Partially in the Temascalapa Region: 1900, 1930, 1960, 1980, and 2010

Municipio	1900	1930	1960	1980	2010
Axapusco	8,450	7,049	8,073	12,207	25,559
Nopaltepec	2,879	2,333	2,866	3,929	8,895
Tecámac	6,611	6,863	11,971	84,129	364,579
Temascalapa	7,229	7,304	8,955	12,698	35,987
Teotihuacan	5,175	5,418	10,477	30,140	53,010
Tizayuca	3,609	3,806	6,037	16,454	97,461
Villa de Tezontepec	3,000	3,091	4,136	5,702	11,654
Zumpango	10,890	11,507	22,677	51,393	159,647

Sources: Dirección General de Estadística 1901a, 1901b, 1933, 1935, 1963a, 1963b; Instituto Nacional de Estadística, Geografía e Informática 1990a, 1990b; Instituto Nacional de Estadística y Geografía 2013

Table 3.4 Average Annual Population Change (%) in Municipios Occurring at Least Partially in the Temascalapa Region Between Census Years: 1900, 1930, 1960, 1980, and 2010

Municipio	1900-1930	1930-1960	1960-1980	1980-2010
Axapusco	-0.6	0.5	2.1	2.5
Nopaltepec	-0.7	0.7	1.6	2.8
Tecámac	0.1	1.9	10.2	5.0
Temascalapa	0.0	0.7	1.8	3.5
Teotihuacan	0.2	2.2	5.4	1.9
Tizayuca	0.2	1.5	5.1	6.1
Villa de Tezontepec	0.1	1.0	1.6	2.4
Zumpango	0.2	2.3	4.2	3.9

preceding 1960, the result was not dramatically different from what occurred in 1930. Five places now contained more than 1,000 inhabitants, three of them in the northern tract. One community, Los Reyes Acozac (see Figure 3.1), which had become the largest settlement in the region in 1930, contained more than 2,000 people in 1960. Most of the population increase occurred in the smaller western tract, which grew by nearly 80% since 1930; agricultural benefits of slightly higher rainfall and greater availability of deep soil possibly compensated for its comparatively small size compared to the northern tract. One of the main changes in regional settlement that occurred was a marked increase in population density in the western tract, which in the previous two census years examined had been fairly similar to the density of the northern tract (see Table 3.2).

Examining Temascalapa region population density by municipio reveals a geographic pattern of density decreasing from west-to-east (see Figure 3.4). The two municipios whose population density exceeded 50 persons/km² in 1930 now exceeded 100 persons/km² in 1960. Three other municipios had increased density to more than 50 persons/km², while the three remaining municipios intersecting the eastern part of the northern tract maintained densities below 50 persons/km². Studies of historic settlement and land use during the 1950s and early 1960s in the Teotihuacan region immediately to the south and east of the Temascalapa region found subsistence agriculture using generally traditional, non-mechanized crop production techniques (Sanders 1957, 1965). We believe that settlement

and land use in the Temascalapa region was similar, based in part on its proximity to the Teotihuacan region and in part on its similarly rural setting. As noted elsewhere (Gorenflo 2022), 1960 marked the beginning of substantial population and land use change in the Basin of Mexico. Indeed, comparing the small amount of prehispanic architectural remains documented in the Temascalapa region to the much larger amount found in the Teotihuacan region 10-15 years earlier indicates the magnitude of site destruction that had begun even in the northeastern periphery of the basin (see Sanders 1965; see Evans et al. 2000; Kolb and Sanders 1996; Marino 1987; Sanders et al. 1975). Population had begun to grow at sustained rates, with three of the eight municipios occurring at least partially within the survey region growing on average 1.9% or more annually between 1930 and 1960 (see Table 3.4).

Demographics in the Temascalapa Region in 1980

Over the two decades between 1960 and 1980, the Temascalapa region added three settlements, the total number of communities reaching 25 (see Figure 3.2). But population grew substantially, the 1980 total nearly one and one-half times that of 1960. Population in the smaller western tract nearly quadrupled, though it remained concentrated in only five communities. The population of two communities in the survey region each exceeded 6,000, with that of two more greater than 2,000 and four others surpassing 1,000. The growing demographic dominance of the western tract is particularly obvious in the surge of population density there: although density grew in both tracts, occupation in the western tract exceeded 230 persons/km² in 1980, more than three times that in the northern tract (see Table 3.2). Settlement in the two tracts, which has been similar in many ways through 1960, now had become notably different—the western tract hosting a few larger communities, the northern tract containing numerous communities, many small by comparison.

Mapping population by municipio provides additional evidence for substantial population growth and the geographic focus of this growth between 1960 and 1980 (see Figure 3.4). The far eastern municipios of Axapusco and Nopaltepec still had population densities lower than 50 persons/km², not terribly different from the

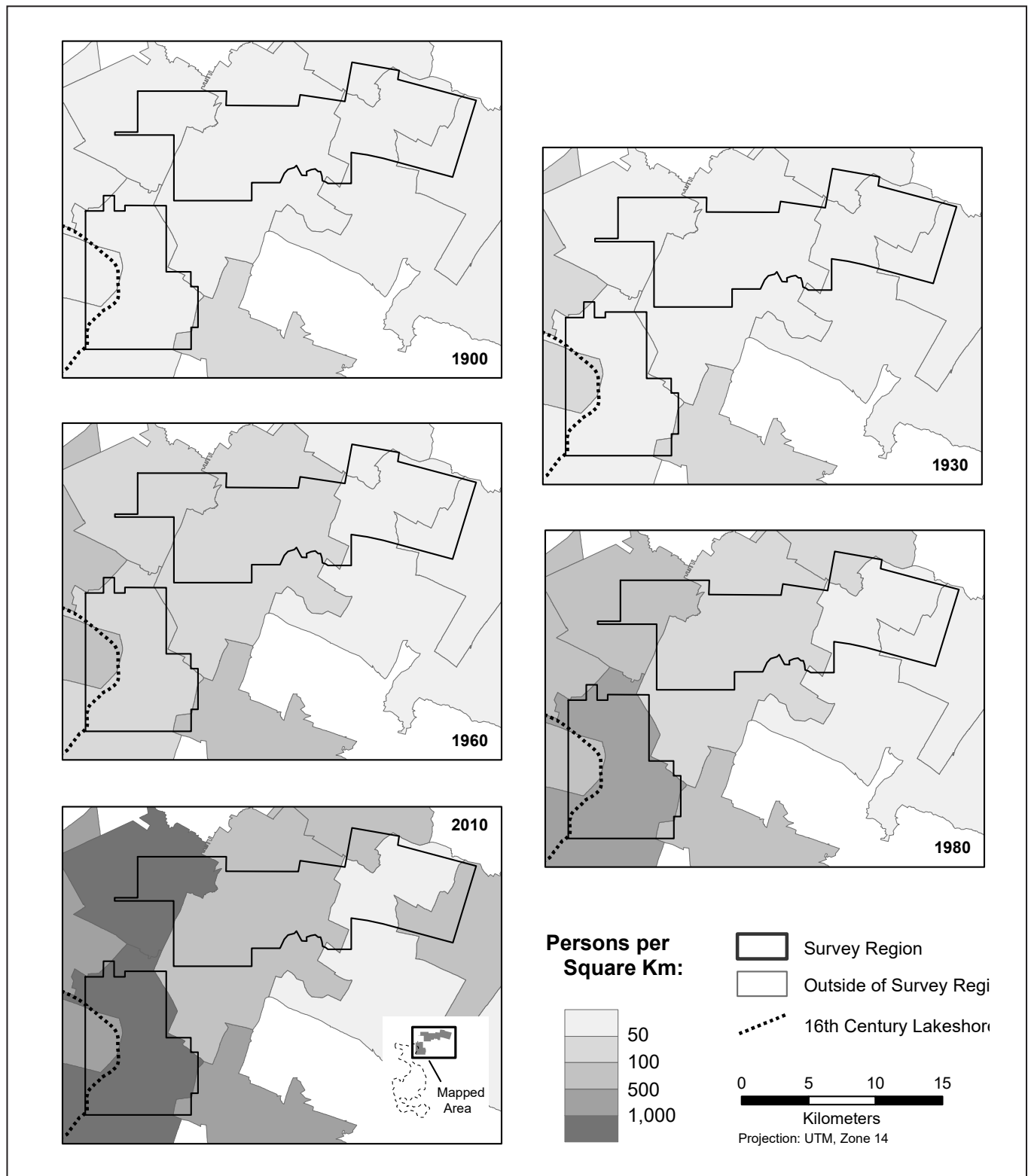


Figure 3.4. Population Density of Municipios Lying at Least Partially within the Temascalapa Region: 1900, 1930, 1960, 1980, and 2010; data sources: Dirección General de Estadística 1901a, 1901b, 1933, 1935, 1963a, 1963b; Instituto Nacional de Estadística, Geografía e Informática 1990a, 1990b; Instituto Nacional de Estadística y Geografía 2013

levels documented for 1900. In contrast, the population density of Tecámac Municipio increased from about 76 persons/km² in 1960 to nearly 535 persons/km² in 1980. This marked increase in Tecámac Municipio population, in addition to other western municipios in the Temascalapa region, is consistent with the observation for the entire Basin of Mexico that this two-decade period was particularly important in the demographic growth of the region (Gorenflo 2022). Five of the eight municipios in the survey region grew on average at annual rates of 2.0% or more between 1960 and 1980, with Tecámac Municipio increasing in excess of 10.0% per year (see Table 3.4). Land use documented for the Temascalapa region in 1974 and 1975, presented as *modern utilization* in Chapter 5 for the archaeological sites discovered, indicates predominantly small-scale crop production, though with the emergence of mechanized agriculture likely.

Demographics in the Temascalapa Region in 2010

By 2010, the number of communities in the Temascalapa region had increased considerably to 67, while population exceeded 94,000—2.7 and 3.3 times the 1980 totals, respectively (see Figure 3.2, Table 3.1). The number of communities in the northern tract roughly doubled, while the number in the western tract increased five-fold. Population in the northern tract tripled while that in the western tract nearly quadrupled. Population density in the survey region also increased considerably in 2010, approaching 410 persons/km² for the entire region and 825 persons/km² in the western tract (see Table 3.2). As shown in Figure 3.2, settlement had changed dramatically over the preceding three decades, as one would expect from the numerical summary: communities now occurred throughout both the northern and western tracts, many of them with fairly large populations. Eleven settlements in the region contained more than 1,000 people in 2010, three (all in the western tract) with more than 13,500 residents.

Municipio populations are consistent with the amount of growth in communities (see Table 3.3) and the geographic pattern of that growth (see Figure 3.4), though there was a surge of population growth in Tizayuca Municipio that led it to exceed 1,000 persons/km², along with Tecámac Municipio. Both municipios grow on average by 5.0% or more annually between 1980 and 2010, and all eight grew at rates of 1.9% or more (see Table 3.4).

In all, the population of the Temascalapa region in 2010 was more than 11 times that of 1900. The number of settlements also increased markedly, particularly in the western tract. Settlement size also grew substantially, the main surge between 1960 and 1980 seen elsewhere in the Basin of Mexico exceeded by the 1980-2010 growth in the Temascalapa region. Despite these massive changes in regional population and settlement, regional land use continued to be dominated by agriculture into the early twenty-first century (Figure 3.5). However, population density and percentage of land used for agriculture appear to be inversely related, with the densest inhabited municipios

of Tecámac and Tizayuca featuring the lowest percentages of agriculture. Crop production in the Temascalapa region has become increasingly commercial in recent decades, including some of the prickly pear (*tuna*) production found in much of this area as well as in the central and northern parts of the Teotihuacan region.

Historical Demography in the Temascalapa Region

For most of the time following the Spanish Conquest, human occupation of the Temascalapa region consisted of small communities sparsely scattered across the survey region. Data between the conquest in 1521 and the first national censuses are limited, but indications of modest occupation are consistent with an area that likely hosted a small population and was peripheral to the main activities in the Basin of Mexico at various points for much of this time period. Although data are not available for all settlements during the Colonial period and the decades in the nineteenth century that succeeded it, larger places that were important sources of tax revenue as well as the foci of greater attention from the church tended to appear in in at least some of the available records. Our argument that low populations characterized the Temascalapa region during these years assumes that there were few data to collect due to a general lack of occupation, and that government and church authorities had little reason to record population data for the small places that were occupied. As discussed in Chapter 6 when we examine the geographic patterning of prehispanic population in the region, limited occupation at certain points in time may well reflect the challenge of pursuing agriculture in an area receiving barely 500-600 mm of average annual rainfall.

Historic censuses provide reliable population data for the Temascalapa region. Between 1900 and 1960, occupation of the region remained fairly modest, consistent with observations that much of the settlement in the Basin of Mexico comprised sparsely arranged small communities until 1960 (Gorenflo 2022). Likewise, the population surge witnessed in the entire basin between 1960 and 1980 occurred in the Temascalapa region as well, much of it occurring in the smaller western tract. But in contrast to the rest of the basin, the most dramatic growth in occupation occurred between 1980 and 2010, when population more than tripled. This shift from a demographically peripheral region to a more demographically important region resembles what occurred during pre-Colombian times as population ebbed and flowed in this region of low rainfall and limited potential for crop production. For the census years considered, it is not until 2010 that dense settlement occurs throughout the region, involving both the smaller western tract where most settlement occurred and the larger, more arid northern tract. Persistence of agriculture as a dominant land use suggests that crop production continued as the leading economic activity in this portion of the Basin of Mexico, though it is likely that much of this agriculture was commercial.

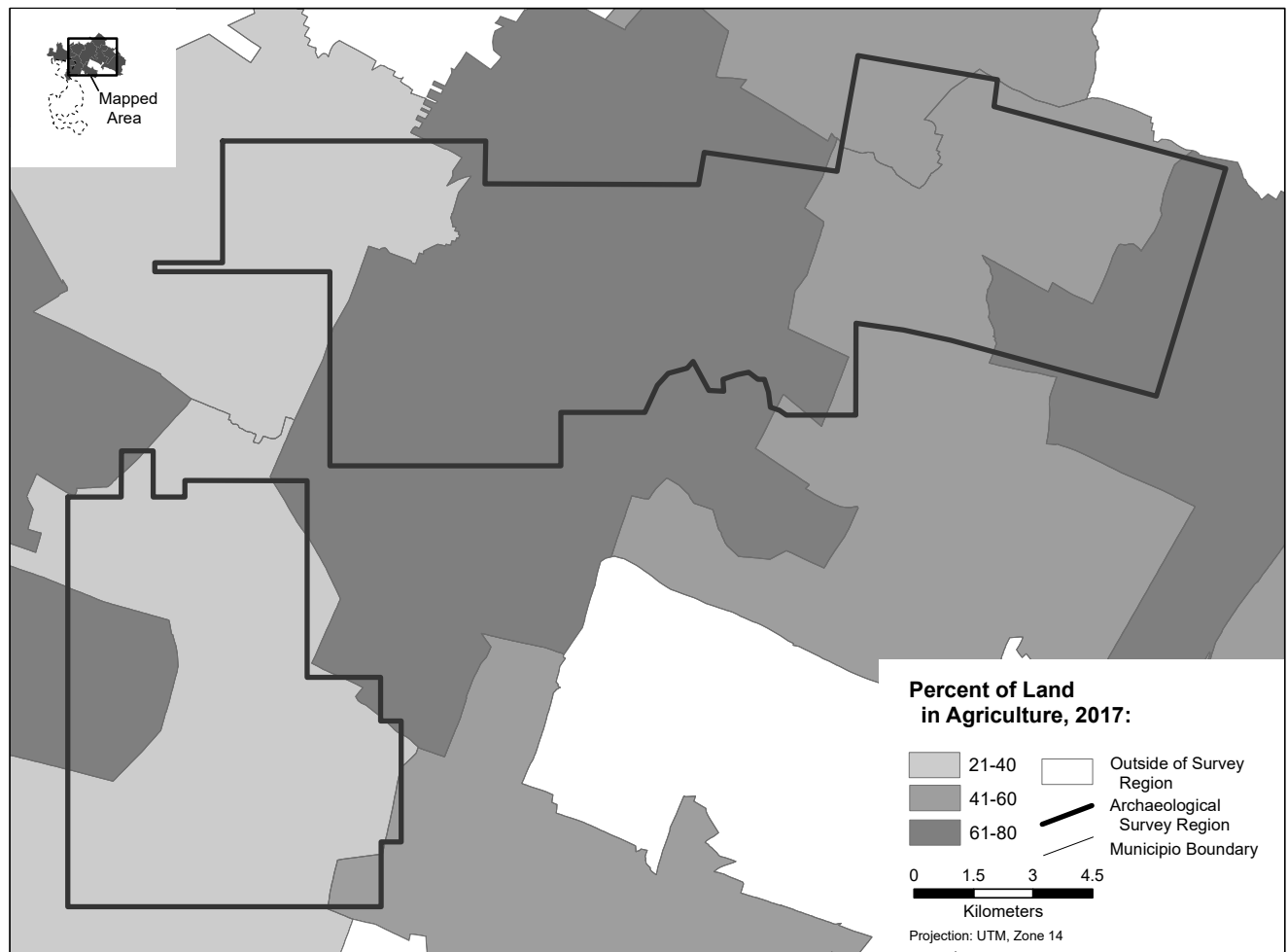


Figure 3.5. Percent of Area of Municipios that Lie at Least Partially within the Temascalapa Region Used for Agriculture: 2017; data source: Servicio de Información Agroalimentaria y Pesquera 2019

CHAPTER 4: SURVEY METHODOLOGY

Introduction

Between 1960 and 1975, archaeologists surveyed eight parts of the Basin of Mexico to identify and document all prehistoric sites visible on the surface in the region (Blanton 1972; Evans et al. 2000; Marino 1987; Kolb and Sanders 1996; Parsons 1971, 2008; Parsons et al. 1982; Sanders 1965; Sanders et al. 1975; Sanders and Gorenflo 2007; see Gorenflo and Sanders 2007; Parsons et al. 1983; Sanders et al. 1979). The goal of this work was to further our understanding of evolving complex sociocultural systems in the basin. Fieldwork involved intensive surface surveys that examined all portions of the survey regions not obscured by modern buildings, roads, or other infrastructure. The result of this research was identification of more than 3,900 archaeological sites dating between 1500 BC and AD 1519 for the basin as a whole (Gorenflo 2015), with 341 of those sites located in the Temascalapa region. One of the most useful outcomes of the Basin of Mexico settlement pattern surveys was the ability to combine data from all eight surveys into a single database, made possible by employing essentially the same method in each survey for data collection that supported an analysis of regional settlement and adaptation.

The approach used to conduct an intensive surface survey of the Temascalapa region emerged from the initial surface reconnaissance of the Teotihuacan region, conducted between 1960 and 1966 (Sanders 1965). During that project, archaeologists experimented with several different approaches to collect and record data and define sites, considered different strategies for organizing fieldwork, and examined the degree to which surface remains were a reliable indicator of subsurface archaeological deposits. What emerged was an efficient means of dividing the basin into separate sections and examining each to identify and record the archaeological sites located there. The approach was finalized by Parsons (1971) in his survey of the Texcoco region in 1967. One of the best decisions in developing survey methods was to apply those techniques to entire survey regions as opposed to samples of those regions (Parsons et al. 1982:63-64; Sanders et al. 1979:14, 19-22, 491-532), ensuring not only comparability among datasets from different surveys but also the recovery of as much data as possible for an archaeological record that was rapidly disappearing due to modern development (Gorenflo 2022; Sanders et al. 1979:411-413).

Parsons, who led several settlement pattern surveys of the Basin of Mexico, explained the rejection of sampling in terms of challenges in defining a meaningful sampling strategy (Parsons et al. 1982:64). This difficulty was in part due to inadequate information on the natural environment at the time of survey design, and in part to the massive environmental transformations that occurred during historic times and made the definition of a culturally relevant sampling strategy based on the natural environment virtually

impossible. Moreover, the field methods developed in the Teotihuacan region during the early 1960s emerged at a time when formal sampling first appeared in the archaeological literature (Vescelius 1960), largely before Peter Haggett's influential overview of quantitative methods in geography introduced spatial sampling and other analytical geographic approaches to a range of other disciplines (Haggett 1965). By the time Sanders and Parsons, the two researchers who developed settlement survey methods in the Basin of Mexico, became aware of these approaches, they already had surveyed the Teotihuacan and Texcoco regions with a complete coverage approach, setting the standard followed for all subsequent surveys of the basin.

In their synthesis of prehispanic settlement pattern research in the Basin of Mexico, Sanders and colleagues wrote that conducting complete coverage surveys was one of the best decisions they made in their multi-year research effort (Sanders et al. 1979:19-20; see also Parsons 1990, 2015). Looking back after another four decades, this assessment rings true, primarily for two reasons.

- Complete coverage provided as comprehensive an archaeological record as possible from which to select sites for further research. Indeed, survey results provided a sense of settlement variability throughout the region as well as how any single site fit into the Basin of Mexico during various parts of the pre-Columbian past.
- The nature of the sociocultural systems represented by the survey data, predominantly the ranked societies of Fried (1967:227-242) and chiefdoms or states of Service (1971:133-169), required considerable data to understand how they functioned as a regional system. These sociocultural systems would have involved multiple settlements located in different environmental zones and interacting for economic, political, and other purposes. Understanding how these complex regional settlement systems worked requires information on as many individual sites as possible, particularly when any understanding ultimately rests upon archaeological data.

The following pages summarize methods used in the survey of the Temascalapa region. Certain specifics of these methods differ slightly from those used in other Basin of Mexico surveys—for instance, use in the Temascalapa project of individual recording forms for each field surveyed, which were not used in the Chalco-Xochimilco region. Nevertheless, the method used in the Temascalapa region essentially is identical to that used for the rest of the basin.

Survey Methods

Settlement pattern survey in the Temascalapa region involved field crews who walked the surface of the region in its entirety, recording any archaeological data that they encountered on aerial photographs. As with other settlement surveys in the Basin of Mexico, the survey of the Temascalapa region sought to identify all prehispanic sites that were visible on the surface, recording key information for each. Every site represented the physical remains of past activity, usually comprising a scatter of pottery sherds

and other artifacts, and occasionally including mounds or other evidence of prehistoric structures. Interpretation of evidence assumed that most sites likely represent the remains of domestic activities associated with farming and other activities seeking necessary resources, the main exceptions in the Temascalapa region being sites with remains of large architecture that we believe indicate an administrative role and a few isolated hilltop sites that we interpreted as loci of past ceremonial activity. Excavations in the neighboring Teotihuacan region prior to the Temascalapa survey indicated that the assumption of residential activity was realistic (Charlton and Nichols 1990; Evans 1985, 1988; Fletcher 1962; Good and Obermeyer 1986; Koehler 1986; Nichols and McCullough 1986; Sanders 1994; Sanders and Olea 1986; Stoner and Nichols 2019), and subsequent excavations in many other portions of the basin have borne this out (Brumfiel 1980, 2005; García Chávez et al. 2015; Hodge 2008; Parsons et al. 1985; Santley 1977; Serra Puche and Lazcano Arce 2009; Vaillant 1930, 1931, 1935, 1938).

Survey teams recorded the archaeological remains of data they encountered on *aerial photographs*, *individual field survey forms*, and *site survey forms*. As with other surveys in the Basin of Mexico, air photos of the region played a central role in the Temascalapa settlement pattern survey (Figure 4.1). The main use of these air photos, usually 1:5,000 in scale, was as *base maps* of parts of the survey region that field crews used to guide their movements, each crew carrying at least one air photo in the field mounted on a plywood board. Air photos also served as a main medium where field crews recorded survey results—primarily age and density of remains encountered, though also the presence of other evidence such as mounds and indications of modern disturbance. Field crews also recorded data on an individual form for each field surveyed (Appendix A), and on a form for each site they defined (Appendix B). However, the information recorded on air photos provided the main geographic basis both for defining site boundaries and for documenting the spatial characteristics of sites. As the time for fieldwork in the Temascalapa region grew short late in the project, crews surveyed certain portions of the region with 1:25,000 air photos. These less detailed air photos enabled less complete surface coverage, likely reducing data recovery. We identify sites surveyed with 1:25,000 air photos in the site descriptions found in Chapter 5.

Survey crews typically comprised three to five members who walked in parallel 20–40 m apart, the distance varying when the landscape demanded adjustments (e.g., to avoid a barranca or other inaccessible areas) and when dense or complex archaeological remains required closer spacing for adequate documentation. The individual at the center of the survey crew carried the air photo, coordinating movements of the entire crew, recording data on pre-Columbian remains called out periodically by the others, and overseeing the completion of appropriate forms when the crew completed survey of a field or discovered a site. Ideally, all members of a crew had a solid knowledge of Temascalapa region ceramic typology. Minimally, only the crew leader knew the typology thoroughly, requiring

that individual to check the evaluations of the other crew members personally. Survey crews generally organized their movements by individual fields visible on air photos, the physical presence of fields helping to orient fieldwork and ensure complete coverage. The survey crew leader recorded pottery density and chronology, usually augmented by modern land use. Occasionally the crew leader also recorded locations of architectural features and artifact collections (in cases where more than one collection was taken for a single site) on the air photo, although the survey crew recorded these data on field and site survey forms as well.

A particularly important type of data recorded during survey was the density of surface remains, one of the main components for estimating prehistoric population. Crews classified density using the following categories: very-light-to-light, light, light-to-moderate, moderate, and moderate-to-heavy and heavy. Although such assessments rest on quantitative densities of pottery, in the field survey crews evaluated density based on visual inspections—the option of more systematic assessments based on controlled collections having been shown to be too time-consuming when tested in the Teotihuacan region survey in the early 1960s (though site survey forms retained a section for such information—see Appendix B). Occupational density categories consisted of the following:

- *Very light-to-light occupation.* Pottery widely scattered, possibly mixed with slightly denser concentrations of potsherds every 20–30 cm (reaching 25–100 sherds per m²). For such sparse distributions, survey crews generally had to search carefully to document the geographic extent and configuration of prehistoric occupation.
- *Light occupation.* Potsherds arranged in a generally uniform distribution, with individual sherds occurring every 20–30 cm (reaching 25–100 sherds per m²).
- *Light-to-moderate occupation.* Varying densities of potsherds, including light densities (as defined above) mixed with the consistent appearance of concentrations reaching densities as high as 100–200 sherds per m².
- *Moderate occupation.* Potsherds arranged in a generally continuous distribution of 100–200 sherds per m².
- *Moderate-to-heavy or heavy occupation.* For the former, a combination of potsherd densities that includes moderate scatters (as defined above) over most of the site area, though with some concentrations reaching 200–400 per m²; for heavy occupations, generally continuous densities of potsherds reaching 200–400 per m².

By recording data on age and density of prehistoric surface remains, a survey crew could maintain a steady pace and cover considerable ground in a normal workday. This steady pace usually was interrupted only to complete a field survey form once the examination of a field was completed, to make one or more artifact collections, or to measure and record architectural features (primarily mounds, though occasionally individual rooms or other architectural elements). Survey teams collected pottery primarily for purposes of chronological control. Collections usually involved all crew members and focused on diagnostic potsherds, notably rims and decorated body sherds, to

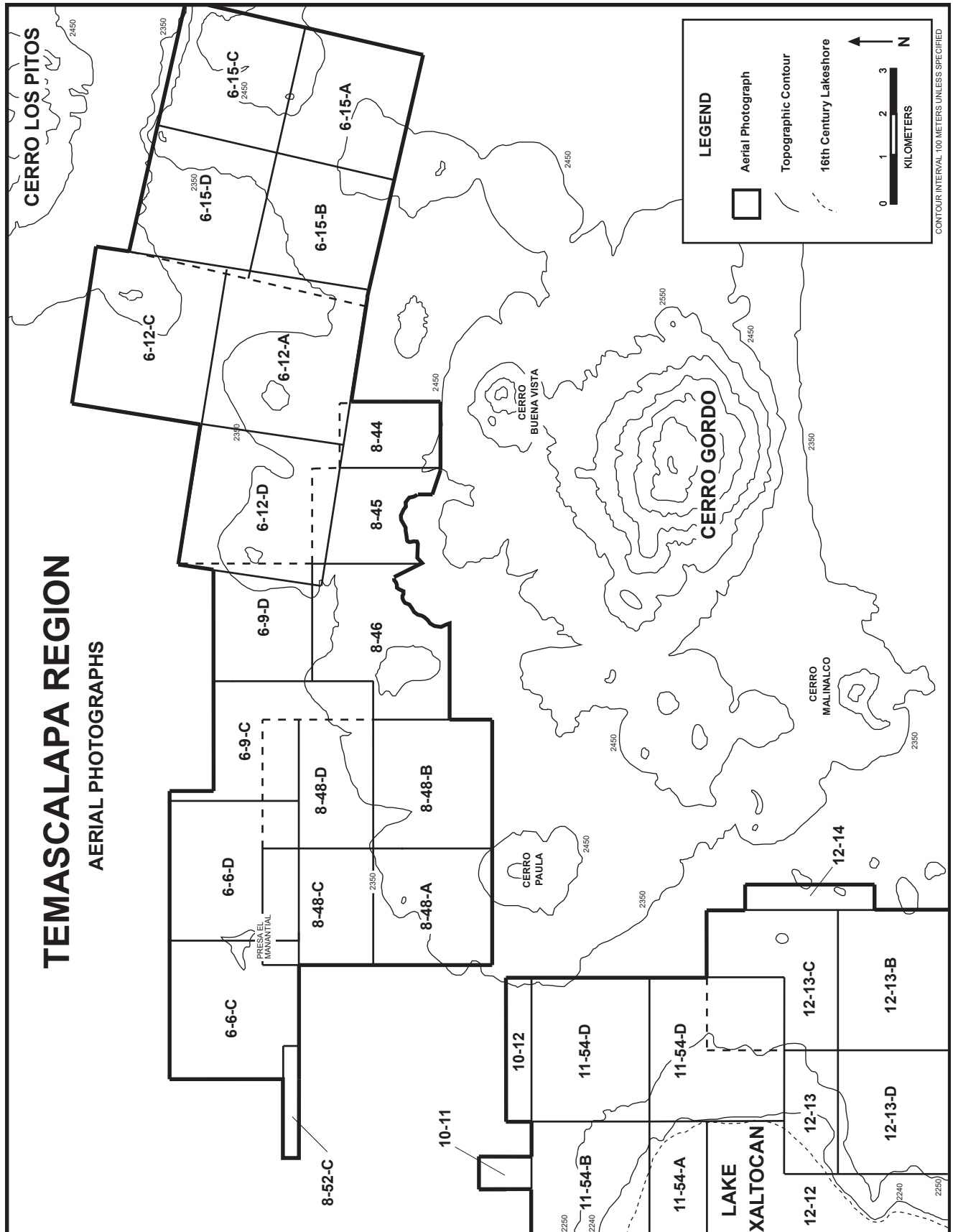


Figure 4.1. Air Photos in the Temascalapa Regional Survey

document all chronological phases represented. For smaller sites, the field crew normally defined site boundaries with little difficulty. When a survey crew encountered scatters of pottery over a large area, team members usually made multiple collections from different localities to help define any sites and their respective age and spatial extent. The amount of pottery collected during survey varied depending on the nature of a site—often all diagnostic sherds from smaller sites and an informal sample of diagnostics from larger sites. In some cases, when the age and extent of a site was clear, the survey crew made no collection.

To provide a sense of architectural scale, survey crews recorded the height and basal dimensions of any mounds encountered, with the exception of mounds in particularly poor condition due to plowing or some other form of disturbance. In cases of mound destruction, crews noted the presence of artifact concentrations that likely signified the remains of mounds. In all cases, crews also noted any remaining architectural features, such as walls or floors, and any information on the spatial organization of mounds, such as arrangement around a likely plaza or a linear arrangement. Project personnel eventually transferred these data to a site recording form once a field crew had defined the site.

Once a survey crew had completely examined the area covered an air photo, project staff copied the basic archaeological data noted in the field on tracing paper overlaying the photo. Senior project personnel examined pottery distributions, densities and chronological assessments, finalizing site boundaries for different time periods. In cases where a site extended off the air photo, final definition required survey of pertinent adjoining photo(s). Temascalapa survey crews defined sites based primarily on uninterrupted scatters of pottery and other material dating to a single chronological period, making certain allowances when a small area of limited visibility or a disturbance interrupted the distribution to continue the site beyond that break in surface evidence. The project also defined sites based on architectural remains, even in the absence of pottery or other surface remains. In most of the Basin of Mexico, archaeological survey crews found it difficult to delineate the edges of Late Aztec sites amid what often appeared to be a continuous scatter of pottery from that time period. Although by far the most frequently encountered pottery type in the Temascalapa region, Late Aztec ceramics were not as pervasive as elsewhere in the basin, and as a consequence field crews had much less difficulty defining Late Aztec site boundaries in this region compared to others.

Survey crew members completed a site recording form (see Appendix B) for each site once they had defined its geographic extent—aided by the information recorded on the air photos and field survey forms, and while the examination of the surface remains was still fresh in their minds. Site recording forms contained information on current conditions as well as archaeological remains, including land use, descriptions of architectural features, sketches of site shape in plan view, the arrangement of structures, and any individual architectural features, as appropriate. At that

point, project personnel assigned temporary field numbers for the newly defined sites (Appendix C). Field numbers consisted of three parts:

- Survey region (Tm = Temascalapa),
- Time period (F = Formative, C = Teotihuacan period, T = Toltec, and A = Aztec), and
- Temporary site number (for each time period, a number in sequence for the survey region, often based on the order in which the site was discovered).

For example, Tm-F-5 represents site number 5 of the Formative sites identified in the Temascalapa survey region. Survey crews assigned field numbers for each air photo once they finished examining that air photo. However, once we aggregated survey data for the entire Temascalapa region the absence of a region-wide numbering order made it difficult to locate many sites quickly on a map; for instance, site 5 might be close to site 4 if both occurred on the same air photo, but some distance from site 6, which occurred on a different air photo. Our assignment of final numbers, based on geographic placement and proximity of one site to another, is an attempt to address this problem. We also assessed the sub-periods of Formative and Toltec sites, the former all designated “TF” for Terminal Formative (Tzacualli) and the latter “ET” and “LT” for Early Toltec (Coyotlatelco) and Late Toltec (Mazapan). Through employing the three-part designation system, final number assignment occurred in a systematic manner, beginning in the southwestern portion of the region and proceeding to the north and east until we had accounted for all sites for a particular period of occupation (see Appendix C).

The survey methods described above do not necessarily yield reliable archaeological data for all settings where archaeologists work. But they did function well for much of the Temascalapa region, primarily because of particular characteristics of that area and the sites encountered, notably: 1) relatively high surface visibility; 2) limited site destruction due to erosion; 3) limited areas of deep soil deposition (apart from the lakebed, saline lakeshore, and deep soil alluvium); 4) widespread past and present agriculture; and 5) sites defined in many cases by pieces of pottery. We discuss each of these characteristics in the following paragraphs.

Generally good surface visibility throughout most of the Basin of Mexico, including the Temascalapa region, was a consequence of semi-arid conditions that limit the amount of vegetation in conjunction with widespread agriculture at the time of survey. Plant life is particularly sparse in the Temascalapa region due to the small amount of rainfall it receives (see Figure 2.2). The one type of setting where visibility was a problem tended to be modern communities, a constraint which reached its apex in metropolitan Mexico City, but which was not much of a problem in the largely rural Temascalapa region at the time of survey except in the central portions of small towns.

Erosion has been a problem throughout highland central Mexico since the arrival of Spanish in the early sixteenth century. There were multiple causes of heavy erosion, including plowing, grazing domestic animals

(particularly sheep), and the breakdown of prehispanic erosion controls such as terraces (see Cook 1949; Melville 1994). Erosion has occurred throughout most parts of the Basin of Mexico with sloping terrain, particularly the lower, middle, and upper piedmont (see Chapter 2), and the Temascalapa region is no exception. The piedmont also is where most of the pre-Columbian sites occur. Fortunately, with the exception of channelized erosion, wholesale site destruction from erosion tends to be minimal. The main impact of erosion in the Temascalapa region is site deflation. Deflated sites tend to exhibit greater artifact densities than sites that are intact and mix artifacts from different occupations—both effects substantially increasing the difficulty of interpreting surface survey data.

In much of the Basin of Mexico, soil depth is less than 1.0 m. Often this is a result of the erosion just discussed, but also local geologic processes. Archaeological surface survey often is not effective in deep soil, notably when deposition occurred after site formation, as found throughout parts of the basin due to erosion. The environmental zones in the Basin of Mexico where deep soil often occurs are the bed of the former lake system, the lakeshore plain and deep soil alluvium immediately above it, the floodplains of the Cuautitlan, Teotihuacan, and Amecameca rivers, and the floor of the Amecameca sub-valley. Only a small amount of Temascalapa region—the 11.3 km² of lakebed, 6.8 km² of saline lakeshore, and 11.9 km² of deep soil alluvium in the western portion of the region—features deep soil which might routinely obscure archaeological evidence (see Chapter 2).

The fourth reason why surface survey produces a considerable amount of data in the Basin of Mexico in general, and in the Temascalapa region in particular, is the large amount of agriculture found there, which for centuries has occurred throughout most of the region at elevations lower than 2,500 m above sea level. Agriculture usually limits natural vegetation, in the process improving surface visibility, depending on the type of crop grown and its stage of development at the time of survey. In addition, plowing serves to redistribute archaeological remains throughout the plow zone each time it occurs. Beginning in the 1960s and 1970s, increased use of mechanized cultivation—notably tractors and chisel plows—increased the amount of area cultivated. Unfortunately, this new technology greatly increased site destruction, particularly of low mounds and related architecture previously avoided when plowing involved draft animals (see Sanders 2002). One sees tangible evidence of this increased destruction when comparing the results of earlier surveys of the basin, such as the Teotihuacan region, with more recent efforts; the amount of domestic architecture recorded in more recent surveys throughout the basin tended to be a small fraction that recorded in earlier fieldwork. During completion of this monograph in 2021, much of the Temascalapa region still remained rural, with land often used for crop production. The advantages of high visibility associated with agriculture, discussed for the entire Basin of Mexico, holds for the Temascalapa region, as does the increase in site destruction

from modern cultivation techniques.

A final reason why survey methods used in the Temascalapa region worked well is the central role played by potsherds in defining sites. For the periods covered by the archaeological survey of this portion of the basin—Terminal Formative through Late Aztec—past residents used ceramics as an important part of many daily activities. The prevalence of pottery is testimony to the importance of ceramics in the prehispanic Basin of Mexico. Potsherds tend to be visible on the surface given modern land use, vegetation, and other characteristics described in the preceding paragraphs. Despite the relative absence of domestic architecture, scatters of pottery generally are visible and serve to define the presence of many types of prehispanic archaeological sites based on the systematic observation of surface remains.

Despite characteristics that support reliable data recovery in the Temascalapa region, we acknowledge that local conditions varied considerably and could greatly reduce this reliability. In other portions of the basin, lessened surface visibility occurred for several reasons (Parsons et al. 1982:65). In the Temascalapa region, reduced visibility primarily occurred due to dense crops or fallow cover at the time of survey. In addition, on occasion erosion also reduced the quality of surface data available during survey. One of the best examples of the latter is Tm-Az-151, the lone Late Aztec provincial center discovered in the region, where extensive sheet erosion had severely damaged the site and as a result greatly limited our interpretation of surface remains. Although potential problems due to soil depth are limited to a small portion of the Temascalapa region, overburden remained a problem in the lakebed, saline lakeshore, and deep soil alluvium above Lake Xaltocan. We lack evidence for dense prehispanic settlement in those environmental zones for any period of occupation, probably in most cases because it did not exist, though possibly because some remains had become obscured by deposition of soil from eroding hillsides. Finally, as noted earlier the cultivation that served to rearrange the plow zone repeatedly has become an increasing problem with the growing use of mechanized technology. In 2008 and 2009, Gorenflo, accompanied by Jeff and Mary Parsons, revisited several sites in the Temascalapa region that were in good condition when discovered 30 years earlier and found many badly damaged by heavy plowing, including the destruction of virtually all architectural remains. Although survey crews compensated for certain problems when they recorded sites—more carefully examining sites in areas with heavier vegetation, using greater caution in recording deflated multi-component sites, and so on—this was not possible in all cases, and varying conditions may have introduced undesirable variability into the archaeological record for the Temascalapa settlement survey.

In closing this discussion on survey methods, we credit much of the success of the Temascalapa survey

to careful selection of the approaches employed, approaches used successfully in seven other survey regions in the Basin of Mexico prior to this project. The survey method employed ultimately sacrificed detailed data on individual sites in the interest of broad geographic coverage. If project personnel had additional time and resources, increasingly detailed surveys of some areas, careful examination of certain sites, or the application of additional fieldwork techniques might have enabled improved data recovery—among other things addressing many of the problems inherent in surface survey. Although neither additional time nor resources were available, the resulting settlement pattern data are both broadly reliable as indications of the geographic arrangement of prehispanic communities and fully compatible with data from archaeological surveys of other parts of the Basin of Mexico.

Site Classification

We classified every archaeological site discovered in the Temascalapa region as one of several types, based on a typology created during earlier surveys of parts of the Basin of Mexico (Parsons 1971:23; Parsons et al. 1982:70-71; Sanders et al. 1979:55-58). The classification scheme used draws largely on the description of settlements in the region by the Spanish in the sixteenth century, though modified to account for empirical variability in the archaeological record and to make sense of that record given the structure of regional settlement hierarchies in general (see Haggett et al. 1977:139-190). The classification considers several characteristics defined in the archaeological survey: estimated population, occupational density, architectural remains, and the artifacts present for each site.

One of the most important considerations in assigning a site type is population estimate. We employed two approaches to estimate population, depending on the nature of the archaeological remains. One was to estimate population based on the number of domestic mounds on a site, using 5-10 persons per mound in all cases except for large, Teotihuacan period house compounds resembling those found in the Teotihuacan region (which would have accommodated several households). The second approach to population estimation jointly considered a site's geographic extent and the density of surface remains. The first approach in most cases is more accurate, avoiding possible problems that affect the density of artifacts on the surface. But relying on mounds comes with certain shortcomings. On multi-component sites, the age of residential mounds was not always clear. And by the time of the Temascalapa survey in the mid-1970s, mechanized agriculture, other human activities, and erosion had destroyed much of the surface architecture, in contrast to the Teotihuacan region where many mounds remained when surveyed slightly more than a decade earlier (see Evans et al. 2000).

Population estimates for nearly all sites in the Temascalapa region considered surface area and occupational density. This method relies on studies of population densities in modern settlements in highland

Mesoamerica (Sanders 1965:50). Parsons developed a method to apply figures derived from Sanders' research systematically to archaeological survey data (Parsons 1971:23), which Sanders et al. (1979:38-39) subsequently consolidated to yield the approach we employ in this study. The pottery densities and their demographic interpretations are as follow:

- *Very light-to-light occupation.* Consistent with densities in communities identified by Sanders (1965:50) as "compact rancherias," pottery concentration representing 2-5 persons per ha, or 200-500 per km².
- *Light occupation.* Consistent with densities in communities identified by Sanders (1965:50) as "scattered villages," pottery concentration representing 5-10 persons per ha, or 500-1,000 per km².
- *Light-to-moderate occupation.* Consistent with densities in communities identified by Sanders (1965:50) as "compact low-density villages," pottery concentration representing 10-25 persons per ha, or 1,000-2,500 per km².
- *Moderate occupation.* Consistent with densities in communities identified by Sanders (1965:50) as "compact high-density villages," pottery concentration representing 25-50 persons per ha, or 2,500-5,000 per km².
- *Moderate-to-heavy or heavy occupation.* Consistent with densities in communities identified by Sanders (1965:50) at the upper range of "compact high-density villages," pottery concentration representing 50-100 persons per ha, or 5,000-10,000 per km².

In estimating populations, we used surface artifact densities for each period of occupation on a given site. When artifact densities varied, we estimated population for each level of occupational intensity and summed them to generate a total population estimate.

Translating surface archaeological remains into prehistoric population estimates has some important weaknesses, identified by other researchers (e.g., Tourtellot 1973; Tolstoy and Fish 1975) and also acknowledged by Basin of Mexico researchers who developed the method (Parsons et al. 1982:69-70; Sanders et al. 1979:34-40). The main problem essentially concerns site formation processes and limits on chronological control on surface sites. A site defined through surface reconnaissance may represent a single large community or several small settlements that relocated to the same area periodically, the latter depositing similar sorts of remains (pottery) during an extended habitation in different localities. In addition, surface scatters may not accurately represent occupational densities of all subsurface sites, affected by variations in overburden, erosion, surface visibility, and any impacts once the site was formed, all potentially issues of concern in the Basin of Mexico where human habitation, erosion, and other impacts have occurred for centuries. Similar to other inquiries that generated population estimates in the region (Blanton 1972; Evans et al. 2000; Kolb and Sanders 1996; Marino 1987; Parsons 1971; Parsons et al. 1982; Sanders and Gorenflo 2007; Sanders et al. 1975), the ultimate goals

of the population figures in this study are both to facilitate site classification and to enable comparisons among sites and survey regions in the basin and over time. Despite potential shortcomings in the method employed here to estimate population, efforts to evaluate its accuracy using burial data in Formative sites (Sanders et al. 1979:40-51) and ethnohistoric data in Late Aztec sites (Sanders 1970) indicate reasonably accurate results: estimates based on surface evidence were roughly 20% lower than estimates based on alternative methods. Ultimately, population figures based on surface densities likely are not reliable indicators of absolute population levels, though they seem to yield figures consistent with those generated by other methods and provide a basis for *comparing* demographics among settlements.

By applying the above method to estimate site population, coupled with complementary evidence when available, we assigned each archaeological site discovered in the Temascalapa region to a settlement type. The site typology used to analyze pre-Columbian settlement data from the region consists of the following (see Sanders et al. 1979:55-59):

- *Provincial Center*. A large, nucleated community with civic-ceremonial architecture, population ranging between 1,000 and 10,000 persons. Provincial centers in the Basin of Mexico date to prehistoric occupations when a single political entity dominated the region—the Teotihuacan period and Late Aztec period. In the Temascalapa region, only one site of this type occurs in the Late Aztec period, the lack of more provincial centers likely a consequence of the region's peripheral location on the northeastern edge of the basin. In addition to administrative specialization, provincial centers likely also served as nuclei of craft specialization, although evidence of this economic characteristic is rare from surface survey data and none was encountered during survey or reexamination of the provincial center in the Temascalapa region.
 - *Regional Center*. A large, nucleated community with distinct civic-ceremonial architecture, population ranging between 1,000 and 10,000 persons. Regional centers in the Basin of Mexico date to prehispanic occupations when multiple political entities dominated parts of the region, placing these centers at the top of the regional administrative hierarchy. Such centers occurred in the basin during the Formative, Early Toltec, and Early Aztec periods of occupation, though solely during the Early Toltec period in the Temascalapa region. Regional centers provided administrative as well as economic services, the latter in the form of craft specialization, though once again evidence of such economic activity rarely appears in surface survey data.
 - *Large Nucleated Village*. A large, nucleated community lacking civic or ceremonial architecture with an estimated population of 500 to more than 1,000 persons, consistent with minimally light-to-moderate or moderate surface pottery. In a few cases, large nucleated villages in the basin hosted populations estimated well in excess of 1,000 persons, comparable to regional centers. But such villages lack architectural features that would signal a strong administrative role. Large nucleated villages probably functioned as large farming communities.
 - *Large Dispersed Village*. A large, dispersed community similar to large nucleated villages with an estimated population of 500 to 1,000 persons. Pottery densities generally are light, occasionally reaching light-to-moderate. Such villages lack civic or ceremonial architecture and likely represent the remains of large farming communities.
 - *Small Nucleated Village*. A small, nucleated community lacking civic or ceremonial architecture with a population of 100 to 500 persons. Pottery densities generally are minimally light-to-moderate, though higher densities are possible. Small nucleated villages likely functioned as small farming communities.
 - *Small Dispersed Village*. A small, dispersed community lacking civic or ceremonial architecture with an estimated population of 100 to 500 persons. Pottery densities are generally light (occasionally light-to-moderate), consistent with a sparsely distributed population. As with small nucleated villages, these sites likely functioned as small farming communities.
 - *Hamlet*. A small community lacking civic or ceremonial architecture with an estimated population of 20 to 99 persons. Pottery densities range between very-light-to-light to moderate (and in a few instances moderate-to-heavy). Hamlets probably are the remains of small farming communities.
 - *Small Hamlet*. A small community lacking civic or ceremonial architecture with an estimated population of 1 to 19 persons. Pottery densities range between very-light and light-to-moderate. Small hamlets likely were agricultural communities, though their small size suggests that they may have been temporary communities near agricultural fields.
 - *Hilltop Ceremonial Center*. Sites usually occurring in isolated locations on hilltops or ridges, often featuring one or more pyramidal mounds and occasionally a stone sculpture, but rarely sufficient surface pottery to indicate residential occupation. Hilltop ceremonial centers likely functioned as localities for ritual or ceremonial activity.
 - *Questionable/Trace occupation*. Very small sites with sparse populations over short periods of time. We identified these sites in localities with small scatters of very light surface pottery—evidence of some sort of past activity, but not permanent occupation or the presence of many people. We think these occupations represent briefly occupied single house lots, likely associated with agricultural activity or the exploitation of localized resources.
- Despite its systematic foundation, applying the above site classification scheme to Temascalapa region settlement data encounters certain challenges. The typology used is based largely on the regional settlement system documented ethnohistorically for the Aztecs, and though it probably works well for Late Aztec sites in the Temascalapa

region it is unclear how well it serves earlier occupations. In addition, the typology provides little insight on site function, limited primarily to likely administrative roles of large sites with public architecture, probable ceremonial roles for isolated sites with little occupational debris, and probable agricultural roles for most of the remaining settlements. Nonetheless, the typology uses the best available data and has its roots in Basin of Mexico ethnohistoric (and, ethnographic) data, which we feel justifies its application to help understand prehispanic regional organization in the Temascalapa region.

Chronology

The chronology used in this monograph for the Temascalapa survey appears in Figure 4.2. The chronological framework employed is basically the same as developed in the 1970s in the eastern and southern basin (Blanton 1972; Parsons 1971; Parsons et al. 1982; see Sanders et al. 1979:91-94). In addition to dates for phases of prehistoric occupation in the Temascalapa region, Figure 4.2 cross-references chronological frameworks for other parts of the Basin of Mexico. Throughout the Temascalapa region, ceramic markers established by other archaeological projects in the basin—many of which occurred in the adjacent Teotihuacan region—provided the basis for organizing Temascalapa survey data chronologically.

During the more than 40 years between conducting the settlement pattern survey in the Temascalapa region and completing this monograph, additional inquiries have improved our understanding of Basin of Mexico chronological indicators as well as prehistoric chronology in the basin in general. The former includes advances based on a reexamination of Teotihuacan period collections excavated from sites in the Teotihuacan region during the early 1960s (Sanders 1994). In general, we did not reevaluate all surface collections obtained during the Temascalapa survey, mainly because field crews did not make collections at all sites, and the collections obtained are small and not necessarily representative for individual sites. But we did reexamine collections from Teotihuacan period sites, in part because not subdividing that period placed those sites in a particularly long chronological division that limits subsequent analysis and interpretation, and in part because of improved understanding of subdivision markers from the neighboring Teotihuacan region. Where possible, we classified sites dating to the Teotihuacan period as Early, Middle, or Late Teotihuacan, with their chronological correlates and related sub-phase names appearing in Figure 4.2.

Research published in the 1990s indicated a need to modify the absolute dates presented in Figure 4.2 (Cowgill 1996; Evans and Freter 1996; Nichols and Charlton 1996; Parsons et al. 1996; Rattray 1991; Sugiyama 1998). For instance, evaluations of dates from excavated sites suggest that Early Toltec occupations, marked by the Coyotlatelco ceramic complex, likely began by AD 600 and may have coexisted with both Late Toltec (Mazapan) and Early Aztec (Aztec I) occupations in other parts of the basin (Parsons

et al. 1996:227-228; see also Parsons and Gorenflo 2022). The possibility that these ceramic assemblages represented sociocultural groups in addition to temporal markers clearly has important implications for evaluating Basin of Mexico settlement patterns. Unfortunately, available data do not enable a clear redefinition of the entire basin chronology at present. We include Figure 4.2 in this chapter to orient interpretations of Temascalapa settlement data. Basin chronology likely will change in the future with the analysis of additional data from excavations.

The chronological terminology used in this monograph is the older scheme consisting of Formative-Teotihuacan period (*Classic*)-Toltec-Aztec. Several researchers replaced these terms for a few years during the 1970s and 1980s (primarily) with a new system designed to remove certain sociocultural implications inherent in the use of the older terminology (see Parsons 1974; Price 1976; Sanders et al. 1979; Tolstoy 1975). However, the alternative terminology never fully gained broad acceptance over the older scheme. In addition to several researchers being more comfortable with the earlier period names, many studies of the prehispanic Basin of Mexico preceded the alternative terminology, requiring a translation from those studies and the newer chronological scheme. Here, we use the earlier chronological scheme rather than the alternative. The replacement of “Classic” with “Teotihuacan period” seeks to avoid the use of the former, which is often associated with the Maya area. When referring to chronology, we refer to the Teotihuacan *period* to eliminate confusion between the chronological period and the urban center slightly south of the Temascalapa region.

Main Archaeological Period				Cuautitlan & Temascalapa ¹	Teotihuacan	Tabular Presentation
Years AD	Late Horizon		Late Postclassic	Late Aztec	Teacalco	Late Aztec
					Chimalpa	
	Second Intermediate	Phase Three	Early Postclassic	Early Aztec	Zocango	Early Aztec
		Phase Two		Mazapan	Atlatongo	Late Toltec
		Phase One	Epiclassic	Coyotlatelco	Mazapan	
				Xometla	Early Toltec	
	Middle Horizon	Phase Two	Classic	Late Teotihuacan	Metepec	Late Teotihuacan
				Late Xolalpan		
		Phase One		Middle Teotihuacan	Early Xolalpan	Middle Teotihuacan
				Late Tlamimilolpa		
Years BC	First Intermediate	Phase Five	Terminal Preclassic	Early Teotihuacan	Early Tlamimilolpa	Early Teotihuacan
		Miccaotli				
		Phase Four		Tzacualli	Apetlac	Late Terminal Formative
					Teopan	
			Oxtotla			
		Phase Three-B	Tultitlan	Patlachique	Early Terminal Formative	
		Phase Three-A		Tezoyūcā		
		Phase Two-B	Late Preclassic	Cuautlalpan	Late Cuanalan	Late Late Formative
		Phase Two-A		Atlamica B Atlamica A	Early Cuanalan	Early Late Formative
		Phase One-B	Middle Preclassic	Ecatepec B	Chiconautla	Late Middle Formative
	Ecatepec A					
	Phase One-A	Aguacatlitla		Altica	Early Middle Formative	
	Early Horizon	Phase Two	Early Preclassic	Tlalnepantla		Early Formative
		Phase One				

1: Pre-Tzacualli refers only to the Cuautitlan Region

Figure 4.2. Major chronological periods in the Basin of Mexico (Source: Sanders and Gorenflo 2007:34)

CHAPTER 5: SITE DESCRIPTIONS

Introduction

The Temascalapa settlement survey identified 341 archaeological sites. For each of these sites, field crews recorded several types of information on the archaeological remains encountered and the physical and human geography of their locations. In this chapter, we present this information in a standardized format, both to document results of the survey and to facilitate use of the data by others. We organized site descriptions to make data easily accessible to potential users, based on what we believe were useful qualities of other presentations of data and our own experience extracting data from settlement pattern reports for further analysis.

For each site discovered by the survey, we present four categories of information: natural setting, modern utilization, archaeological remains, and classification. Data under natural setting consist of the following: elevation in meters, environmental zone, general location, any special characteristics of local physical geography (e.g., landforms, hydrology), soil characteristics, and amount of erosion. Modern utilization data consists of land use on and near the site at the time of survey, providing information on potential threats to the site's integrity from modern activity as well as information on land use in the mid-1970s that might suggest possible prehispanic adaptive strategies—for instance, noting localities where rainfall cultivation of maize is possible. The data presented under archaeological remains includes occupational density, site area in hectares, architectural features, and information on other periods of occupation sharing at least part of the same geographic location. We include all data recorded for each site; when a survey crew recorded multiple mounds, or drew a site configuration, we present a tabular summary of architectural features and graphics showing site components. Finally, classification presents the site type we assigned, consistent with categories discussed in Chapter 4 and augmented with estimated population (if we made such a calculation).

We present a settlement map showing site location and extent early in the site descriptions for each period of occupation, shown on topographic maps with key physical geographic features labelled. In addition to a written description of each site, we also summarize settlement pattern data in tables that contain selected archaeological and environmental characteristics at the end of this chapter (Tables 5.25 through 5.30). Additional tabular information for sites in the Temascalapa region (in addition to those in the Cuautitlan and Teotihuacan regions) appears in Gorenflo and Sanders (2007). The map and table that describe settlement patterns for each time period provide the majority of information on prehispanic settlement data from the Temascalapa region.

Site Descriptions

Terminal Formative (Tzacualli Phase) Occupations (Figure 5.1)

Tm-Tf-1

Natural Setting: 2,285 m, on an isolated hill in the thin soil alluvium southeast of Lake Xaltocan. Shallow soil cover. Extensive erosion.

Modern Utilization: Rainfall cultivation, with oats, barley, and maize all present at the time of survey. A modern house occurred in the south-central part of the site, and a small road ran along its southeastern boundary.

Archaeological Remains: Very light-to-light surface pottery over an area of about 1.0 ha. No structural remains. Mixed with very light Early Toltec (Tm-Et-1) and Late Toltec (Tm-Lt-4) material.

Classification: Small hamlet, 2-5 people.

Tm-Tf-2

Natural Setting: 2,275 m, in the thin soil alluvium southeast of Lake Xaltocan. Located on gently sloping ground. Medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey.

Archaeological Remains: Variable very light-to-light surface pottery over an area of about 0.9 ha. No structural remains. Mixed with similarly sparse Late Toltec (Tm-Lt-5) material.

Classification: Small hamlet, 2-5 people.

Tm-Tf-3

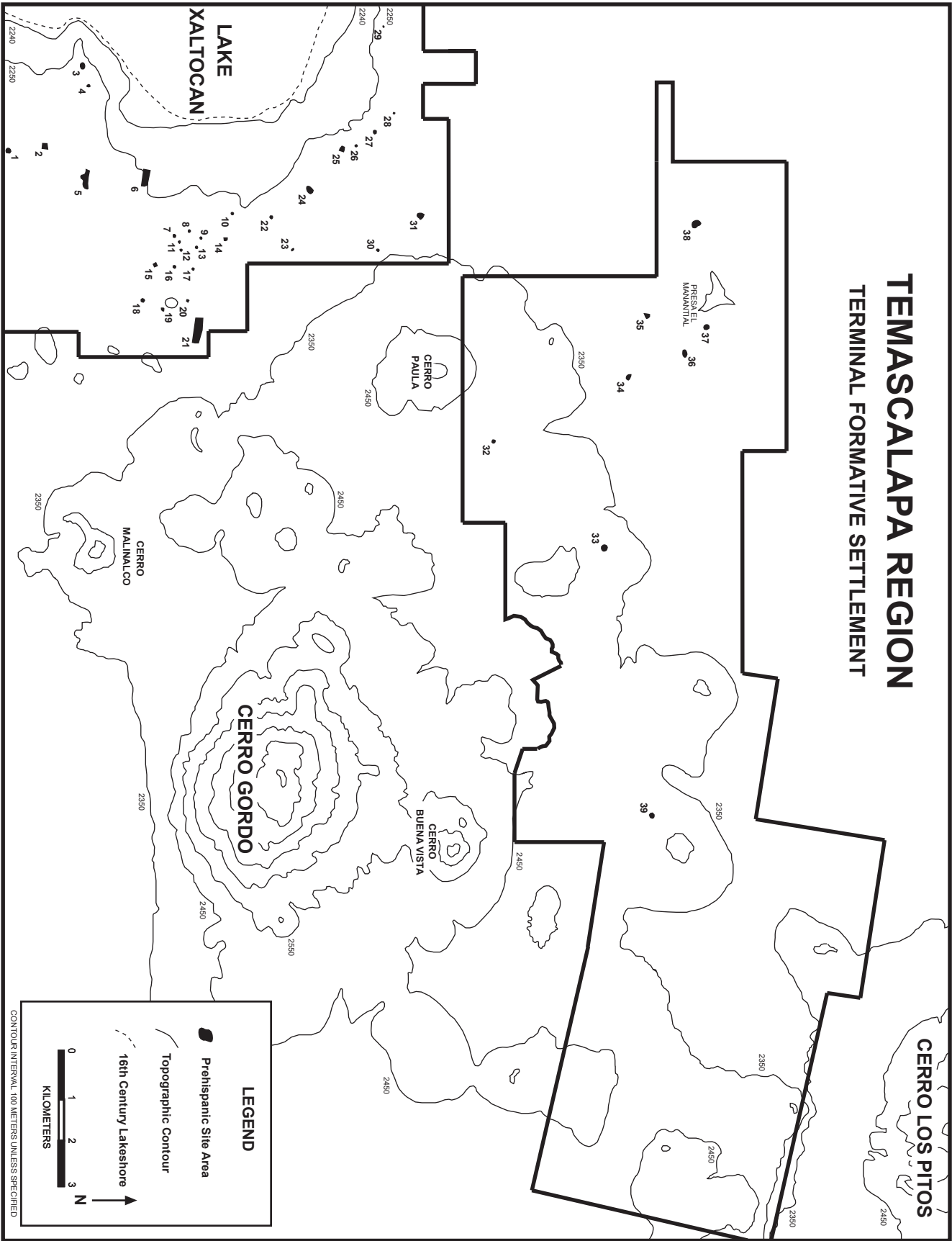
Natural Setting: 2,255 m, in the thin soil alluvium just above the southeastern shore of Lake Xaltocan. Located on flat ground. Shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with the predominant crop maize at the time of survey.

Archaeological Remains: Very light-to-light surface pottery, and rock rubble varying in density from light to substantial, over an area of about 2.0 ha. No structural remains. Mixed with moderate Teotihuacan period (Tm-CI-1), very light Early Toltec (Tm-Et-3), light Late Aztec (Tm-Az-9), and an unrecorded amount of Early Aztec (Tm-Ea-1) material. This site was surveyed with a 1:25,000 air photo.

Classification: Small hamlet, 4-10 people.

Figure 5.1. Late Terminal Formative Settlement in the Temascalapa Region



Tm-Tf-4

Natural Setting: 2,265 m, in the thin soil alluvium just above the southeastern shore of Lake Xaltocan. Located on flat to gently sloping ground. Shallow soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with both maize and maguey present at the time of survey, in fields equipped with earth banks and maguey banales.

Archaeological Remains: Very light surface pottery over an area of about 0.4 ha. No structural remains. Mixed with very light-to-light Late Aztec (Tm-Az-12) and light Late Toltec (Tm-Lt-9) material. Tm-Tf-4 and a generally coterminous Late Toltec occupation covered a small area in the northwestern corner of a larger Late Aztec site.

Classification: Questionable. Probably a briefly occupied single houselot or small hamlet. Population undetermined.

Tm-Tf-5

Natural Setting: 2,265 m, in the thin soil alluvium southeast of Lake Xaltocan. Located on gently sloping ground on the flank of a small hill strewn with granite cobbles. Shallow soil cover. Moderate erosion.

Modern Utilization: Rainfall cultivation, predominantly of maize at the time of survey, in fields equipped with maguey banales. Part of the site also was used for grazing. Tm-Tf-5 occurred at the eastern edge of the modern town of Santa Cruz Tecamac, immediately east of Cuota Highway 85, and was partially obscured by houselots and a small road.

Archaeological Remains: Variable very light-to-light surface pottery over an area of about 5.5 ha. No structural remains. Mixed with light Early Toltec (Tm-Et-5) and Late Toltec (Tm-Lt-12) and moderate Teotihuacan period (Tm-CI-3) material. Tm-Tf-5 occurred on the southern part of a larger, predominantly Late Toltec site.

Classification: Hamlet, 11-28 people.

Tm-Tf-6

Natural Setting: 2,250 m, in the thin soil alluvium near where it intersects the deep soil alluvium east of Lake Xaltocan. Located on a gently sloping outcrop of vesicular basalt. Shallow-to-no soil cover. Extensive erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey. Much of this site had been heavily disturbed by modern quarrying activity and a railroad embankment by 1975, leaving only the southern portion of the site intact.

Archaeological Remains: Light surface pottery over an area of about 0.9 ha. No structural remains. Mixed with moderate-to-heavy Teotihuacan period (Tm-CI-5), light-to-moderate Early Toltec (Tm-Et-7), and very light Late

Toltec (Tm-Lt-13) material. This site was surveyed with a 1:25,000 air photo.

Classification: Small hamlet, 5-9 people.

Tm-Tf-7

Natural Setting: 2,265 m, in the thin soil alluvium east of Lake Xaltocan. Located on generally flat ground. Shallow-to-medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with barley predominating at the time of survey.

Archaeological Remains: Light surface pottery over an area of about 0.4 ha. No structural remains. Mixed with light-to-moderate Late Aztec (Tm-Az-15) material. Tm-Tf-7 represented a small concentration of Terminal Formative remains near the western edge of a much larger Late Aztec site.

Classification: Small hamlet, 2-4 people.

Tm-Tf-8

Natural Setting: 2,265 m, in the thin soil alluvium east of Lake Xaltocan. Located on flat ground. Shallow to-medium-soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, predominantly of barley at the time of survey.

Archaeological Remains: Generally light surface pottery over an area of about 1.0 ha, becoming sparser to the north and south. No structural remains, although artifact concentrations possibly represented the poorly preserved remains of three former mounds.

Classification: Hamlet, 15-30 people.

Tm-Tf-9

Natural Setting: 2,265 m, in the thin soil alluvium east of Lake Xaltocan. Located on generally flat ground. Shallow-to-medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 0.4 ha. No structural remains.

Classification: Small hamlet, 4-10 people.

Tm-Tf-10

Natural Setting: 2,260 m, in the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground between two barrancas. Shallow-to-medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with both maize and maguey present at the time of survey. The site was overlain by the modern village of San Jerónimo Xonacahuacan.

Archaeological Remains: Light surface pottery over an area of about 3.0 ha. No structural remains. Mixed with similarly dense Late Toltec (Tm-Lt-25) and Late Aztec (Tm-Az-23) and moderate-to-heavy Teotihuacan period (Tm-CI-9) material.

Classification: Hamlet, 15-30 people

Tm-Tf-11

Natural Setting: 2,270 m, in the thin soil alluvium east of Lake Xaltocan. Located on flat ground. Medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey.

Archaeological Remains: Light surface pottery over an area of about 0.4 ha. No structural remains. Mixed with light-to-moderate Late Aztec material (Tm-Az-15). Tm-Tf-11 represented a small concentration of Terminal Formative remains in the south-central part of a much larger Late Aztec site.

Classification: Small hamlet, 2-4 people.

Tm-Tf-12

Natural Setting: 2,275 m, in the thin soil alluvium east of Lake Xaltocan. Located on very gently sloping ground. Medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey.

Archaeological Remains: Light surface pottery over an area of about 0.4 ha. No structural remains. Mixed with light-to-moderate Late Aztec (Tm-Az-15) material. Tm-Tf-12 represented a small concentration of Terminal Formative remains near the center of a much larger Late Aztec site.

Classification: Small hamlet, 2-4 people.

Tm-Tf-13

Natural Setting: 2,272 m, in the thin soil alluvium east of Lake Xaltocan. Located on generally flat ground. Shallow-to-medium soil cover. Very slight erosion.

Modern Utilization: Rainfall cultivation, with barley predominating at the time of survey.

Archaeological Remains: Light surface pottery over an area of about 0.4 ha. No structural remains. Mixed with light-to-moderate Late Aztec (Tm-Az-15) material. Tm-Tf-13 represented a small concentration of Terminal Formative remains near the northern edge of a much larger Late Aztec

site.

Classification: Small hamlet, 2-4 people.

Tm-Tf-14

Natural Setting: 2,265 m, in the thin soil alluvium east of Lake Xaltocan. Located on generally flat ground on the northern bank of a large barranca. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, predominantly of barley at the time of survey. The site occurred just beyond the eastern edge of the modern village of San Jerónimo Xonacahuacan.

Archaeological Remains: Light surface pottery over an area of about 0.4 ha. No structural remains.

Classification: Small hamlet, 2-4 people.

Tm-Tf-15

Natural Setting: 2,275 m, in the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground at the base of the western flank of Cerro Colorado. Medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey. Modern agricultural activity had heavily disturbed the site.

Archaeological Remains: Light surface pottery over an area of about 1.0 ha. No structural remains. Mixed with similarly dense Late Aztec (Tm-Az-16) and light-to-moderate Early Toltec (Tm-Et-9) material. Tm-Tf-15 represented a small concentration of Terminal Formative remains near the center of larger coterminous Early Toltec and Late Aztec sites.

Classification: Small hamlet, 5-10 people.

Tm-Tf-16

Natural Setting: 2,280 m, in the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground on the northwestern flank of Cerro Colorado. Shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 0.4 ha. No structural remains. Mixed with similarly dense Early Toltec (Tm-Et-11) and very light-to-light Late Toltec (Tm-Lt-18) and Late Aztec (Tm-Az-17) material. Tm-Tf-16 represented a small concentration of Terminal Formative material at the western edge of much larger coterminous Toltec and Late Aztec sites.

Classification: Small hamlet, 4-10 people.

Tm-Tf-17

Natural Setting: 2,280 m, in the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground on the northwestern flank of Cerro Colorado. Shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with both maguey and barley present at the time of survey.

Archaeological Remains: Light-to-moderate surface pottery, combined with very light obsidian and a few basalt tools, over an area of about 0.9 ha. A concentration of pottery probably indicated the presence of one poorly preserved residential mound. Mixed with similarly dense Early Toltec (Tm-Et-11) and very light-to-light Late Toltec (Tm-Lt-18) and Late Aztec (Tm-Az-17) remains. Tf-Tf-17 represented a small concentration of Terminal Formative material at the northwestern edge of larger coterminous Toltec and Late Aztec sites.

Classification: Hamlet, 9-23 people.

Tm-Tf-18

Natural Setting: 2,290 m, in the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground at the southern flank of Cerro Colorado. Shallow-to-medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation, predominantly of barley at the time of survey.

Archaeological Remains: Light surface pottery and substantial rock rubble over an area of about 0.4 ha. No structural remains. Mixed with light-to-moderate surface material scattered on and around a Teotihuacan period mound (Tm-CI-6).

Classification: Small hamlet, 2-4 people.

Tm-Tf-19

Natural Setting: 2,310-2,320 m, in the lower piedmont east of Lake Xaltocan. Located on moderately sloping ground on the southern flank of Cerro Colorado. Shallow soil cover. Moderate erosion.

Modern Utilization: Grazing.

Archaeological Remains: Light surface pottery over an area of about 0.4 ha. No structural remains. Mixed with very light Teotihuacan period (Tm-CI-7), light-to-moderate Early Toltec (Tm-Et-11), and very light-to-light Late Toltec (Tm-Lt-18) and Late Aztec (Tm-Az-17) material. Tm-Tf-19 represented a small concentration of Terminal Formative remains on the southeastern edge of much larger Toltec and Late Aztec sites.

Classification: Small hamlet, 2-4 people.

Tm-Tf-20

Natural Setting: 2,305-2,315 m, in the lower piedmont east of Lake Xaltocan. Located on moderately sloping ground at the northern flank of Cerro Colorado. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Grazing.

Archaeological Remains: Light surface pottery over an area of about 0.4 ha. No structural remains. Mixed with very light-to-light Late Toltec (Tm-Lt-18) and Late Aztec (Tm-Az-17) and light-to-moderate Early Toltec (Tm-Et-11) material. Tm-Tf-20 represented a small concentration of Terminal Formative remains in the north-central part of larger coterminous Toltec and Late Aztec sites.

Classification: Small hamlet, 2-4 people.

Tm-Tf-21

Natural Setting: 2,290-2,310 m, in the lower piedmont east of Lake Xaltocan. Located on gently to moderately sloping ground southeast of the origin of a major barranca. Shallow-to-medium soil cover. Extensive erosion.

Modern Utilization: Rainfall cultivation, with both maize and barley present at the time of survey.

Archaeological Remains: Generally light surface pottery, and heavy rock rubble, over an area of about 1.0 ha. No structural remains. Mixed with moderate-to-heavy Teotihuacan period (Tm-CI-8) and light-to-moderate Early Toltec (Tm-Et-13) material. This site was surveyed with a 1:25,000 air photo.

Classification: Small hamlet, 5-10 people.

Tm-Tf-22

Natural Setting: 2,265 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with both nopal and maguey present at the time of survey, in fields equipped with earth banks. The site occurred at the northern edge of the modern village of San Jerónimo Xonacahuacan.

Archaeological Remains: Generally light surface pottery over an area of about 0.5 ha. No structural remains. Mixed with similarly dense Late Aztec material (Tm-Az-24). Tm-Tf-22 represented a small concentration of Terminal Formative pottery at the southern edge of a much larger Late Aztec site.

Classification: Small hamlet, 3-5 people.

Tm-Tf-23

Natural Setting: 2,285 m, in the lower piedmont northeast of Lake Xaltocan. Located on gently sloping ground. Shallow

soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation in fields equipped with earth banks. Some associated fields were planted in barley and others were lying fallow at the time of survey.

Archaeological Remains: Variable very light-to-light surface pottery over an area of about 0.9 ha. No structural remains. Mixed with light Late Aztec material (Tm-Az-24). Tm-Tf-23 occurred at the eastern edge of a much larger Late Aztec site.

Classification: Small hamlet, 2-5 people.

Tm-Tf-24

Natural Setting: 2,260-2,270 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground. Shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, in conjunction with limited irrigation, in fields equipped with earth banks. Maize, barley, and alfalfa were present at the time of survey. The site occurred within the modern village of Santo Domingo Ajoluapán, and a modern road cut across it.

Archaeological Remains: Very light surface pottery over an area estimated at approximately 0.1 ha. No structural remains. Mixed with very light-to-light Late Aztec (Tm-Az-25) and light Teotihuacan period (Tm-Cl-11) material.

Classification: Questionable. Probably a briefly occupied single houselot. Population undetermined.

Tm-Tf-25

Natural Setting: 2,270 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground, with a canalized barranca located immediately east of the site. Shallow soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with maguey predominating at the time of survey, in a field equipped with earth banks. The site occurred on the northwestern edge of the modern village of Santa María Ajoluapán.

Archaeological Remains: Very light-to-light surface pottery over an area of about 0.4 ha. No structural remains. Mixed with similar densities of Teotihuacan period (Tm-Cl-12) and Late Aztec (Tm-Az-27) and light-to-moderate Late Toltec (Tm-Lt-28) material.

Classification: Small hamlet, 1-2 people

Tm-Tf-26

Natural Setting: 2,265 m, in the thin soil alluvium near where it intersects the lower piedmont northeast of Lake Xaltocan. Located on gently to moderately sloping ground. Generally shallow soil cover. Slight, localized erosion.

Modern Utilization: Predominantly grazing in 1975. A limited amount of rainfall cultivation occurred in two associated fields equipped with earth banks, planted in maize at the time of survey.

Archaeological Remains: Very light-to-light surface pottery over an area of about 0.4 ha. No structural remains. Mixed with similarly dense Late Toltec (Tm-Lt-29) and Late Aztec (Tm-Az-28) and moderate Teotihuacan period (Tm-Cl-13) material. Tm-Tf-26 represented a small concentration of Terminal Formative remains in the south-central portion of the three generally coterminous later occupations.

Classification: Small hamlet, 1-2 people.

Tm-Tf-27

Natural Setting: 2,270 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on moderately sloping ground. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, predominantly of maize at the time of survey, in fields equipped with earth banks. Part of the site also was used for grazing. A modern road running north-northwest bisected the site.

Archaeological Remains: Variable very light-to-light surface pottery over two areas, covering 2.0 ha in all. No structural remains. Mixed with generally moderate (though ranging from very light to heavy) Late Toltec (Tm-Lt-30) material. Tm-Tf-27 occurred in the northern portion of a larger Late Toltec site.

Classification: Small hamlet, 4-10 people.

Tm-Tf-28

Natural Setting: 2,260 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground. Generally shallow soil cover. Slight, localized erosion.

Modern Utilization: Mainly grazing, with some rainfall cultivation of maguey at the time of survey. The site overlooked a major modern agricultural area, and Highway 85 passed immediately to the west.

Archaeological Remains: Very light surface pottery over an area estimated at approximately 0.1 ha. No structural remains. Mixed with similarly sparse Early Toltec (Tm-Et-14) and Late Aztec (Tm-Az-31), light Late Toltec (Tm-Lt-31), and an unrecorded amount of Early Aztec (Tm-Ea-3) material. Tm-Tf-28 represented a small concentration of Terminal Formative remains in the northeastern portion of a large, predominantly Late Aztec site.

Classification: Questionable. Probably a briefly occupied single houselot. Population undetermined.

Tm-Tf-29

Natural Setting: 2,260 m, in the lower piedmont north of Lake Xaltocan. Located on gently sloping ground composed of soil and tepetate gravel. Medium soil cover. Little or no erosion.

Modern Utilization: Rainfall cultivation, the site area lying fallow at the time of survey, in fields equipped with maguey banales. The site occurred within a houselot on the northern edge of the modern settlement of San Lucas Xolox.

Archaeological Remains: Very light surface pottery, along with very light-to-light obsidian artifacts and locally light-to-substantial rock rubble, over an area estimated at approximately 0.1 ha. No structural remains. Mixed with very light-to-light Late Aztec (Tm-Az-34), light Teotihuacan period (Tm-CI-17), light-to-moderate Late Toltec (Tm-Lt-32), and an unrecorded amount of Early Aztec (Tm-Ea-4) material. Tm-Tf-29 represented a small concentration of Terminal Formative remains in the northwest corner of a much larger predominantly Late Toltec site.

Classification: Questionable. Probably a briefly occupied houselot with no permanent population, though the encroachment of modern settlement made a definite estimate of site size, function, or population impossible.

Tm-Tf-30

Natural Setting: 2,335 m, on an isolated hill in the lower piedmont northeast of Lake Xaltocan. Located on gently sloping ground. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with both oats and barley present at the time of survey.

Archaeological Remains: Very light surface pottery over an area estimated at approximately 0.1 ha. No structural remains. Mixed with moderate Teotihuacan period (Tm-CI-20) and light Late Toltec (Tm-Lt-34) and Late Aztec (Tm-Az-41) material. Tm-Tf-30 represented a small concentration of Terminal Formative material on the southern edge of three larger, generally coterminous later occupations.

Classification: Questionable. Probably a briefly occupied single houselot. Population undetermined.

Tm-Tf-31

Natural Setting: 2,315 m, in the lower piedmont northeast of Lake Xaltocan. Located on gently sloping ground leading to a barranca that formed the northern boundary of the site. Basalt cobbles and outcrops occurred nearby. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, predominantly of barley at the time of survey, in a field equipped with maguey banales. Part of the site also was used for grazing.

Archaeological Remains: Light surface pottery over an area

of about 1.0 ha. No structural remains. Mixed with similarly dense Late Toltec (Tm-Lt-35), moderate Teotihuacan period (Tm-CI-22), and light-to-moderate Late Aztec (Tm-Az-38) material. Tm-Tf-31 occurred at the southern end of a larger, predominantly Teotihuacan period site.

Classification: Small hamlet, 5-10 people.

Tm-Tf-32

Natural Setting: 2,370 m, in the middle piedmont between Cerro Paula and Cerro Verde. Located on gently sloping ground just above the junction where a tributary barranca joins Barranca Cerro Gordo. Springs occurred approximately 100 m southeast of the site. Shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Floodwater irrigated cultivation, with both maize and barley present at the time of survey.

Archaeological Remains: Variable very light-to-light surface pottery, along with scattered obsidian and ground stone tools, over an area of about 1.0 ha. No definite structural remains, although a low elevation and pottery concentration suggested the possible presence of a single Terminal Formative mound. Mixed with similarly sparse Late Toltec (Tm-Lt-62) and Late Aztec (Tm-Az-77) and moderate Teotihuacan period (Tm-CI-24) material. Site comprised a small concentration of Terminal Formative remains in the southeastern corner of a larger area common to Teotihuacan period, Late Toltec, and Late Aztec occupations.

Classification: Small hamlet, 5-10 people.

Tm-Tf-33

Natural Setting: 2,390 m, in the middle piedmont northwest of Cerro Verde. Located on gently sloping ground about 100 m east of a large barranca. Shallow soil cover. Generally moderate erosion, becoming deep in the southern part of the site.

Modern Utilization: Floodwater irrigated cultivation, with both maize and beans present at the time of survey, in fields equipped with stone terraces and maguey banales.

Archaeological Remains: Very light surface pottery, and a few obsidian artifacts, scattered over an area estimated at approximately 0.1 ha. No structural remains. Mixed with similarly sparse Late Aztec (Tm-Az-98) and light-to-moderate Late Toltec (Tm-Lt-67) material.

Classification: Questionable. Probably a briefly occupied single household. Population undetermined.

Tm-Tf-34

Natural Setting: 2,320 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground south of a large barranca that empties northwest into the lake Presa el

Manantial. Medium-to-deep soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with maguey present at the time of survey.

Archaeological Remains: Light surface pottery over an area of about 1.5 ha. No structural remains. Mixed with similarly sparse Late Toltec (Tm-Lt-55) and Late Aztec (Tm-Az-62) and moderate Teotihuacan period (Tm-CI-27) material. Tm-Tf-34 comprised a small concentration of Terminal Formative material near the southwestern corner of a larger area containing Teotihuacan period, Late Toltec, and Late Aztec remains.

Classification: Small hamlet, 8-15 people.

Tm-Tf-35

Natural Setting: 2,305 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on flat ground south of a large barranca that empties northward into the lake Presa el Manantial. Medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with both maize and beans present at the time of survey. A railroad bordered the site to the southeast.

Archaeological Remains: Very light surface pottery over an area estimated at approximately 0.1 ha. No structural remains. Mixed with a similarly sparse scatter of Teotihuacan period (Tm-CI-28), light Late Toltec (Tm-Lt-48), and very light-to-light Late Aztec (Tm-Az-59) material. The Terminal Formative and Teotihuacan period remains covered the same small area in the southwest corner of a larger, predominantly Late Aztec site.

Classification: Questionable. Probably a briefly occupied single houselot. Population undetermined.

Tm-Tf-36

Natural Setting: 2,300 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on generally flat ground north of a large barranca that empties into the lake Presa el Manantial. Generally medium soil cover. Virtually no erosion.

Modern Utilization: Rainfall cultivation, with barley and wheat present at the time of survey.

Archaeological Remains: Very light surface pottery over an area estimated at approximately 0.1 ha. No structural remains. Mixed with similarly sparse Late Aztec (Tm-Az-56) and moderate Teotihuacan period (Tm-CI-37) material.

Classification: Questionable. Probably a briefly occupied single houselot. Population undetermined.

Tm-Tf-37

Natural Setting: 2,300 m, in the thin soil alluvium northeast

of Lake Xaltocan. Located on a generally flat outcrop of vesicular basalt about 50 m southeast of a large barranca that empties westward into the lake Presa el Manantial. Shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey. A modern road occurred immediately northwest of the site.

Archaeological Remains: Very light surface pottery, generally substantial rock rubble (though light in places), and scattered obsidian over an area of approximately 0.5 ha. No structural remains. Mixed with generally similar densities of Late Toltec (Tm-Lt-44) material.

Classification: Questionable. Probably a briefly occupied single houselot or small hamlet. Population undetermined.

Tm-Tf-38

Natural Setting: 2,280 m, on an isolated hill in the thin soil alluvium northeast of Lake Xaltocan. Located on a generally flat vesicular basalt outcrop slightly north of the Avenidas de Pachuca barranca, in an area of exposed bedrock and general rock debris. Very shallow soil cover. Moderate erosion.

Modern Utilization: Rainfall cultivation, mainly of maguey and nopal at the time of survey.

Archaeological Remains: Very light surface pottery and substantial rock rubble over an area estimated at approximately 0.1 ha. No structural remains. Mixed with generally light-to-moderate Teotihuacan period (Tm-CI-31) and moderate-to-heavy Late Aztec (Tm-Az-45) material.

Classification: Questionable. Probably a briefly occupied single houselot. Population undetermined.

Tm-Tf-39

Natural Setting: 2,390 m, in the lower piedmont on the southwestern flank of Cerro Coayucán. Located on moderately sloping ground in an area cut by several washes. Shallow soil cover. Generally moderate erosion, becoming heavy in places.

Modern Utilization: Rainfall cultivation, with maguey predominating at the time of survey. The site occurred within a modern houselot.

Archaeological Remains: Variable very light-to-light surface pottery over an area of about 0.4 ha. No structural remains. Mixed with light-to-moderate Teotihuacan period (Tm-CI-40) and light Late Toltec (Tm-Lt-73) and Late Aztec (Tm-Az-119) material. The Terminal Formative, Teotihuacan period, and Late Toltec remains covered a small area on the northwestern edge of a larger Late Aztec site.

Classification: Small hamlet, 1-2 people.

Teotihuacan Period (Early, Middle, and Late Phase) Occupations (Figure 5.2)

Tm-CI-1

Natural Setting: 2,255 m, in the thin soil alluvium just above the southeastern shore of Lake Xaltocan. Located on flat ground. Shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with the predominant crop maize at the time of survey.

Archaeological Remains: Moderate surface pottery (Early Teotihuacan period), and generally light-to-substantial rock rubble, over an area of about 2.2 ha. The survey crew recorded one pyramidal mound, measuring 15.0 by 15.0 m at its base and 2.0 m in height. The presence of rubble concentrations suggested that other Teotihuacan period mounds possibly existed at one time, likely destroyed by plowing. Mixed with generally very light-to-light Terminal Formative (Tm-Tf-3), very light Early Toltec (Tm-Et-3), light Late Aztec (Tm-Az-9), and an unrecorded amount of Early Aztec (Tm-Ea-1) material. This site was surveyed with a 1:25,000 air photo.

Classification: Small nucleated village, 55-110 people.

Tm-CI-2

Natural Setting: 2,250 m, in the thin soil alluvium just above the southeastern shore of Lake Xaltocan. Located on a flat outcrop of vesicular basalt. Shallow soil cover. Extensive erosion.

Modern Utilization: Grazing.

Archaeological Remains: Variable very light-to-light surface pottery, and substantial rock rubble, over an area of about 1.5 ha. No structural remains were visible, although the amount of rubble present suggested that some form of architecture existed previously. Mixed with similarly dense Late Toltec (Tm-Lt-10), light-to-moderate Late Aztec (Tm-Az-11), and an unrecorded amount of Early Aztec (Tm-Ea-2) material. This site was surveyed with a 1:25,000 air photo.

Classification: Small hamlet, 3-8 people.

Tm-CI-3

Natural Setting: 2,265 m, in the thin soil alluvium southeast of Lake Xaltocan. Located on gently sloping ground on the flank of a small hill strewn with granite cobbles. Shallow soil cover. Moderate erosion.

Modern Utilization: Rainfall cultivation, predominantly of maize at the time of survey, in fields equipped with maguey banales. Part of the site also was used for grazing. The site occurred on the eastern edge of the modern town of Santa

Cruz Tecamac, immediately east of Cuota Highway 85, and was partially obscured by houselots and a small road.

Archaeological Remains: Moderate surface pottery (Early, Middle, and Late Teotihuacan periods) over an area of about 5.5 ha. No structural remains. Mixed with very light-to-light Terminal Formative (Tm-Tf-5) and light Early Toltec (Tm-Et-5) and Late Toltec (Tm-Lt-12) material. Tm-CI-3 occurred on the southern part of a larger predominantly Late Toltec site.

Classification: Small nucleated village, 138-275 people.

Tm-CI-4

Natural Setting: 2,250 m, in the thin soil alluvium near where it joins the deep soil alluvium east of Lake Xaltocan. Located on gently sloping ground. Medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey. In 1975, the site occurred among open lots in the northern portion of the modern town of Santa Cruz Tecamac.

Archaeological Remains: Moderate surface pottery (Early and Middle Teotihuacan periods) over an area of about 3.0 ha. No structural remains. Mixed with very light Early Toltec (Tm-Et-6) material.

Classification: Small nucleated village, 75-150 people.

Tm-CI-5

Natural Setting: 2,250 m, in the thin soil alluvium near where it joins the deep soil alluvium east of Lake Xaltocan. Located on a flat to gently sloping outcrop of vesicular basalt. Shallow-to-no soil cover. Extensive erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey. Much of the prehispanic remains had been heavily disturbed by modern quarrying activity and a railroad embankment by 1975, leaving only the southern portion of the site intact.

Archaeological Remains: Generally moderate-to-heavy surface pottery (Early and Late Teotihuacan periods) over an area of about 2.5 ha, with heavier densities occurring near the center of the site. Obsidian and ground stone artifacts also were scattered throughout the prehispanic material. No definite structures remained in 1975, although plaster floors and stratigraphy exposed by modern quarrying and construction activities suggested the former presence of an unknown number of Teotihuacan period house mounds. Mixed with light Terminal Formative (Tm-Tf-6), light-to-moderate Early Toltec (Tm-Et-7), and very light Late Toltec (Tm-Lt-13) material. This site was surveyed with a 1:25,000 air photo.

Classification: Small nucleated village, 125-250 people—although the site probably was more extensive (a larger

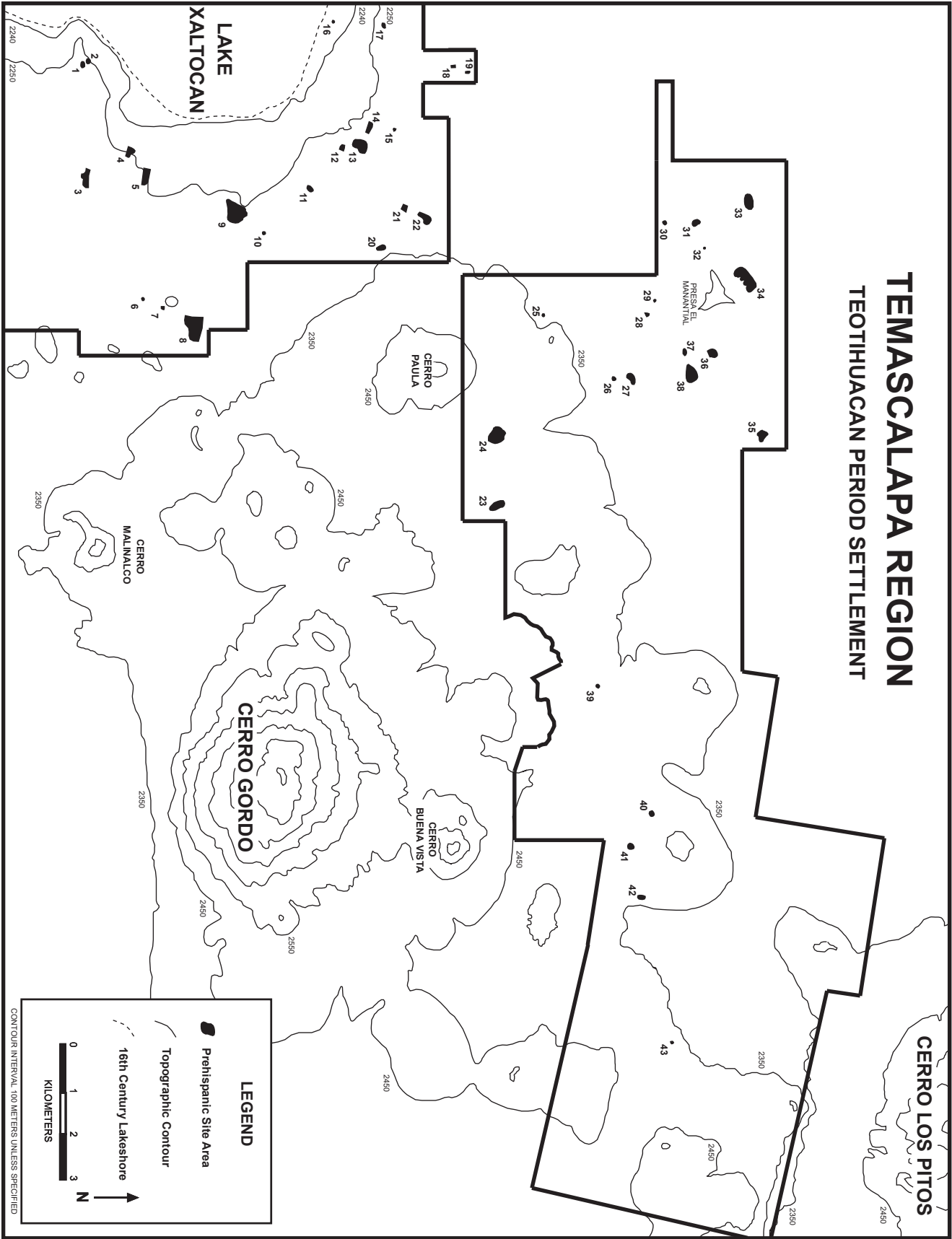


Figure 5.2. Teotihuacan Period Settlement in the Temascalapa Region

village) than the heavily eroded surface remains indicated.

Tm-CI-6

Natural Setting: 2,290 m, in the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground on the southern flank of Cerro Colorado. Shallow-to-medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation, predominantly of barley at the time of survey.

Archaeological Remains: Light-to-moderate surface pottery (Early and Middle Teotihuacan periods), and substantial rock rubble, over an area of about 0.4 ha. The survey crew recorded one mound, though modern bulldozing had modified its dimensions substantially. What remained measured approximately 50.0 by 50.0 m at the base, the height uncertain due to extensive disturbance. Mixed with light Terminal Formative (Tm-Tf-18) material.

Classification: Small hamlet, 4-10 people, based on the density of surface material; if this heavily disturbed mound represented the remnants of a Teotihuacan-style house compound, its population would have been as high as 40 people.

Tm-CI-7

Natural Setting: 2,310 m, in the lower piedmont east of Lake Xaltocan. Located on moderately sloping ground on the southern flank of Cerro Colorado. Shallow soil cover. Moderate erosion.

Modern Utilization: Grazing.

Archaeological Remains: Very light surface pottery over an area of approximately 0.1 ha. No structural remains. Mixed with very light-to-light Late Toltec (Tm-Lt-18) and Late Aztec (Tm-Az-17), light Terminal Formative (Tm-Tf-19), and light-to-moderate Early Toltec (Tm-Et-11) material. Tm-CI-7 represented a small concentration of Teotihuacan period remains on the southeastern edge of much larger, coterminous Toltec and Late Aztec sites.

Classification: Questionable. Probably a briefly occupied single houseplot. Population undetermined.

Tm-CI-8

Natural Setting: 2,290-2,310 m, in the lower piedmont near where it joins the thin soil alluvium east of Lake Xaltocan. Located on gently to moderately sloping ground southeast of the origin of a large barranca. Shallow-to-medium soil cover. Extensive erosion, particularly on lower portions of the site (due to a broad, shallow wash that affected much of the site).

Modern Utilization: Rainfall cultivation, with both maize and barley present at the time of survey.

Archaeological Remains: Moderate-to-heavy surface pottery (Early, Middle, and Late Teotihuacan periods), and variable densities of rock rubble (generally light-to-substantial, becoming heavy in places), over an area of about 12.0 ha. Obsidian and ground stone tools also were present, as were the remains of possible Teotihuacan period irrigation canals and terraces on the upper portions of the site. Despite the density of rubble and other material, the remnants of only one mound remained at the time of survey—though no dimensions were recorded due to its poor preservation. The shallow wash affecting much of the site possibly was the poorly preserved (and expanded) remnants of a prehispanic canal that likely dates to the Teotihuacan period. Terracing on the upper portion of the site also possibly dated to the Teotihuacan period occupation. Mixed with light Terminal Formative (Tm-Tf-21) and light-to-moderate Early Toltec (Tm-Et-13) material. This site was surveyed with a 1:25,000 air photo.

Classification: Large nucleated village, 600-1,200 people.

Tm-CI-9

Natural Setting: 2,255-2,265 m, in the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground between two large barrancas. Shallow-to-medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with both maize and maguey present at the time of survey. The site occurred in the modern village of San Jerónimo Xonacahuacan.

Archaeological Remains: Moderate-to-heavy surface pottery (Early, Middle, and Late Teotihuacan periods) over an area of about 13.0 ha. Artifact concentrations probably indicated the former presence of several mounds, too poorly preserved in 1975 to define precisely or measure. Mixed with light Terminal Formative (Tm-Tf-10), Late Toltec (Tm-Lt-25), and Late Aztec (Tm-Az-23) remains.

Classification: Large nucleated village, 650-1,300 people.

Tm-CI-10

Natural Setting: 2,265 m, in the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground south of a large barranca. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with the immediate site area lying fallow at the time of survey. The site occurred among houseplots on the northern edge of the modern village of San Jerónimo Xonacahuacan.

Archaeological Remains: Moderate surface pottery over an area of about 0.6 ha. No structural remains.

Classification: Hamlet, 15-30 people.

Tm-CI-11

Natural Setting: 2,260-2,270 m, in the thin soil alluvium

northeast of Lake Xaltocan. Located on gently sloping ground. Shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, in conjunction with limited irrigation. Maize, barley, and alfalfa were present at the time of survey, in fields equipped with earth banks. The site occurred within the modern village of Santo Domingo Ajoluapán, and a modern road cut across it.

Archaeological Remains: Light surface pottery (Early Teotihuacan period) over two areas, measuring 1.0 ha in all. One large mound was identified, measuring 80.0 by 70.0 m at its base but of unrecorded height due to modern disturbance; this mound possibly represented the remnants of a large, Teotihuacan-style residential complex. Mixed with very light Terminal Formative (Tm-Tf-24) and very light-to-light Late Aztec (Tm-Az-25) material.

Classification: Small hamlet, 14-20 people, based on the density of surface material; if this mound represented the remnants of a Teotihuacan-style house compound, its population would be as high as 50 people.

Tm-CI-12

Natural Setting: 2,270 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground, with a canalized barranca located immediately east of the site. Shallow soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with maguey predominating at the time of survey in a field equipped with earth banks. The site occurred on the northwestern edge of the modern village of Santa María Ajoluapán.

Archaeological Remains: Very light-to-light surface pottery over an area of about 0.4 ha. The survey crew recorded one residential mound, measuring 6.0 by 6.0 m at its base and 0.6 m in height; Teotihuacan period, Late Toltec, and Late Aztec occupations occurred on the mound. Mixed with similar densities of Terminal Formative (Tm-Tf-25) and Late Aztec (Tm-Az-27) and light-to-moderate Late Toltec (Tm-Lt-28) remains.

Classification: Small hamlet, 5-10 people.

Tm-CI-13

Natural Setting: 2,265-2,275 m, in the thin soil alluvium near where it joins the lower piedmont northeast of Lake Xaltocan. Located on gently to moderately sloping ground. Generally shallow soil cover. Slight, localized erosion.

Modern Utilization: Predominantly grazing, though much of this activity occurred on agricultural fields lying fallow in 1975. A limited amount of rainfall cultivation also occurred, with maize present at the time of survey, in two fields equipped with earth banks and maguey bancales.

Archaeological Remains: Generally moderate surface pottery (Early, Middle, and Late Teotihuacan periods), though ranging from light to heavy densities, coupled with light-to-substantial rock rubble, over an area of about 6.0 ha. No definite structural remains, but concentrations of rock rubble and artifacts possibly indicated the poorly preserved remains of former mounds. Mixed with very light-to-light Terminal Formative (Tm-Tf-26), Late Toltec (Tm-Lt-29), and Late Aztec (Tm-Az-28) material.

Classification: Small nucleated village, 150-300 people.

Tm-CI-14

Natural Setting: 2,260 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on moderately sloping ground. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Grazing at the time of survey. Associated fields featured earth banks, indicating prior agricultural use.

Archaeological Remains: Very light surface pottery over an area of approximately 2.0 ha. No structural remains. Mixed with generally moderate (though ranging from very light to heavy) Late Toltec (Tm-Lt-30) material. Tm-CI-14 represented a sparse scatter of Teotihuacan period pottery on the southern part of a larger Late Toltec site.

Classification: Questionable. Probably a briefly occupied small hamlet. Population undetermined.

Tm-CI-15

Natural Setting: 2,270 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on moderately sloping ground. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Grazing. Associated fields featured earth banks and irrigation canals (passing through the site), indicating prior agricultural use.

Archaeological Remains: Very light surface pottery over an area of about 0.4 ha. No structural remains. Mixed with slightly denser Late Aztec (Tm-Az-29) material. Tm-CI-15 represented a small concentration of Teotihuacan period artifacts on the northern tip of a larger Late Aztec site.

Classification: Questionable. Probably a briefly occupied single houselot or small hamlet. Population undetermined.

Tm-CI-16

Natural Setting: 2,235 m, on the saline lakeshore plain just above the northeastern edge of Lake Xaltocan. Located on flat ground. Deep soil cover. No erosion.

Modern Utilization: Both rainfall and irrigated cultivation, with maize, alfalfa, and maguey present at the time of survey. The site occurred among houselots at the southern edge of the modern settlement of San Lucas Xolox.

Archaeological Remains: Light surface pottery (Early Teotihuacan period) over an area of about 0.4 ha. No structural remains. Mixed with very light-to-light Late Toltec (Tm-Lt-33) material. Tm-CI-16 represented a concentration of Teotihuacan period artifacts at the southeastern edge of a larger Late Toltec site.

Classification: Small hamlet, 2-4 people.

Tm-CI-17

Natural Setting: 2,260 m, in the thin soil alluvium and lower piedmont north of Lake Xaltocan. Located on gently sloping ground composed of mixed soil and tepetate gravel. Medium soil cover. Little or no erosion.

Modern Utilization: Rainfall cultivation in fields equipped with maguey banales, the immediate site area lying fallow at the time of survey. The site occurred within a house lot on the northern edge of the modern settlement of San Lucas Xolox.

Archaeological Remains: Light surface pottery, mixed with very light-to-light obsidian artifacts and locally light-to-substantial rock rubble, over an area of about 0.3 ha. No structural remains. Mixed with very light Terminal Formative (Tm-Tf-29), light-to-moderate Late Toltec (Tm-Lt-32), very light-to-light Late Aztec (Tm-Az-34), and an unrecorded amount of Early Aztec (Tm-Ea-4) material. Tm-CI-17 represented a small concentration of Teotihuacan period remains in the northwest corner of a much larger, predominantly Late Toltec site.

Classification: Small hamlet, 2-3 people.

Tm-CI-18

Natural Setting: 2,290 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on moderately sloping ground. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey.

Archaeological Remains: Moderate-to-heavy surface pottery (Middle and Late Teotihuacan periods), and substantial-to-heavy rock rubble, over an area of about 3.0 ha. One artifact and rubble concentration possibly represented the presence of a poorly preserved residential mound, built against and upon a small outcrop of vesicular basalt. This site was surveyed with a 1:25,000 air photo.

Classification: Small nucleated village, 150-300 people.

Tm-CI-19

Natural Setting: 2,295 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on moderately sloping ground. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Grazing on the immediate site area.

Rainfall cultivation, predominantly of barley at the time of survey, in the terraced fields below the site.

Archaeological Remains: Moderate-to-heavy surface pottery (Early and Middle Teotihuacan periods) over an area of about 2.0 ha. Several figurine fragments also were noted. No structural remains. This site was surveyed with a 1:25,000 air photo.

Classification: Small nucleated village, 100-200 people.

Tm-CI-20

Natural Setting: 2,335-2,340 m, on an isolated hill in the lower piedmont northeast of Lake Xaltocan. Located on gently sloping ground. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with both barley and oats present at the time of survey, in fields equipped with maguey banales.

Archaeological Remains: Moderate surface pottery over an area of about 3.8 ha. No structural remains. Mixed with very light Terminal Formative (Tm-Tf-30) and light Late Toltec (Tm-Lt-34) and Late Aztec (Tm-Az-41) material.

Classification: Small nucleated village, 95-190 people.

Tm-CI-21

Natural Setting: 2,310 m, in the lower piedmont northeast of Lake Xaltocan. Located on moderately sloping ground immediately south of a large barranca. Shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, predominantly of barley at the time of survey, in fields equipped with earth banks. Some fields also were planted in maize or oats or were lying fallow.

Archaeological Remains: Moderate surface pottery over two areas totalling 2.5 ha in all. No structural remains. Mixed with generally similar densities of Late Aztec (Tm-Az-39) material.

Classification: Small nucleated village, 63-125 people.

Tm-CI-22

Natural Setting: 2,315 m, in the lower piedmont northeast of Lake Xaltocan. Located on gently sloping ground leading to a barranca that formed part of the northern boundary of the site. Basalt cobbles and outcrops occurred nearby. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, predominantly of barley at the time of survey, in fields equipped with maguey banales. Part of the site also was used for grazing.

Archaeological Remains: Generally moderate surface pottery

(Early, Middle, and Late Teotihuacan periods), along with substantial-to-heavy rock rubble, over an area of about 4.0 ha. Concentrations of rubble and artifacts possibly indicated the poorly preserved remnants of several structures, although no discernable mounds remained in 1975. Mixed with light Terminal Formative (Tm-Tf-31) and Late Toltec (Tm-Lt-35) and light-to-moderate Late Aztec (Tm-Az-38) material.

Classification: Small nucleated village, 100-200 people.

Tm-CI-23

Natural Setting: 2,380 m, in the middle piedmont southwest of Cerro Verde. Located on gently sloping ground 200 m north of Barranca Cerro Gordo. Shallow-to-medium soil cover. Slight erosion.

Modern Utilization: Rainfall irrigated cultivation, with nopal, maguey, and maize present at the time of survey in fields equipped with maguey banales. Also some grazing. The modern village of Teopancala overlaid the prehispanic occupation, partially obscuring site boundaries.

Archaeological Remains: Moderate surface pottery (Early, Middle, and Late Teotihuacan periods), as well as very light obsidian artifacts and substantial rock rubble, over an area of about 6.0 ha. The survey crew identified one low temple mound and another possible ceremonial mound (Mounds 10 and 18, respectively, described in under Tm-Az-81 in Table 5.13 and shown in Figure 5.19) with Teotihuacan period material. The crew also noted 11 apparent residential mounds dating to the Teotihuacan period occupation (see Mounds 4, 5, 6, 7, 8, 12, 13, 14, 15, 16, and 17, also described in Table 5.13). Mixed with light Late Toltec (Tm-Lt-65) and Late Aztec (Tm-Az-81) material. Tm-CI-23 covered the eastern portion of much larger Late Toltec and Late Aztec sites.

Classification: Small nucleated village, 150-300 people. This site was heavily disturbed, primarily by the construction of the modern village, making any more detailed assessment of the archaeological remains impossible. Because landowners denied the survey crew access to fields immediately east of the modern village, the existing site in 1975 possibly was larger than that recorded.

Tm-CI-24

Natural Setting: 2,365-2,385 m, in the middle piedmont between Cerro Paula and Cerro Verde. Located on gently sloping ground just above the junction where a tributary barranca joins Barranca Cerro Gordo. Springs lie approximately 100 m southeast of the site. Shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Floodwater irrigated cultivation, with both maize and barley present at the time of survey, in fields equipped with maguey banales and drainage ditches.

Archaeological Remains: Moderate surface pottery (Early and Middle Teotihuacan periods), mixed with scattered obsidian and ground stone tools and substantial-to-heavy rock rubble, over an area of about 12.0 ha. Artifact and rubble concentrations probably represented the remains of four poorly preserved Teotihuacan period residential mounds; three occurred in the eastern part of the site, in a linear north-south alignment, with the fourth near the center of the site. Due to the condition of these probable mounds, no dimensions were recorded. Mixed with very light-to-light Terminal Formative (Tm-Tf-32), Late Toltec (Tm-Lt-62), and Late Aztec (Tm-Az-77) material, the Teotihuacan period and Late Toltec sites generally coterminous.

Classification: Large nucleated village, 300-600 people. This was a typical Basin of Mexico rural Teotihuacan period site in terms of mound configuration and surface material.

Tm-CI-25

Natural Setting: 2,340 m, in the lower piedmont northwest of Cerro Paula. Located on gently sloping ground between two dammed barrancas at the base of a small hill. Generally shallow soil cover, with both exposed basalt bedrock and tezontle present. Slight, localized erosion.

Modern Utilization: Grazing, with some rainfall cultivation of nopal in the moist soil of the barrancas.

Archaeological Remains: Light-to-moderate surface pottery (Early Teotihuacan period) over an area of about 0.5 ha. No structural remains. Mixed with similarly dense Late Aztec (Tm-Az-65) material. Tm-CI-25 represented a small concentration of Teotihuacan period artifacts in the northeastern part of a slightly larger Late Aztec site.

Classification: Small hamlet, 5-13 people.

Tm-CI-26

Natural Setting: 2,325 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground. Shallow-to-medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with maguey present at the time of survey.

Archaeological Remains: Moderate, badly weathered surface pottery (Early and Middle Teotihuacan period) over an area of about 0.5 ha. No structural remains. Mixed with Late Toltec (Tm-Lt-56) material of similar density.

Classification: Hamlet, 13-25 people.

Tm-CI-27

Natural Setting: 2,320 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground south of a large barranca that empties northwest into the lake Presa el Manantial. Medium-to-deep soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with maguey, maize, and beans present at the time of survey.

Archaeological Remains: Moderate surface pottery (Early, Middle, and Late Teotihuacan periods), obsidian artifacts, and figurine fragments over an area of about 6.0 ha. The survey crew identified three poorly preserved Teotihuacan period mounds. One of these mounds possibly was ceremonial and measured roughly 1.2 m in height; due to heavy plowing, basal dimensions of this mound and all dimensions of the other two mounds were not recorded. Mixed with light Terminal Formative (Tm-Tf-34), Late Toltec (Tm-Lt-55), and Late Aztec (Tm-Az-62) material. Tm-CI-27 occurred near the center of the larger Late Aztec site.

Classification: Small nucleated village, 150-300 people.

Tm-CI-28

Natural Setting: 2,305 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on flat ground south of a large barranca that empties northward into the lake Presa el Manantial. Medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with both maize and beans present at the time of survey. A railroad bordered the site to the southeast.

Archaeological Remains: Very light surface pottery over an area of approximately 0.1 ha. No structural remains. Mixed with equally sparse Terminal Formative (Tm-Tf-35), light Late Toltec (Tm-Lt-48), and very light-to-light Late Aztec (Tm-Az-59) material. The Teotihuacan period and Terminal Formative sites covered a small, coterminous area in the southwestern corner of a larger, predominantly Late Aztec site.

Classification: Questionable. Probably a briefly occupied single houselot. Population undetermined.

Tm-CI-29

Natural Setting: 2,305 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on flat ground immediately south of a large barranca that empties northward into the lake Presa el Manantial. Medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with barley the predominant crop at the time of survey.

Archaeological Remains: Very light concentrations of surface pottery, including three Early Teotihuacan (Miccaotli) period figurines, over an area of approximately 0.1 ha. No structural remains. Mixed with light-to-moderate Late Aztec (Tm-Az-58) material. Tm-CI-29 represented a small concentration of Teotihuacan period artifacts near the center of a larger Late Aztec site.

Classification: Questionable. Probably a briefly occupied single houselot. Undetermined population.

Tm-CI-30

Natural Setting: 2,290 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground roughly 100 m south of the Avenidas de Pachuca barranca. Generally medium-to-deep soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with maguey and nopal present at the time of survey, in fields equipped with stone terraces. Site occurred among houselots of the modern village of Tepojaco.

Archaeological Remains: Very light-to-light surface pottery and very light obsidian artifacts over an area of about 1.0 ha. No structural remains. Mixed with moderate-to-heavy Late Toltec (Tm-Lt-38) remains and generally light Late Aztec (Tm-Az-44) material. Tm-CI-30 represented a small concentration of Teotihuacan period artifacts in the southeastern corner of larger Late Toltec and Late Aztec sites.

Classification: Small hamlet, 2-5 people.

Tm-CI-31

Natural Setting: 2,280 m, on an isolated hill in the thin soil alluvium northeast of Lake Xaltocan. Located on a generally flat vesicular basalt outcrop slightly north of the Avenidas de Pachuca barranca, in an area of exposed bedrock and general rock debris. Very shallow soil cover. Slight-to-moderate erosion.

Modern Utilization: Rainfall cultivation, predominantly of maguey and nopal at the time of survey, in fields equipped with earth banks and maguey banales.

Archaeological Remains: Light-to-moderate surface pottery (Early and Middle Teotihuacan periods), and substantial rock rubble, over an area of about 1.0 ha. No structural remains. Mixed with very light Terminal Formative (Tm-Tf-38) and moderate-to-heavy Late Aztec (Tm-Az-45) material.

Classification: Hamlet, 10-25 people.

Tm-CI-32

Natural Setting: 2,290 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on a gently sloping outcrop of vesicular basalt immediately south of the lake Presa el Manantial. Generally shallow soil cover, but with much exposed bedrock. Slight erosion.

Modern Utilization: Site was located within the modern village of El Manantial. Rainfall cultivation occurred in surrounding fields, with both barley and maize present at the time of survey.

Archaeological Remains: Very light surface pottery and a few obsidian blades over an area of about 0.1 ha. No structural remains. Mixed with very light-to-light Late Aztec (Tm-Az-46) and light-to-moderate Late Toltec (Tm-Lt-39)

material. Tm-CI-32 represented a small concentration of Teotihuacan period ceramics on the western side of a larger, predominantly Late Aztec site.

Classification: Questionable. Probably a briefly occupied single houselot. Population undetermined.

Tm-CI-33

Natural Setting: 2,290 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on flat ground north of the Avenidas de Pachuca barranca. Shallow-to-medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation, predominantly of maize at the time of survey.

Archaeological Remains: Very light surface pottery (Middle Teotihuacan period) over an area of approximately 0.5 ha. No structural remains. Mixed with very light-to-light Late Toltec (Tm-Lt-37) material.

Classification: Questionable. Probably a briefly occupied single houselot or small hamlet. Population undetermined.

Tm-CI-34

Natural Setting: 2,300-2,305 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on a flat to gently sloping outcrop of vesicular basalt north of the lake Presa el Manantial. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, predominantly of barley and nopal at the time of survey, in fields equipped with earth banks and maguey bancales.

Archaeological Remains: Moderate surface pottery (Middle and Late Teotihuacan period), and a few obsidian blades, over an area of about 12.0 ha. Slight rises (1.5 m or less in height) in agricultural fields probably represented the poorly preserved remains of 12 residential mounds dating to both the Teotihuacan period and Late Aztec occupations. Due to modern disturbance, primarily from plowing, the survey crew recorded no mound dimensions. Mixed with light-to-moderate Late Toltec (Tm-Lt-40) and light Late Aztec (Tm-Az-50) material.

Classification: Large nucleated village, 300-600 people.

Tm-CI-35

Natural Setting: 2,310 m, in the thin soil alluvium west of Barranca Tecorral. Located on a gently sloping vesicular basalt outcrop. Generally shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey. Part of the site also was used for grazing. The site occurred within several modern houselots on the northeastern edge of the modern village of La Presa del Rey.

Archaeological Remains: Generally light surface pottery (Early and Middle Teotihuacan period), reaching moderate-to-heavy densities in places and mixed with scattered obsidian artifacts, over an area of about 3.0 ha. The survey crew recorded two mounds. The first, probably a ceremonial mound, measured 20.0 by 20.0 m at its base and 1.5 m in height; this mound was located under a modern house and had been looted. The second mound, probably domestic, measured 50.0 by 50.0 m at the base, its height uncertain due to disturbance by a modern road and plowing. A plaster floor, figurine fragments, pottery discs, a basalt core and flakes, and a green obsidian core and knife occurred on the second mound. Mixed with light Late Aztec (Tm-Az-52) material. Tm-CI-35 represented a relatively small concentration of Teotihuacan period remains on the eastern end of a much larger Late Aztec settlement, though the Teotihuacan period occupation dominated its portion of the site.

Classification: Small dispersed village, 60-110 people (based on pottery distribution).

Tm-CI-36

Natural Setting: 2,305 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on a flat vesicular basalt outcrop rising 1.0 to 2.0 m above the surrounding level ground, north of a large barranca that drains towards the lake Presa el Manantial. Generally shallow-to-medium soil cover. Slight erosion.

Modern Utilization: Primarily grazing, with part of the site also used for rainfall cultivation of maguey. The surrounding fields were used for rainfall cultivation of barley at the time of survey. A modern road occurred immediately south of the site.

Archaeological Remains: Moderate-to-heavy surface pottery (Early, Middle, and Late Teotihuacan periods), mixed with variable densities of rock rubble (mainly substantial, but ranging from light to heavy), over an area of about 3.5 ha. Lithic artifacts made from a variety of materials, including quartz, basalt, chert, and obsidian, also occurred scattered throughout the site. A total of 22 mounds dating to the Teotihuacan period occupation were visible on this site (Figure 5.3), with their basic characteristics presented in Table 5.1. Note that many of these mounds were small for Teotihuacan period Basin of Mexico structures, probably due to the altering effects of more recent disturbance. Several of the mounds (notably Mounds 12, 13, 18, 21, and 22) possibly were the remnants of a wall that once surrounded this site. A trench that most likely post-dates the prehispanic occupations occurred along the southern edge of the site. Mixed with very light-to-light Late Aztec (Tm-Az-55) material.

Classification: Small nucleated village, 175-350 people.

Tm-CI-37

Natural Setting: 2,300 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on generally flat ground north of

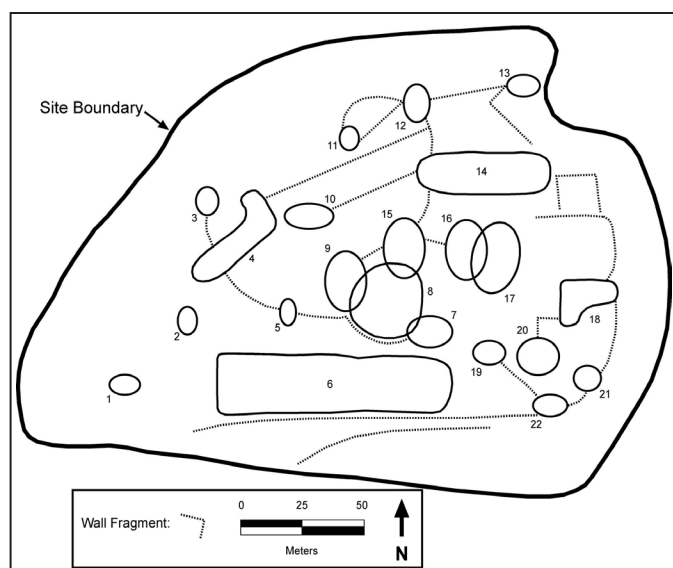


Figure 5.3. Tm-Cl-36 Architectural Features

a large barranca that empties into the lake Presa el Manantial. Generally medium soil cover. Virtually no erosion.

Modern Utilization: Rainfall cultivation, with barley and wheat present at the time of survey.

Archaeological Remains: Moderate surface pottery over an area of about 1.0 ha. One Early Teotihuacan period figurine was found. No structural remains. Mixed with very light Terminal Formative (Tm-Tf-36) and Late Aztec (Tm-Az-56) material.

Classification: Hamlet, 25-50 people.

Tm-Cl-38

Natural Setting: 2,298-2,302 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on a generally flat vesicular basalt outcrop, between a large barranca that drains westward into the lake Presa el Manantial and a second large

Table 5.1. Tm-Cl-36 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	9 x 6	0.15	Very light	Moderate	Residential; looted
Mound 2	9 x 6	0.1	Light	Moderate	Heavily looted
Mound 3	9 x 8	0.1	Very light	Heavy	Heavily looted
Mound 4	43 x 18	1.0	Light-moderate	Moderate-heavy	Probably ceremonial; possibly L-shaped originally; looting has exposed wall fragments
Mound 5	9 x 6	0.3	Very light	Heavy	Badly looted
Mound 6	100 x 24	1.5	Moderate	Moderate	Probably ceremonial
Mound 7	20 x 12	1.5	Moderate-heavy	Heavy	Ceremonial; looting has exposed wall fragments on mound
Mound 8	30 x 30	1.0	Light	Light	Platform
Mound 9	23 x 20	1.0	Light-moderate	Heavy	Badly looted
Mound 10	19 x 9	0.3	Moderate-heavy	Heavy	Residential; heavily looted
Mound 11	9 x 8	0.5	Light	Heavy	Residential; looted
Mound 12	13 x 8	0.2	Moderate	Heavy	Residential; looted
Mound 13	12 x 9	0.5	Very light	Light	Residential
Mound 14	53 x 17	0.5	Heavy	Heavy	Residential; badly looted; <i>possibly</i> two mounds originally, forming L-shape
Mound 15	23 x 19	2.0	Moderate-heavy	Heavy	Extensive looting has exposed adobe bricks and slab floors
Mound 16	23 x 20	1.5	Moderate-heavy	Heavy	Probably ceremonial; nearly destroyed by looting
Mound 17	30 x 19	0.2	Moderate-heavy	Heavy	Residential (or possibly platform); also present were basalt cores and obsidian blades, flakes, and knife fragments
Mound 18	23 x 20	1.0	Moderate-heavy	Moderate-heavy	Probably residential; <i>possibly</i> L-shaped originally; heavily looted
Mound 19	10 x 7	0.15	Light-moderate	Heavy	Residential; heavily looted
Mound 20	19 x 16	1.5	Heavy	Heavy	Ceremonial; heavily looted
Mound 21	9 x 8	0.75	Light-moderate	Heavy	Residential
Mound 22	9 x 6	0.15	Moderate-heavy	Moderate	Residential; also scattered chert flakes, obsidian blades and scrapers, figurines, and projectile points

barranca. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, predominantly of maize and barley, in fields equipped with drainage ditches, stone terraces, and maguey bancales. The site occurred within the modern village of Chopo, with much of the prehispanic remains covered by a railroad station and tracks.

Archaeological Remains: Moderate surface pottery (Early, Middle, and Late Teotihuacan periods), mixed with concentrations (generally substantial-to-heavy) of rock rubble, and scattered obsidian and basalt tools, over an area of about 5.0 ha. Five mounds with Teotihuacan period, Late Toltec, and Late Aztec material associated were noted on the site, their basic configuration shown in Figure 5.4 and their characteristics presented in Table 5.2. Mound dimensions were in part a consequence of considerable modern disturbance, with railroad tracks, roads, and drainage ditches cutting into them and plowing modifying the mounds further. A possible bancal or platform occurred south-southwest of Mound 1 but was even more poorly preserved than the structures described. Some of the stone terraces on the site possibly dated to prehispanic occupations. Mixed with moderate Late Toltec (Tm-Lt-46) and generally light Late Aztec (Tm-Az-60) material. Tm-CI-38 occurred in the northeastern portion of a larger, predominantly Late Aztec site.

Classification: Small nucleated village, 125-250 people. Modern disturbance almost certainly had modified the northern boundary of this site by 1975, suggesting that it was larger in the past—though the interpretation as a small nucleated village probably is correct.

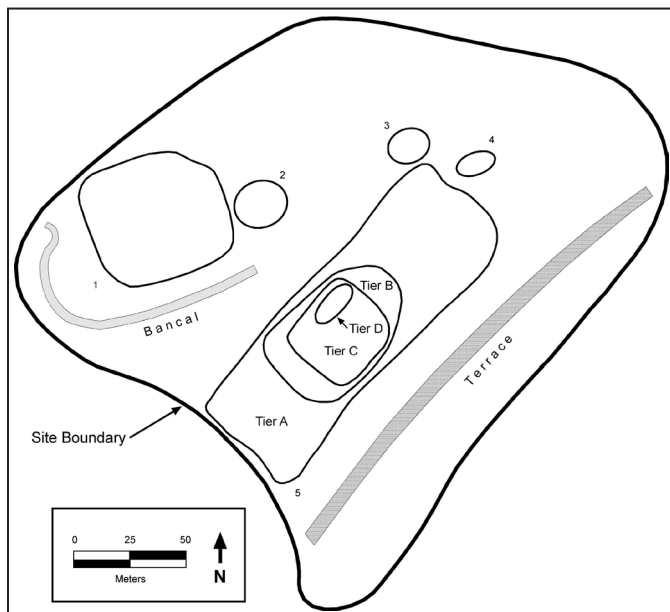


Figure 5.4. Tm-CI-38 Architectural Features

Tm-CI-39

Natural Setting: 2,365 m, in the thin soil alluvium between Cerro Verde and Cerro Coayucán. Located on gently sloping ground 100 m east of Barranca Tecorral. Shallow soil cover.

Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with barley the predominant crop at the time of survey.

Archaeological Remains: Light surface pottery over an area of about 1.0 ha. No structural remains. This site was surveyed with a 1:25,000 air photo.

Classification: Small hamlet, 5-10 people.

Tm-CI-40

Natural Setting: 2,390 m, in the lower piedmont on the southwestern flank of Cerro Coayucán. Located on moderately sloping ground in an area of several washes. Shallow soil cover. Generally moderate erosion, becoming heavy in places.

Modern Utilization: Rainfall cultivation, with maguey the predominant crop at the time of survey. Site occurred within a modern houselot.

Archaeological Remains: Light-to-moderate surface pottery (Early Teotihuacan period) over an area of about 0.4 ha. No structural remains. Mixed with light Late Toltec (Tm-Lt-73) and Late Aztec (Tm-Az-119) and very light-to-light Terminal Formative (Tm-Tf-39) material. The Teotihuacan period, Terminal Formative, and Late Toltec remains covered a small area on the northwestern edge of a larger Late Aztec site.

Classification: Small hamlet, 4-10 people.

Tm-CI-41

Natural Setting: 2,380 m, in the lower piedmont on the southern flank of Cerro Coayucán. Located on moderately sloping ground characterized by several washes and patches of exposed tepetate. Shallow soil cover. Extensive erosion.

Modern Utilization: Grazing.

Archaeological Remains: Moderate surface pottery, and substantial rock rubble, over an area of about 2.0 ha. No structural remains.

Classification: Hamlet, 50-100 people.

Tm-CI-42

Natural Setting: 2,355 m, in the lower piedmont on the southeastern flank of Cerro Coayucán. Located on gently sloping ground slightly north of a canalized barranca. Generally shallow soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with both oats and maize present at the time of survey.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 0.5 ha. No structural remains.

Table 5.2. Tm-Cl-38 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	60 x 60	1.0	Light-moderate	Heavy	Probably residential
Mound 2	27 x 25	0.2	Light-moderate	Moderate	Residential
Mound 3	20 x 15	0.1	Very light-light	Heavy	Residential
Mound 4	15 x 8	0.2	Moderate	Moderate	Residential
Mound 5					Pyramid; all four tiers heavily looted
Tier A	150 x 50	1.0	Moderate-heavy	Moderate-heavy	Moderate obsidian; wall fragments
Tier B	60 x 40	1.0	Moderate-heavy	Moderate-heavy	
Tier C	35 x 35	0.4	Moderate-heavy	Moderate	
Tier D	23 x 12	1.5	Moderate-heavy	Moderate	

Classification: Small hamlet, 5-13 people.

Tm-Cl-43

Natural Setting: 2,360 m, in the thin soil alluvium south of Cerro los Pitos. Located on gently sloping ground near the head of a major barranca system running to the southwest. Generally shallow soil cover. Moderate to severe erosion, particularly associated with a series of washes that ran through the site.

Modern Utilization: Grazing.

Archaeological Remains: Moderate surface pottery (Early and Middle Teotihuacan periods), along with basalt flakes and miscellaneous grey obsidian tools, over an area of about 0.1 ha. Light-to-substantial rock rubble. No structural remains. Mixed with moderate-to-heavy Late Aztec (Tm-Az-145) material.

Classification: Small hamlet, 5-10 people.

Early Toltec (Coyotlatelco Phase) Occupations (Figure 5.5)

Tm-Et-1

Natural Setting: 2,285 m, on an isolated hill in the thin soil alluvium southeast of Lake Xaltocan. Shallow soil cover. Extensive erosion.

Modern Utilization: Rainfall cultivation, with oats, barley, and maize all present at the time of survey. A modern house occurred in the south-central portion of the site, and a small road ran along its southeastern boundary.

Archaeological Remains: Very light surface pottery over an area of about 1.0 ha. No structural remains. Mixed with similarly sparse Late Toltec (Tm-Lt-4) and very light-to-light Terminal Formative (Tm-Tf-1) material.

Classification: Questionable. Probably a briefly occupied single houselot or small hamlet. Population undetermined.

Tm-Et-2

Natural Setting: 2,250 m, in the thin soil alluvium just above the southeastern shore of Lake Xaltocan. Located on a flat vesicular basalt outcrop. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, predominantly of maize at the time of survey. Some grazing noted as well.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 2.0 ha. No structural remains. This site was surveyed with a 1:25,000 air photo.

Classification: Hamlet, 20-50 people.

Tm-Et-3

Natural Setting: 2,255 m, in the thin soil alluvium just above the southeastern shore of Lake Xaltocan. Located on flat ground. Shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with maize the predominant crop at the time of survey.

Archaeological Remains: Very light surface pottery, and generally light-to-substantial rock rubble, over an area of about 2.2 ha. No structural remains. Mixed with very light-to-light Terminal Formative (Tm-Tf-3), moderate Teotihuacan period (Tm-Cl-1), light Late Aztec (Tm-Az-9), and an unrecorded amount of Early Aztec (Tm-Ea-1) material. This site was surveyed with a 1:25,000 air photo.

Classification: Questionable. Probably a briefly occupied hamlet. Population undetermined.

Tm-Et-4

Natural Setting: 2,255 m, in the thin soil alluvium southeast of Lake Xaltocan. Located on gently sloping ground. Shallow soil cover. No erosion.

Modern Utilization: Rainfall cultivation, predominantly of nopal at the time of survey. A modern gravel road ran

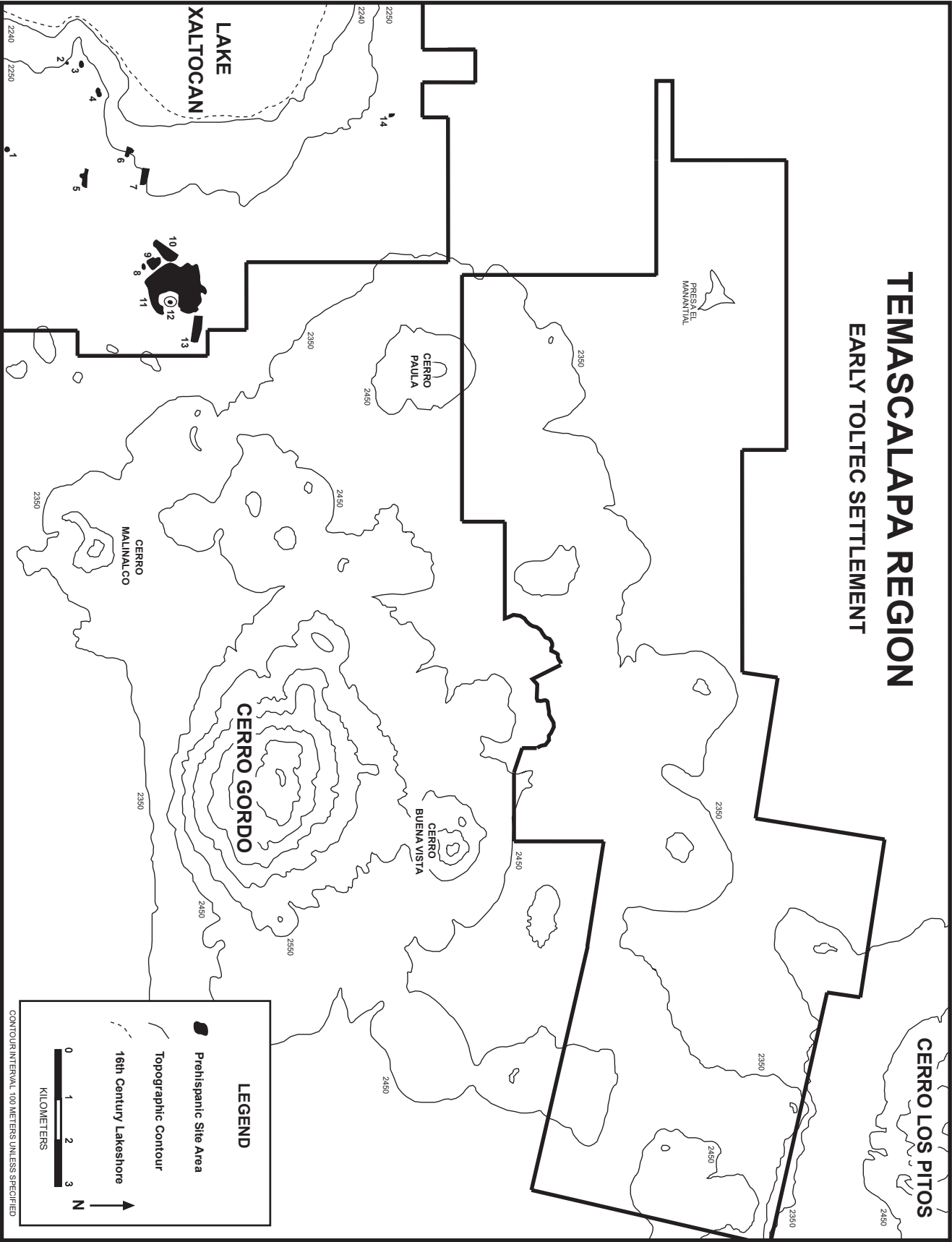


Figure 5.5. Early Toltec Settlement in the Temascalapa Region

northwest-southeast across the site.

Archaeological Remains: Very light-to-light surface pottery, and light-to-substantial rock rubble, over an area of about 2.5 ha. No structural remains. Mixed with equally sparse Late Toltec (Tm-Lt-11) material.

Classification: Small hamlet, 5-13 people.

Tm-Et-5

Natural Setting: 2,265 m, in the thin soil alluvium southeast of Lake Xaltocan. Located on gently sloping ground on the flank of a small hill strewn with granite cobbles. Shallow soil cover. Moderate erosion.

Modern Utilization: Rainfall cultivation, predominantly of maize but with some maguey also present at the time of survey, in fields equipped with maguey banales. Grazing also occurred on part of the site at the time of survey. Site occurred at the eastern edge of the modern town of Santa Cruz Tecamac, immediately east of Cuota Highway 85, and was partially obscured by houses and a small road.

Archaeological Remains: Light surface pottery over an area of about 6.5 ha. No structural remains. Mixed with similarly dense Late Toltec (Tm-Lt-12), very light-to-light Terminal Formative (Tm-Tf-5), and moderate Teotihuacan period (Tm-Cl-3) material. Tm-Et-5 represented a scatter of Early Toltec remains on the southern part of a larger, predominantly Late Toltec site.

Classification: Hamlet, 33-65 people.

Tm-Et-6

Natural Setting: 2,250 m, in the thin soil alluvium near where it joins the deep soil alluvium east of Lake Xaltocan. Located on gently sloping ground. Medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey. In 1975, the site occurred among open lots in the northern portion of the modern town of Santa Cruz Tecamac.

Archaeological Remains: Very light surface pottery over an area of approximately 3.0 ha. No structural remains. Mixed with moderate Teotihuacan period (Tm-Cl-4) material.

Classification: Questionable. Probably a briefly occupied hamlet. No population estimate.

Tm-Et-7

Natural Setting: 2,250 m, in the thin soil alluvium near where it joins the deep soil alluvium east of Lake Xaltocan. Located on a gently sloping outcrop of vesicular basalt. Shallow-to-no soil cover. Extensive erosion.

Modern Utilization: Rainfall cultivation, with barley present at

the time of survey. Much of the prehispanic remains had been heavily disturbed by modern quarrying activity and a railroad embankment by 1975, leaving only the southern portion of the site intact.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 2.0 ha. No structural remains. Mixed with light Terminal Formative (Tm-Tf-6), moderate-to-heavy Teotihuacan period (Tm-Cl-5), and very light Late Toltec (Tm-Lt-13) material. This site was surveyed with a 1:25,000 air photo.

Classification: Hamlet, 20-50 people.

Tm-Et-8

Natural Setting: 2,275 m, in the thin soil alluvium east of Lake Xaltocan. Located on flat ground south of Barranca el Muerto. Medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey.

Archaeological Remains: Light-to-moderate surface pottery, and light rock rubble, over an area of about 1.5 ha. The survey crew noted two poorly preserved mounds; though due to poor preservation no dimensions were recorded. Mixed with very light Late Toltec (Tm-Lt-16) material.

Classification: Hamlet, 15-38 people. This site possibly represented a peripheral Early Toltec occupation associated with other settlements around the base of Cerro Colorado, the area dominated by Tm-Et-11.

Tm-Et-9

Natural Setting: 2,275 m, in the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground at the base of the western flank of Cerro Colorado. Shallow-to-medium soil cover. Generally slight erosion, with no erosion in some areas.

Modern Utilization: Rainfall cultivation, predominantly of barley at the time of survey. Modern agricultural activity had heavily disturbed the site.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 6.0 ha. Five mounds were identified, one probably ceremonial and the rest residential. One of the latter measured 25.0 m in diameter and 0.5 m in height; due to heavy disturbance from plowing, no other mound dimensions were recorded. Mixed with light Terminal Formative (Tm-Tf-15) and Late Aztec (Tm-Az-16) material.

Classification: Small nucleated village, 60-150 people.

Tm-Et-10

Natural Setting: 2,268-2,278 m, in the thin soil alluvium east of Lake Xaltocan. Located on generally flat ground. Medium

soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, predominantly of barley at the time of survey.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 16.0 ha. The survey crew identified one mound, measuring 35.0 by 35.0 m at its base and about 2.0 m in height. A small platform serving as the mound base contributed to total mound height, though due to poor preservation no dimensions of the platform were recorded. Both Early Toltec and Late Aztec materials occurred on the mound. General contents of the Early Toltec site were mixed with Late Aztec (Tm-Az-15) remains of approximately equal density and light Late Toltec (Tm-Lt-17) material. Tm-Et-10 represented a scatter of Early Toltec remains lying along the southeastern edge of the large, predominantly Late Aztec site that dominates this area.

Classification: Small nucleated village, 160-400 people.

Tm-Et-11

Natural Setting: 2,280-2,330 m, in the thin soil alluvium and Lower Piedmont east of Lake Xaltocan. Located on gently to moderately sloping ground on the northern, western, and southern flank of Cerro Colorado. One major barranca occurred immediately to the north, with another cutting through the site itself. Shallow-to-medium soil cover. Generally moderate erosion, though slight in places and becoming extensive in upper portions of the site.

Modern Utilization: Grazing on the upper, more heavily eroded portion of the site. Rainfall cultivation on the lower parts of the site—with barley, maize, and maguey present at the time of survey—in fields equipped with maguey banales and drainage ditches. Several roads cut across the site.

Archaeological Remains: Light-to-moderate surface pottery, coupled with light-to-substantial concentrations of rock rubble, very light-to-light obsidian, and scattered basalt artifacts, over an area of about 75.0 ha. Seven heavily looted, eroded mounds with associated Early Toltec ceramics were noted (Mounds 2, 4, 7, 9, 10, 11, and 12 on Tm-Az-17; see Table 5.8 and Figure 5.15). Much of the surface remains at this site seem to be oriented around the mound groups, suggesting that these clusters of structures possibly represented the remains of as many as three residential barrios. Remains in these barrios suggest the presence of ceremonial precincts in each (see Sanders 1976:25). The remains of prehistoric terraces and possibly refilled canals along the Cerro Colorado slopes also were associated with the Early Toltec occupation. Mixed with light Terminal Formative (Tm-Tf-19 and Tm-Tf-20), light-to-moderate Terminal Formative (Tm-Tf-16 and Tm-Tf-17), very light Teotihuacan period (Tm-CI-7), and very light-to-light Late Toltec (Tm-Lt-18) and Late Aztec (Tm-Az-17) material. The three later occupations were geographically coterminous.

Classification: Regional center, 938-1,875 people.

Tm-Et-12

Natural Setting: 2,360 m, in the lower piedmont east of Lake Xaltocan. Located on the flat summit of Cerro Colorado. Shallow soil cover. Generally moderate erosion.

Modern Utilization: Grazing.

Archaeological Remains: Light surface pottery, and light-to-substantial rock rubble, over an area of about 0.5 ha. A single pyramidal mound was identified near the center of the site, measuring 30.0 by 25.0 m at its base and 4.0 m in height. The mound occurred on a platform measuring 40.0 by 25.0 m that extended to the west of the artificially-levelled hilltop and was supported on its southern side by a 1.0 m-high terrace. Mixed with similarly dense Late Toltec (Tm-Lt-19) material.

Classification: Isolated ceremonial center. No permanent population.

Tm-Et-13

Natural Setting: 2,290-2,310 m, in the lower piedmont near where it joins the thin soil alluvium east of Lake Xaltocan. Located on gently to moderately sloping ground southeast of the origin of a large barranca. Shallow-to-medium soil cover. Extensive erosion, particularly on lower portions of the site (due to a broad, shallow wash that affected much of the site area).

Modern Utilization: Rainfall cultivation, with both maize and barley present at the time of survey.

Archaeological Remains: Light-to-moderate surface pottery, and heavy rock rubble, over an area of about 5.5 ha. Despite the dense rock rubble, no structural remains were noted. Mixed with light Terminal Formative (Tm-Tf-21) and moderate-to-heavy Teotihuacan period (Tm-CI-8) material. This site was surveyed with a 1:25,000 air photo.

Classification: Small nucleated village, 55-138 people.

Tm-Et-14

Natural Setting: 2,260 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground. Generally shallow soil cover. Slight, localized erosion.

Modern Utilization: Mainly grazing at the time of survey. Also some rainfall cultivation of maguey, in fields equipped with banales, earth banks, and drainage ditches. Site overlooked a major modern agricultural area, and Highway 85 passed immediately to the west.

Archaeological Remains: Very light surface pottery, and scattered obsidian artifacts, over an area of approximately 1.0 ha. No structural remains. Mixed with similarly sparse Terminal Formative (Tm-Tf-28) and Late Aztec (Tm-Az-31), light Late Toltec (Tm-Lt-31), and an unrecorded amount of Early Aztec (Tm-Ea-3) material. Tm-Et-14 represented

a small concentration of Early Toltec material in the northeastern corner of a larger Late Aztec site.

Classification: Questionable. Probably a briefly occupied single houselot or small hamlet. Population undetermined.

Late Toltec (Mazapan Phase) Occupations (Figure 5.6)

Tm-Lt-1

Natural Setting: 2,280 m, in the thin soil alluvium southeast of Lake Xaltocan. Located on flat ground. Shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with maize and barley present at the time of survey, in fields equipped with maguey banales. Part of the site was used for grazing as well.

Archaeological Remains: Light surface pottery over an area of about 1.0 ha. No structural remains. Mixed with similarly dense Late Aztec (Tm-Az-4) material.

Classification: Small hamlet, 5-10 people.

Tm-Lt-2

Natural Setting: 2,285 m, in the thin soil alluvium southeast of Lake Xaltocan. Located on gently sloping ground interrupted by numerous small washes. Shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with maize present at the time of survey, in fields equipped with maguey banales.

Archaeological Remains: Generally light (but reaching moderate in a few small areas) surface pottery, and scattered obsidian artifacts, over an area of about 7.0 ha. No structural remains. Mixed with similarly dense Late Aztec (Tm-Az-5) material.

Classification: Hamlet, 35-70 people.

Tm-Lt-3

Natural Setting: 2,270 m, in the thin soil alluvium southeast of Lake Xaltocan. Located on generally flat ground. Medium soil cover. No erosion.

Modern Utilization: Mixed rainfall and rainfall-irrigated cultivation, with maize and beans present at the time of survey.

Archaeological Remains: Light surface pottery, and very light obsidian artifacts, over an area of about 1.5 ha. No structural remains. Mixed with very light Late Aztec (Tm-Az-6) material.

Classification: Small hamlet, 8-15 people.

Tm-Lt-4

Natural Setting: 2,285 m, on an isolated hill in the thin soil alluvium southeast of Lake Xaltocan. Shallow soil cover. Extensive erosion.

Modern Utilization: Rainfall cultivation, with oats, barley, and maize all present at the time of survey. A modern house occurred in the south-central portion of the site, and a small road ran along its southeastern boundary.

Archaeological Remains: Very light surface pottery over an area of about 1.0 ha. No structural remains. Mixed with similarly sparse Early Toltec (Tm-Et-1) and very light-to-light Terminal Formative (Tm-Tf-1) material.

Classification: Questionable. Probably a briefly occupied small hamlet. Population undetermined.

Tm-Lt-5

Natural Setting: 2,275 m, in the thin soil alluvium southeast of Lake Xaltocan. Located on gently sloping ground. Medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey.

Archaeological Remains: Very light-to-light surface pottery over an area of about 1.0 ha. No structural remains. Mixed with similarly sparse Terminal Formative (Tm-Tf-2) material.

Classification: Small hamlet, 2-5 people.

Tm-Lt-6

Natural Setting: 2,270 m, in the thin soil alluvium southeast of Lake Xaltocan. Located on gently sloping ground. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Grazing. Rainfall cultivation also occurred, though the fields containing the site were lying fallow at the time of survey.

Archaeological Remains: Light-to-moderate surface pottery, and light-to-substantial rock rubble, over an area of about 2.0 ha. The survey crew noted the remains of one poorly preserved mound, defined primarily by rubble, though did not record its dimensions due to poor condition.

Classification: Hamlet, 20-50 people.

Tm-Lt-7

Natural Setting: 2,275 m, in the thin soil alluvium southeast of Lake Xaltocan. Located on flat ground. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with both maize and maguey present at the time of survey.

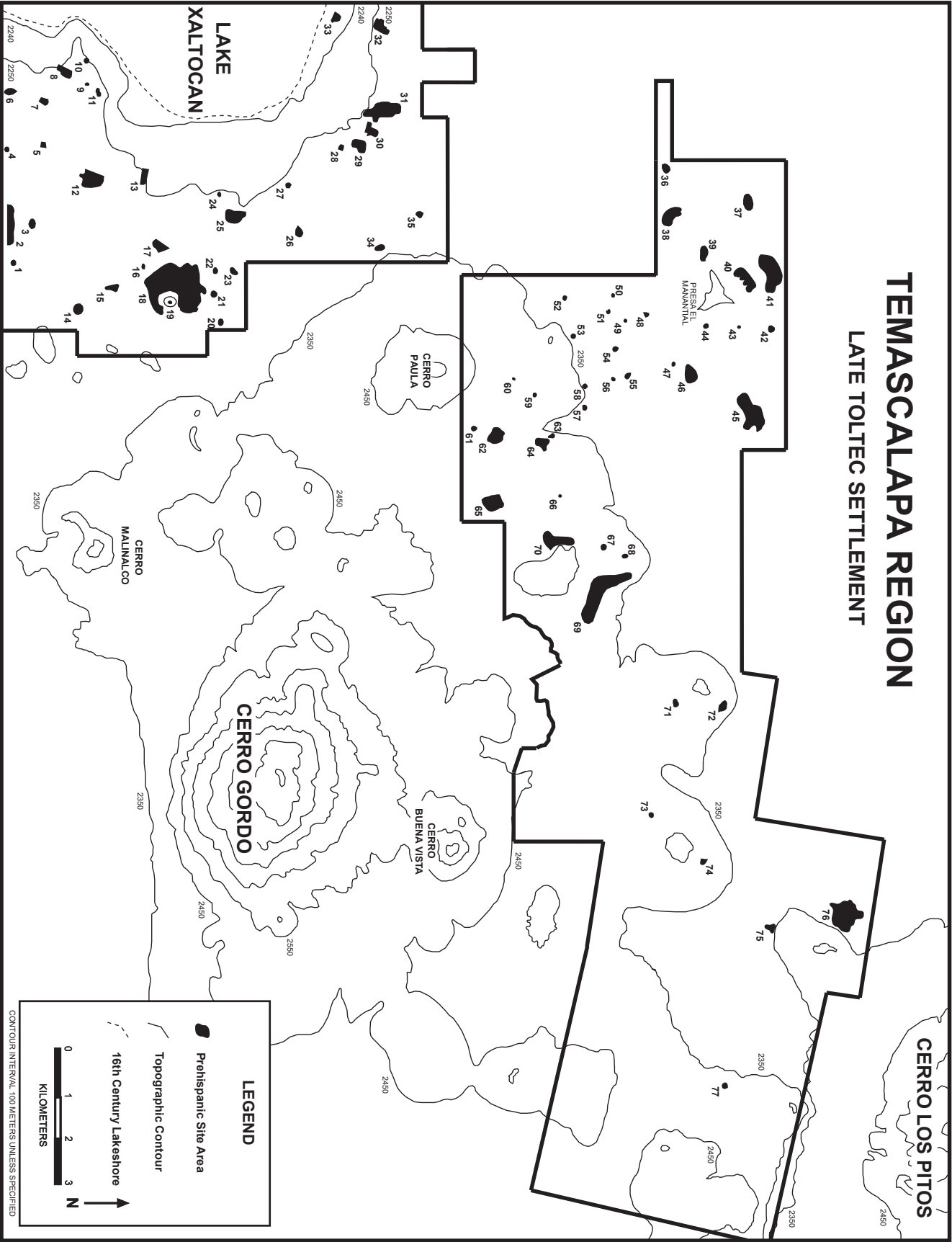


Figure 5.6. Late Toltec Settlement in the Temascalapa Region

Archaeological Remains: Very light-to-light surface pottery over an area of about 2.0 ha. No structural remains. Mixed with similarly sparse Late Aztec (Tm-Az-7) material.

Classification: Small hamlet, 4-10 people.

Tm-Lt-8

Natural Setting: 2,250-2,265 m, in the thin soil alluvium southeast of Lake Xaltocan. Located on flat ground. Shallow soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with both maize and barley present at the time of survey, in fields equipped with maguey banales.

Archaeological Remains: Very light-to-light surface pottery over an area of about 4.0 ha. No structural remains. Mixed with similarly sparse Late Aztec (Tm-Az-8) material.

Classification: Small hamlet, 8-20 people.

Tm-Lt-9

Natural Setting: 2,265 m, in the thin soil alluvium just above the southeastern shore of Lake Xaltocan. Located on flat-to-gently sloping ground. Shallow soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with both maize and maguey present at the time of survey, in fields equipped with earth banks and maguey banales.

Archaeological Remains: Light surface pottery over an area of approximately 0.5 ha. No structural remains. Mixed with very light Terminal Formative (Tm-Tf-4) and very light-to-light Late Aztec (Tm-Az-12) material. Tm-Lt-9 and a generally coterminous Terminal Formative occupation covered a small area in the northwestern corner of a larger Late Aztec site.

Classification: Small hamlet, 3-5 people.

Tm-Lt-10

Natural Setting: 2,250 m, in the thin soil alluvium just above the southeastern shore of Lake Xaltocan. Located on a flat outcrop of vesicular basalt. Shallow soil cover. Extensive erosion.

Modern Utilization: Grazing.

Archaeological Remains: Very light-to-light surface pottery, and substantial rock rubble, over an area of about 1.5 ha. No structural remains were visible at the time of survey, although rubble throughout the site suggested that some form of architecture existed previously. Mixed with similarly dense Teotihuacan period (Tm-CI-2), light-to-moderate Late Aztec (Tm-Az-11), and an unrecorded amount of Early Aztec (Tm-Ea-2) material. This site was surveyed with a 1:25,000 air photo.

Classification: Small hamlet, 3-8 people.

Tm-Lt-11

Natural Setting: 2,255 m, in the thin soil alluvium southeast of Lake Xaltocan. Located on gently sloping ground. Shallow soil cover. No erosion.

Modern Utilization: Rainfall cultivation, predominantly of nopal at the time of survey. A modern gravel road ran northwest-southeast across the site.

Archaeological Remains: Very light-to-light surface pottery, and light-to-substantial rock rubble, over an area of about 2.5 ha. No structural remains. Mixed with equally sparse Early Toltec (Tm-Et-4) material.

Classification: Small hamlet, 5-13 people.

Tm-Lt-12

Natural Setting: 2,265 m, in the thin soil alluvium southeast of Lake Xaltocan. Located on gently sloping ground on the flank of a small hill strewn with granite cobbles. Shallow soil cover. Moderate erosion.

Modern Utilization: Rainfall cultivation, with both maize and maguey present at the time of survey, in fields equipped with maguey banales. Part of the site was used for grazing as well. The site occurred at the eastern edge of the modern town of Santa Cruz Tecamac, immediately east of Cuota Highway 85, and was obscured partially by houselots and a small road.

Archaeological Remains: Light surface pottery over an area of about 10.0 ha. No structural remains. Mixed with similarly dense Early Toltec (Tm-Et-5), very light-to-light Terminal Formative (Tm-Tf-5), and moderate Teotihuacan period (Tm-CI-3) material.

Classification: Hamlet, 50-100 people.

Tm-Lt-13

Natural Setting: 2,250 m, in the thin soil alluvium near where it joins the deep soil alluvium east of Lake Xaltocan. Located on a gently sloping outcrop of vesicular basalt. Shallow-to-no soil cover. Extensive erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey. By 1975, much of this site had been heavily disturbed by modern quarrying activity and by a railroad embankment, leaving only the southern portion of the site intact.

Archaeological Remains: Very light surface pottery over an area of about 2.0 ha. No structural remains. Mixed with light Terminal Formative (Tm-Tf-6), moderate-to-heavy Teotihuacan period (Tm-CI-5), and light-to-moderate Early Toltec (Tm-Et-7) material. This site was surveyed with a 1:25,000 air photo.

Classification: Questionable. Probably a briefly occupied small hamlet. Population undetermined.

Tm-Lt-14

Natural Setting: 2,275 m, in the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground. Generally medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with maize, oats, beans, and barley present at the time of survey.

Archaeological Remains: Light surface pottery, very light obsidian and ground stone artifacts, and a few figurine fragments over an area of about 2.0 ha. No structural remains. Mixed with light-to-moderate Late Aztec (Tm-Az-2) material.

Classification: Small hamlet, 10-20 people.

Tm-Lt-15

Natural Setting: 2,275 m, in the thin soil alluvium east of Lake Xaltocan. Located on flat ground. Medium-to-deep soil cover. No erosion.

Modern Utilization: Grazing. One unused irrigation canal cut through the site.

Archaeological Remains: Very light-to-light surface pottery, and generally light rock rubble, over an area of about 5.0 ha. Concentrations of cultural material possibly represented the remains of five poorly preserved mounds, three clustered in the northern part of the site and two in the southern portion. Because of the condition of these mounds, the survey crew did not record their dimensions.

Classification: Hamlet, 25-50 people.

Tm-Lt-16

Natural setting: 2,275 m, in the thin soil alluvium east of Lake Xaltocan. Located on flat ground south of Barranca el Muerto. Medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey.

Archaeological Remains: Very light surface pottery and light rock rubble over an area of about 1.5 ha. No structural remains. Mixed with light-to-moderate Early Toltec (Tm-Et-8) remains.

Classification: Questionable. Probably a briefly occupied small hamlet. Population undetermined.

Tm-Lt-17

Natural Setting: 2,260-2,270 m, in the thin soil alluvium east of Lake Xaltocan. Located on generally flat ground. Medium soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, predominantly of barley at the time of survey.

Archaeological Remains: Light surface pottery over an area of about 6.0 ha. No structural remains. Mixed with light-to-moderate Early Toltec (Tm-Et-10) and Late Aztec (Tm-Az-15) material. Tm-Lt-17 represented a scatter of Late Toltec remains on the southeastern part of the large Late Aztec site that dominated this area.

Classification: Hamlet, 30-60 people.

Tm-Lt-18

Natural Setting: 2,280-2,330 m, in the thin soil alluvium and lower piedmont east of Lake Xaltocan. Located on gently to moderately sloping ground on the northern, western, and southern flanks of Cerro Colorado. One major barranca occurred immediately to the north, with another cutting through the site itself. Shallow-to-medium soil cover. Generally moderate erosion, though slight in places and becoming extensive in upper portions of the site.

Modern Utilization: Grazing on the upper, more heavily eroded portion of the site. Rainfall cultivation on the lower parts of the site, with barley, maize, and maguey present at the time of survey, in fields equipped with drainage ditches and maguey banales. Several roads cut across the site.

Archaeological Remains: Very light-to-light surface pottery over an area of about 75.0 ha. Also present were concentrations of rock rubble (ranging from light to substantial in density), very light-to-light obsidian artifacts, and scattered basalt tools. One mound, measuring 30.0 m in diameter and 3.0 m in height when surveyed, showed evidence of Late Toltec (as well as Late Aztec) occupation (see Mound 8 on Figure 5.15). Mixed with similarly dense Late Aztec (Tm-Az-17) and light-to-moderate Early Toltec (Tm-Et-11) material over the same area; also present over smaller areas were very light Teotihuacan period (Tm-Cl-7), light Terminal Formative (Tm-Tf-19 and Tm-Tf-20), and light-to-moderate Terminal Formative (Tm-Tf-16 and Tm-Tf-17) material.

Classification: Small dispersed village, 150-375 people.

Tm-Lt-19

Natural Setting: 2,360 m, in the Lower Piedmont east of Lake Xaltocan. Located on the flat summit of Cerro Colorado. Shallow soil cover. Generally moderate erosion.

Modern Utilization: Grazing.

Archaeological Remains: Light surface pottery, and light-to-substantial rock rubble, over an area of about 0.5 ha. The survey crew noted a single pyramidal mound near the center of the site, measuring 30.0 by 25.0 m at its base and 4.0 m in height. The mound occurred on a platform measuring 40.0 by 25.0 m that extended to the west of the artificially levelled

hilltop and supported on its southern side by a terrace 1.0 m in height. Mixed with similarly dense Early Toltec (Tm-Et-12) material.

Classification: Isolated ceremonial center. No permanent population.

Tm-Lt-20

Natural Setting: 2,280 m, in the lower piedmont east of Lake Xaltocan. Located on moderately sloping ground just north of the junction between Barranca el Muerto and another large barranca. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Grazing. Some limited rainfall cultivation.

Archaeological Remains: Light surface pottery over an area of about 1.0 ha. No structural remains. Mixed with generally light Late Aztec (Tm-Az-18) material.

Classification: Small hamlet, 5-10 people.

Tm-Lt-21

Natural Setting: 2,275 m, in the lower piedmont near where it joins the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground on the eastern edge of a large barranca. Shallow-to-medium soil cover. Severe erosion.

Modern Utilization: Rainfall cultivation.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 0.5 ha. No structural remains. Mixed with similarly dense Late Aztec (Tm-Az-19) remains.

Classification: Small hamlet, 5-13 people.

Tm-Lt-22

Natural Setting: 2,275 m, in the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground on the northern bank of Barranca el Muerto. Shallow soil cover. Moderate to severe erosion, becoming heavier near the barranca.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey.

Archaeological Remains: Light surface pottery over an area of about 0.4 ha. No structural remains. Mixed with light-to-moderate Late Aztec (Tm-Az-22) material.

Classification: Small hamlet, 2-4 people.

Tm-Lt-23

Natural Setting: 2,275 m, in the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey. Part of the site also was used for grazing. A modern road, running east-west, bisected the site.

Archaeological Remains: Very light-to-light surface pottery over an area of about 2.7 ha. No certain structural remains, though canal remnants of unknown age cut through the site. Mixed with similarly dense Late Aztec (Tm-Az-21) material.

Classification: Small hamlet, 5-14 people.

Tm-Lt-24

Natural Setting: 2,250 m, in the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground between two large barrancas. Medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation of barley. Site occurred within a houseplot in the modern village of San Jerónimo Xonacahuacan.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 0.4 ha. An artifact concentration 50.0 m in diameter likely represented the remnants of one poorly preserved mound. Mixed with light Late Aztec (Tm-Az-23) material. Tm-Lt-24 comprised a small concentration of Late Toltec material in the southwestern corner of a much larger Late Aztec site.

Classification: Small hamlet, 4-10 people.

Tm-Lt-25

Natural Setting: 2,255-2,265 m, in the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground between two large barrancas. Shallow-to-medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with both maize and maguey present at the time of survey. The site occurred in the modern village of San Jerónimo Xonacahuacan.

Archaeological Remains: Light surface pottery over an area of about 6.0 ha. No structural remains. Mixed with similarly dense Terminal Formative (Tm-Tf-10) and Late Aztec (Tm-Az-23) and moderate-to-heavy Teotihuacan period (Tm-C1-9) material.

Classification: Hamlet, 30-60 people.

Tm-Lt-26

Natural Setting: 2,285-2,295 m, in the lower piedmont northeast of Lake Xaltocan. Located on gently sloping ground south of a major barranca that drains westward towards the lake. Shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with maize present at the time of survey, in fields equipped with earth banks.

Archaeological Remains: Very light-to-light surface pottery, and sparse-to-light rock rubble, over an area of about 3.0 ha. The survey crew identified four mounds, with mixed Late Toltec and Late Aztec material (Figure 5.7), as described in Table 5.3. Mixed with light Late Aztec (Tm-Az-24) material. Tm-Lt-26 occurred in the northern part of a much larger Late Aztec site.

Classification: Hamlet, 20-40 people.

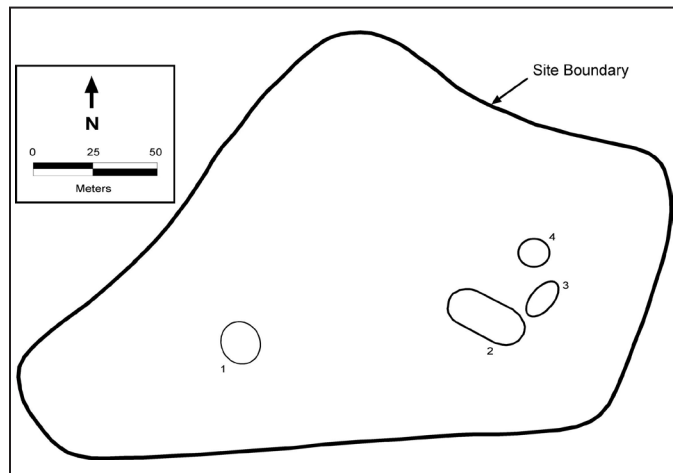


Figure 5.7. Tm-Lt-26 Architectural Features

Table 5.3. Tm-Lt-26 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	20 x 16	1.5	Very light	Sparse	Ceremonial; also very light Late Aztec material
Mound 2	30 x 16	3.0	Very light	None	Ceremonial; scattered wall fragments and pieces of plaster; also light Late Aztec material
Mound 3	16 x 8	1.0	Light	Light	Probably residential; also light Late Aztec material
Mound 4	10 x 10	0.8	Light	Light	Residential; also light Late Aztec material

Tm-Lt-27

Natural Setting: 2,255 m, in the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground. Medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey. The site occurred just north of the modern village of San Pedro Potzohuacán.

Archaeological Remains: Very light-to-light surface pottery over an area of about 0.5 ha. No structural remains.

Classification: Small hamlet, 1-3 people.

Tm-Lt-28

Natural Setting: 2,270 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground, with a canalized barranca located immediately east of the site boundary. Shallow soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with maguey predominating at the time of survey, in fields equipped with

earth banks. The site occurred on the northwestern edge of the modern village of Santa María Ajoluapán.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 2.3 ha. The survey crew noted one mound, measuring 6.0 by 6.0 m at its base and 0.6 m in height. Teotihuacan period, Late Toltec, and Late Aztec pottery occurred on this mound. Mixed with very light-to-light Terminal Formative (Tm-Tf-25), Teotihuacan period (Tm-Cl-12), and Late Aztec (Tm-Az-27) material.

Classification: Hamlet, 23-58 people.

Tm-Lt-29

Natural Setting: 2,265-2,275 m, in the thin soil alluvium near where it intersects the lower piedmont northeast of Lake Xaltocan. Located on gently to moderately sloping ground. Generally shallow soil cover. Slight, localized erosion.

Modern Utilization: Predominantly grazing, though much of this activity occurred on agricultural fields lying fallow in 1975. A limited amount of rainfall cultivation also occurred, with maize present at the time of survey, in two fields equipped with earth banks and maguey banales.

Archaeological Remains: Very light-to-light surface pottery, and light-to-substantial rock rubble, over an area of about 6.0 ha. No structural remains. Mixed with similarly dense Terminal Formative (Tm-Tf-26) and Late Aztec (Tm-Az-28) and generally moderate Teotihuacan period (Tm-Cl-13) material.

Classification: Hamlet, 12-30 people.

Tm-Lt-30

Natural Setting: 2,260-2,270 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on moderately sloping ground. Shallow soil cover. Slight, localized erosion.

Modern Utilization: At the time of survey, approximately half the site area was used for grazing, the remaining half used for rainfall cultivation of maize, alfalfa, and barley in fields equipped with earth banks. A modern house occurred on the site, and a modern road oriented north-northwest ran through it.

Archaeological Remains: Mixed very light-to-light (4.0 ha) and heavy (2.0 ha) surface pottery over an area of about

6.0 ha. No structural remains. Mixed with variable very light-to-light Terminal Formative (Tm-Tf-27) and very light Teotihuacan period (Tm-Cl-14) material.

Classification: Small nucleated village, 108-220 people.

Tm-Lt-31

Natural Setting: 2,250-2,265 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on flat to gently sloping ground. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Predominantly grazing at the time of survey. Rainfall cultivation of maguey occurred in the northern and eastern portions of the site, with maize, barley, habas, maguey, and oats present in the southern part of the site. Agricultural fields associated with Tm-Lt-31 usually featured some type of erosion control, including drainage ditches, earth banks, and maguey banales. Highway 85 ran north-south through the western portion of the site.

Archaeological Remains: Generally light surface pottery, mixed with very light obsidian and basalt tools, over an area of about 16.0 ha. No structural remains clearly date to the Late Toltec occupation, though 14 artifact concentrations that probably represented the remnants of Late Aztec mounds had small amounts of Late Toltec pottery associated (see Tm-Az-31). Mixed with very light Terminal Formative (Tm-Tf-28), Early Toltec (Tm-Et-14), and Late Aztec (Tm-Az-31), and an unrecorded amount of Early Aztec (Tm-Ea-3) material.

Classification: Small dispersed village, 80-160 people.

Tm-Lt-32

Natural Setting: 2,250-2,275 m, in the thin soil alluvium north of Lake Xaltocan. Located on gently sloping ground composed of mixed soil and tepetate gravel. Shallow-to-medium soil cover. Generally very slight or no erosion.

Modern Utilization: Rainfall cultivation in fields equipped with earth banks, stone terraces, and maguey banales. Most fields associated with Tm-Lt-32 were lying fallow or planted in maguey at the time of survey, though maize and oats also occurred. The site was located in the northern part of the modern settlement of San Lucas Xolox, which partially obscured prehispanic remains.

Archaeological Remains: Generally light-to-moderate surface pottery and variable rock rubble (ranging in density from light to substantial) over an area of about 13.0 ha. Also present were very light-to-light densities of obsidian artifacts, figurine fragments, and ground stone tools. The survey crew identified the remains of 13 poorly preserved mounds, indicated by slight rises and concentrations of artifacts and rubble, although due to heavy disturbance mound dimensions were not recorded. Less distinct concentrations of rock rubble and pottery probably marked the former locations of other mounds. The remains of prehispanic terracing also occurred in

areas of denser Late Toltec occupation. Mixed with very light Terminal Formative (Tm-Tf-29), light Teotihuacan period (Tm-Cl-17), very light-to-light Late Aztec (Tm-Az-34), and an unrecorded amount of Early Aztec (Tm-Ea-4) material.

Classification: Small nucleated village, 130-325 people. Despite the lack of preservation of prehispanic features and the level of modern disturbance, artifact densities and types indicated that the area covered by this site primarily was a Late Toltec occupation.

Tm-Lt-33

Natural Setting: 2,235 m, on the saline lakeshore plain just above the northeastern edge of Lake Xaltocan. Located on flat ground. Deep soil cover. No erosion.

Modern Utilization: Both rainfall and irrigated cultivation, with maize, alfalfa, and maguey present at the time of survey. The site occurred among houselots at the southern edge of the modern settlement of San Lucas Xolox.

Archaeological Remains: Very light-to-light surface pottery over an area of about 2.3 ha. No mounds occurred, but the survey crew noted possible remains of prehispanic canals. Mixed with light Teotihuacan period (Tm-Cl-16) material.

Classification: Small hamlet, 5-12 people.

Tm-Lt-34

Natural Setting: 2,335-2,340 m, on an isolated hill in the lower piedmont northeast of Lake Xaltocan. Located on gently sloping ground. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with both oats and barley present at the time of survey, in fields equipped with maguey banales.

Archaeological Remains: Light surface pottery over an area of about 3.8 ha. No structural remains. Mixed with similarly dense Late Aztec (Tm-Az-41), very light Terminal Formative (Tm-Tf-30), and moderate Teotihuacan period (Tm-Cl-20) material.

Classification: Hamlet, 19-38 people.

Tm-Lt-35

Natural Setting: 2,315 m, in the lower piedmont northeast of Lake Xaltocan. Located on gently sloping ground leading to a barranca that formed the northern boundary of the site. Basalt cobbles and outcrops occurred nearby. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, predominantly of barley at the time of survey, in a field equipped with maguey banales. Part of the site also was used for grazing.

Archaeological Remains: Light surface pottery over an area of about 1.0 ha. No structural remains. Mixed with equally dense Terminal Formative (Tm-Tf-31), moderate Teotihuacan period (Tm-CI-22), and light-to-moderate Late Aztec (Tm-Az-38) material. Tm-Lt-35 represented a small Late Toltec occupation at the southern end of a larger Teotihuacan period site.

Classification: Small hamlet, 5-10 people.

Tm-Lt-36

Natural Setting: 2,270 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on generally flat ground about 200 m south of the Avenidas de Pachuca barranca. Medium-to-deep soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with maize, beans, maguey, and nopal present at the time of survey, in fields equipped with earth banks and maguey banales.

Archaeological Remains: Variably light-to-moderate surface pottery over an area of about 0.4 ha. No structural remains. Mixed with very light-to-light Late Aztec (Tm-Az-43) material.

Classification: Small hamlet, 4-10 people.

Tm-Lt-37

Natural Setting: 2,290 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on flat ground north of the Avenidas de Pachuca barranca. Shallow-to-medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation, predominantly of maize at the time of survey.

Archaeological Remains: Very light-to-light surface pottery over an area of approximately 0.4 ha. No structural remains. Mixed with very light Teotihuacan period (Tm-CI-33) material.

Classification: Small hamlet, 1-2 people.

Tm-Lt-38

Natural Setting: 2,282-2,292 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground roughly 100 m south of the Avenidas de Pachuca barranca. Generally medium-to-deep soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with maguey and nopal present at the time of survey, in fields equipped with stone terraces. The site occurred among houselots of the modern village of Tepojaco.

Archaeological Remains: Variably moderate-to-heavy surface pottery and very light obsidian artifacts over an area of about 5.0 ha. No structural remains. Mixed with very light-to-light Teotihuacan period (Tm-CI-30) and generally light Late Aztec

(Tm-Az-44) material.

Classification: Small nucleated village, 250-500 people.

Tm-Lt-39

Natural Setting: 2,285-2,292 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on a gently sloping outcrop of vesicular basalt immediately south of the lake Presa el Manantial. Generally shallow soil cover, but with much exposed bedrock. Slight, localized erosion.

Modern Utilization: Site occurred within the modern village of El Manantial. Rainfall cultivation, with both barley and maize present in surrounding fields at the time of survey.

Archaeological Remains: Light-to-moderate surface pottery and a few obsidian blades over an area of about 2.0 ha. No structural remains. Mixed with very light Teotihuacan period (Tm-CI-32) and very light-to-light Late Aztec (Tm-Az-46) material. Tm-Lt-39 represented a Late Toltec component on the western side of a larger, predominantly Late Aztec site.

Classification: Hamlet, 20-50 people.

Tm-Lt-40

Natural Setting: 2,300-2,305 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on a flat-to-gently sloping outcrop of vesicular basalt north of the lake Presa el Manantial. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, predominantly of barley and nopal at the time of survey, in fields equipped with earth banks and maguey banales.

Archaeological Remains: Light-to-moderate surface pottery, and a few obsidian blades, over an area of about 12.0 ha. No structural remains. Mixed with moderate Teotihuacan period (Tm-CI-34) and light Late Aztec (Tm-Az-50) material.

Classification: Small nucleated village, 120-300 people.

Tm-Lt-41

Natural Setting: 2,305-2,315 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on generally flat ground north of the lake Presa el Manantial. Very shallow soil cover, with some exposed bedrock. Extensive erosion.

Modern Utilization: Rainfall cultivation, with barley, maguey, and nopal present at the time of survey.

Archaeological Remains: Moderate-to-heavy surface pottery, light-to-substantial rock rubble, and a few obsidian blades, over an area of about 4.0 ha. No structural remains. Mixed with generally light Late Aztec (Tm-Az-51) material.

Classification: Small nucleated village, 200-400 people.

Tm-Lt-42

Natural Setting: 2,315 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on a generally flat outcrop of vesicular basalt about 100 m northwest of a large barranca that empties into the lake Presa el Manantial. Shallow soil cover. Slight-to-no localized erosion.

Modern Utilization: Rainfall cultivation, with very dense maguey present on the site itself and barley present in surrounding fields at the time of survey.

Archaeological Remains: Variable light-to-moderate surface pottery, substantial rock rubble, and scattered lithic artifacts (obsidian cores and scrapers, basalt metate fragments) over an area of about 1.5 ha. The survey crew noted one mound, probably ceremonial in function, measuring 100.0 by 100.0 m at its base and 1.5 m in height. This mound occurred on top of and against a rock outcrop; as much as 1.0 m of its height was due to the elevation of the supporting outcrop.

Classification: Hamlet, 15-38 people.

Tm-Lt-43

Natural Setting: 2,300 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on flat-to-gently sloping ground about 100 m southeast of a large barranca. Shallow-to-medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey, in fields equipped with earth banks.

Archaeological Remains: Very light-to-light surface pottery, and substantial-to-heavy rock rubble, over an area of about 0.1 ha. The site consisted of a single mound, measuring 11.0 by 8.0 m at its base and 0.25 m in height at the time of survey. Plowing had disturbed the edges of the mound, and additional rubble probably had been piled onto the mound itself at the time of survey.

Classification: Small hamlet, 5-10 people.

Tm-Lt-44

Natural Setting: 2,300 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on a generally level outcrop of vesicular basalt about 50 m southeast of a large barranca that empties westward into the lake Presa el Manantial. Shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey. A modern road ran immediately northwest of the site.

Archaeological Remains: Mostly very light surface pottery (becoming moderate in places), generally substantial rock rubble (though light in some locations), and a few obsidian artifacts over an area of about 0.5 ha. The survey crew identified two mounds, arranged in an east-west orientation.

Mound 1, the easternmost, measured 10.0 by 9.0 m at its base and 0.1 m in height; associated remains included very light pottery and heavy rock rubble. Mound 2, lying to the west, measured 30.0 by 25.0 m at its base and 0.1 m in height; associated remains consisted of moderate pottery and light rock rubble. Mixed with similarly sparse Terminal Formative (Tm-Tf-37) material.

Classification: Small hamlet, 10-20 people.

Tm-Lt-45

Natural Setting: 2,310-2,320 m, in the thin soil alluvium west of Barranca Tecorral. Located on a gently sloping vesicular basalt outcrop above agricultural fields. Generally very shallow soil cover, becoming medium in places. Slight, localized erosion, with additional damage from barrancas and washes that cut through the site.

Modern Utilization: Predominantly grazing, with some rainfall cultivation of barley, maize, and maguey at the time of survey. Much of this site was not arable due to the vesicular basalt outcrop. About 20% of the site occurred within the modern villages of Presa del Rey (to the east of the site) and Mogotes (to the northwest), and as a result portions of the site boundary were obscured. Several modern structures occurred within the boundary of the site. The ruins of three historic structures occurred in the western part of the site.

Archaeological Remains: Generally light surface pottery over an area of about 34.0 hectares, with densities ranging from very light to heavy. Rock rubble also was present, varying in density from light to heavy. The survey crew identified a total of 57 mounds throughout the site (Figure 5.8), with their basic characteristics presented in Table 5.4. All of these mounds showed evidence of both Late Toltec and Late Aztec occupations. Several of the mounds appear to have had primarily ceremonial or administrative functions, including Mounds 5, 6, 8, 9, 30, 32, 33, 34, 37, 42, 43, and 48. This large proportion of administrative-ceremonial structures suggests that this site possibly served a larger hinterland population during both the Late Toltec and Late Aztec occupations, particularly given the relatively few residential mounds present on Tm-Lt-45 itself. Nevertheless, survey crews also encountered large amounts of residential refuse—including manos, metates, basalt scrapers, and assorted chipped chert and obsidian artifacts. Mixed with light Late Aztec (Tm-Az-52) material.

Classification: Large dispersed village, 400-600 people. Note that the size and architecture of this site showed some characteristics that one would expect in a provincial center. However, another large Late Toltec site about 4 km north of Tm-Lt-45 and beyond the edge of the Temascalapa Survey Region, at San Miguel Eyecalco, shows more definitive administrative characteristics, most notably more impressive ceremonial or administrative structures (see Appendix D), and probably served as the provincial center in this part of the Basin of Mexico during the Late Toltec occupation.

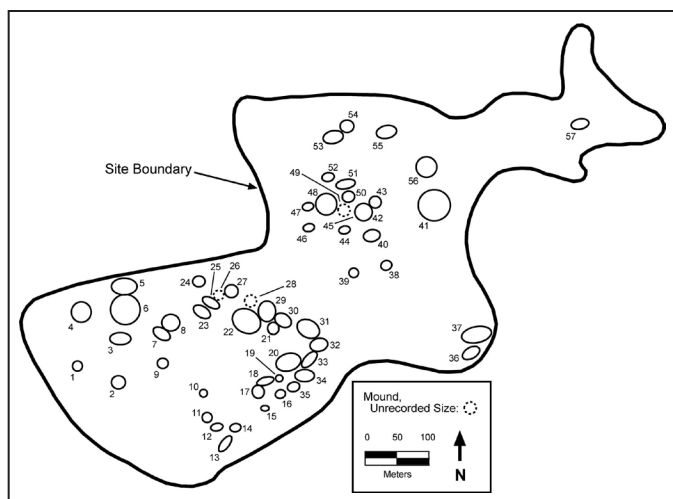


Table 5.8. Tm-Lt-45 Architectural Features

Tm-Lt-46

Natural Setting: 2,298-2,302 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on a generally flat vesicular basalt outcrop, between a large barranca which drains westward into the lake Presa el Manantial and a second large barranca. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, predominantly of maize and barley, in fields equipped with drainage ditches, stone terraces, and maguey banales. Site occurred within the modern village of Chopo, with much of the prehispanic remains covered by a railroad station and tracks.

Archaeological Remains: Moderate surface pottery over an area of about 5.0 ha. Additional surface remains included scattered obsidian, basalt, and ground stone tools, figurine fragments, and substantial-to-heavy rock rubble. The survey crew identified five mounds, four residential and one ceremonial, with Late Toltec (as well as Teotihuacan period and Late Aztec) remains associated (see Table 5.2 and Figure 5.4). Stone terraces on the site probably also dated to one of the prehispanic occupations. Mixed with similarly dense Teotihuacan period (Tm-CI-38) and generally light Late Aztec (Tm-Az-60) material. Tm-Lt-46 occurred in the northeastern portion of a larger, predominantly Late Aztec site.

Classification: Small nucleated village, 125-250 people. Modern disturbance almost certainly had modified the northern boundary of this site, suggesting that it was larger in the past—though the interpretation as a nucleated village probably is correct.

Tm-Lt-47

Natural Setting: 2,300 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on a generally flat outcrop of vesicular basalt southeast of a large barranca that drains westward into the lake Presa el Manantial. Shallow to medium soil cover. Moderate erosion.

Modern Utilization: Floodwater irrigated cultivation, with

fields planted in barley at the time of survey. Site occurred within the modern village of Chopo.

Archaeological Remains: Light concentrations of surface pottery over an area of about 1.5 ha. No structural remains. Mixed with slightly heavier Late Aztec (Tm-Az-60) material. Tm-Lt-47 represented a small concentration of Late Toltec material in the south-central portion of a larger Late Aztec site.

Classification: Small hamlet, 8-15 people.

Tm-Lt-48

Natural Setting: 2,305 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on flat ground south of a large barranca that empties northward into the lake Presa el Manantial. Medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with both maize and beans present at the time of survey. Railroad tracks bordered the site to the southeast.

Archaeological Remains: Light surface pottery over an area of about 1.5 ha. No structural remains. Mixed with very light Terminal Formative (Tm-Tf-35) and Teotihuacan period (Tm-CI-28) and very light-to-light Late Aztec (Tm-Az-59) material. Tm-Lt-48 occurred in the southwestern corner of a larger, predominantly Late Aztec site.

Classification: Small hamlet, 8-15 people.

Tm-Lt-49

Natural Setting: 2,315 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on flat ground. Medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with maize predominating at the time of survey.

Archaeological Remains: Light surface pottery, and substantial rock rubble, over an area of about 0.5 ha. A single, isolated mound occurred near the western edge of the site—defined by a slight rise and a concentration of tezontle rubble, with no dimensions recorded due to poor preservation.

Classification: Small hamlet, 5-10 people.

Tm-Lt-50

Natural Setting: 2,305 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on flat ground. Shallow-to-medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with both beans and barley present at the time of survey.

Archaeological Remains: Light-to-moderate surface pottery, coupled with substantial rock rubble, over an area of about

Table 5.4. Tm-Lt-45 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	9 x 9	0.3	None	Heavy	Residential
Mound 2	13 x 13	1.0	None	Substantial-heavy	Probably residential; wall fragments on top of mound
Mound 3	27 x 15	0.8	Moderate	Heavy	Residential; cut by modern road
Mound 4	25 x 25	0.2	Heavy	None	Residential
Mound 5	31 x 16	0.5	Very light	Substantial-heavy	Ceremonial platform; joins natural hill to form 61 x 45-m flat area
Mound 6	45 x 45	5.5	Very light	Heavy	Ceremonial; looted
Mound 7	20 x 12	1.0	Light-moderate	Substantial-heavy	Probably residential
Mound 8	23 x 23	2.5	Very light-light	Substantial-heavy	Ceremonial
Mound 9	11 x 8	1.5	Very light	None	Ceremonial; heavier pottery and rubble in surrounding fields; 3 x 3 m-cobble floor on top of mound
Mound 10	6 x 6	0.3	None	None	Residential; fragmentary house walls
Mound 11	10 x 10	0.2	Moderate	Heavy	Residential
Mound 12	10 x 7	0.2	Moderate	Substantial	Residential; scattered basalt and obsidian flakes
Mound 13	23 x 8	0.2	Light	Heavy	Residential
Mound 14	12 x 8	0.2	Light-moderate	Heavy	Residential; looted
Mound 15	7 x 4	0.2	Light	Light	Residential; looted
Mound 16	9 x 6	0.2	Very light	Heavy	Residential; looted
Mound 17	14 x 13	NR	Moderate	Sparse	Residential
Mound 18	21 x 11	1.0	Very light-light	Heavy	Probably residential; looted
Mound 19	6 x 5	0.3	Moderate	Heavy	Residential
Mound 20	38 x 27	1.0	Heavy	Heavy	Probably residential
Mound 21	15 x 13	0.2	Light	Heavy	Residential
Mound 22	46 x 30	1.0	Moderate	Heavy	Probably residential
Mound 23	18 x 15	0.8	Light-moderate	Heavy	Residential
Mound 24	12 x 8	0.2	Light	Heavy	Residential; light obsidian
Mound 25	20 x 12	0.5	Moderate	Substantial-heavy	Residential
Mound 26	NR	NR	Light	Substantial-heavy	Residential
Mound 27	15 x 12	0.3	Light-moderate	Heavy	Residential; light obsidian
Mound 28	NR	NR	Very light-light	Heavy	Residential
Mound 29	23 x 23	1.0	Light	Heavy	Probably residential; light obsidian
Mound 30	20 x 14	1.5	Very light-light	Heavy	Ceremonial
Mound 31	36 x 24	1.0	Heavy	Heavy	Probably residential; moderate obsidian
Mound 32	20 x 16	1.5	Moderate-heavy	Substantial-heavy	Ceremonial
Mound 33	27 x 10	1.5	Light-moderate	Light-substantial	Ceremonial
Mound 34	27 x 15	2.0	Light-moderate	Heavy	Ceremonial; scattered obsidian and mano fragments
Mound 35	15 x 8	0.2	Moderate	Substantial-heavy	Residential; remains included post-conquest pottery
Mound 36	18 x 14	1.0	Very light	Heavy	Probably residential
Mound 37	43 x 20	2.0	Light-moderate	Heavy	Ceremonial; built on rock outcrop; possible prehispanic terrace behind mound
Mound 38	14 x 8	0.3	Light	Heavy	Residential; looted
Mound 39	12 x 8	0.4	Very light	Heavy	Residential

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 40	40 x 20	0.2	Moderate	Heavy	Probably residential; possible wall fragments
Mound 41	50 x 50	1.0	Very light-light	Substantial-heavy	Probably residential; several wall fragments (including pieces of wall that may have surrounded mound)
Mound 42					Three-tiered ceremonial mound
Tier A	23 x 23	0.2	Moderate	Heavy	Looted
Tier B	31 x 31	0.8	None	None	Situated partially on Tier A
Tier C	9 x 8	0.2	None	None	Situated on Tier B
Mound 43	15 x 15	1.5	Moderate	Heavy	Ceremonial; wall fragments; mound cut by modern road
Mound 44	14 x 8	0.3	Light	Heavy	Residential
Mound 45	NR	NR	NR	Heavy	
Mound 46	14 x 8	0.3	Light	Heavy	Residential
Mound 47	14 x 8	0.3	Light	Heavy	Residential
Mound 48	30 x 30	1.5	Moderate	Heavy	Ceremonial
Mound 49	NR	NR	NR	NR	
Mound 50	14 x 11	1.0	Light	Heavy	Probably residential; looted
Mound 51	27 x 7	1.0	Light-moderate	Substantial	Probably residential; wall fragments; cut by modern road
Mound 52	14 x 8	0.3	Light	Heavy	Residential
Mound 53	23 x 19	1.0	Very light	Substantial	Probably residential; looted
Mound 54	15 x 11	1.0	Very light	Heavy	Probably residential; base of wall
Mound 55	30 x 15	NR	Moderate	Substantial	Residential
Mound 56	30 x 30	1.0	Moderate-heavy	Substantial-heavy	Probably residential
Mound 57	19 x 15	0.5	Light	Heavy	Residential; heavily plowed; some Teotihuacan period material (insufficient to define site)

Note: "NR" means "not recorded."

0.3 ha. The survey crew noted no certain structural remains, though a concentration of rubble and artifacts possibly represented the remnants of one poorly preserved mound.

Classification: Small hamlet, 3-8 people.

Tm-Lt-51

Natural Setting: 2,315 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on flat ground. Shallow-to-medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation. At the time of survey some of the fields were planted in maize, barley, and beans, while others were lying fallow.

Archaeological Remains: Light surface pottery, coupled with light-to-substantial rock rubble, over an area of about 1.8 ha. No definite structural remains were visible, but three concentrations of pottery and rubble possibly represented the poorly preserved remains of Late Toltec and Late Aztec mounds. Mixed with slightly lighter Late Aztec (Tm-Az-63) material.

Classification: Small hamlet, 9-18 people.

Tm-Lt-52

Natural Setting: 2,310 m, in the lower piedmont northeast of Lake Xaltocan. Located on gently sloping ground near the base of a small hill being quarried for tezontle. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with both maize and barley present at the time of survey.

Archaeological Remains: Light surface pottery over an area of about 0.5 ha. No structural remains.

Classification: Small hamlet, 3-5 people.

Tm-Lt-53

Natural Setting: 2,340-2,350 m, in the lower piedmont northeast of Lake Xaltocan. Located on gently to moderately sloping ground at the base of a small hill being quarried for tezontle. Very shallow soil cover, with patches of exposed tepetate. Severe, extensive erosion.

Modern Utilization: Grazing.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 1.6 ha. No structural remains.

Classification: Hamlet, 16-40 people.

Tm-Lt-54

Natural Setting: 2,330 m, in the lower piedmont northeast of Lake Xaltocan. Located on gently sloping ground. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with beans present at the time of survey. A modern road cut through the site.

Archaeological Remains: Light surface pottery, and substantial rock rubble, over an area of about 1.7 ha. The survey crew noted no definite structural remains, though two concentrations of rubble and artifacts possibly represented the poorly preserved remains of residential mounds.

Classification: Small hamlet, 9-17 people.

Tm-Lt-55

Natural Setting: 2,320 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground south of a large barranca that empties northwest into the lake Presa el Manantial. Medium-to-deep soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with maguey present at the time of survey.

Archaeological Remains: Light surface pottery over an area of about 3.0 ha. No mounds were visible, but there was evidence of prehispanic floodwater irrigation canals that possibly dated to the Late Toltec occupation. Mixed with light Terminal Formative (Tm-Tf-34) and Late Aztec (Tm-Az-62) and moderate Teotihuacan period (Tm-CI-27) material. Tm-Lt-55 represented a small concentration of Late Toltec material in the southwestern portion of a larger, predominantly Late Aztec site.

Classification: Hamlet, 15-30 people.

Tm-Lt-56

Natural Setting: 2,325 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground. Shallow-to-medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with maguey present at the time of survey.

Archaeological Remains: Moderate, badly weathered surface pottery over an area of about 0.5 ha. No structural remains. Mixed with Teotihuacan period (Tm-CI-26) material of approximately equal density.

Classification: Hamlet, 13-25 people.

Tm-Lt-57

Natural Setting: 2,340 m, in the lower piedmont northeast of Lake Xaltocan. Located on gently sloping terrain just west of Barranca Cerro Gordo. Shallow soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with barley, maguey, and nopal present at the time of survey, in fields equipped with drainage ditches, earth banks, and maguey banales. The site occurred on the western edge of the modern town of Temascalapa.

Archaeological Remains: Very light surface pottery over an area of about 0.7 ha. No structural remains. Mixed with generally moderate Late Aztec (Tm-Az-85) material. Tm-Lt-57 represented a small concentration of Late Toltec material on the northern part of a larger Late Aztec site.

Classification: Questionable. Probably a briefly occupied small hamlet. Population undetermined.

Tm-Lt-58

Natural Setting: 2,340 m, in the lower piedmont north of Cerro Paula. Located on gently to moderately sloping ground at the base of a small hill. Shallow soil cover with patches of exposed tepetate. Extensive erosion.

Modern Utilization: Predominantly grazing. Rainfall cultivation also occurred, with maguey present at the time of survey.

Archaeological Remains: Light surface pottery over an area of about 1.8 ha. No structural remains. Mixed with very light-to-light Late Aztec (Tm-Az-71) material. Tm-Lt-58 represented a small concentration of Late Toltec remains in the northeastern corner of a larger Late Aztec site.

Classification: Small hamlet, 9-18 people.

Tm-Lt-59

Natural Setting: 2,385 m, in the middle piedmont northeast of Lake Xaltocan. Located on gently sloping ground between Cerro Paula to the south and a small hill to the north. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Grazing.

Archaeological Remains: Light surface pottery over an area of about 0.3 ha. No structural remains.

Classification: Small hamlet, 2-3 people.

Tm-Lt-60

Natural Setting: 2,385 m, in the middle piedmont on the northern flank of Cerro Paula. Located on gently to moderately sloping ground at the base of a small hill being quarried for tezontle. Very shallow soil cover, with large areas

of exposed tepetate. Generally slight erosion.

Modern Utilization: Grazing.

Archaeological Remains: Light-to-moderate surface pottery over two closely associated areas, covering 1.0 hectare in all. No structural remains. Mixed with moderate Late Aztec (Tm-Az-73) material. Tm-Lt-60 represented a small concentration of Late Toltec ceramics on the northern part of a larger Late Aztec site.

Classification: Hamlet, 10-25 people.

Tm-Lt-61

Natural Setting: 2,390 m, in the middle piedmont between Cerro Paula and Cerro Verde. Located on moderately sloping ground between two barrancas. Generally shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Grazing on the immediate site area. Rainfall cultivation in each of the neighboring barrancas, with earth banks and maguey bancales present for erosion control.

Archaeological Remains: Moderate surface pottery, generally light rock rubble, and a trace of obsidian blades and scrapers over an area of about 0.4 ha. The survey crew noted one mound, measuring 24.0 by 16.0 m at its base and 0.3 m in height. Several other raised areas occurred in nearby fields, but none were clearly defined or had prehispanic remains associated. Mixed with light Late Aztec (Tm-Az-76) material.

Classification: Small hamlet, 10-20 people.

Tm-Lt-62

Natural Setting: 2,365-2,385 m, in the middle piedmont between Cerro Paula and Cerro Verde. Located on gently sloping ground just above the junction where a tributary barranca joins Barranca Cerro Gordo. Springs lie approximately 100 m southeast of the site. Shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Floodwater irrigated cultivation, with both maize and barley present at the time of survey, in fields equipped with drainage ditches and maguey bancales.

Archaeological Remains: Very light-to-light surface pottery, scattered obsidian and ground stone tools, and substantial-to-heavy rock rubble over a well-defined area of 12.0 ha. No structural remains. Mixed with similarly sparse Terminal Formative (Tm-Tf-32) and Late Aztec (Tm-Az-77) and moderate Teotihuacan period (Tm-CI-24) material, the Teotihuacan period and Late Toltec occupations generally coterminous.

Classification: Hamlet, 24-60 people.

Tm-Lt-63

Natural Setting: 2,350 m, in the middle piedmont between Cerro Paula and Cerro Verde. Located on gently sloping ground 100 m east of the northern "A" branch of Barranca Cerro Gordo. Exposed basalt occurred in the bed of the barranca. Shallow soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with barley the predominant crop (though maguey and nopal also present in more shallow soil) at the time of survey, in fields equipped with drainage ditches and maguey bancales.

Archaeological Remains: Variable densities of surface pottery, ranging from light to heavy, and scattered obsidian scrapers and blades over an area of about 4.3 ha. Substantial rock rubble also occurred over about 2.0 ha. No definite structural remains, though concentrations of rubble and artifacts scattered together probably represented the remnants of an unknown number of mounds. Mixed with very light Late Aztec (Tm-Az-83) material.

Classification: Small nucleated village, 43-108 people.

Tm-Lt-64

Natural Setting: 2,355-2,370 m, in the middle piedmont between Cerro Paula and Cerro Verde on the southwestern flank of Cerro Chiconquiaco. Located on gently to moderately sloping ground on top of a dome-shaped deposit of volcanic gravel between Barranca Chiconquiaco and the northern "A" branch of Barranca Cerro Gordo. Exposed basalt occurred in the beds of the barrancas themselves. Generally shallow soil cover. Slight, localized erosion.

Modern Utilization: Marginal rainfall cultivation, with barley, maize, and beans present at the time of survey, in fields equipped with drainage ditches and maguey bancales.

Archaeological Remains: Variable light-to-moderate surface pottery over an area of about 4.0 ha, with densities becoming heavy towards lower portions of the site due to erosion. Very light scatters of obsidian blades and scrapers and assorted ground stone tools also occurred. No structural remains. Mixed with moderate-to-heavy Late Aztec (Tm-Az-82) material. Tm-Lt-64 covered the southwestern portion of a larger Late Aztec site.

Classification: Hamlet, 40-100 people.

Tm-Lt-65

Natural Setting: 2,380 m, in the middle piedmont southwest of Cerro Verde. Located on gently sloping ground 200 m north of Barranca Cerro Gordo. Generally shallow-to-medium soil cover, becoming deep in places. Slight erosion.

Modern Utilization: The northern two-thirds of the site occurred within the modern village of Teopanala, which partially obscured prehispanic site boundaries. At the time

of survey houselots containing prehispanic remains were used for pasture and rainfall irrigated cultivation of maguey, nopal, and maize; maguey banales provided erosion control in several of the agricultural fields. The remainder of the site was located in deeper soil towards Barranca Cerro Gordo and contained irrigated fields of maize and barley at the time of survey.

Archaeological Remains: Light surface pottery over an area of about 10.0 ha. Very light obsidian artifacts and substantial rock rubble also occurred. The survey crew recorded 14 mounds with Late Toltec material associated (see Table 5.13, Figure 5.19). Terraces immediately above the site and the irrigation system along the barranca both likely dated to the Late Toltec occupation. Mixed with moderate Teotihuacan period (Tm-CI-23) and light Late Aztec (Tm-Az-81) material.

Classification: Small dispersed village, 75-150 people. This site was heavily disturbed by the time of survey, primarily by the construction of the modern village, making any more detailed assessment of the archaeological remains impossible.

Tm-Lt-66

Natural Setting: 2,390 m, in the middle piedmont west of Cerro Verde. Located on moderately sloping ground on the northeastern flank of Cerro Chiconquiaco. Shallow soil cover. No erosion, though deep washes occurred immediately north and south of the site.

Modern Utilization: Rainfall cultivation, with maguey present at the time of survey, in fields equipped with maguey banales.

Archaeological Remains: Light-to-moderate concentrations of surface pottery in two areas, covering a total of 1.0 ha. Scattered obsidian blades also occurred. The survey crew noted one mound, measuring 10.0 by 7.0 m at its base and about 0.2 m in height. Pieces of adobe were present on the mound, which appeared to date to both Late Toltec and Late Aztec occupations. Mixed with very light-to-light Late Aztec (Tm-Az-95) material.

Classification: Hamlet, 10-25 people.

Tm-Lt-67

Natural Setting: 2,390 m, in the middle piedmont northwest of Cerro Verde. Located on gently sloping ground about 100 m east of a large barranca. Shallow soil cover. Generally moderate erosion, becoming deep in the southern part of the site.

Modern Utilization: Rainfall irrigated cultivation, with both maize and beans present at the time of survey, in fields equipped with stone terraces and maguey banales.

Archaeological Remains: Light-to-moderate surface pottery, and a trace of obsidian artifacts, over an area of about 0.4 ha. No structural remains. Mixed with very light Terminal

Formative (Tm-Tf-33) and Late Aztec (Tm-Az-98) material.

Classification: Small hamlet, 4-10 people.

Tm-Lt-68

Natural Setting: 2,380 m, in the middle piedmont northwest of Cerro Verde on the southern flank of a small hill. Located on gently sloping ground about 100 m upslope from a large barranca that contained exposed basalt. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with both maguey and nopal present at the time of survey, in fields equipped with maguey banales.

Archaeological Remains: Moderate surface pottery, and substantial rock rubble, over an area of about 0.4 ha. No structural remains. Mixed with generally very light Late Aztec (Tm-Az-102) material. Tm-Lt-68 comprised a small concentration of Late Toltec material in the southeastern corner of a larger Late Aztec site.

Classification: Small hamlet, 10-20 people.

Tm-Lt-69

Natural Setting: 2,350-2,400 m, in the middle piedmont on the northeastern flank of Cerro Verde. Located on gently to moderately sloping ground. Generally medium soil cover but varying from very shallow to a depth of 1.0 m. Slight-to-moderate erosion.

Modern Utilization: Rainfall cultivation, with both barley and maize present at the time of survey. Some grazing occurred on upper portions of the site.

Archaeological Remains: Generally very light (though occasionally reaching moderate) surface pottery over an area of about 20.0 ha. The survey crew noted the remains of five mounds, each associated with rock rubble varying in density from light to heavy (see Table 5.17, Mounds 3, 4, 9, 11, and 13). Mixed with very light-to-light (though highly variable) Late Aztec (Tm-Az-105) material. Tm-Lt-69 represented a scatter of Late Toltec material near the northwestern corner of a large Late Aztec site. This site was surveyed with a 1:25,000 air photo.

Classification: Hamlet, 40-100 people, based on the pottery distribution.

Tm-Lt-70

Natural Setting: 2,410-2,450 m, in the middle piedmont on the southwestern flank of Cerro Verde. Located on moderately sloping ground. Shallow-to-medium soil cover. Generally moderate erosion, including several washes and the beginnings of two barrancas.

Modern Utilization: A mixture of grazing and marginal

rainfall cultivation, with both maize and barley planted at the time of survey.

Archaeological Remains: Light surface pottery and light-to-substantial rock rubble (becoming heavy in places) over an area of about 5.5 ha. Concentrations of rubble and artifacts probably represented the poorly preserved remains of four residential mounds and one ceremonial mound (see Table 5.15). Mixed with light-to-moderate Late Aztec (Tm-Az-103) material. Tm-Lt-70 represented a concentration of Late Toltec remains on the northern part of a larger Late Aztec site. This site was surveyed with a 1:25,000 air photo.

Classification: Hamlet, 28-55 people.

Tm-Lt-71

Natural Setting: 2,390 m, in the lower piedmont west of Cerro Coayucán. Located on gently sloping ground at the base of a small hill. Shallow soil cover. Extensive erosion.

Modern Utilization: Rainfall cultivation, with maize, barley, and habas all present at the time of survey, in fields equipped with maguey banales.

Archaeological Remains: Very light surface pottery, and light rock rubble, over an area of about 2.0 ha. No structural remains. Mixed with light Late Aztec (Tm-Az-113) and an unrecorded amount of Early Aztec (Tm-Ea-5) material. Tm-Lt-71 represented a small concentration of Late Toltec remains near the center of a larger Late Aztec site.

Classification: Questionable. Probably a briefly occupied small hamlet. Population undetermined.

Tm-Lt-72

Natural Setting: 2,365-2,380 m, in the lower piedmont west of Cerro Coayucán. Located on moderately sloping ground on the northeastern flank of a small hill. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Mostly rainfall cultivation, with maize, barley, and oats all present at the time of survey. Part of the site area also was used for grazing.

Archaeological Remains: Light surface pottery, coupled with light-to-substantial rock rubble, over an area of about 4.5 ha. The survey crew noted the presence of three mounds. One mound, measuring 4.0 by 4.0 m at its base and 0.5 m in height at the time of survey, dated solely to the Late Toltec occupation. The remaining two, both measuring 8.0 by 6.0 m at their base and 0.8 m in height, featured Late Toltec and Late Aztec material. Mixed with generally very light-to-light Late Aztec (Tm-Az-114) and an unrecorded amount of Early Aztec (Tm-Ea-6) material. Tm-Lt-72 represented a scatter of Late Toltec remains in the northern portion of a larger Late Aztec site.

Classification: Hamlet, 23-45 people.

Tm-Lt-73

Natural Setting: 2,390 m, in the lower piedmont on the southwestern flank of Cerro Coayucán. Located on moderately sloping ground in an area cut by several washes. Shallow soil cover. Generally moderate erosion, becoming heavy in places.

Modern Utilization: Rainfall cultivation, with maguey predominating at the time of survey. The site occurred within a modern houselot.

Archaeological Remains: Light surface pottery over an area of about 0.5 ha. No structural remains. Mixed with slightly lighter Terminal Formative (Tm-Tf-39), light-to-moderate Teotihuacan period (Tm-CI-40), and light Late Aztec (Tm-Az-119) material. The Late Toltec, Teotihuacan period, and Terminal Formative remains covered a small area on the northwestern edge of a larger Late Aztec site.

Classification: Small hamlet, 3-5 people.

Tm-Lt-74

Natural Setting: 2,390 m, in the lower piedmont on the northern flank of Cerro Coayucán. Located on moderately sloping ground. Generally shallow soil cover, with some exposed tepetate. Extensive erosion.

Modern Utilization: Grazing. Site occurred within a houselot in the modern village of San Antonio Coayucán.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 0.1 ha. No structural remains. Mixed with generally light Late Aztec (Tm-Az-120) material. Tm-Lt-74 represented a small concentration of Late Toltec remains on the eastern end of a larger, elongated Late Aztec site.

Classification: Small hamlet, 1-3 people.

Tm-Lt-75

Natural Setting: 2,340-2,350 m, in the thin soil alluvium southwest of Cerro los Pitos. Located on gently sloping ground on the southern flank of Cerro Tlexta. Shallow-to-medium soil cover, including tezontle gravel. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, predominantly of maize and maguey at the time of survey, in fields equipped with maguey banales.

Archaeological Remains: Light surface pottery, light rock rubble, and scattered obsidian and basalt artifacts over an area of about 2.0 ha. No structural remains. Mixed with very light Late Aztec (Tm-Az-123) material.

Classification: Small hamlet, 10-20 people.

Tm-Lt-76

Natural Setting: 2,335-2,350 m, in the thin soil alluvium southwest of Cerro los Pitos. Located on flat ground that extended to a gentle, then medium, slope on the western flank of Cerro Tlexta. Generally shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with maize predominating at the time of survey, in fields equipped with stone terraces and maguey banales. Barley, haba, and maguey also were present, with some fields lying fallow. The site occurred within houselots of the modern village of Tlexta. A modern road, running northwest-southeast, crossed the site.

Archaeological Remains: Variable, localized surface pottery, ranging from light to heavy in density, over an area of about 9.0 ha. Ground stone tools, figurine fragments, very light-to-light obsidian tools, and substantial-to-heavy rock rubble also occurred. Concentrations of artifacts and rubble probably represented the remains of 18 poorly preserved mounds—all disturbed to the point that no measurements were recorded. The site had been heavily looted by the time of survey; in addition to artifact scatters, the survey crew noted two human crania and several bones exposed by looters on the eastern part of the site. Mixed with predominantly light Late Aztec (Tm-Az-124) material on the mound concentrations and generally throughout the site.

Classification: Small nucleated village, 90-180 people.

Tm-Lt-77

Natural Setting: 2,370-2,380 m, in the thin soil alluvium south of Cerro los Pitos. Located on gently to moderately sloping ground at the base of an andesite rock outcrop. Shallow soil cover. Generally moderate erosion.

Modern Utilization: Rainfall cultivation, predominantly of maguey at the time of survey, in fields equipped with stone terraces and maguey banales.

Archaeological Remains: Moderate surface pottery, and a few obsidian blades, over an area of about 0.4 ha. No definite structural remains, although associated stone terraces possibly dated to the Late Toltec (or Late Aztec) occupation. Mixed with similarly dense Late Aztec (Tm-Az-141) material.

Classification: Small hamlet, 10-20 people.

Early Aztec (Aztec II Phase) Occupations (Figure 5.9)**Tm-Ea-1**

Natural Setting: 2,255 m, in the thin soil alluvium just above the southeastern shore of Lake Xaltocan. Located on flat ground. Shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with the predominant crop maize at the time of survey.

Archaeological Remains: An unknown density of surface pottery, identified in the laboratory as Early Aztec, over an unknown area. No structural remains. Mixed with very light-to-light Terminal Formative (Tm-Tf-3), moderate Teotihuacan period (Tm-Cl-1), very light Early Toltec (Tm-Et-3), and light Late Aztec (Tm-Az-9) material. This site was surveyed with a 1:25,000 air photo.

Classification: An Early Aztec site of unknown size and function.

Tm-Ea-2

Natural Setting: 2,250 m, in the thin soil alluvium just above the southeastern shore of Lake Xaltocan. Located on a flat outcrop of vesicular basalt. Shallow soil cover. Extensive erosion.

Modern Utilization: Grazing.

Archaeological Remains: An unknown density of surface pottery, identified in the laboratory as Early Aztec, over an unknown area. No structural remains were visible, although the amount of rubble present suggested that some form of architecture existed previously. Mixed with very light-to-light Teotihuacan period (Tm-Cl-2) and Late Toltec (Tm-Lt-10) and light-to-moderate Late Aztec (Tm-Az-11) material. This site was surveyed with a 1:25,000 air photo.

Classification: An Early Aztec site of unknown size and function.

Tm-Ea-3

Natural Setting: 2,260 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground. Generally shallow soil cover. Slight, localized erosion.

Modern Utilization: Mainly grazing, with some rainfall cultivation of maguey at the time of survey. The site overlooked a major modern agricultural area, and Highway 85 passed immediately to the west.

Archaeological Remains: An unknown density of surface pottery, identified in the laboratory as Early Aztec, over an unknown area. No structural remains. Mixed with very light Terminal Formative (Tm-Tf-28), Early Toltec (Tm-Et-14), and Late Aztec (Tm-Az-31) and light Late Toltec (Tm-Lt-31) material.

Classification: An Early Aztec site of unknown size and function.

Tm-Ea-4

Natural Setting: 2,260 m, in the thin soil alluvium and lower piedmont north of Lake Xaltocan. Located on gently sloping

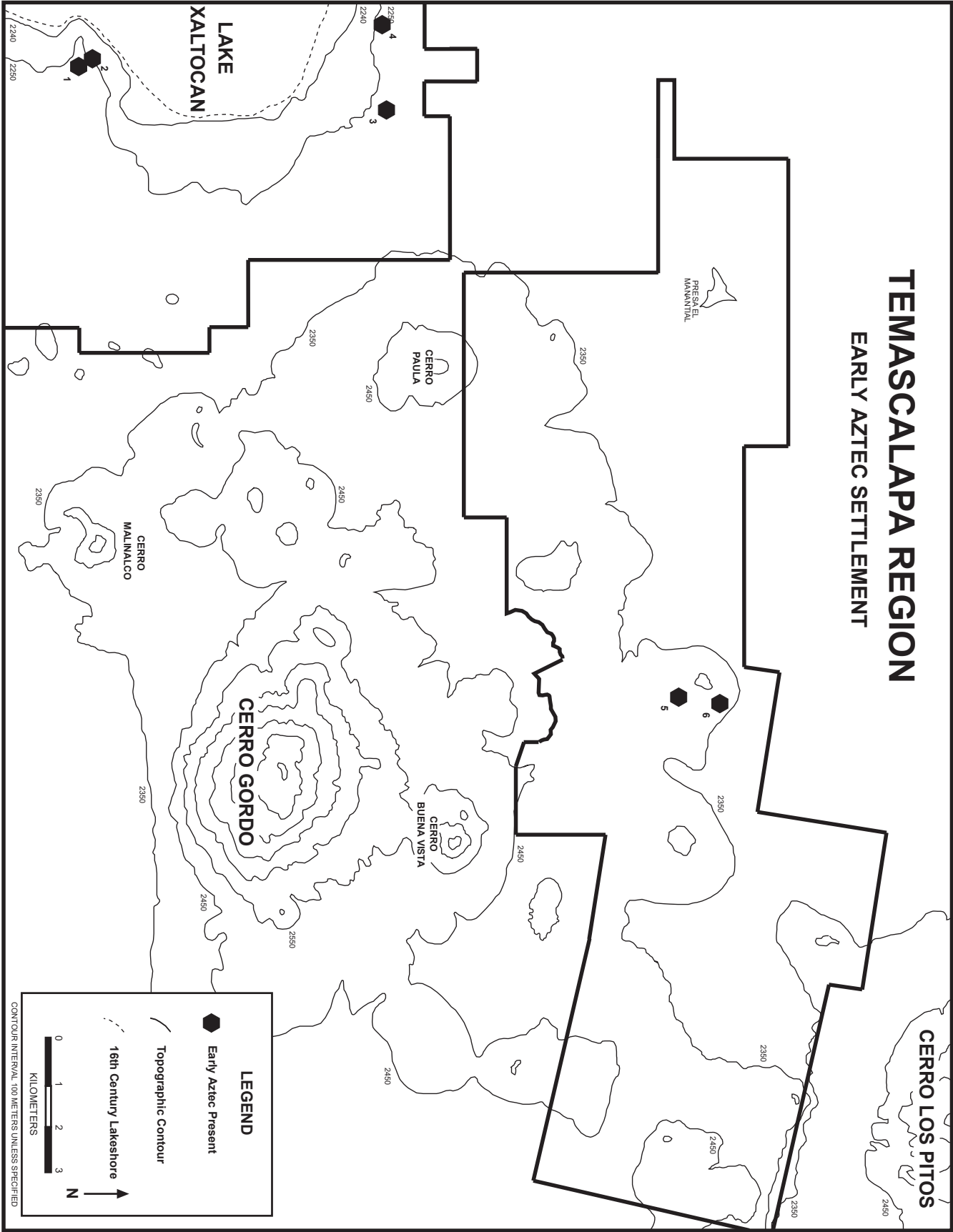


Figure 5.9. Early Aztec Settlement in the Temascalapa Region

ground composed of soil and tepetate gravel. Medium soil cover. Little or no erosion.

Modern Utilization: Rainfall cultivation, the site area lying fallow at the time of survey, in fields equipped with maguey banales. The site occurred within a houseplot on the northern edge of the modern settlement of San Lucas Xolox.

Archaeological Remains: An unknown density of surface pottery, identified in the laboratory as Early Aztec, over an unknown area. No structural remains. Mixed with very light Terminal Formative (Tm-Tf-24), light Teotihuacan period (Tm-CI-17), light-to-moderate Late Toltec (Tm-Lt-32), and very light-to-light Late Aztec (Tm-Az-34) material.

Classification: An Early Aztec site of unknown size and function.

Tm-Ea-5

Natural Setting: 2,390 m, in the lower piedmont west of Cerro Coayucán. Located on gently sloping ground at the base of a small hill. Shallow soil cover. Extensive erosion.

Modern Utilization: Rainfall cultivation, with maize, barley, and habas all present at the time of survey, in fields equipped with maguey banales.

Archaeological Remains: An unknown density of surface pottery, identified in the laboratory as Early Aztec, over an unknown area. No structural remains. Mixed with very light Late Toltec (Tm-Lt-71) and light Late Aztec (Tm-Az-113) material.

Classification: An Early Aztec site of unknown size and function.

Tm-Ea-6

Natural Setting: 2,365-2,380 m, in the lower piedmont west of Cerro Coayucán. Located on moderately sloping ground on the northeastern flank of a small hill. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Mostly rainfall cultivation, with maize, barley, and oats all present at the time of survey. Part of the site area also was used for grazing.

Archaeological Remains: An unknown density of surface pottery, identified in the laboratory as Early Aztec, over an unknown area. No structural remains. Mixed with light Late Toltec (Tm-Lt-72) and generally very light-to-light Late Aztec (Tm-Az-114) material.

Classification: An Early Aztec site of unknown size and function.

Late Aztec (Aztec III and IV Phase) Occupations (Figure 5.10)

Tm-Az-1

Natural Setting: 2,300-2,340 m, in the lower piedmont east of Lake Xaltocan. Located on gently sloping ground. Generally shallow soil cover, becoming shallow to medium along the agricultural plain. Slight erosion.

Modern Utilization: Rainfall cultivation. Nopal was present during survey, though most of the site was covered with sod.

Archaeological Remains: Variably very light to moderate surface pottery (Aztec III and IV), and scattered obsidian artifacts, over an area of about 10.0 ha. Slight rises and associated artifact concentrations probably represented the poorly preserved remains of as many as 12 residential mounds, though due to heavy disturbance from plowing and looting no measurements were recorded. Two rises, reaching 1.5-2.0 m in height on the southern part of the site, possibly represented the remnants of ceremonial pyramids. The remains of stone terraces along the hill slope likely dated to the Late Aztec occupation as well. This site was surveyed with a 1:25,000 air photo.

Classification: Small dispersed village, 60-250 people.

Tm-Az-2

Natural Setting: 2,275 m, in the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground. Generally medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with maize, oats, beans, and barley present at the time of survey.

Archeological Remains: Light-to-moderate surface pottery, and very light obsidian and ground stone tools, over an area of about 2.0 ha. No structural remains. Mixed with generally light Late Toltec (Tm-Lt-14) material.

Classification: Hamlet, 20-50 people.

Tm-Az-3

Natural Setting: 2,280-2,315 m, in the thin soil alluvium and lower piedmont east of Lake Xaltocan. Located on flat to gently sloping ground at the western flank of a small hill. Shallow-to-medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with dense maize, barley, and oats present at the time of survey, in fields equipped with earth banks. The site occurred among houseplots in the northwestern part of the modern village of Zacualuca, extending west of the settlement up the side of a hill. The southwestern edge of the site was defined by a modern road.

Archaeological Remains: Generally light surface pottery, with some moderate concentrations, over an area of about 15.0 ha.

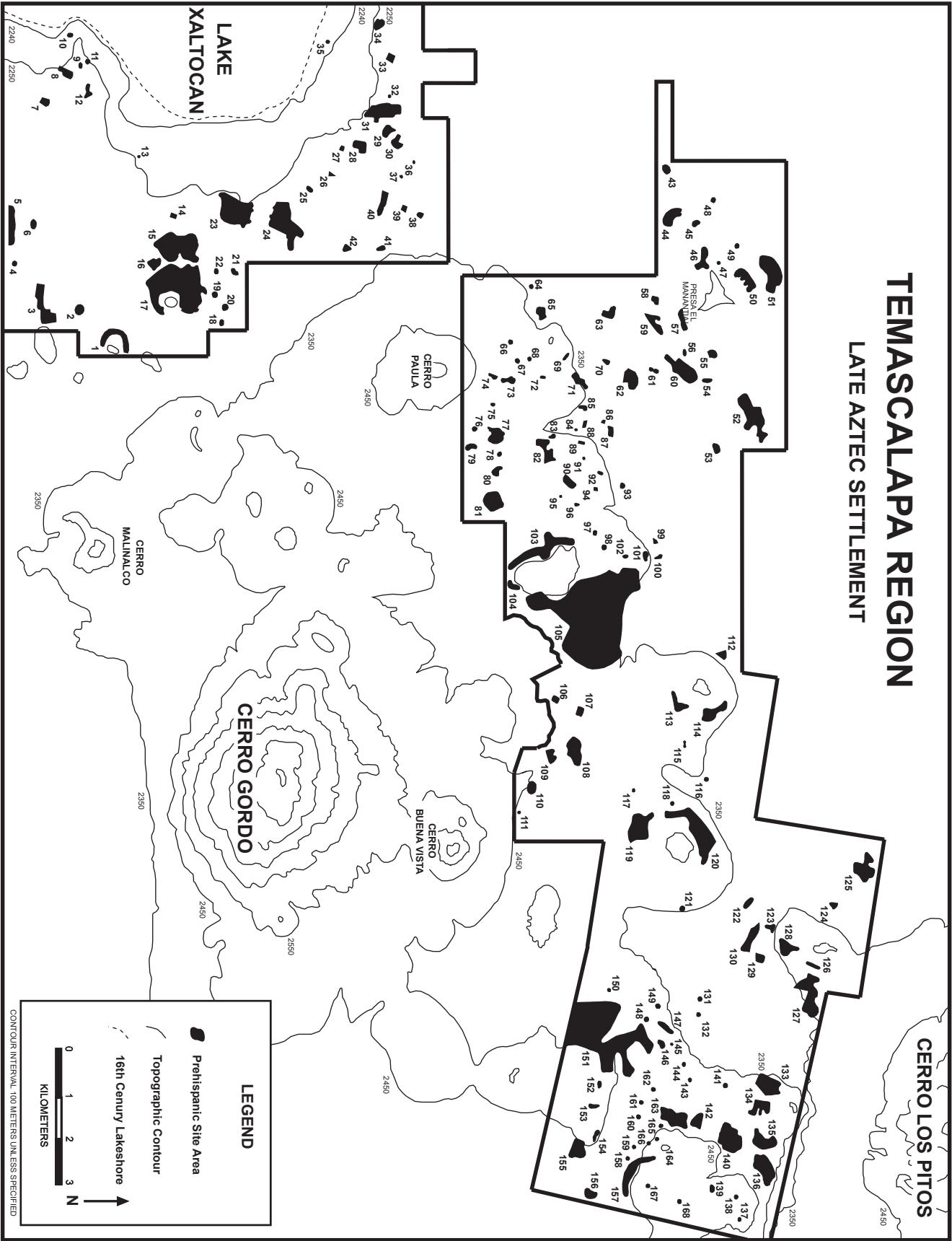


Figure 5.10. Late Aztec Settlement in the Temascalapa Region

Generally substantial rock rubble, becoming heavy in places, and very light obsidian artifacts also occurred. Concentrations of rubble and artifacts on slight rises probably defined the remains of 15 poorly preserved residential mounds; due to their condition, dimensions were not recorded. Additional, less clearly defined concentrations of rock rubble likely represented the remnants of other residential mounds.

Classification: Small dispersed village, 75-150 people.

Tm-Az-4

Natural Setting: 2,280 m, in the thin soil alluvium southeast of Lake Xaltocan. Located on flat ground. Shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with maize and barley present at the time of survey, in fields equipped with maguey banales. Part of the site was used for grazing as well.

Archaeological Remains: Light surface pottery over an area of about 1.0 ha. No structural remains. Mixed with Late Toltec (Tm-Lt-1) material of approximately equal density.

Classification: Small hamlet, 5-10 people.

Tm-Az-5

Natural Setting: 2,285 m, in the thin soil alluvium southeast of Lake Xaltocan. Located on gently sloping ground featuring numerous small washes. Shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with maize present at the time of survey, in fields equipped with maguey banales.

Archaeological Remains: Generally light surface pottery, becoming moderate in a few places, and very light obsidian artifacts over an area of about 7.0 ha. No structural remains. Mixed with similarly dense Late Toltec (Tm-Lt-2) material.

Classification: Small dispersed village, 55-110 people.

Tm-Az-6

Natural Setting: 2,270 m, in the thin soil alluvium southeast of Lake Xaltocan. Located on generally flat ground. Medium soil cover. No erosion.

Modern Utilization: Mixed rainfall and rainfall-irrigated cultivation, with maize and beans present at the time of survey.

Archaeological Remains: Very light surface pottery and obsidian artifacts over an area of about 1.5 ha. No structural remains. Mixed with light Late Toltec (Tm-Lt-3) material.

Classification: Questionable. Probably a briefly occupied small hamlet. Population undetermined.

Tm-Az-7

Natural Setting: 2,275 m, in the thin soil alluvium southeast of Lake Xaltocan. Located on flat ground. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with both maize and maguey present at the time of survey.

Archaeological Remains: Very light-to-light surface pottery over an area of about 2.0 ha. No structural remains. Mixed with similarly sparse Late Toltec (Tm-Lt-7) material.

Classification: Small hamlet, 4-10 people.

Tm-Az-8

Natural Setting: 2,250-2,265 m, in the thin soil alluvium southeast of Lake Xaltocan. Located on flat ground. Shallow soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with both maize and barley present at the time of survey, in fields equipped with maguey banales.

Archaeological Remains: Very light-to-light surface pottery over an area of about 4.0 ha. The remains of five mounds were noted (Figure 5.11; Table 5.5). Mixed with similarly sparse Late Toltec (Tm-Lt-8) material.

Classification: Hamlet, 15-30 people.

Tm-Az-9

Natural Setting: 2,255 m, in the thin soil alluvium just above the southeastern shore of Lake Xaltocan. Located on flat ground. Shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with maize the predominant crop at the time of survey.

Archaeological Remains: Light surface pottery, and generally light-to-substantial rock rubble, over an area of about 2.2 ha. No structural remains. Mixed with very light-to-light Terminal Formative (Tm-Tf-3), very light Early Toltec (Tm-Et-3), moderate Teotihuacan period (Tm-CI-1), and an unrecorded amount of Early Aztec (Tm-Ea-1) material.

Classification: Hamlet, 11-22 people.

Tm-Az-10

Natural Setting: 2,245 m, in the deep soil alluvium just above the southeastern shore of Lake Xaltocan. Located on flat ground. Medium soil cover. Moderate erosion.

Modern Utilization: Rainfall cultivation.

Archaeological Remains: Very light-to-light surface

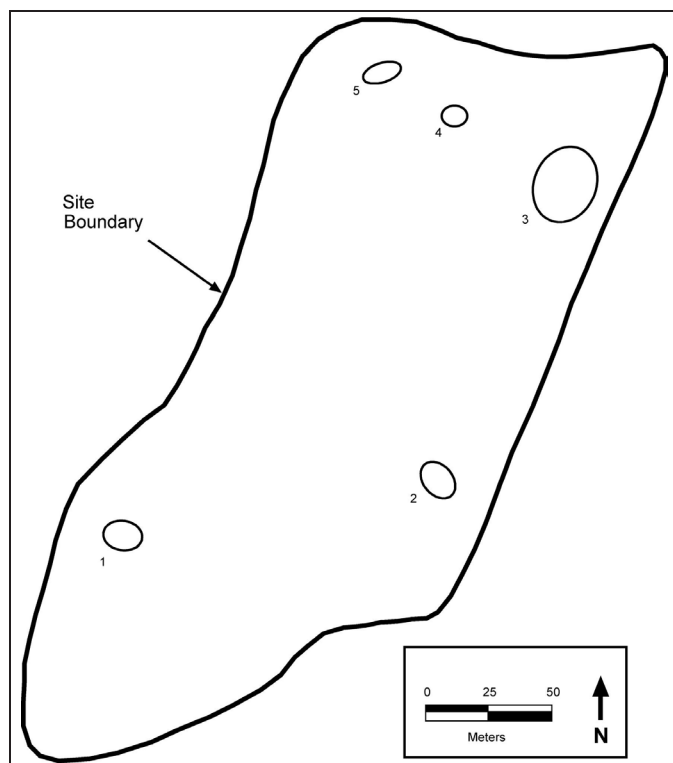


Figure 5.11. Tm-Az-8. Architectural Features

Table 5.5. Tm-Az-8 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	14 x 12	1.0	Light	Light	Probably residential; Aztec III
Mound 2	15 x 12	1.5	Very light	None	Ceremonial; Aztec III
Mound 3	30 x 25	1.5	Very light-light	Light	Probably ceremonial; Aztec III
Mound 4	10 x 9	1.0	Very light	None	Probably residential; Aztec III; heavily disturbed
Mound 5	16 x 8	1.0	Light	Light	Probably residential

pottery over an area of about 20.0 ha. No structural remains. This site was surveyed with a 1:25,000 air photo.

Classification: Hamlet, 40-100 people.

Tm-Az-11

Natural Setting: 2,250 m, in the thin soil alluvium just above the southeastern shore of Lake Xaltocan. Located on a flat outcrop of vesicular basalt. Shallow soil cover. Extensive erosion.

Modern Utilization: Grazing.

Archaeological Remains: Variable surface pottery, ranging in density from light to moderate, over an area of about 1.5 ha. No structural remains visible, although generally substantial rock rubble throughout the site suggested that some form of architecture existed previously. Mixed with very light-to-light Teotihuacan period (Tm-CI-2) and Late Toltec (Tm-Lt-10) and an unrecorded amount of Early Aztec (Tm-Ea-2) material. This site was surveyed with a 1:25,000 air photo.

Classification: Hamlet, 15-38 people.

Tm-Az-12

Natural Setting: 2,265 m, in the thin soil alluvium just above the southeastern shore of Lake Xaltocan. Located on flat-to-gently sloping ground. Shallow soil cover. Variable erosion, ranging from virtually none to moderate.

Modern Utilization: Rainfall cultivation, with both maize and maguey present at the time of survey, in fields equipped with earth banks and maguey banales.

Archaeological Remains: Very light-to-light surface pottery, and variable densities of rock rubble (generally sparse but becoming substantial in places), over an area of about 4.0 ha. The survey crew noted seven mounds, forming a southeastern group of four and a northwestern group of three (Figure 5.12), their basic characteristics presented in Table 5.6. Mixed with very light Terminal Formative (Tm-Tf-4) and light Late Toltec (Tm-Lt-9) material.

Classification: Hamlet, 30-60 people.

Tm-Az-13

Natural Setting: 2,250 m, in the deep soil alluvium east of Lake Xaltocan. Located on gently sloping ground on a small

basalt knoll. Shallow-to-medium soil cover. Virtually no erosion.

Modern Utilization: The site occurred within scattered houselots of Tlazintla, a colonia of Santa Cruz Tecamac. Some rainfall cultivation occurred at the time of survey.

Archaeological Remains: Very light-to-light surface pottery over an area of about 1.0 ha. One slight elevation on the knoll possibly represented the poorly preserved remains of a residential mound or platform, though due to its condition no measurements were recorded. This site was surveyed with a 1:25,000 air photo.

Classification: Small hamlet, 5-10 people. This site possibly extended further south into the colonia, an area that was not surveyed.

Tm-Az-14

Natural Setting: 2,255 m, in the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground. Medium soil cover. Virtually no erosion.

Modern Utilization: Rainfall cultivation, with maize and

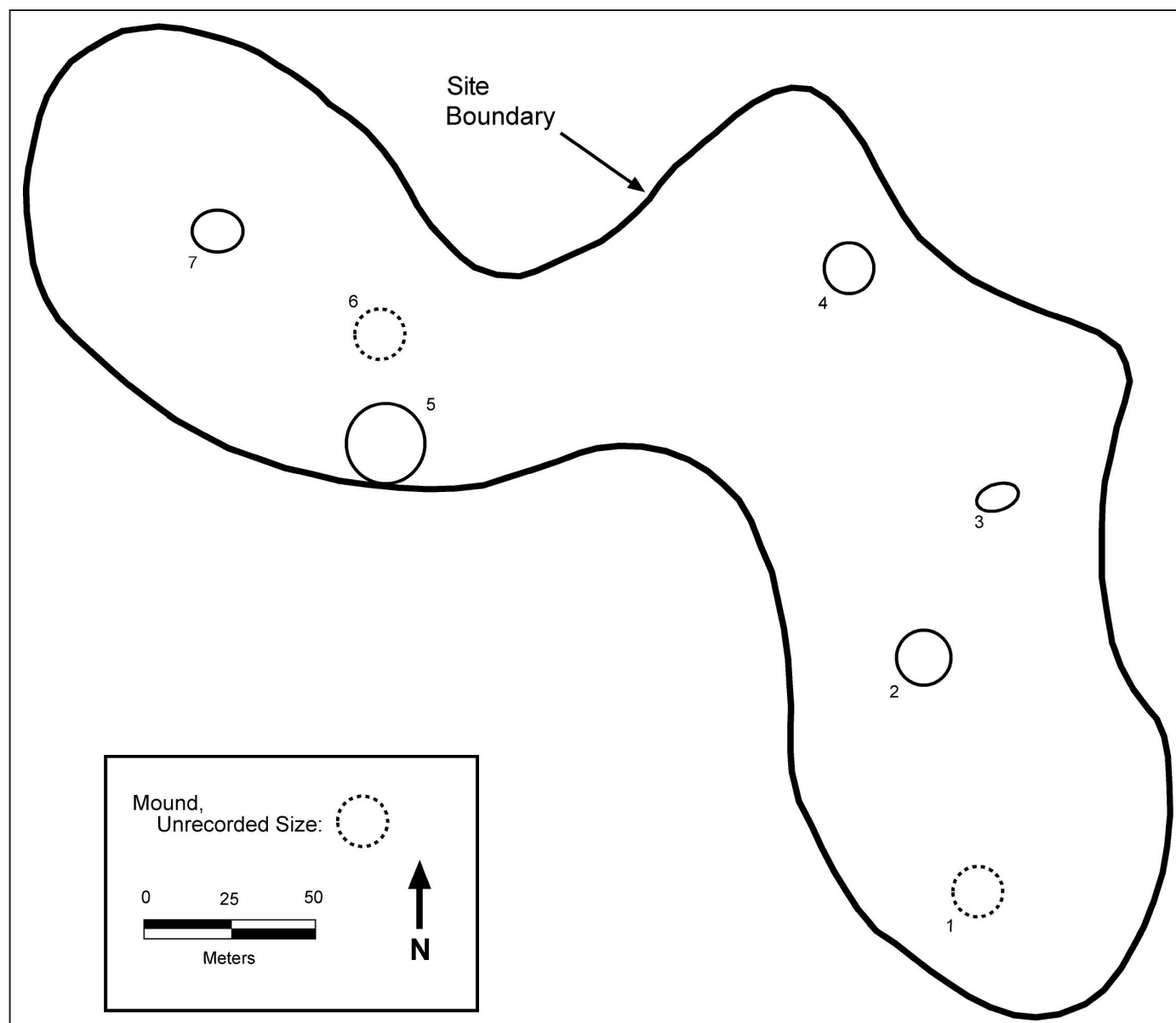


Figure 5.12. Tm-Az-12 Architectural Features

Table 5.6. Tm-Az-12 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	NR	NR	Light	None	Residential; very heavily disturbed
Mound 2	20 x 20	1.5	Light	None	Probably ceremonial
Mound 3	12 x 10	1.0	Light	None	Residential
Mound 4	15 x 15	1.0	Light	None	Residential
Mound 5	25 x 25	1.0	Light	Heavy	Residential
Mound 6	NR	NR	Light	Heavy	Residential; very heavily disturbed
Mound 7	14 x 12	0.9	Light	None	Residential

Note: NR means “not recorded.”

barley present at the time of survey, in fields equipped with earth banks and maguey banales.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 3.0 ha. The survey crew identified remains of eight residential mounds. The four best-preserved mounds were all quite similar to one another, measuring about 15.0 m in diameter and 0.5 m in height; the remaining four

were so poorly preserved that no measurements were possible.

Classification: Hamlet, 40-80 people.

Tm-Az-15

Natural Setting: 2,260-2,280 m, in the thin soil alluvium east of Lake Xaltocan. Located on generally flat ground. Shallow-

to-medium soil cover. Erosion ranges from none to slight (localized).

Modern Utilization: Rainfall cultivation, with barley and maize present at the time of survey.

Archaeological Remains: Variably light-to-moderate surface pottery over an area of about 33.0 ha. The survey crew noted remains of six residential mounds and two ceremonial mounds (Figure 5.13, Figure 5.14), as described in Table 5.7. Mixed with similarly dense Early Toltec (Tm-Et-10) and light Terminal Formative (Tm-Tf-7, Tm-Tf-11, Tm-Tf-12, and Tm-Tf-13) and Late Toltec (Tm-Lt-17) material.

Classification: Large nucleated village, 330-825 people.

Tm-Az-16

Natural Setting: 2,275 m, in the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground at the base of the western flank of Cerro Colorado. Shallow-to-medium soil cover. Generally slight erosion, with no erosion in some areas.

Modern Utilization: Rainfall cultivation, predominantly of barley at the time of survey. Modern agricultural activity had heavily disturbed the site by 1975.

Archaeological Remains: Light surface pottery over an area of about 6.0 ha. No structural remains. Mixed with similarly dense Terminal Formative (Tm-Tf-15) and light-to-moderate Early Toltec (Tm-Et-9) material.

Classification: Hamlet, 30-60 people.

Tm-Az-17

Natural Setting: 2,280-2,330 m, in the thin soil alluvium and lower piedmont east of Lake Xaltocan. Located on gently to moderately sloping ground on the northern, western, and southern flanks of Cerro Colorado. One major barranca lies immediately to the north, with another cutting through the site itself. Shallow-to-medium soil cover. Generally moderate erosion, though slight in places and becoming extensive in upper portions of the site.

Modern Utilization: Grazing occurred on the upper, most heavily eroded portion of the site. Rainfall cultivation occurred on the lower parts of the site, with barley, maize, and maguey present at the time of survey, in fields equipped with drainage ditches and maguey banales. Several roads cut across the site.

Archaeological Remains: Very light-to-light surface pottery, coupled with concentrations of rock rubble (ranging from light to substantial in density) and a few obsidian artifacts, over an area of about 75.0 ha. A total of 14 mounds were noted (Figure 5.15), as described in Table 5.8. Concentrations of artifacts suggested the presence of at least 12 additional, poorly preserved residential mounds, though no measurements

were possible due to their poor preservation. Mixed with similarly sparse Late Toltec (Tm-Lt-18) and light-to-moderate Early Toltec (Tm-Et-11) remains scattered over the same area. Also present over smaller areas were light Terminal Formative (Tm-Tf-19 and Tm-Tf-20), light-to-moderate Terminal Formative (Tm-Tf-16 and Tm-Tf-17), and very light Teotihuacan period (Tm-CI-7) material.

Classification: Small dispersed village, 150-375 people. This site apparently represented a typical dispersed, rural Late Aztec village which overlies a much more substantial Early Toltec site.

Tm-Az-18

Natural Setting: 2,280 m, in the lower piedmont east of Lake Xaltocan. Located on moderately sloping ground immediately north of the junction between Barranca el Muerto and another large barranca. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Grazing. Some limited rainfall cultivation also occurred.

Archaeological Remains: Generally light surface pottery, becoming moderate in places, over an area of about 1.0 ha. No structural remains. Mixed with light Late Toltec (Tm-Lt-20) material.

Classification: Small hamlet, 5-10 people.

Tm-Az-19

Natural Setting: 2,275 m, in the lower piedmont near where it joins the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground on the eastern edge of a large barranca. Shallow-to-medium soil cover. Severe erosion.

Modern Utilization: Rainfall cultivation.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 0.5 ha. No structural remains. Mixed with similarly dense Late Toltec (Tm-Lt-21) material.

Classification: Small hamlet, 5-13 people.

Tm-Az-20

Natural Setting: 2,290 m, in the lower piedmont east of Lake Xaltocan. Located on gently sloping ground, a small barranca that runs east-west bisecting the site. Shallow soil cover. Generally moderate erosion, becoming severe near the barranca.

Modern Utilization: Grazing.

Archaeological Remains: Very light-to-light surface pottery over an area of about 2.0 ha. No structural remains.

Classification: Small hamlet, 4-10 people.

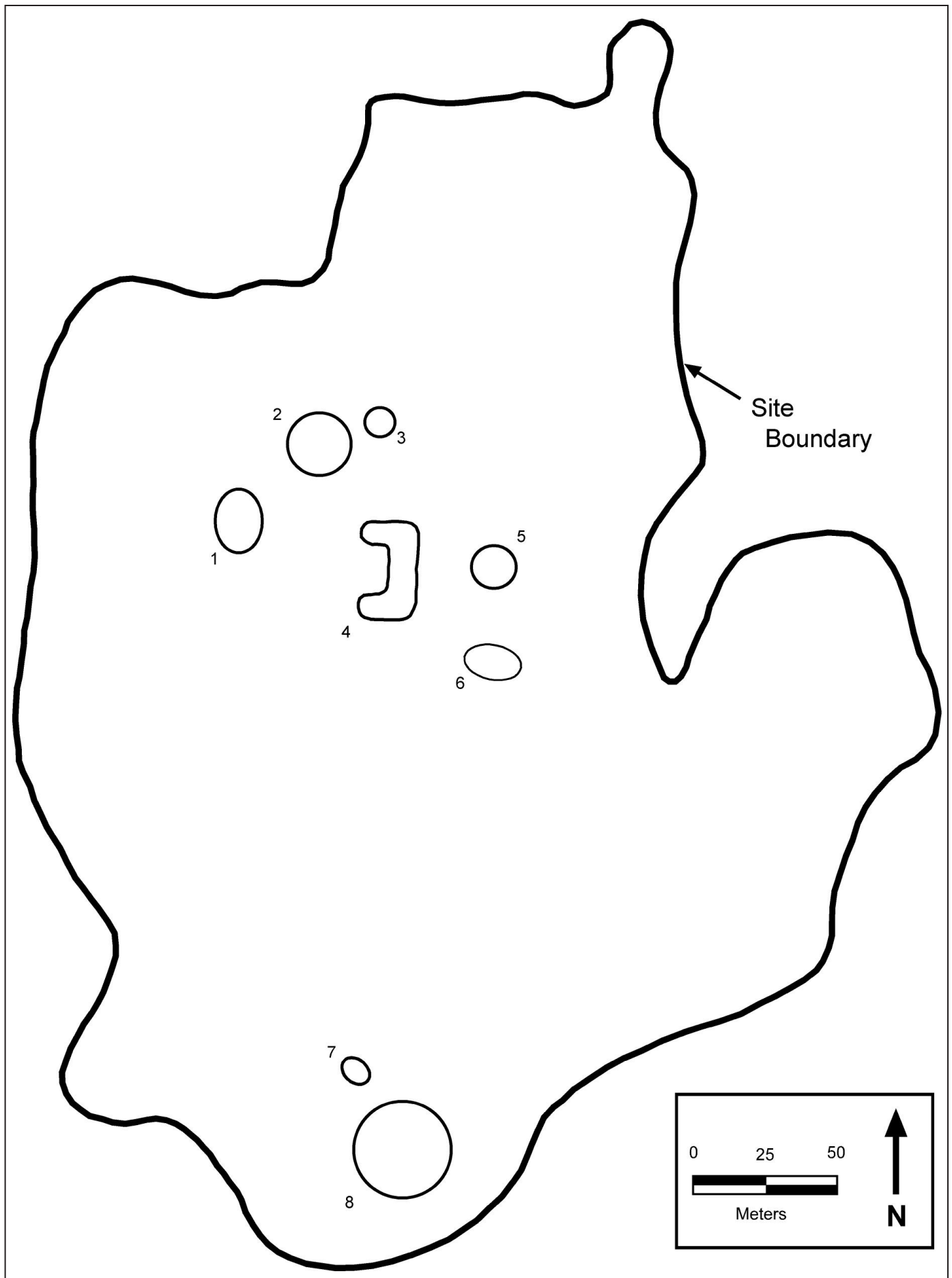


Figure 5.13. Tm-Az-15 Architectural Features

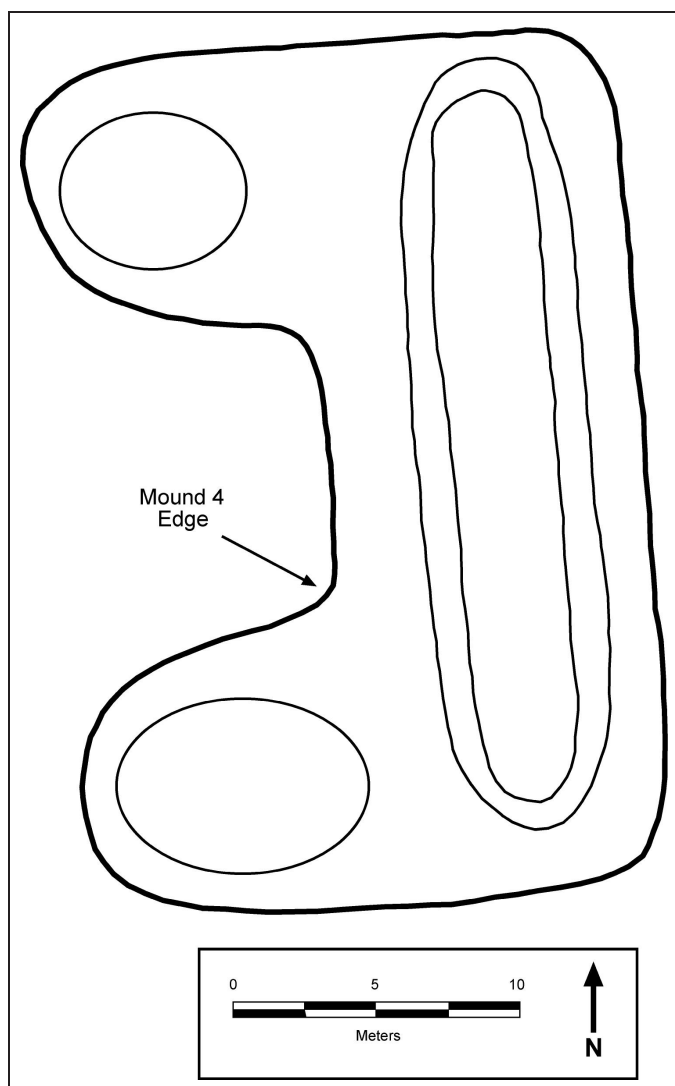


Figure 5.14. Mound 4 Architectural Details, Tm-Az-15

Tm-Az-21

Natural Setting: 2,275 m, in the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey. Part of the site also used for grazing. A

modern road, running east-west, bisected the site.

Archaeological Remains: Very light-to-light surface pottery over an area of about 2.7 ha. A concentration of artifacts possibly represented the poorly preserved remains of a single residential mound in the southeastern portion of the site. One ancient canal, of unknown date, cut through the site. Mixed with similarly dense Late Toltec (Tm-Lt-23) material.

Classification: Small hamlet, 5-14 people.

Tm-Az-22

Natural Setting: 2,275 m, in the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground on the northern bank of Barranca el Muerto. Shallow soil cover. Moderate-to-severe erosion, becoming heavier near the barranca.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 0.5 ha. A concentration of artifacts possibly represented the remnants of a single residential mound. Mixed with light Late Toltec (Tm-Lt-22) material.

Classification: Small hamlet, 5-13 people.

Tm-Az-23

Natural Setting: 2,250-2,270 m, in the thin soil alluvium east of Lake Xaltocan. Located on gently sloping ground between two large barrancas. Shallow-to-medium soil cover. Generally slight erosion, but with some areas showing no erosion and other areas eroded down to bedrock.

Modern Utilization: Rainfall cultivation, with maize, maguey, and barley present at the time of survey, in fields equipped with a few maguey and nopal bancales. The site occurred in the modern village of San Jerónimo Xonacahuacan.

Archaeological Remains: Generally light surface pottery over an area of about 16.0 ha. No structural remains. Mixed

Table 5.7. Tm-Az-15 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	22 x 15	1.5	Light	None	Ceremonial; Aztec III and IV
Mound 2	20 x 20	1.0	Light	None	Probably residential; Aztec III and IV; wall fragments also present
Mound 3	7 x 7	0.4	Light	None	Residential; Aztec III and IV; poorly preserved
Mound 4	32 x 20	0.5	Light	None	Residential; U-shaped structure which possibly represented the poorly preserved remains of a single house compound
Mound 5	15 x 15	0.5	Light	None	Residential
Mound 6	20 x 10	0.3	Very light	None	Residential; Aztec III
Mound 7	12 x 7	0.5	Light	None	Residential
Mound 8	35 x 35	2.0	Light	None	Ceremonial; a second structure possibly was built on this mound, but little of it remained

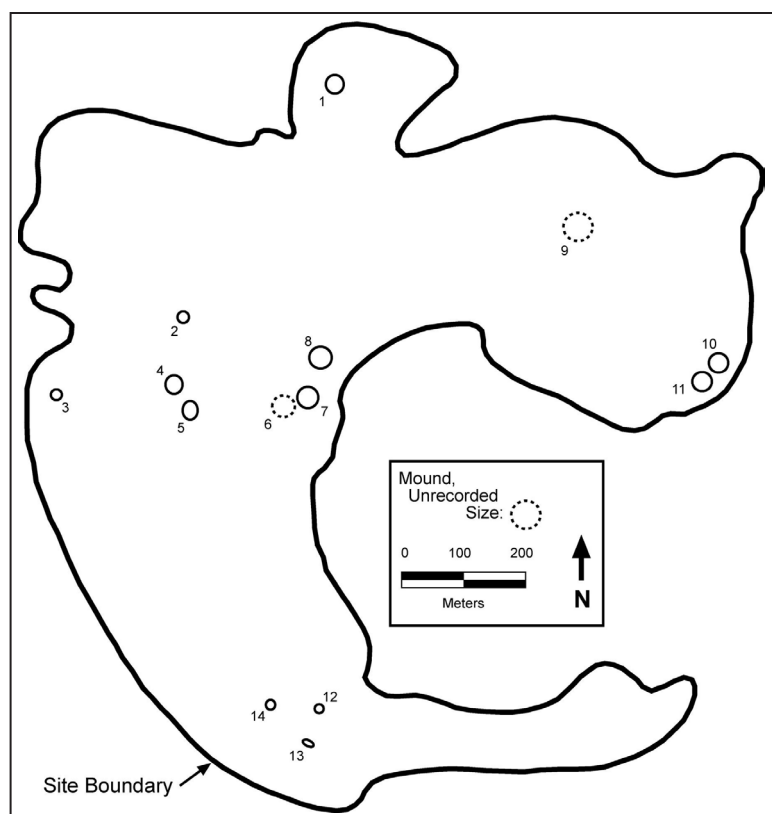


Figure 5.15. Tm-Az-17 Architectural Features

mainly with moderate-to-heavy Teotihuacan period (Tm-CI-9) material; also present, over smaller areas, were light Terminal Formative (Tm-Tf-10) and Late Toltec (Tm-Lt-25) and light-to-moderate Late Toltec (Tm-Lt-24) material.

Table 5.8. Tm-Az-17 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	18 x 18	1.5	Light	Substantial	Ceremonial; heavily looted
Mound 2	12 x 12	1.0	Light	Substantial	Probably residential; also Early Toltec material
Mound 3	15 x 15	1.0	Light	Light	Probably residential; also a few Terminal Formative potsherds on edge; heavily looted
Mound 4	20 x 20	1.0	Light	Substantial	Probably residential; also Early Toltec material
Mound 5	25 x 15	1.0	Very light	Substantial	Probably residential
Mound 6	NR	NR	Light	Light	Residential; obsidian artifacts also present; very poor condition
Mound 7	30 x 30	3.0	Light	Light	Ceremonial; also some Early Toltec material; poor condition
Mound 8	30 x 30	3.0	Light	Light	Ceremonial; also Late Toltec material
Mound 9	15 x NR	3.0	Light	Substantial	Ceremonial; also Early Toltec and Late Aztec material; southern part of mound destroyed
Mound 10	30 x 25	3.5	Light	Light	Ceremonial; 40 x 20 m-plaza, composed of artificially levelled hill, immediately west of mound; also Early Toltec material
Mound 11	30 x 30	3.0	Light	Substantial	Ceremonial; also Early Toltec material; heavily looted
Mound 12	15 x 12	1.0	Light	Substantial	Probably residential; also some Early Toltec material; mound partially destroyed by road
Mound 13	10 x 5	0.5	Very light	Light	Residential
Mound 14	15 x 15	1.0	Very light	Light	Probably residential

Note: NR means “not recorded.”

Classification: Small dispersed village, 80-160 people.

Tm-Az-24

Natural Setting: 2,255-2,295 m, in the thin soil alluvium and lower piedmont northeast of Lake Xaltocan. Located on gently sloping ground slightly south of a major barranca that drains westward towards the lake. Shallow-to-medium soil cover. Generally slight erosion.

Modern Utilization: Rainfall cultivation in fields equipped with earth banks. Most fields were used to grow maize at the time of survey, though a few fields contained barley, nopal, maguey, or were lying fallow. The site occurred on the northern edge of the modern settlement of San Jerónimo Xonacahuacán, immediately east of San Pedro Potzohuacán. Four modern roads passed through different portions of the site.

Archaeological Remains: Generally light surface pottery, though ranging from very light to moderate, mixed with very light obsidian artifacts over an area of about 39.0 ha. Variable amounts of rock rubble also occurred, generally ranging from sparse to light. The remains of four residential mounds were noted, as described under Tm-Lt-26 (see Figure 5.7, Table 5.3). In addition, several concentrations of rock rubble and pottery possibly indicated the presence of other, poorly preserved mounds. Mixed with very light-to-light Terminal Formative

(Tm-Tf-23) and Late Toltec (Tm-Lt-26) and light Terminal Formative (Tm-Tf-22) material, all occurring in small areas of the much larger Late Aztec site.

Classification: Large dispersed village, 442-550 people.

Tm-Az-25

Natural Setting: 2,260-2,270 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground. Shallow-to-medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, in conjunction with limited irrigation. Maize, barley, and alfalfa were present at the time of survey in fields equipped with earth banks. Site occurred within the modern village of Santo Domingo Ajoluapán, and a modern road cut across it.

Archaeological Remains: Very light-to-light surface pottery (Aztec III) over an area of about 1.0 ha. No structural remains. Mixed with very light Terminal Formative (Tm-Tf-24) and light Teotihuacan period (Tm-Cl-11) material.

Classification: Small hamlet, 2-5 people.

Tm-Az-26

Natural Setting: 2,275 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground immediately east of a large barranca. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall and limited irrigated cultivation, with maize present at the time of survey, in fields equipped with earth banks. The site occurred in the eastern portion of the modern village of Santa María Ajoluapán.

Archaeological Remains: Very light-to-light surface pottery (Aztec III) over an area of about 1.0 ha. A concentration of ceramics probably represented the remnants of one poorly preserved residential mound; due to its condition, no dimensions were recorded.

Classification: Small hamlet, 5-10 people.

Tm-Az-27

Natural Setting: 2,270 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground, with a canalized barranca lying immediately east of the site. Shallow soil cover. No erosion.

Modern Utilization: Rainfall cultivation, predominantly of maguey at the time of survey, in fields equipped with earth banks. The site occurred on the northwestern edge of the modern village of Santa María Ajoluapán.

Archaeological Remains: Very light-to-light surface pottery over an area of about 2.3 ha. The survey crew noted one mound, measuring 6.0 by 6.0 m at its base and 0.6 m in

height. Teotihuacan period, Late Toltec, and Late Aztec material all occur on this mound. Mixed with similarly sparse Terminal Formative (Tm-Tf-25) and Teotihuacan period (Tm-Cl-12) and light-to-moderate Late Toltec (Tm-Lt-28) material.

Classification: Small hamlet, 5-12 people.

Tm-Az-28

Natural Setting: 2,265-2,275 m, in the thin soil alluvium near where it joins the lower piedmont northeast of Lake Xaltocan. Located on gently to moderately sloping ground. Generally shallow soil cover. Slight, localized erosion.

Modern Utilization: Predominantly grazing, with much of the site lying fallow as well. A limited amount of rainfall cultivation also occurred at the time of survey, with maize present at the time of survey, in two fields equipped with earth banks and maguey banales.

Archaeological Remains: Very light-to-light surface pottery, combined with light-to-substantial rock rubble, over an area of about 6.0 ha. No structural remains. Mixed with similarly sparse Terminal Formative (Tm-Tf-26) and Late Toltec (Tm-Lt-29) and generally moderate Teotihuacan period (Tm-Cl-13) material.

Classification: Hamlet, 12-30 people.

Tm-Az-29

Natural Setting: 2,270 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently to moderately sloping ground. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Grazing. Although at the time of survey no associated fields were used for agriculture, several featured earth banks and irrigation canals that indicated prior agricultural activity.

Archaeological Remains: Very light-to-light surface pottery over an area of about 2.5 ha. The survey crew identified the remains of five residential mounds (Figure 5.16), with varying Aztec III and Aztec IV ceramics associated, as described in Table 5.9. Mixed with very light Teotihuacan period (Tm-Cl-15) material.

Classification: Hamlet, 25-50 people.

Tm-Az-30

Natural Setting: 2,280-2,290 m, in the lower piedmont and thin soil alluvium northeast of Lake Xaltocan. Located on moderately sloping ground west of a major barranca. Shallow soil cover. Slight erosion.

Modern Utilization: Irrigated cultivation, predominantly of nopal and maguey at the time of survey, in fields equipped

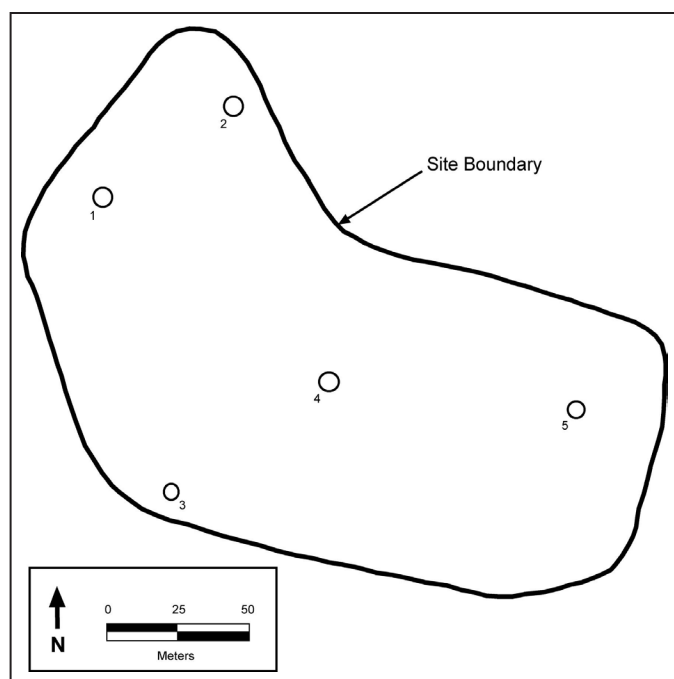


Figure 5.16. Tm-Az-29 Architectural Features

Table 5.9. Tm-Az-29 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	4 x 4	0.6	Light	None	Residential; Aztec III
Mound 2	4 x 4	0.6	Light	None	Residential; Aztec III
Mound 3	4 x 3	0.6	Light	None	Residential; Aztec III and IV
Mound 4	4 x 4	0.6	Light	None	Residential; Aztec III
Mound 5	4 x 3	0.6	Light	None	Residential; Aztec III and IV

with earth banks and maguey banales. Some fields also were lying fallow.

Archaeological Remains: Light-to-moderate surface pottery (Aztec III), and scattered basalt artifacts, over an area of about 5.5 ha. The survey crew recorded five residential mounds on the western half of the site (Figure 5.17), as described in Table 5.10.

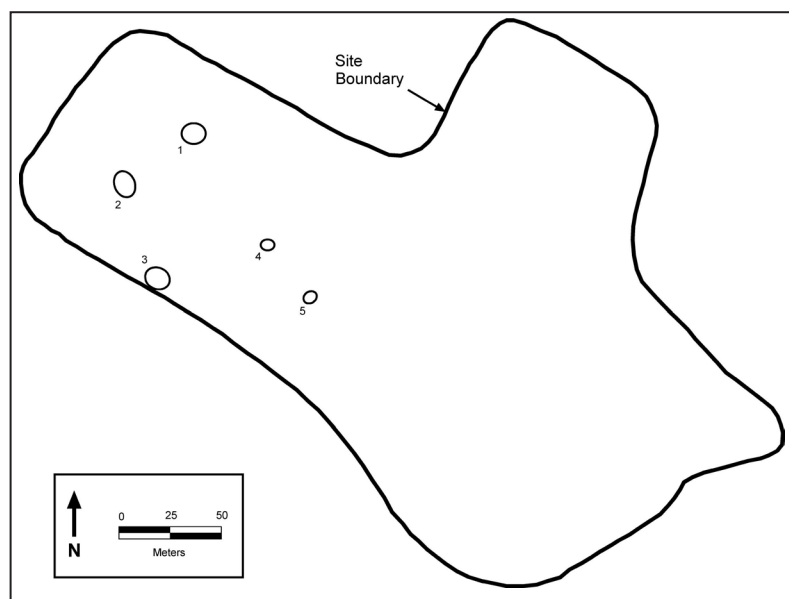


Figure 5.17. Tm-Az-30 Architectural Features

Classification: Small nucleated village, 55-138 people.

Tm-Az-31

Natural Setting: 2,250-2,265 m, in the thin soil alluvium and lower piedmont northeast of Lake Xaltocan. Located on flat-to-gently sloping ground. Shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Grazing and rainfall cultivation on the northern and eastern portions of the site, with maguey and barley grown in fields equipped with drainage ditches, earth banks, and maguey banales. Rainfall cultivation of maize, barley, habas, maguey, and oats occurred on the southern part of the site. Highway 85 ran north-south through the western portion of the site.

Archaeological Remains: Very light surface pottery, mixed with very light rock rubble and obsidian artifacts and a few basalt tools, over an area of about 20.5 ha. Survey personnel noted the poorly preserved remains of 30 mounds, most defined by clearly delineated concentrations of cultural material. Only three mounds were preserved well enough

to enable measurement. Two measured 6.0 by 4.0 m at the base and about 0.8 m in height, the third measuring 12.0 by 4.0 m at its base and 1.0 m in height, with the height of all three due largely to concentrations of rubble. All mound-concentrations featured Late Aztec ceramics; five also featured Aztec II ceramics and 14 included very small amounts of Late Toltec pottery. Mixed with similarly sparse

Terminal Formative (Tm-Tf-28) and Early Toltec (Tm-Et-14), light Late Toltec (Tm-Lt-31), and an unrecorded amount of Early Aztec (Tm-Ea-3) material.

Classification: Small dispersed village, 150-300 people.

Tm-Az-32

Natural Setting: 2,255 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground. Shallow to medium soil cover. Virtually no erosion.

Modern Utilization: Rainfall cultivation, with maize, barley, and oats present at the time of survey, in fields equipped with maguey banales.

Archaeological Remains: Very light-to-light surface

Table 5.10. Tm-Az-30 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	10 x 8	NR	Light	None	Residential
Mound 2	10 x 8	NR	Light	None	Residential
Mound 3	10 x 8	NR	Light	None	Residential
Mound 4	5 x 4	0.6	Light	None	Residential
Mound 5	4 x 4	0.6	Light	None	Residential

Note: NR means “not recorded.”

pottery and scattered obsidian artifacts over an area of about 0.5 ha. A slight rise, probably representing the disturbed remains of one heavily plowed, poorly preserved residential mound, was the main component of this site. Due to its condition, mound dimensions were not recorded. Most of the cultural material occurred on this possible mound.

Classification: Small hamlet, 5-10 people.

Tm-Az-33

Natural Setting: 2,265-2,275 m, in the lower piedmont north of Lake Xaltocan. Located on gently sloping ground. Medium-to-deep soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation in fields equipped with stone terraces as well as nopal and maguey bancales. At the time of survey most fields were lying fallow, though a few were planted in maize.

Archaeological Remains: Very light-to-light surface pottery over an area of about 6.0 ha. No structural remains.

Classification: Hamlet, 12-30 people.

Tm-Az-34

Natural Setting: 2,250-2,260 m, in the thin soil alluvium and lower piedmont north of Lake Xaltocan. Located on gently sloping ground composed of mixed soil and tepetate gravel. Medium soil cover. Generally very slight or no erosion.

Modern Utilization: Rainfall cultivation in fields equipped with earth banks, stone terraces, and maguey bancales. Most fields were lying fallow or were planted in maguey at the time of survey, though maize and oats also were present. The site occurred on the northern edge of the modern settlement of San Lucas Xolox, which partially obscured prehispanic remains.

Archaeological Remains: Very light-to-light surface pottery (Aztec III) and obsidian artifacts, mixed with locally light-to-substantial rock rubble, over an area of about 6.0 ha. No structural remains. Mixed with very light Terminal Formative (Tm-Tf-29), light Teotihuacan period (Tm-CI-17), light-to-moderate Late Toltec (Tm-Lt-32), and an unrecorded amount of Early Aztec (Tm-Ea-4) material. Tm-Az-34 comprised a definable concentration of Late Aztec remains among several fields with very sparse Late Aztec material.

Classification: Hamlet, 12-30 people.

Tm-Az-35

Natural Setting: 2,235 m, on the saline lakeshore plain north of Lake Xaltocan. Located on flat ground. Deep soil cover. No erosion.

Modern Utilization: Rainfall cultivation in fields equipped with drainage ditches and earth banks, though the area was lying fallow at the time of survey.

Archaeological Remains: Very light-to-light surface pottery over an area of about 0.5 ha. A concentration of ceramics on a slight rise probably represented the remains of one poorly preserved residential mound. Most of the cultural material at this site occurred on this probable mound.

Classification: Small hamlet, 5-10 people.

Tm-Az-36

Natural Setting: 2,300 m, in the lower piedmont northeast of Lake Xaltocan. Located on moderately sloping ground northwest of a large barranca. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with maize present at the time of survey.

Archaeological Remains: Light-to-moderate surface pottery (Aztec III) over an area of about 0.1 ha. The survey crew noted one residential mound, measuring 6.0 by 4.0 m at its base and 0.8 m in height; a fragment of floor was visible on the top of the mound.

Classification: Small hamlet, 5-10 people.

Tm-Az-37

Natural Setting: 2,285 m, in the lower piedmont northeast of Lake Xaltocan. Located on moderately sloping ground immediately south of a large barranca. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with maize present at the time of survey, in a field equipped with earth banks and stone terraces.

Archaeological Remains: Light-to-moderate surface pottery (Aztec III) over an area of about 1.0 ha. No structural remains.

Classification: Hamlet, 10-25 people.

Tm-Az-38

Natural Setting: 2,315 m, in the lower piedmont northeast of Lake Xaltocan. Located on gently sloping ground leading to a barranca that formed the northern boundary of the site. Basalt cobbles and outcrops occurred nearby. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, predominantly of barley at the time of survey, in fields equipped with maguey banales. Part of the site also was used for grazing.

Archaeological Remains: Variable light-to-moderate surface pottery over an area of about 1.0 ha. No structural remains. Mixed with light Terminal Formative (Tm-Tf-31) and Late Toltec (Tm-Lt-35) and moderate Teotihuacan period (Tm-CI-22) material.

Classification: Hamlet, 10-25 people.

Tm-Az-39

Natural Setting: 2,310 m, in the lower piedmont northeast of Lake Xaltocan. Located on moderately sloping ground immediately south of a large barranca. Shallow to medium soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, predominantly of barley but with maize and oats present as well at the time of survey, in fields equipped with earth banks.

Archaeological Remains: Generally moderate surface pottery, fluctuating between light and heavy, over an area of about 1.5 ha. No structural remains. Mixed with similarly dense Teotihuacan period (Tm-CI-21) material.

Classification: Hamlet, 38-75 people.

Tm-Az-40

Natural Setting: 2,300-2,310 m, in the lower piedmont northeast of Lake Xaltocan. Located on moderately sloping ground. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, predominantly of barley but with some fields planted in maize or oats (or lying fallow) at the time of survey, in fields equipped with earth banks.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 4.0 ha. No structural remains.

Classification: Hamlet, 40-100 people.

Tm-Az-41

Natural Setting: 2,335-2,340 m, on an isolated hill in the lower piedmont northeast of Lake Xaltocan. Located on

gently sloping ground. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, with both oats and barley present at the time of survey, in fields equipped with maguey banales.

Archaeological Remains: Light surface pottery over an area of about 3.8 ha. No structural remains. Mixed with similarly dense Late Toltec (Tm-Lt-34), very light Terminal Formative (Tm-Tf-30), and moderate Teotihuacan (Tm-CI-20) material.

Classification: Hamlet, 19-38 people.

Tm-Az-42

Natural Setting: 2,320 m, on top of an isolated hill in the lower piedmont northeast of Lake Xaltocan. Located on gently sloping ground. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Grazing. Rainfall cultivation also occurred on the site, with nopal and maguey present at the time of survey.

Archaeological Remains: Generally light-to-moderate surface pottery (Aztec III) over an area of about 5.0 ha. The survey crew noted six residential mounds, lying in roughly a north-south alignment (Table 5.11).

Classification: Small nucleated village, 50-125 people.

Tm-Az-43

Natural Setting: 2,270 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on generally flat ground about 200 m south of the Avenidas de Pachuca barranca. Medium-to-deep soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with maize, beans, maguey, and nopal present at the time of survey, in fields equipped with earth banks and maguey banales.

Archaeological Remains: Very light-to-light surface pottery over an area of about 0.5 ha. No structural remains. Mixed with light-to-moderate Late Toltec (Tm-Lt-36) material.

Classification: Small hamlet, 1-3 people.

Tm-Az-44

Natural Setting: 2,282-2,291 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground roughly 100 m south of the Avenidas de Pachuca barranca. Generally medium-to-deep soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with maguey and nopal present at the time of survey, in fields equipped with stone terraces. The site occurred among houselots in the modern village of Tepojaco.

Table 5.11. Tm-Az-42 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	6 x 4	0.6	Light	None	Residential
Mound 2	4 x 4	0.6	Light	None	Residential
Mound 3	4 x 3	0.4	Light	None	Residential
Mound 4	4 x 4	0.4	Light	None	Residential
Mound 5	4 x 4	0.4	Light	None	Residential
Mound 6	4 x 3	0.3	Light	None	Residential

Archaeological Remains: Generally light surface pottery, increasing to heavy in places on the southeastern part of the site, over an area of about 5.0 ha. Scattered obsidian artifacts also present. No structural remains. Mixed with very light-to-light Teotihuacan period (Tm-CI-30) and moderate-to-heavy Late Toltec (Tm-Lt-38) material.

Classification: Hamlet, 25-50 people.

Tm-Az-45

Natural Setting: 2,280 m, on an isolated hill in the thin soil alluvium northeast of Lake Xaltocan. Located on a generally flat vesicular basalt outcrop slightly north of the Avenidas de Pachuca barranca in an area of exposed bedrock and general rock debris. Very shallow soil cover. Moderate erosion.

Modern Utilization: Rainfall cultivation, predominantly of maguey and nopal at the time of survey, in fields equipped with earth banks and maguey banales.

Archaeological Remains: Moderate-to-heavy surface pottery, and substantial rock rubble, over an area of about 0.5 ha. No structural remains. Mixed with very light Terminal Formative (Tm-Tf-38) and light-to-moderate Teotihuacan period (Tm-CI-31) material.

Classification: Hamlet, 25-50 people.

Tm-Az-46

Natural Setting: 2,285-2,292 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on a gently sloping outcrop of vesicular basalt immediately south of the lake Presa el Manantial. Very shallow-to-shallow soil cover, with much exposed bedrock towards the western end of the site. Slight erosion.

Modern Utilization: The site was located within the modern village of El Manantial. Rainfall cultivation occurred in surrounding fields, with both barley and maize present at the time of survey.

Archaeological Remains: Very light-to-light surface pottery, and a few obsidian blades, over an area of about 4.0 ha. No structural remains. Mixed with very light Teotihuacan period (Tm-CI-32) and light-to-moderate Late Toltec (Tm-Lt-39) material.

Classification: Small hamlet, 8-20 people.

Tm-Az-47

Natural Setting: 2,290 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground on the northwestern edge of the Lake Presa el Manantial. Shallow soil cover. Virtually no erosion.

Modern Utilization: Rainfall cultivation, with nopal present at the time of survey. Irrigated cultivation of barley and maize occurred immediately north of the site.

Archaeological Remains: Moderate-to-heavy surface pottery, light-to-substantial rock rubble, and scattered obsidian blades over an area of about 0.1 ha. The site was oriented around the remains of a single residential mound located near its center; the mound measured 3.0 by 3.0 m at its base and 0.5 m in height at the time of survey.

Classification: Small hamlet, 5-10 people.

Tm-Az-48

Natural Setting: 2,279 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground slightly north of the Avenidas de Pachuca barranca. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with maize and nopal present at the time of survey.

Archaeological Remains: Moderate-to-heavy surface pottery over an area of about 0.8 ha. No structural remains.

Classification: Hamlet, 40-80 people.

Tm-Az-49

Natural Setting: 2,285 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on flat ground north of the lake Presa el Manantial. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with beans present at the time of survey, in a field equipped with earth banks.

Archaeological Remains: Light surface pottery, and substantial rock rubble, over an area of about 0.5 ha. No structural remains.

Classification: Small hamlet, 3-5 people.

Tm-Az-50

Natural Setting: 2,300-2,305 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on a flat-to-gently sloping outcrop of vesicular basalt north of the lake Presa el Manantial. Shallow soil cover. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, predominantly of barley and nopal at the time of survey, in fields equipped with earth banks and maguey banales.

Archaeological Remains: Light surface pottery, and a few obsidian blades, over an area of about 12.0 ha. Slight rises (1.5 m or less in height) in agricultural fields probably represented the poorly preserved remains of 12 residential mounds dating to both Teotihuacan period and Late Aztec occupations. Mixed with moderate Teotihuacan period (Tm-CI-34) and light-to-moderate Late Toltec (Tm-Lt-40) material.

Classification: Small dispersed village, 60-120 people.

Tm-Az-51

Natural Setting: 2,305-2,315 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on generally flat ground north of the lake Presa el Manantial. Very shallow soil cover, with some exposed bedrock. Extensive erosion.

Modern Utilization: Rainfall cultivation, with barley, maguey, and nopal present at the time of survey.

Archaeological Remains: Generally light surface pottery, light-to-substantial rock rubble, and a few obsidian blades over an area of about 4.0 ha. Artifact concentrations on slight rises in the southwestern corner of the site probably represented the poorly preserved remains of three residential mounds. Due to their poor condition, mound dimensions were not recorded. Mixed with moderate-to-heavy Late Toltec (Tm-Lt-41) material.

Classification: Hamlet, 15-30 people.

Tm-Az-52

Natural Setting: 2,310-2,320 m, in the thin soil alluvium west of Barranca Tecorral. Located on a gently sloping vesicular basalt outcrop above agricultural fields. Generally very shallow soil cover, becoming medium in places. Slight, localized erosion, with additional damage from barrancas and washes that cut through the site.

Modern Utilization: Predominantly grazing, with some rainfall cultivation of barley, maize, and maguey at the time of survey. Much of this site was not arable due to the vesicular basalt outcrop. About 20% of the site occurred within the modern villages of Presa del Rey (to the east of the site) and Mogotes (to the northwest), and as a result portions of the site boundary were obscured. Several modern structures occurred within the boundary of the site. The ruins of three historic structures occurred in the western part of the site.

Archaeological Remains: Generally light surface pottery, and variable rock rubble (ranging from sparse to heavy), over an area of about 37.0 ha. The survey crew noted a total of 57 mounds, showing evidence of both Late Toltec and Late Aztec occupations (see Figure 5.8, Table 5.4). Several of the mounds appeared to have had primarily ceremonial or administrative functions, including Mounds 5, 6, 8, 9, 30, 32, 33, 34, 37, 42, 43, and 48. This large proportion of administrative-ceremonial structures suggested that the site possibly served a larger, hinterland population during both the Late Toltec and Late Aztec occupations. Nevertheless, survey crews also encountered large amounts of residential refuse—including manos, metates, basalt scrapers, and assorted chipped chert and obsidian artifacts. Mixed with generally light (though variable) Late Toltec (Tm-Lt-45) and light Teotihuacan period (Tm-CI-35) material.

Classification: Large dispersed village, 400-600 people.

Tm-Az-53

Natural Setting: 2,310-2,320 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently to moderately sloping ground on the flank of a small hill, near the hilltop and overlooking a deep soil plain. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with maguey present at the time of survey.

Archaeological Remains: Very light-to-light surface pottery, substantial-to-heavy rock rubble, and a few ground stone artifacts over an area of about 1.5 ha. One large residential mound occurred, measuring 30.0 by 23.0 m at its base and 1.0 m in height.

Classification: Small hamlet, 5-10 people.

Tm-Az-54

Natural Setting: 2,310 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground slightly north of the large barranca that empties west into the lake Presa el Manantial. Shallow soil cover. Severe erosion.

Modern Utilization: A modern road, running north-south, cut through the length of the site. The survey crew recorded no modern use of the site area, though rainfall cultivation of barley occurred in surrounding fields.

Archaeological Remains: Generally very light-to-light surface pottery, rock rubble ranging in density from substantial to heavy, and scattered obsidian artifacts over an elongated area of 3.0 ha. The remains of five residential mounds were noted (Figure 5.18), as described in Table 5.12.

Classification: Hamlet, 25-50 people.

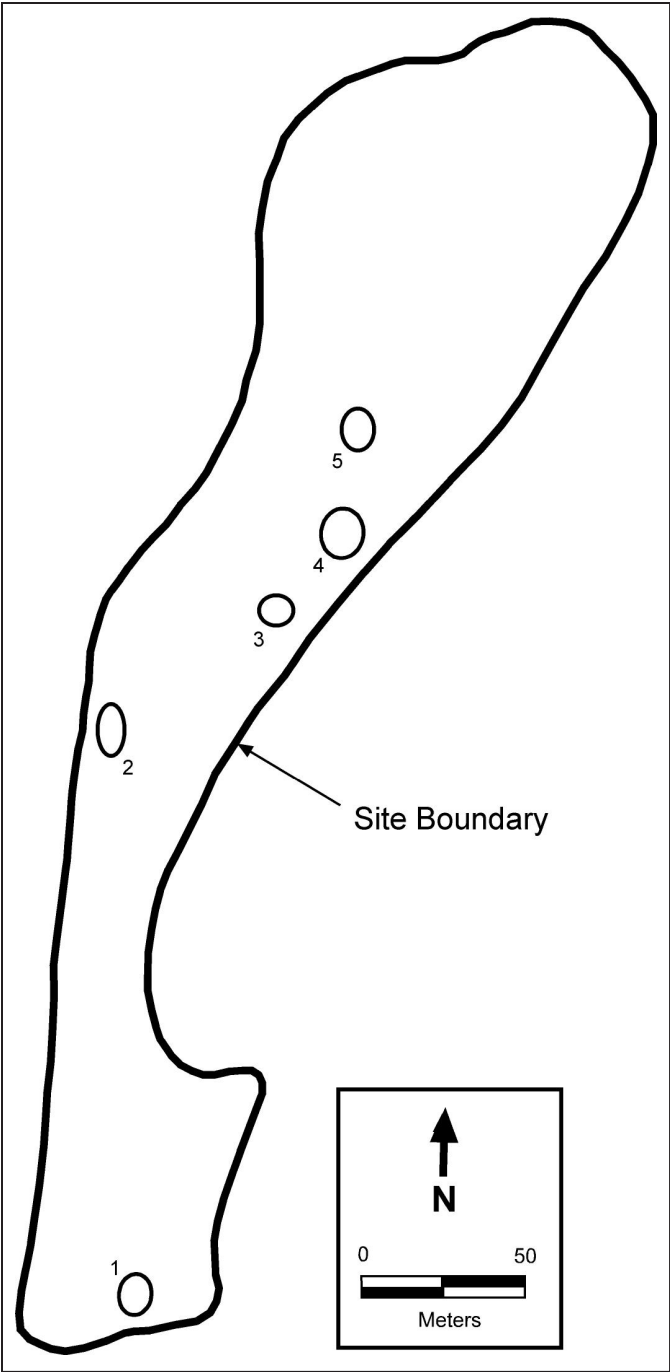


Figure 5.18. Tm-Az-54 Architectural Features

Tm-Az-55

Natural Setting: 2,305 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on a flat vesicular basalt outcrop that rises 1.0 to 2.0 m above the surrounding level ground, north of a large barranca that drains towards the lake Presa el

Table 5.12. Tm-Az-54 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	12 x 8	0.2	Very light	Heavy	Residential
Mound 2	14 x 6	0.8	Moderate	Heavy	Residential; very light obsidian also present; road cuts through mound
Mound 3	9 x 7	0.1	Very light	Substantial	Residential
Mound 4	15 x 12	0.1	Light	Heavy	Residential
Mound 5	11 x 8	0.2	None	Heavy	Residential

Manantial. Generally shallow-to-medium soil cover. Slight erosion.

Modern Utilization: Primarily grazing, with part of the site used for rainfall cultivation of maguey. Surrounding fields were used for rainfall cultivation of barley at the time of survey. A modern road ran immediately south of the site.

Archaeological Remains: Very light-to-light surface pottery, a few obsidian and other lithic artifacts (chert, quartz, and basalt), and generally substantial rock rubble (ranging from light to heavy) over an area of about 3.5 ha. No structural remains. Mixed with moderate-to-heavy Teotihuacan period (Tm-Cl-36) material.

Classification: Small hamlet, 7-18 people.

Tm-Az-56

Natural Setting: 2,300 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on generally flat ground north of a large barranca that empties into the lake Presa el Manantial. Generally medium soil cover. Virtually no erosion.

Modern Utilization: Rainfall cultivation, with barley and wheat present at the time of survey.

Archaeological Remains: Very light surface pottery over an area of about 0.5 ha. No structural remains. Mixed with similarly sparse Terminal Formative (Tm-Tf-36) and moderate Teotihuacan period (Tm-Cl-37) material.

Classification: Questionable. Probably a briefly occupied houselot or small hamlet. Population undetermined.

Tm-Az-57

Natural Setting: 2,295 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground slightly east of a large barranca that empties into the lake Presa el Manantial. Medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with wheat present at the time of survey.

Archaeological Remains: Light-to-moderate surface pottery, and substantial rock rubble, over an area of about 3.0 ha. A concentration of artifacts and rubble on a slight rise probably represented the remains of one poorly preserved residential mound. Due to its condition, no mound dimensions were recorded.

Classification: Hamlet, 30-75 people.

Tm-Az-58

Natural Setting: 2,305 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on flat ground immediately south of a large barranca that drains northward into the lake Presa el Manantial. Medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with barley and wheat present at the time of survey. The site occurred on the southern edge of the modern village of Tepojaco.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 4.5 ha. The survey crew noted one mound on the northern portion of the site, though due to extremely poor preservation no measurements were recorded. Mixed with very light Teotihuacan period (Tm-Cl-29) material.

Classification: Small nucleated village, 45-113 people.

Tm-Az-59

Natural Setting: 2,305 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on flat ground south of a large barranca that drains northward into the lake Presa el Manantial. Medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with both maize and beans present at the time of survey. The northwestern portion of site intersected the eastern edge of the modern village of Tepojaco. A railroad bordered the site to the southeast.

Archaeological Remains: Very light-to-light surface pottery over an elongated area of 8.0 hectares along a northeast-southwest axis. No structural remains. Mixed with very light Terminal Formative (Tm-Tf-35) and Teotihuacan period (Tm-Cl-28) and light Late Toltec (Tm-Lt-48) material.

Classification: Hamlet, 16-40 people.

Tm-Az-60

Natural Setting: 2,298-2,302 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on a generally flat outcrop of vesicular basalt, southwest of a large barranca that drains westward into the lake Presa el Manantial. Shallow-to-medium soil cover. Slight to moderate erosion.

Modern Utilization: Floodwater irrigated and rainfall cultivation, with maize and barley present at the time of survey, in fields equipped with drainage ditches, stone terraces, and maguey banales. Part of the site was overlain by the modern village of Chopo.

Archaeological Remains: Generally light surface pottery, becoming moderate in places, over an area of about 15.5 ha. Additional remains included obsidian and basalt artifacts,

figurines, censer fragments, and ground stone tools; substantial-to-heavy rock rubble occurred on the northeastern part of the site. Tm-Az-60 comprised an elongated scatter, with its major axis stretching north to south. The survey crew noted five mounds in the northeastern part of the site, four residential and one ceremonial (see Figure 5.4), with Teotihuacan period, Late Toltec, and Late Aztec remains associated. Four more mounds occurred near the center of the site. Based on the artifacts present, three of this central group of mounds probably were residential, the fourth likely ceremonial—though preservation was so poor that no dimensions were recorded. Mixed with similarly dense Late Toltec (Tm-Lt-47) and moderate Teotihuacan period (Tm-Cl-38) and Late Toltec (Tm-Lt-46) material.

Classification: Small dispersed village, 78-180 people.

Tm-Az-61

Natural Setting: 2,305 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground just west of a large barranca. Generally deep soil cover. Moderate erosion.

Modern Utilization: Rainfall cultivation.

Archaeological Remains: Generally light surface pottery over an area of about 2.0 ha. The site consisted of two definite concentrations of pottery connected by a lighter scatter. No structural remains.

Classification: Small hamlet, 10-20 people.

Tm-Az-62

Natural Setting: 2,320 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground south of a large barranca that empties northwest into the lake Presa el Manantial, and between two smaller barrancas to the east and west. Medium-to-deep soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with maguey, maize, and beans present at the time of survey.

Archaeological Remains: Light surface pottery over an area of about 10.0 ha. The survey crew noted remains of five poorly preserved Late Aztec mounds, their dimensions not measured due to their poor state of preservation. A number of Late Aztec artifact concentrations possibly represented the remains of additional mounds that historic agricultural activities have destroyed. Mixed with similarly dense Terminal Formative (Tm-Tf-34) and Late Toltec (Tm-Lt-55) and moderate Teotihuacan period (Tm-Cl-27) material.

Classification: Hamlet, 50-100 people.

Tm-Az-63

Natural Setting: 2,310-2,315 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on flat to gently sloping ground. Shallow-to-medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation. At the time of survey, some of the fields were planted in maize, barley, and beans, while others were lying fallow.

Archaeological Remains: Very light-to-light surface pottery, and generally light rock rubble (becoming substantial in places), over an area of about 5.0 ha. No definite structural remains were visible, but three concentrations of pottery and rubble in the west-central portion of the site possibly represented the poorly preserved remains of Late Toltec and Late Aztec mounds. Mixed with slightly heavier Late Toltec (Tm-Lt-51) material.

Classification: Hamlet, 10-25 people.

Tm-Az-64

Natural Setting: 2,345 m, in the lower piedmont northeast of Lake Xaltocan. Located on gently sloping ground. Shallow soil cover. Slight-to-moderate erosion.

Modern Utilization: Rainfall cultivation, with beans present at the time of survey.

Archaeological Remains: Light surface pottery over an area of about 1.5 ha. No structural remains.

Classification: Small hamlet, 8-15 people.

Tm-Az-65

Natural Setting: 2,330-2,345 m, in the lower piedmont northwest of Cerro Paula. Located on gently sloping ground between two dammed barrancas at the base of a small hill. Generally shallow soil cover, with both exposed basalt bedrock and tezontle present. Slight, localized erosion.

Modern Utilization: Grazing. Rainfall cultivation also occurred, in the moist soil of the barrancas, with nopal, beans, and maize present at the time of survey.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 2.0 ha. No structural remains. Mixed with Teotihuacan period (Tm-Cl-25) material of approximately equal density.

Classification: Hamlet, 20-50 people.

Tm-Az-66

Natural Setting: 2,375 m, in the middle piedmont northeast of Lake Xaltocan. Located on gently sloping ground. Generally very shallow soil cover. Moderate erosion.

Modern Utilization: Rainfall cultivation, with maguey and nopal present at the time of survey. Part of the site also was used for grazing.

Archaeological Remains: Generally very light surface pottery, and substantial rock rubble, over an area of about 0.5 ha. No

structural remains, although one isolated concentration of artifacts and rubble occurred in a wash.

Classification: Questionable. Probably a briefly occupied houselot or small hamlet. Population undetermined.

Tm-Az-67

Natural Setting: 2,375 m, in the middle piedmont northeast of Lake Xaltocan. Located on flat ground. Shallow-to-medium soil cover. Moderate erosion.

Modern Utilization: Rainfall cultivation, with maize and beans present at the time of survey (part of the site also was lying fallow).

Archaeological Remains: Generally light surface pottery over an area of about 1.5 ha. No structural remains.

Classification: Small hamlet, 8-15 people.

Tm-Az-68

Natural Setting: 2,385 m, in the middle piedmont northeast of Lake Xaltocan. Located on gently to moderately sloping ground on the eastern flank of a small hill. Generally very shallow soil cover. Slight to moderate erosion.

Modern Utilization: Rainfall cultivation, with nopal present at the time of survey. Part of the site also was used for grazing.

Archeological Remains: Light-to-moderate surface pottery over an area of about 1.5 ha, with the heavier density found in a 0.5 ha concentration in the east-central part of the site. No structural remains.

Classification: Hamlet, 18-35 people.

Tm-Az-69

Natural Setting: 2,360-2,370 m, in the middle piedmont north of Cerro Paula. Located on moderately sloping ground at the base of a small hill. Generally very shallow soil cover, with some exposed bedrock. Very slight erosion.

Modern utilization: Rainfall cultivation, with nopal present at the time of survey.

Archaeological Remains: Generally very light surface pottery, becoming light-to-moderate in a few places, over an area totalling 1.5 ha. Rock rubble also occurred, in densities ranging from sparse to substantial, over the same area. Concentrations of artifacts and rubble on slight rises possibly indicated the poorly preserved remains of eight mounds, though due to the high degree of disturbance no measurements were recorded.

Classification: Hamlet, 40-80 people.

Tm-Az-70

Natural Setting: 2,330 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground. Shallow soil cover. Slight, generally localized erosion, becoming more severe (both sheet and gully erosion) along the southern and southeastern fringes of the site.

Modern Utilization: Rainfall cultivation, with beans and maize present at the time of survey. A modern road cut through the northern end of the site.

Archaeological Remains: Site covers 27.0 ha in all, including very light surface pottery over an area of about 25.0 ha and light-to-moderate pottery on another 2.0 ha. No definite structural remains, though eight concentrations of artifacts on the eastern part of the site possibly represented the poorly preserved remains of residential mounds.

Classification: Small dispersed village, 145-275 people.

Tm-Az-71

Natural Setting: 2,340-2,360 m, in the middle and lower piedmont north of Cerro Paula. Located on gently to moderately sloping ground at the base of a small hill. Generally medium soil cover, but varying from deep to exposed tepetate. Severe erosion.

Modern Utilization: Predominantly grazing. Also rainfall cultivation, with maguey, maize, and barley present at the time of survey.

Archaeological Remains: Generally very light-to-light surface pottery over an area of about 14.0 ha. The site is an elongated scatter stretching from the southwest to the northeast. The survey crew noted remains of seven very poorly preserved mounds on the western half of the site; due to poor mound condition, no dimensions were recorded. Mixed with light Late Toltec (Tm-Lt-58) material.

Classification: Hamlet, 28-70 people.

Tm-Az-72

Natural Setting: 2,395 m, in the middle piedmont north of Cerro Paula. Located on gently sloping ground at the base of a small hill. Shallow soil cover. Slight to moderate erosion.

Modern Utilization: Rainfall cultivation, with maize and barley present at the time of survey.

Archaeological Remains: Light surface pottery over an area of about 0.5 ha. No structural remains.

Classification: Small hamlet, 3-5 people.

Tm-Az-73

Natural Setting: 2,385-2,405 m, in the middle piedmont

on the northern flank of Cerro Paula. Located on gently to moderately sloping ground at the base of a small hill being quarried for tezontle at the time of survey. A barranca bordered the site on the east. Very shallow soil cover, with large areas of exposed tepetate. Slight to moderate erosion.

Modern Utilization: Predominantly grazing. Also rainfall cultivation, though associated fields were fallow at the time of survey.

Archaeological Remains: Moderate surface pottery over an area of about 5.5 ha. Two concentrations of ceramics in the southern part of the site possibly represented the remains of two former residential mounds, though due to their poor condition no dimensions were recorded. Mixed with light-to-moderate Late Toltec (Tm-Lt-60) material.

Classification: Small nucleated village, 138-275 people.

Tm-Az-74

Natural Setting: 2,410-2,430 m, in the middle piedmont on the northern slope of Cerro Paula. Located on moderately sloping ground. Generally very shallow soil cover. Slight-to-moderate erosion.

Modern Utilization: Rainfall cultivation, with maize and beans present at the time of survey.

Archaeological Remains: Light surface pottery over an area of about 0.5 ha. No structural remains.

Classification: Small hamlet, 3-5 people.

Tm-Az-75

Natural Setting: 2,400 m, in the middle piedmont northeast of Cerro Paula. Located on moderately sloping ground immediately east of a large barranca. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, although the marginal farmland associated with the site was lying fallow at the time of survey. Part of the site also was used for grazing.

Archaeological Remains: Moderate surface pottery, light-to-substantial rubble, and a few obsidian blades over an area of about 0.2 ha. The survey crew identified one residential mound, measuring 13.0 by 11.0 m at its base and 0.3 m in height.

Classification: Small hamlet, 5-10 people.

Tm-Az-76

Natural Setting: 2,390 m, in the middle piedmont between Cerro Paula and Cerro Verde. Located on moderately sloping ground between two barrancas. Generally shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Grazing on the immediate site area. Rainfall cultivation occurred in each of the neighboring barrancas, with earth banks and maguey banales present for erosion control.

Archaeological Remains: Light surface pottery (Aztec III), a few obsidian blades and scrapers, and generally light rock rubble over an area of about 0.5 ha. The survey crew noted one mound, measuring 24.0 by 16.0 m at its base and 0.3 m in height. Several other raised areas occurred in nearby fields, but none were clearly defined or have prehispanic remains associated. Late Aztec artifacts on the mound were mixed with moderate Late Toltec (Tm-Lt-61) material.

Classification: Small hamlet, 5-10 people.

Tm-Az-77

Natural Setting: 2,365-2,385 m, in the middle piedmont between Cerro Paula and Cerro Verde. Located on gently sloping ground just above the junction where a tributary barranca joins Barranca Cerro Gordo. Springs lie about 100 m southeast of the site. Shallow-to-medium soil cover. Slight, localized erosion.

Modern Utilization: Rainfall and floodwater irrigated cultivation, with both maize and barley present at the time of survey, in fields equipped with drainage ditches and maguey banales.

Archaeological Remains: Very light-to-light surface pottery, with scattered obsidian and ground stone tools and generally substantial rock rubble (becoming substantial-to-heavy in places), over an area of about 16.0 ha. No structural remains. Mixed with similarly sparse Terminal Formative (Tm-Tf-32) and Late Toltec (Tm-Lt-62) and moderate Teotihuacan period (Tm-C1-24) material.

Classification: Hamlet, 32-80 people.

Tm-Az-78

Natural Setting: 2,360 m, in the middle piedmont between Cerro Paula and Cerro Verde. Located on gently sloping ground just west of the northern "A" branch of Barranca Cerro Gordo. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey, in a field equipped with maguey banales.

Archaeological Remains: Generally very light surface pottery, coupled with scattered obsidian artifacts, over a slight hollow area covering 0.3 ha. No structural remains.

Classification: Questionable. Probably a briefly occupied single houselot or small hamlet. Population undetermined.

Tm-Az-79

Natural Setting: 2,390-2,395 m, in the middle piedmont

between Cerro Paula and Cerro Verde. Located on gently sloping ground just southwest of Barranca Cerro Gordo. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with maize and habas present at the time of survey, in fields equipped with maguey banales.

Archaeological Remains: Light surface pottery in a very even distribution, and scattered obsidian artifacts, over an area of about 3.0 ha. No structural remains.

Classification: Hamlet, 15-30 people.

Tm-Az-80

Natural Setting: 2,370 m, in the middle piedmont between Cerro Paula and Cerro Verde. Located on gently to moderately sloping ground just east of Barranca Cerro Gordo. Medium-to-deep soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with maize and barley present at the time of survey, in fields equipped with earth banks and maguey banales. The site showed evidence of heavy plowing over many years. A modern road obscured the western and southern edges of the site.

Archaeological Remains: Generally light-to-moderate surface pottery, along with very light obsidian blades and a few mano fragments, over an area of about 4.0 ha. One elongated rise about 82.0 m long possibly represented the poorly preserved remains of a large mound. Neither the width nor height of this mound could be measured with any certainty due to heavy disturbance—particularly from plowing, which also may have extended the length of the mound.

Classification: Hamlet, 40-100 people.

Tm-Az-81

Natural Setting: 2,380-2,385 m, in the middle piedmont southwest of Cerro Verde. Located on gently to moderately sloping ground 200 m north of Barranca Cerro Gordo. Generally medium soil cover, though ranging from shallow to deep. Slight erosion.

Modern Utilization: The northern two-thirds of the site occurred within the modern village of Teopancala, which partially obscured prehispanic site boundaries. At the time of survey houselots were used for pasture and for rainfall irrigated cultivation of maguey, nopal, and maize; maguey banales in several agricultural fields provided erosion control. The remainder of the site occurred in deeper soil towards Barranca Cerro Gordo and featured irrigated fields of maize and barley at the time of survey.

Archaeological Remains: Predominantly light surface pottery, increasing to moderate densities in localized areas, over a total area of 13.5 ha. Variable rock rubble, reaching substantial densities in places, also occurred. Two concentrations of

obsidian, one in the northwestern portion of the site and the other in the south-central portion (immediately south of Mound 3), appeared to be workshops. The survey crew noted a total of 17 mounds (Figure 5.19), their basic characteristics described in Table 5.13. Mounds 13, 14, 15, 16, and 17 showed definite clustering and probably composed the ceremonial-administrative center of the site during the Late Aztec occupation. Unfortunately, the modern village and a church that obscured much of the site occurred in the middle of this mound group. The main plaza for the Late Aztec settlement may be in the fields bordered by Mounds 4 and 13 on the south and Mound 6 on the north. Based on their arrangement, Mounds 13, 14, and 16 possibly served as the ceremonial center during Teotihuacan period and Late Toltec times. Mixed with similarly dense Late Toltec (Tm-Lt-65) and moderate Teotihuacan period (Tm-Cl-23) material.

Classification: Small dispersed village, 70-140 people. This site was heavily disturbed, primarily by the construction of the modern village, making any more detailed assessment of the archaeological remains impossible. Because the survey crew was denied access to fields immediately east of the modern community, the existing site may be larger than that recorded.



Figure 5.19. Tm-Az-81 Architectural Features

Tm-Az-82

Natural Setting: 2,355-2,390 m, in the middle piedmont between Cerro Paula and Cerro Verde on the southwestern flank of Cerro Chiconquiaco. Located on gently to moderately sloping ground on top of a dome-shaped deposit of volcanic gravel, between the northern “A” branch of Barranca Cerro Gordo and Barranca Chiconquiaco. Exposed basalt occurs in the beds of the barrancas themselves. Generally shallow soil cover, becoming deep in the lower portions of the site. Slight-to-moderate erosion, becoming heavy in places.

Modern Utilization: Marginal rainfall cultivation, with barley, maize, maguey, and beans all present at the time of survey, in fields equipped with drainage ditches and maguey banales. Grazing occurred on the upper portion of site.

Archaeological Remains: Variable, localized surface pottery (Aztec III and IV), ranging from light to heavy, over an area totaling 10.0 ha. A small amount of rock rubble, scattered obsidian blades and scrapers, and a few ground stone tools also occurred. The survey crew recorded four mounds at the site—three ceremonial mounds arranged around a central plaza and one small residential mound immediately outside the plaza (Figure 5.20), as described in Table 5.14. Mixed with light-to-moderate Late Toltec (Tm-Lt-64) material.

Classification: Large nucleated village, 500-1,000 people.

Tm-Az-83

Natural Setting: 2,350 m, in the middle piedmont between Cerro Paula and Cerro Verde. Located on gently sloping ground 100 m east of the northern “A” branch of Barranca Cerro Gordo. Exposed basalt occurred in the bed of the barranca. Shallow soil cover. No erosion.

Modern Utilization: Rainfall cultivation, predominantly of barley at the time of survey (but with maguey and nopal also grown in more shallow soil), in fields equipped with drainage ditches and maguey banales.

Archaeological Remains: Very light surface pottery, along with scattered obsidian scrapers and blades, over an area of about 4.3 ha. Substantial rock rubble also occurred on the site over an area of about 2.0 ha. No definite structural remains, though concentrations of rubble and artifacts scattered over roughly 2.0 ha probably represented the remnants of an unknown number of mounds. Mixed with Late Toltec (Tm-Lt-63) material varying in density from light to heavy.

Classification: Questionable. Probably a briefly occupied small hamlet. Population undetermined.

Tm-Az-84

Natural Setting: 2,345 m, in the thin soil alluvium near where it joins the lower piedmont northeast of Lake Xaltocan. Located on gently sloping ground between the northern “A” branch of Barranca Cerro Gordo and a large barranca to the east. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey. The site lies on the southern edge of the modern town of Temascalapa.

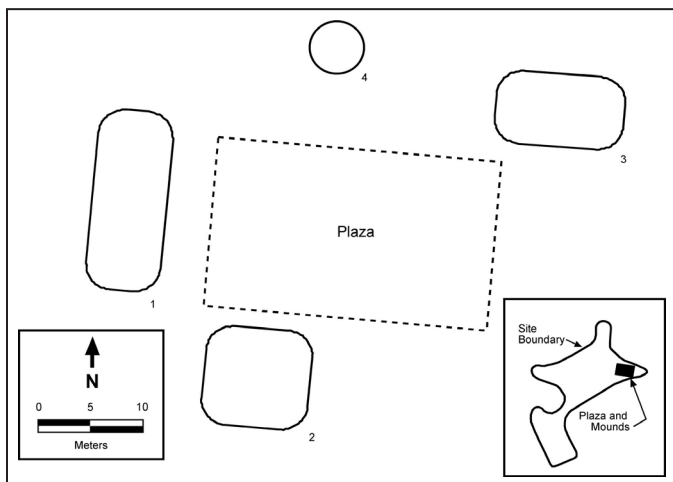
Archaeological Remains: Generally light surface pottery, becoming light-to-moderate in one location, over an area of about 1.0 ha. An artifact concentration on a slight rise probably represented the poorly preserved remains of a residential mound, its size impossible to determine due to modern disturbance.

Classification: Small hamlet, 5-10 people. Tm-Az-84 is one of several small hamlets within the modern town of Temascalapa. The western group of these (Tm-Az-84, 85, 87, 88, and 89) were clustered spatially and may have formed

Table 5.13. Tm-Az-81 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	7 x 7	1.0	Light	None	Probably residential
Mound 2	22 x NR	0.3	Light	None	Probably residential; also Late Toltec material; road cut had destroyed one side of mound
Mound 3	15 x 7	0.2	Light	None	Residential; also Late Toltec material; obsidian tools and debitage (possible workshop)
Mound 4	5 x 5	0.2	Light	None	Residential; also Teotihuacan period and Late Toltec material
Mound 5	5 x 5	0.2	Light	None	Residential; also Teotihuacan period and Late Toltec material
Mound 6	60 x 30	0.7	Light	None	Residential; also Teotihuacan period and Late Toltec material; mound dimensions obscured by modern construction
Tier A	60 x 30	0.5	Light	None	
Tier B	3 x 3	0.2	Light	None	On southeastern corner of Tier A
Mound 7	20 x 18	0.3	Light	None	Residential; also Teotihuacan period and Late Toltec material; partially covered by modern building
Mound 8	21 x 21	0.2	Light	None	Residential; also Teotihuacan period and Late Toltec material; partially covered by modern building
Mound 9	9 x 9	0.2	Light	None	Residential
Mound 10	NR	NR	NR	NR	Residential
Mound 11	26 x 19	0.2	Light	None	Residential; also Teotihuacan period and Late Toltec material
Mound 12	26 x 26	0.2	Light	None	Residential; also Teotihuacan period and Late Toltec material
Mound 13	25 x 25	0.2	Light	None	Residential; also Teotihuacan period and Late Toltec material
Mound 14	10 x 10	NR	Light	None	Residential; also Teotihuacan period and Late Toltec material; looted
Mound 15	25 x 15	0.2	Very light	None	Residential; also Teotihuacan period and Late Toltec material
Mound 16	30 x 30	0.3	Light	None	Platform; also Teotihuacan period and Late Toltec material; looted
Mound 17	22 x 15	1.5	Light	None	Probably ceremonial; also Teotihuacan period and Late Toltec material; partially destroyed by road cut

Note: NR means “not recorded.”

**Figure 5.20.** Tm-Az-82 Architectural Features

a single dispersed village during the Late Aztec period. Due to a discontinuous distribution of cultural material, and resulting lack of direct evidence for a larger settlement, we report these sites as separate hamlets. The absence of ceremonial architecture in any of the sites associated with Temascalapa caused us to question the provincial center/cabecera status of any of these sites—the issue of pre-Conquest political status for sites in this region also debated in early Colonial times (see also Chapter 7).

Tm-Az-85

Natural Setting: 2,340-2,350 m, in the lower piedmont northeast of Lake Xaltocan. Located on gently sloping ground just west of Barranca Cerro Gordo. Shallow soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with barley, maguey,

Table 5.14. Tm-Az-82 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	18 x 7	0.5	Light	Heavy	Ceremonial; most rubble on western end of mound
Mound 2	10 x 10	1.0	Light	None	Ceremonial
Mound 3	12 x 7	0.5	Light	None	Ceremonial
Mound 4	5 x 5	0.2	Light	None	Residential; poorly preserved

and nopal present at the time of survey, in fields equipped with drainage ditches, earth banks, and maguey banales. The site occurred on the western edge of the modern town of Temascalapa.

Archaeological Remains: Generally moderate surface pottery, becoming heavy in places, and scattered obsidian artifacts over an area of about 1.2 ha. No structural remains. Mixed with very light Late Toltec (Tm-Lt-57) material.

Classification: Hamlet, 30-60 people.

Tm-Az-86

Natural Setting: 2,330 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground between the northern "A" branch of Barranca Cerro Gordo and another large barranca to the east. Medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with maguey and nopal present at the time of survey, in fields equipped with maguey banales. The site occurred within houselots in the western part of the modern town of Temascalapa.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 0.7 ha. No structural remains.

Classification: Small hamlet, 7-18 people.

Tm-Az-87

Natural Setting: 2,340 m, in the thin soil alluvium northeast of Lake Xaltocan. Located on gently sloping ground between the northern "A" branch of Barranca Cerro Gordo and another large barranca to the east. Medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with maguey and nopal present at the time of survey, in fields equipped with maguey banales and earth banks. The site occurred within houselots in the northern part of the modern town of Temascalapa.

Archaeological Remains: Light surface pottery over an area of about 7.0 ha. No structural remains.

Classification: Hamlet, 35-70 people.

Tm-Az-88

Natural Setting: 2,340 m, in the lower piedmont northeast of Lake Xaltocan. Located on gently sloping ground between the northern "A" branch of Barranca Cerro Gordo and another

large barranca, just above a rich agricultural plain. Medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with barley, maguey, and nopal present at the time of survey, in fields equipped with maguey banales. The site occurred in the southern part of the modern town of Temascalapa.

Archaeological Remains: Generally light surface pottery, reaching moderate density in places, and very light obsidian, over an area of about 1.0 ha. No structural remains.

Classification: Small hamlet, 5-10 people.

Tm-Az-89

Natural Setting: 2,355 m, in the middle piedmont west of Cerro Verde. Located on gently sloping ground just east of a large barranca. Medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with maguey and nopal present at the time of survey, in fields equipped with earth banks and maguey banales. The site occurred among houselots in the south-central part of the modern town of Temascalapa.

Archaeological Remains: Moderate surface pottery over an area of about 0.7 ha. No structural remains.

Classification: Hamlet, 18-35 people.

Tm-Az-90

Natural Setting: 2,390 m, in the middle piedmont west of Cerro Verde. Located on gently to moderately sloping ground on the northern flank of Cerro Chiconquiaco. Shallow-to-medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with maguey present at the time of survey, in fields equipped with maguey banales.

Archaeological Remains: Generally light surface pottery (but reaching moderate-to-heavy densities in places), along with scattered obsidian blades and scrapers and ground stone tools, over an area of about 4.0 ha. Slight rises and associated artifact concentrations probably represented the remains of five Late Aztec residential mounds, though no dimensions were recorded due to poor preservation. Less distinct topographic features and artifact concentrations suggested the presence of 8-12 additional mounds, almost completely destroyed by a combination of plowing, erosion, and the

overburden of a Colonial period settlement.

Classification: Small dispersed village, 65-170 people.

Tm-Az-91

Natural Setting: 2,365 m, in the middle piedmont west of Cerro Verde. Located on gently sloping ground. Medium soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with maguey and nopal present at the time of survey, in fields equipped with earth banks and maguey banales. The site occurred in a lot in the southeastern portion of the modern town of Temascalapa.

Archaeological Remains: Light surface pottery over an area of about 0.2 ha. No structural remains.

Classification: Small hamlet, 1-2 people.

Tm-Az-92

Natural Setting: 2,355 m, in the middle piedmont west of Cerro Verde. Located on gently sloping ground. Medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation in fields equipped with maguey banales, though areas associated with the site were lying fallow at the time of survey.

Archaeological Remains: Light surface pottery over an area of about 0.7 ha. No structural remains.

Classification: Small hamlet, 4-7 people.

Tm-Az-93

Natural Setting: 2,340 m, in the thin soil alluvium northwest of Cerro Verde. Located on gently sloping ground. Shallow soil cover. Slight erosion.

Modern Utilization: Grazing, in an area of scattered earth banks and maguey banales. The site occurred on the northern edge of the modern town of Temascalapa.

Archaeological Remains: Generally light-to-moderate surface pottery and very light obsidian artifacts over an area of about 1.0 ha. No definite structural remains, though a linear distribution of substantial rock rubble on the northern part of the site possibly represented the remains of a Late Aztec terrace.

Classification: Hamlet, 10-25 people.

Tm-Az-94

Natural Setting: 2,370 m, in the middle piedmont west of Cerro Verde. Located on moderately sloping ground. Generally shallow-to-medium soil cover, though with some

exposed bedrock. No erosion.

Modern Utilization: Rainfall cultivation, with nopal present at the time of survey, in a field equipped with stone terraces and maguey banales.

Archaeological Remains: Light-to-moderate surface pottery, very light obsidian artifacts, and substantial rock rubble over an area of about 0.2 ha. No structural remains.

Classification: Small hamlet, 2-5 people.

Tm-Az-95

Natural Setting: 2,390 m, in the middle piedmont west of Cerro Verde. Located on moderately sloping ground on the northeastern flank of Cerro Chiconquiaco. Shallow soil cover. No erosion, though deep washes occurred immediately north and south of the site.

Modern Utilization: Rainfall cultivation, with maguey present at the time of survey, in fields equipped with maguey banales.

Archaeological Remains: Very light-to-light surface pottery and scattered obsidian blades over an area of about 0.1 ha. The survey crew noted one mound, measuring 10.0 by 7.0 m at its base and about 0.2 m in height. Pieces of adobe were present on the mound, which appeared to date to both Late Toltec and Late Aztec occupations. Mixed with light-to-moderate Late Toltec (Tm-Lt-66) material.

Classification: Small hamlet, 5-10 people.

Tm-Az-96

Natural Setting: 2,375 m, in the middle piedmont west of Cerro Verde. Located on gently sloping ground. Very shallow soil cover. General, heavy erosion.

Modern Utilization: Grazing.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 0.7 ha. No definite prehispanic structural remains, though a short section of wall possibly dated to the Late Aztec occupation.

Classification: Small hamlet, 7-18 people.

Tm-Az-97

Natural Setting: 2,380 m, in the middle piedmont west of Cerro Verde. Located on moderately sloping ground overlooking an agricultural plain. Shallow soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with maguey and nopal present at the time of survey, in fields equipped with maguey banales.

Archaeological Remains: Moderate surface pottery, very light

obsidian, and scattered light rock rubble over an area of about 0.2 ha. No structural remains.

Classification: Small hamlet, 5-10 people.

Tm-Az-98

Natural Setting: 2,390 m, in the middle piedmont northwest of Cerro Verde. Located on gently sloping ground about 100 m east of a large barranca. Shallow soil cover. Generally moderate erosion, becoming deep in southern portions of the site.

Modern Utilization: Rainfall irrigated cultivation, with both maize and beans present at the time of survey, in fields equipped with stone terraces and maguey banales.

Archaeological Remains: Very light surface pottery, and a trace of obsidian artifacts, over an area of about 0.5 ha. No structural remains. Mixed with similarly sparse Terminal Formative (Tm-Tf-33) and light-to-moderate Late Toltec (Tm-Lt-67) material.

Classification: Questionable. Probably a briefly occupied single houselot or small hamlet. Population undetermined.

Tm-Az-99

Natural Setting: 2,330 m, in the thin soil alluvium northwest of Cerro Verde. Located on gently sloping ground above a large barranca that contains exposed basalt. Shallow soil cover. Heavy, localized erosion.

Modern Utilization: Grazing.

Archaeological Remains: Generally light-to-moderate surface pottery over an area of about 1.2 ha. No structural remains.

Classification: Hamlet, 12-30 people.

Tm-Az-100

Natural Setting: 2,340 m, in the thin soil alluvium north of Cerro Verde. Located on moderately to steeply sloping ground on the flank of a small hill. Generally very shallow soil cover. Extensive erosion, in part due to a small barranca that runs through the site.

Modern Utilization: Rainfall cultivation, with barley, maize, and maguey present at the time of survey, in fields equipped with earth banks.

Archaeological Remains: Generally very light-to-light surface pottery, substantial-to-heavy rock rubble, and scattered obsidian and basalt artifacts over an area of about 6.0 ha. The survey crew identified one poorly preserved mound in the southeastern part of the site, probably ceremonial in function and measuring 34.0 by 30.0 m at its base and 1.5 m in height, with moderate-to-heavy artifacts and rubble associated.

Classification: Hamlet, 12-30 people.

Tm-Az-101

Natural Setting: 2,350-2,380 m, on a small hill in the Middle Piedmont north of Cerro Verde. Located on moderately sloping ground overlooking an agricultural plain. Shallow-to-medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with maize and barley present at the time of survey, in fields equipped with drainage ditches.

Archaeological Remains: Very light-to-light surface pottery, becoming light-to-moderate in places and mixed with very light obsidian artifacts, over an area of about 6.0 ha. No structural remains were visible, though distinct light-to-moderate concentrations of surface material possibly indicated the presence of eight separate houselots (domestic mounds) on this site.

Classification: Hamlet, 40-80 people.

Tm-Az-102

Natural Setting: 2,380-2,400 m, in the middle piedmont northwest of Cerro Verde on the southern flank of a small hill. Located on gently sloping ground about 100 m up slope from a large barranca that contained exposed basalt. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with both maguey and nopal present at the time of survey, in fields equipped with maguey banales, earth banks, and stone terraces. Part of the site also was used for grazing.

Archaeological Remains: Generally very light surface pottery (becoming moderate in places), and substantial rock rubble, over an area of about 5.0 ha. No structural remains. Mixed with moderate Late Toltec (Tm-Lt-68) material.

Classification: Hamlet, 10-25 people.

Tm-Az-103

Natural Setting: 2,405-2,450 m, in the middle piedmont on the southwestern flank of Cerro Verde. Located on moderately sloping ground. Shallow-to-medium soil cover. Moderate-to-extensive erosion, including several washes and the beginnings of two barrancas.

Modern Utilization: Mainly grazing. Some marginal rainfall cultivation also occurred, with nopal, maguey, barley, and maize present at the time of survey.

Archaeological Remains: Generally light-to-moderate surface pottery, rock rubble ranging in density from sparse to heavy, and scattered obsidian artifacts over an area of about 12.0 ha. The survey crew recorded remains of 14 mounds along the base of Cerro Verde, with their basic characteristics presented

in Table 5.15. Concentrations of artifacts and rubble on slight rises possibly represented the remnants of other mounds. Mixed with light Late Toltec (Tm-Lt-70) material. This site was surveyed with a 1:25,000 air photo.

Classification: Small nucleated village, 120-400 people.

Table 5.15. Tm-Az-103 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	14 x 11	0.5	Light	Heavy	Residential; badly eroded
Mound 2	12 x 8	0.2	Light-moderate	Light	Residential; scattered obsidian flakes also present
Mound 3	13 x 9	1.5	Light-moderate	Heavy	Ceremonial; also Late Toltec material
Mound 4	12 x 10	1.0	Moderate-heavy	Light-substantial	Probably residential; also Late Toltec material; heavily eroded
Mound 5	6 x 4	0.6	Light-moderate	Substantial	Residential; also Late Toltec material; heavily plowed
Mound 6	NR	NR	Moderate-heavy	Substantial	Residential; also Late Toltec material; heavily plowed and eroded
Mound 7	100 x 20	1.5	Moderate	Substantial	Residential
Mound 8	16 x 10	0.5	Moderate	Light-substantial	Residential; heavily plowed
Mound 9	5 x 5	0.5	Moderate-heavy	Sparse-light	Residential
Mound 10	NR	NR	Moderate-heavy	Substantial	Residential; very light obsidian also present
Mound 11	20 x 10	0.5	Moderate-heavy	Light	Residential; badly eroded
Mound 12	40 x 20	1.0	Light	Light	Probably residential; a few Late Toltec potsherds also present
Mound 13	40 x 30	1.0	Moderate-heavy	None	Probably residential
Mound 14	12 x 9	1.0	Light	Light-substantial	Probably residential

Note: NR means “not recorded.”

Tm-Az-104

Natural Setting: 2,405-2,430 m, in the middle piedmont on the southeastern flank of Cerro Verde. Located on moderately sloping ground. Shallow-to-medium soil cover. Moderate-to-extensive erosion.

Modern Utilization: Mainly grazing. Also marginal rainfall cultivation, with barley present at the time of survey.

Archaeological Remains: Generally light-to-moderate surface pottery, and scattered obsidian artifacts, over an area of about 5.0 ha. The survey crew recorded remains of four mounds (Table 5.16). A concentration of obsidian on one of the mounds possibly represented the remnants of a workshop. This site was surveyed with a 1:25,000 air photo.

Classification: Small nucleated village, 50-125 people.

Tm-Az-105

Natural Setting: 2,350-2,460 m, in the middle piedmont and thin soil alluvium on the northeastern flank of Cerro Verde. Located on gently to moderately sloping ground. Variable soil cover, generally medium but ranging in depth from very shallow to deep. Moderate-to-severe erosion (slight in a few locations), often associated with numerous small barrancas that occurred on the site, with the west-central half of the site

eroded down to tepetate in many places.

Modern Utilization: Irrigated and rainfall cultivation, with both barley and maize present at the time of survey, in fields equipped with drainage ditches, irrigation ditches, and earth banks. Site showed evidence of years of heavy plowing. Some

grazing occurred on the upper portions of the site area.

Archaeological Remains: Generally very light-to-light surface pottery, though reaching moderate-to-heavy densities in places, over an area of about 160.0 ha. Highly variable rock rubble, ranging from none to locally heavy densities, scattered obsidian flakes, blades, and cores, and assorted ground stone artifacts also occurred. Due to the poor preservation of this site, the remnants of only 13 residential mounds and one ceremonial mound remained visible in 1975, as described in Table 5.17. Mixed on part of this total area with generally very light Late Toltec (Tm-Lt-69) material. This site was surveyed with a 1:25,000 air photo.

Classification: Large dispersed village, 320-800 people. The poor condition of this site, coupled with the necessarily brief time invested in its survey, contributed considerable difficulty to its interpretation.

Tm-Az-106

Natural Setting: 2,395 m, in the middle piedmont east of Cerro Verde. Located on gently sloping ground. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation.

Archaeological Remains: Light-to-moderate surface pottery

TABLE 5.16. Tm-Az-104 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	NR	NR	None	None	Residential; concentration of obsidian cores, tools, and debitage suggests the presence of a workshop
Mound 2	12 x 10	0.5	Light-moderate	Substantial-heavy	Residential; Late Aztec terraces associated
Mound 3	15 x 10	0.5	Light-moderate	Heavy	Residential; Late Aztec terraces associated
Mound 4	25 x 16	0.8	Moderate	Substantial	Residential; light obsidian also present; Late Aztec terraces associated; looted

Note: NR means “not recorded.”

Table 5.17. Tm-Az-105 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	13 x 13	0.4	Light-moderate	Substantial-heavy	Residential; scattered obsidian flakes
Mound 2	40 x 20	2.5	Light-moderate	Substantial	Ceremonial; heavily eroded and plowed
Mound 3	12 x 12	1.0	Light-moderate	Light	Probably residential; banal connected this mound with Mound 2; also Late Toltec material
Mound 4	12 x 8	0.2	Light	Heavy	Residential; also Late Toltec material
Mound 5	12 x 10	1.0	Very light	Substantial-heavy	Probably residential
Mound 6	30 x 5	0.3	Light-moderate	Light	Residential; scattered obsidian
Mound 7	43 x 20	0.3	Heavy	Light	Residential; heavily eroded
Mound 8	30 x NR	1.0	Moderate-heavy	Light	Probably residential; very badly eroded
Mound 9	30 x 10	0.3	Moderate-heavy	Light	Residential; scattered basalt flakes; cut by path and very badly eroded; also Late Toltec material
Mound 10	20 x 20	1.0	Heavy	Heavy	Probably residential
Mound 11	15 x 15	1.0	Moderate-heavy	Substantial	Probably residential; scattered obsidian and mano fragments; eroded edges; also Late Toltec material
Mound 12	33 x 23	1.0	Heavy	Substantial	Probably residential; eroded edges
Mound 13	50 x 30	0.4	Moderate	Substantial	Residential; cut by wash, badly eroded; prehispanic banales nearby; also Late Toltec material
Mound 14	16 x 14	1.0	Moderate	Substantial	Probably residential

Note: NR means “not recorded.”

over an area of about 1.0 ha. No structural remains. This site was surveyed with a 1:25,000 air photo.

Classification: Hamlet, 10-25 people.

Tm-Az-107

Natural Setting: 2,390 m, in the middle piedmont east of Cerro Verde. Located on gently sloping ground. Shallow-to-medium soil cover. Severe erosion.

Modern Utilization: Rainfall cultivation.

Archaeological Remains: Generally light-to-moderate surface pottery over an area of about 1.0 ha. No structural remains. This site was surveyed with a 1:25,000 air photo.

Classification: Hamlet, 10-25 people.

Tm-Az-108

Natural Setting: 2,380-2,400 m, in the middle piedmont east

of Cerro Verde. Located on gently sloping ground. Shallow-to-medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with two jagüeyes present.

Archaeological Remains: Generally very light-to-light surface pottery, becoming light-to-moderate in a few places, over an area of about 20.0 ha. No definite structural remains, although several artifact concentrations 30-40 m in diameter possibly represented the remains of mounds destroyed by plowing. This site was surveyed with a 1:25,000 air photo.

Classification: Small dispersed village, 56-140 people.

Tm-Az-109

Natural Setting: 2,390-2,410 m, in the middle piedmont east of Cerro Verde. Located on gently sloping ground. Shallow-to-medium soil cover. Moderate erosion.

Modern Utilization: Rainfall cultivation.

Archaeological Remains: Light surface pottery over an area of about 2.0 ha. No structural remains. This site was surveyed with a 1:25,000 air photo.

Classification: Small hamlet, 10-20 people.

Tm-Az-110

Natural Setting: 2,450 m, in the middle piedmont north of Cerro Gordo. Located on gently sloping ground. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation; although maguey and nopal were present, most of the site was lying fallow at the time of survey.

Archaeological Remains: Generally moderate surface pottery (Aztec III and IV) over an area of about 3.0 ha. The survey crew noted remains of a single residential mound, measuring 6.0 by 6.0 m at its base and 0.6 m in height. This site was surveyed with a 1:25,000 air photo.

Classification: Small nucleated village, 75-150 people.

Tm-Az-111

Natural Setting: 2,450 m, in the middle piedmont north of Cerro Gordo. Located on gently to moderately sloping ground at the base of the northern flank of Cerro Buena Vista. Medium soil cover. Moderate erosion.

Modern Utilization: Rainfall cultivation, with maguey, nopal, and maize present at the time of survey. One jagüey was present. The site showed evidence of heavy plowing.

Archaeological Remains: Moderate surface pottery (Aztec III), and a scatter of obsidian artifacts, over an area of about 0.3 ha. No structural remains. This site was surveyed with a 1:25,000 air photo.

Classification: Small hamlet, 8-15 people.

Tm-Az-112

Natural Setting: 2,335-2,345 m, in the thin soil alluvium west of Cerro Coayucán. Located on gently sloping ground. Shallow soil cover. Virtually no erosion.

Modern Utilization: Rainfall cultivation, with maize present at the time of survey.

Archaeological Remains: Light-to-moderate surface pottery, and very light obsidian artifacts, over an area of about 0.1 ha. No structural remains.

Classification: Small hamlet, 1-3 people.

Tm-Az-113

Natural Setting: 2,378-2,390 m, in the lower piedmont west of Cerro Coayucán. Located on gently sloping ground at the base of a small hill. Shallow soil cover. Extensive erosion.

Modern Utilization: Rainfall cultivation, with maize, barley, habas, and oats all present at the time of survey, in fields equipped with stone terraces and maguey bancales.

Archaeological Remains: Generally light surface pottery (Aztec III and IV), and variable rock rubble (ranging from light to substantial), over an area of about 6.0 ha. The main components of this site were three residential mounds and one ceremonial mound arranged in an L-shaped pattern and connected by a scatter of artifacts, as described in Table 5.18. Mixed with very light Late Toltec (Tm-Lt-71) and an unrecorded amount of Early Aztec (Tm-Ea-5) material.

Classification: Hamlet, 30-60 people.

Tm-Az-114

Natural Setting: 2,360-2,385 m, in the lower piedmont west of Cerro Coayucán. Located on moderately-to-steeply sloping terrain on the northeastern flank of a small hill. Shallow-to-medium soil cover. Generally moderate erosion, but ranging from slight to heavy in places.

Modern Utilization: Rainfall cultivation, with maize, barley, and oats all present at the time of survey, in fields equipped with maguey bancales. Grazing also occurred on part of the site area.

Archaeological remains: Very light-to-light surface pottery, along with generally light rock rubble (though becoming substantial in places), over an area of about 19.0 ha. The survey crew recorded a total of 18 mounds, stretching northwest to southeast in an elongated distribution (Figure 5.21), as described in Table 5.19. Concentrations of rubble and ceramics possibly represented the poorly preserved remnants of other mounds along the eastern edge of the site. Mixed with light Late Toltec (Tm-Lt-72) and an unrecorded amount of Early Aztec (Tm-Ea-6) material.

Classification: Small dispersed village, 85-170 people.

Table 5.18. Tm-Az-113 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	20 x 7	2.0	None	Light	Ceremonial; Aztec III and IV
Mound 2	6 x 6	0.8	None	Light	Residential; Aztec III and IV
Mound 3	5 x 5	0.8	Light	None	Residential; Aztec II and III
Mound 4	NR	NR	Light	Light	Residential; Aztec II and III; poorly preserved

Note: NR means "not recorded."

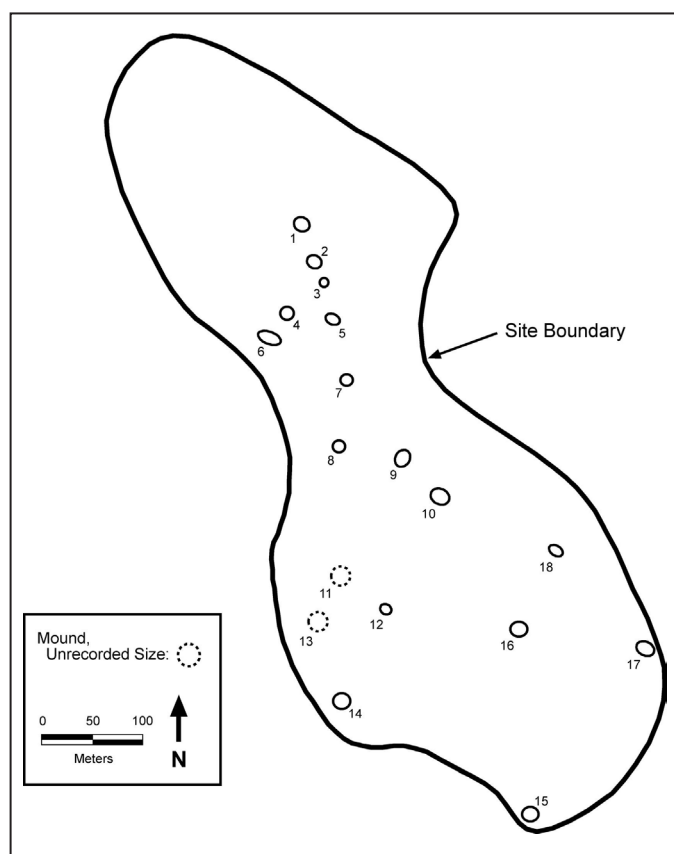


Figure 5.21. Tm-Az-114 Architectural Features

Tm-Az-115

Natural Setting: 2,370 m, on a small hill in the thin soil alluvium west of Cerro Coayucán. Located on steeply sloping ground just off the edge of the hilltop itself. Shallow-to-medium soil cover. Virtually no erosion.

Modern Utilization: Rainfall cultivation, with maguey present at the time of survey.

Archaeological Remains: Very light-to-light surface pottery (Aztec III), and a few ground stone artifacts, over an area of about 0.5 ha. The main features of this site are two poorly preserved residential mounds on the steep hillside, defined by concentrations of artifacts on slight rises just off the edge of the hilltop. Due to their condition, no dimensions of the mounds were recorded.

Classification: Small hamlet, 10-20 people.

Tm-Az-116

Natural Setting: 2,350 m, in the thin soil alluvium west of Cerro Coayucán. Located on gently sloping ground. Shallow-to-medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with maize, habas, and barley present at the time of survey.

Archaeological Remains: Light surface pottery (Aztec III and

IV) and, substantial rock rubble, over an area of about 0.3 ha. The survey crew noted remains of one residential mound, measuring 8.0 by 8.0 m at its base; no height was recorded (due to considerable disturbance).

Classification: Small hamlet, 5-10 people.

Tm-Az-117

Natural Setting: 2,380 m, in the thin soil alluvium southwest of Cerro Coayucán. Located on the southwestern flank of a small hill. Shallow-to-medium soil cover. Virtually no erosion.

Modern Utilization: Rainfall cultivation, with maize and barley present at the time of survey.

Archaeological Remains: Very light-to-light surface pottery, substantial rock rubble, and a few mano fragments over an area of about 0.5 ha. The site consisted mainly of one poorly preserved ceremonial mound; due to disturbance from years of plowing and looting, no mound dimensions were recorded.

Classification: Isolated ceremonial center, no permanent population.

Tm-Az-118

Natural Setting: 2,370 m, in the lower piedmont west of Cerro Coayucán. Located on gently sloping ground. Shallow soil cover. Extensive erosion.

Modern Utilization: Grazing.

Archaeological Remains: Very light-to-light surface pottery, along with scattered obsidian and ground stone artifacts, over an area of about 0.5 ha. The survey crew recorded remains of one single, badly eroded residential mound, though due to its poor preservation no dimensions were recorded. The mound possibly was located on the remains of Late Aztec period terraces, but extensive erosion and the presence of modern fill made terrace age impossible to determine.

Classification: Small hamlet, 5-10 people.

Tm-Az-119

Natural Setting: 2,380-2,410 m, in the middle and lower piedmont on the southwestern flank of Cerro Coayucán. Located on moderately sloping ground below much steeper slopes, in an area cut by several washes. Shallow soil cover. Moderate-to-deep erosion.

Modern Utilization: Rainfall cultivation, with maguey and nopal present at the time of survey. A few modern houselots occurred within bounds of the site.

Archaeological Remains: Generally light surface pottery (Aztec III and IV) over an area of about 29.0 ha. The survey crew noted remains of seven mounds, their basic characteristics presented in Table 5.20. Mixed with slightly

Table 5.19. Tm-Az-114 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	8 x 6	0.8	Light	None	Residential; Late Toltec and Late Aztec (III and IV)
Mound 2	8 x 6	0.8	Light	None	Residential; Late Toltec and Late Aztec (III and IV)
Mound 3	4 x 4	0.5	Heavy	Light	Residential; bone fragments also present; virtually all remains are Late Toltec
Mound 4	6 x 6	NR	Very light-light	None	Residential; poorly preserved
Mound 5	8 x 4	0.5	Very light	None	Residential
Mound 6	20 x 10	1.0	Light	None	Probably residential; Aztec III
Mound 7	6 x 4	NR	Very light	None	Residential; Aztec III; poorly preserved
Mound 8	4 x 4	0.6	Very light	None	Residential; Aztec III
Mound 9	12 x 11	0.8	Heavy	Heavy	Residential; Aztec IV
Mound 10	12 x 10	0.8	Very light	None	Residential; Aztec III and IV
Mound 11	NR	NR	NR	NR	
Mound 12	5 x 5	0.6	Very light-light	Substantial	Residential; Aztec III and IV
Mound 13	NR	NR	NR	NR	
Mound 14	8 x 6	0.8	Light-moderate	Light	Residential; Aztec III and IV
Mound 15	8 x 6	0.8	Moderate	Substantial	Residential; Aztec III and IV
Mound 16	9 x 8	0.6	Light	None	Residential
Mound 17	8 x 6	1.0	Very light-light	Light	Probably residential; Aztec II and III
Mound 18	6 x 4	0.5	Very light	Light	Residential; Aztec III

Note: NR means “not recorded.”

lighter Terminal Formative (Tm-Tf-39), light-to-moderate Teotihuacan period (Tm-CI-40), and light Late Toltec (Tm-Lt-73) material, all restricted to a small area on the northwestern edge of Tm-Az-119.

Classification: Small dispersed village, 145-290 people.

Tm-Az-120

Natural Setting: 2,370-2,410 m, in the middle and lower piedmont on the northern and western flank of Cerro Coayucán. Located on gently to steeply sloping ground immediately below a very steep slope. Generally shallow soil cover, with some exposed tepetate. Extensive erosion.

Modern Utilization: Rainfall cultivation, with scattered nopal and pirul present at the time of survey. A few associated fields featured stone terraces to help control erosion. Part of the site also was used for grazing. The eastern end of this site

occurred within the modern village of San Antonio Coayucán.

Archaeological Remains: Generally light surface pottery, though becoming moderate-to-heavy in a few places, and scattered obsidian artifacts over an area of about 21.0 ha. The survey crew identified remains of four poorly preserved mounds—two near the southern tip of the site, one in the west-central part of the site, and one at the eastern end of the site. Due to the poor state of mound preservation, no dimensions were recorded. The remnants of banales that probably dated to the Late Aztec occupation also occurred. Mixed with a small amount of light-to-moderate Late Toltec (Tm-Lt-74) material.

Classification: Small dispersed village, 105-210 people.

Tm-Az-121

Natural Setting: 2,350 m, in the lower piedmont on the eastern

Table 5.20. Tm-Az-119 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	12 x 12	2.0	None	None	Ceremonial; looted in center
Mound 2	25 x 25	3.5	None	None	Ceremonial; looted in center
Mound 3	15 x 15	1.0	None	None	Probably residential; possibly associated with nearby terraces
Mound 4	12 x 12	2.0	None	None	Ceremonial; lies on remnants of terraces with tepetate walls; poorly preserved
Mound 5	12 x 12	1.0	None	None	Probably residential; looted in center
Mound 6	25 x 25	1.0	Light	None	Probably residential; stucco fragments also present
Mound 7	NR	NR	None	None	Residential; poorly preserved

Note: NR means “not recorded.”

flank of Cerro Coayucán. Located on gently sloping ground. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with nopal and maguey present at the time of survey, in fields equipped with drainage ditches and maguey banales.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 0.2 ha. No structural remains.

Classification: Small hamlet, 2-5 people.

Tm-Az-122

Natural Setting: 2,330 m, in the thin soil alluvium southwest of Cerro los Pitos. Located on gently sloping ground west of a major barranca. Deep soil cover. Virtually no erosion.

Modern Utilization: None.

Archaeological Remains: Light-to-moderate surface pottery, light rock rubble, and scattered obsidian artifacts over an area of about 1.0 ha. Concentrations of artifacts and rubble on slight rises probably represented the remains of three poorly preserved residential mounds. Due to their poor condition, no dimensions were recorded. The remains of two poorly preserved terraces, possibly dating to the Late Aztec occupation, also occurred on the site.

Classification: Hamlet, 15-30 people.

Tm-Az-123

Natural Setting: 2,340-2,350 m, in the thin soil alluvium southwest of Cerro los Pitos. Located on gently sloping ground on the southern flank of Cerro Tlexta. Shallow-to-medium soil cover, including tezontle gravel. Slight, localized erosion.

Modern Utilization: Rainfall cultivation, predominantly of maize and maguey at the time of survey, in fields equipped with maguey banales.

Archaeological Remains: Generally very light surface pottery, mixed with light rock rubble and scattered obsidian and basalt artifacts, over an area of about 2.0 ha. Concentrations of artifacts and rock rubble on slight rises probably represented the poorly preserved remains of nine residential mounds dating to the Late Aztec occupation. Due to heavy disturbance, no mound dimensions were recorded. Mixed with light Late Toltec (Tm-Lt-75) material.

Classification: Hamlet, 45-90 people.

Tm-Az-124

Natural Setting: 2,328-2,350 m, in the thin soil alluvium southwest of Cerro los Pitos. Located on flat ground that extends to a gentle, then medium slope at the western flank of Cerro Tlexta. Generally shallow-to-medium soil cover. Slight,

localized erosion.

Modern Utilization: Rainfall cultivation in fields equipped with stone terraces and maguey banales. Maize was the predominant crop planted at the time of survey, but barley, habas, and maguey also were present and some fields containing the site were lying fallow. The site occurred within houselots of the modern village of Tlexta. A modern road, running northwest-southeast, crossed the site.

Archaeological Remains: Generally light surface pottery, becoming moderate-to-heavy in places, over an area of about 9.0 ha. Ground stone tools, scanty-to-light obsidian tools, and substantial-to-heavy rock rubble also occurred. Concentrations of artifacts and rubble likely represented the remains of 18 poorly preserved mounds—all disturbed to the point that no measurements were possible. The site had been heavily looted at the time of survey. In addition to artifact scatters, two human crania and several bones were exposed on the eastern part of the site. Mixed with Late Toltec (Tm-Lt-76) material, varying in density from light to heavy, on the mound concentrations and throughout the site.

Classification: Small dispersed village, 90-180 people.

Tm-Az-125

Natural Setting: 2,328-2,340 m, in the thin soil alluvium southwest of Cerro los Pitos. Located on flat-to-gently sloping ground. Medium soil cover. Virtually no erosion.

Modern Utilization: Rainfall cultivation in fields equipped with stone terraces and maguey banales, though much of the site was lying fallow at the time of survey. The site occurred on the southern edge of the modern village of Juárez.

Archaeological Remains: Light surface pottery, substantial rock rubble, and scattered obsidian and ground stone artifacts over an area of about 6.0 ha. This site formed an elongated scatter, stretching northwest to southeast but constricted near the middle in a manner that nearly pinched the site in two. No structural remains.

Classification: Hamlet, 30-60 people.

Tm-Az-126

Natural Setting: 2,375-2,390 m, in the middle piedmont southwest of Cerro los Pitos. Located on moderately sloping ground at the base of Cerro Tlexta. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with maguey present at the time of survey, in fields equipped with stone terraces. A modern house also occurred on the site, and part of the area was used for grazing.

Archaeological Remains: Generally light surface pottery, and light rock rubble, over an elongated area of 1.5 ha. Concentrations of ceramics and rubble on slight rises near the

center of the site probably represented the remains of three poorly preserved residential mounds arranged along a north-south axis. Due to mound condition, no dimensions were recorded.

Classification: Hamlet, 15-30 people.

Tm-Az-127

Natural Setting: 2,345-2,375 m, in the middle piedmont and thin soil alluvium southwest of Cerro los Pitos. Located on flat-to-gently sloping rocky ground at the base of a small hill overlooking a deep soil plain. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with maguey and nopal present at the time of survey, in fields equipped with stone terraces and maguey banales. The eastern part of the site occurred within the modern dispersed village of Guadalupe Relinas.

Archaeological Remains: Variable light-to-moderate surface pottery over an area of about 13.0 ha. A small concentration of obsidian blades and cores occurred on the northern edge of the site. No structural remains.

Classification: Small nucleated village, 130-325 people.

Tm-Az-128

Natural Setting: 2,360-2,380 m, in the middle piedmont southwest of Cerro los Pitos. Located on gently to moderately sloping ground on the southern flank of Cerro Tlexta. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with scattered nopal and maguey present at the time of survey, in fields equipped with banales.

Archaeological Remains: Moderate surface pottery, substantial-to-heavy rock rubble, and very light-to-light obsidian artifacts over an area of about 6.0 ha. Concentrations of ceramics and rubble on slight rises probably defined the remains of 12 poorly preserved residential mounds, nine occurring in the northern half of the site. Due to the condition of the mounds, no dimensions were recorded. A few Late Toltec potsherds were found, though in insufficient amounts to define an earlier site.

Classification: Small nucleated village, 150-300 people.

Tm-Az-129

Natural Setting: 2,340 m, in the thin soil alluvium southwest of Cerro los Pitos. Located on flat ground. Shallow-to-medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with maguey present at the time of survey, in fields equipped with maguey banales.

Archaeological Remains: Light surface pottery, and scattered obsidian artifacts, over an area of about 1.0 ha. No structural remains.

Classification: Small hamlet, 5-10 people.

Tm-Az-130

Natural Setting: 2,340 m, in the thin soil alluvium southwest of Cerro los Pitos. Located on flat-to-gently sloping ground slightly west of a major barranca. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with some fields planted in barley, nopal, and maguey at the time of survey, in fields equipped with drainage ditches, earth banks, and maguey banales. Other fields were lying fallow.

Archaeological Remains: Very light-to-light surface pottery over an area of about 7.5 ha. No structural remains.

Classification: Hamlet, 15-38 people.

Tm-Az-131

Natural Setting: 2,360 m, in the middle piedmont south of Cerro los Pitos. Located on the steep, sandy western slope of a small hill. Shallow soil cover. Generally moderate erosion.

Modern Utilization: Grazing.

Archaeological Remains: Light surface pottery, and heavy rock rubble, over an area of about 0.1 ha. The survey crew recorded one mound, measuring 3.0 by 3.0 m at its base and 0.2 m in height and composed almost entirely of rubble.

Classification: Isolated ceremonial center, no permanent population.

Tm-Az-132

Natural Setting: 2,380 m, on a hilltop in the middle piedmont south of Cerro los Pitos. Located on generally flat ground. Shallow soil cover. Moderate erosion.

Modern Utilization: Grazing. The site lies near a modern tezontle quarry, also located on the hilltop.

Archaeological Remains: Light-to-moderate surface pottery (Aztec III), and a few obsidian artifacts, over an area of about 0.1 ha. No structural remains.

Classification: Isolated ceremonial center, no permanent population.

Tm-Az-133

Natural Setting: 2,350-2,380 m, in the thin soil alluvium south of Cerro los Pitos. Located on moderately-to-steeply sloping ground on the western flank of a small hill overlooking a deep

soil plain. Generally shallow soil cover. Moderate erosion, particularly associated with the many washes running through the site.

Modern Utilization: Grazing. Also some rainfall cultivation, with maguey and nopal present at the time of survey, in fields equipped with stone terraces and maguey bancales.

Archaeological Remains: Generally moderate surface pottery, mixed with scattered obsidian blades and cores, over an area of about 20.0 ha. The survey crew recorded the remains of two large ceremonial mounds on the eastern part of the site (Figure 5.22)—Mound 1 measuring 80.0 by 40.0 m at its base and 3.0 m in height, and Mound 2 measuring 60.0 by 40.0 m at its base and 3.0 m in height. Concentrations of artifacts on slight rises throughout the site probably represented the remains of 33 poorly preserved residential mounds. All of these latter mounds had been heavily plowed (and looted), disturbing the surface remains and making the measurement of dimensions impossible. The amount of plowing on this site, coupled with the occurrence of additional artifact concentrations, suggests that other mounds possibly existed at one time.

Classification: Large nucleated village, 500-1,000 people.

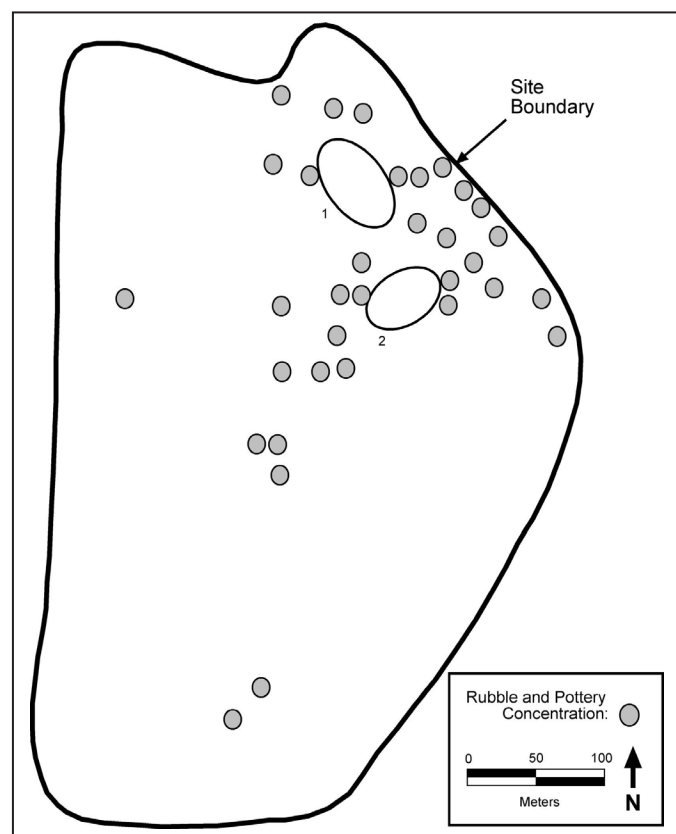


Figure 5.22. Tm-Az-133 Architectural Features

Tm-Az-134

Natural Setting: 2,380-2,410 m, in the middle piedmont and thin soil alluvium south of Cerro los Pitos. Located on gently to moderately sloping ground along the southeastern flank of a small hill. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with maguey present at the time of survey, in fields equipped with drainage ditches, stone terraces, and bancales. Site occurred on the northwestern edge of the modern town of Santa María Aticpac.

Archaeological Remains: Very light-to-light surface pottery, and light-to-substantial rock rubble, over an area of about 7.0 ha. Artifact and rubble concentrations probably represented the remains of 16 poorly preserved residential mounds scattered across the site. Due to the poor condition of these mounds, no dimensions were recorded. The remnants of several stone terraces, probably dating to the Late Aztec occupation, also occurred on the site.

Classification: Small dispersed village, 112-160 people.

Tm-Az-135

Natural Setting: 2,370-2,410 m, in the middle piedmont and thin soil alluvium south of Cerro los Pitos. Located on gently to moderately sloping ground overlooking a deep soil plain and immediately west of a large barranca. Shallow soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with maguey and nopal present at the time of survey, in fields equipped with stone terraces; other fields were lying fallow. Site lies within the northern part of the modern town of Santa María Aticpac.

Archaeological Remains: Light-to-moderate surface pottery (mostly Aztec III), and heavy rock rubble, over an area of about 11.0 ha. Scattered obsidian and ground stone artifacts also occurred across much of the site. The site contained the poorly preserved remains of at least 25 residential mounds (Figure 5.23) defined by slight rises and concentrations of rubble, and in general scattered uniformly across the site. Although the survey crew did not record dimensions of individual rubble concentrations, most measured roughly 10.0-12.0 m in diameter and less than 0.5 m in height. Many of the rubble concentrations featured the remains of walls and wall fragments, but few artifacts. In addition, the survey crew identified and recorded the dimensions of one well preserved residential mound and three ceremonial mounds (Table 5.21).

Classification: Small nucleated village, 110-275 people.

Tm-Az-136

Natural Setting: 2,350-2,410 m, in the middle piedmont and thin soil alluvium south of Cerro los Pitos. Located on gently to moderately sloping ground immediately east of a large barranca. Medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with barley, maguey, and nopal present at the time of survey, in fields equipped with maguey bancales. Many of the fields associated with the site were lying fallow. Site occurred just beyond the northeastern edge of the modern town of Santa María Aticpac.

Archaeological Remains: Generally light surface pottery

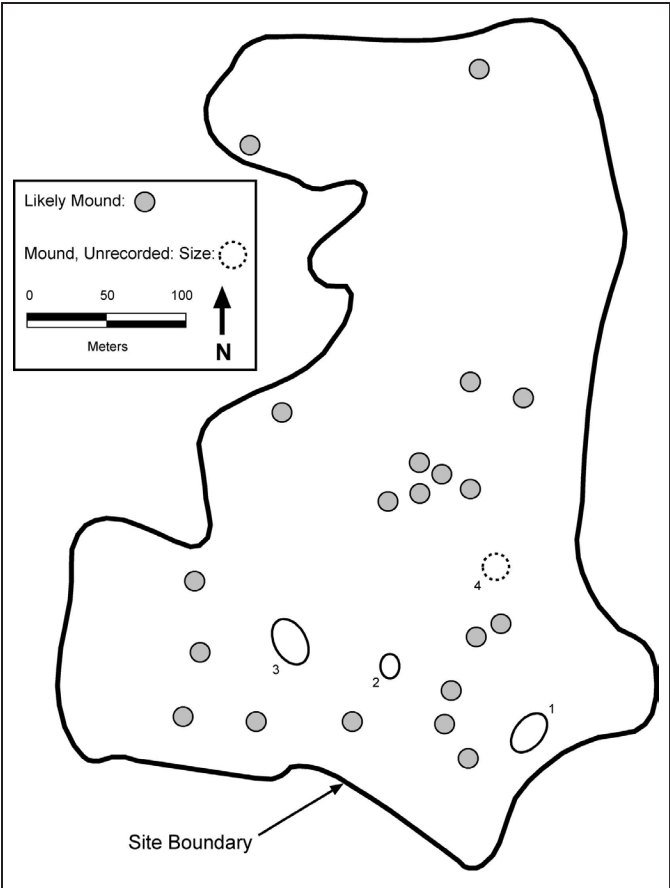


Figure 5.23. Tm-Az-135 Architectural Features

Table 5.21. Tm-Az-135 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	28 x 15	1.5	None	None	Ceremonial
Mound 2	16 x 9	0.5	None	None	Residential
Mound 3	30 x 20	2.5	None	None	Ceremonial
Mound 4	NR	NR	None	Heavy	Possibly ceremonial; poorly preserved

Note: NR means “not recorded.”

(becoming moderate in places), light rock rubble, and scattered obsidian and ground stone tools over an area of about 9.0 ha. Artifact and rubble concentrations on slight rises probably represented the poorly preserved remains of at least 16 residential mounds scattered uniformly across the site. These mounds had been plowed to the point of nearly total destruction; most appeared to be about 10.0 m in diameter and 0.2-0.3 m in height. Several of these likely mounds had fragments of walls associated. A moderate concentration of obsidian indicated the presence of a probable workshop.

Classification: Small dispersed village, 80-160 people. A deep barranca separated this site from Tm-Az-135, introducing the possibility that at one time these two sites may have formed a single, larger dispersed village—a possibility made more likely by the presence of civic architecture exclusively at Tm-Az-135.

Tm-Az-137

Natural Setting: 2,475 m, in the middle piedmont south of

Cerro los Pitos. Located on gently sloping ground. Shallow soil cover. Extensive erosion.

Modern Utilization: Rainfall cultivation, with maguey and nopal present at the time of survey. Grazing also occurred on part of the site.

Archaeological Remains: Very light-to-light surface pottery, and substantial rock rubble, over an area of about 0.3 ha. No structural remains.

Classification: Small hamlet, 1-2 people.

Tm-Az-138

Natural Setting: 2,475 m, in the middle piedmont south of Cerro los Pitos. Located on gently sloping ground immediately east of a large barranca. Shallow soil cover. Extensive erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey.

Archaeological Remains: Very light-to-light surface pottery over an area of about 0.5 ha. The survey crew noted no mounds, but did record the remains of small, poorly preserved sections of walls.

Classification: Small hamlet, 1-3 people.

Tm-Az-139

Natural Setting: 2,480-2,495 m, in the middle piedmont south of Cerro los Pitos. Located on moderately sloping ground at the base of a small hill and slightly east of the head of a large barranca. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation. Also grazing.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 1.0 ha. Two small concentrations of pottery possibly represented the poorly preserved remains of two domestic mounds, though no dimensions were recorded.

Classification: Hamlet, 10-25 people.

Tm-Az-140

Natural Setting: 2,420-2,450 m, in the middle piedmont south of Cerro los Pitos. Located on gently to moderately sloping ground. Shallow soil cover. Severe erosion.

Modern Utilization: The site occurred near the center of the modern town of Santa María Aticpac.

Archaeological Remains: Moderate-to-heavy densities of surface pottery, and substantial-to-heavy rock rubble, over an area of about 10.0 ha. Most rubble occurred in the northeastern portion of the site, though it was not associated with any structural remains. This site had abundant Late Aztec material mixed with a large amount of Colonial period remains, hindering specific delineation of the extent and density of the prehispanic occupation.

Classification: Large nucleated village, 500-1,000 people.

Tm-Az-141

Natural Setting: 2,370-2,380 m, in the thin soil alluvium south of Cerro los Pitos. Located on gently to moderately sloping ground at the base of an andesite rock outcrop. Shallow soil cover. Generally moderate erosion.

Modern Utilization: Rainfall cultivation, with maguey present at the time of survey, in fields equipped with stone terraces and maguey banales.

Archaeological Remains: Generally moderate surface pottery, and very light obsidian blades, over an area of about 0.5 ha. No definite structural remains, although associated stone terraces possibly dated to the Late Aztec (or Late Toltec) occupation. Mixed with similarly dense Late Toltec (Tm-Lt-77) material.

Classification: Hamlet, 13-25 people.

Tm-Az-142

Natural Setting: 2,410-2,425 m, in the middle piedmont south of Cerro los Pitos. Located on gently to moderately sloping ground. Shallow soil cover. Moderate erosion, though immediately west of a heavily eroded area.

Modern Utilization: Rainfall cultivation. Site occurred on the southern edge of the modern town of Santa María Aticpac.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 5.0 ha. The survey crew recorded three residential mounds, lying in an east-west alignment near the southern edge of the site. Mound 1 (the westernmost) measured about 25.0 m in diameter and 0.5 m in height, while Mound 3 (the easternmost) measured 12.0 m in diameter and 0.5 m in height. Mound 2, lying between the other two structures, represented a small concentration of artifacts on a slight rise; due to its poor preservation, no dimensions were recorded.

Classification: Small dispersed village, 50-125 people. Areas of heavy erosion to the north and south of Tm-Az-142 separated this site from Tm-Az-140 and Tm-Az-163, respectively. If they were occupied simultaneously, all three communities may have formed a single, dispersed village.

Tm-Az-143

Natural Setting: 2,370 m, in the middle piedmont south of Cerro los Pitos. Located on gently to moderately sloping ground immediately north of (and possibly cut by) a large barranca. Shallow-to-medium soil cover. Moderate erosion.

Modern Utilization: Marginal rainfall cultivation, with maize present at the time of survey, in fields equipped with maguey banales. The site showed evidence of heavy plowing over time.

Archaeological Remains: Moderate surface pottery over an area of about 0.1 ha. Terraces that probably dated to the Late Aztec occupation also occurred. No other structural remains.

Classification: Small hamlet, 3-5 people.

Tm-Az-144

Natural Setting: 2,360 m, in the thin soil alluvium south of Cerro los Pitos. Located on gently sloping ground. Medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with barley, maize, and maguey present at the time of survey, in fields equipped with maguey banales.

Archaeological Remains: Moderate surface pottery and scattered obsidian artifacts over an area of about 0.3 ha. The survey crew noted the remains of one mound, measuring 60.0 by 43.0 m at its base and 1.5 m in height and probably used for ceremonial purposes.

Classification: Isolated ceremonial center, no permanent population.

Tm-Az-145

Natural Setting: 2,360 m, in the thin soil alluvium south of Cerro los Pitos. Located on gently sloping ground near the head of a major barranca system running to the southwest. Generally shallow soil cover. Moderate-to-severe erosion, particularly associated with several washes which cut through the site.

Modern Utilization: Grazing.

Archaeological Remains: Moderate-to-heavy surface pottery, light-to-substantial rock rubble, and scattered basalt flakes and grey obsidian tools, over an area of about 0.1 ha. The survey crew recorded remains of one badly eroded mound, measuring 14.0 by 12.0 m at its base and ranging from about 0.1 m in height to a slight depression. Several concentrations of pottery and rubble occurred near the mound. Mixed with moderate Teotihuacan period (Tm-CI-43) material.

Classification: Small hamlet, 5-10 people.

Tm-Az-146

Natural Setting: 2,365 m, in the thin soil alluvium south of Cerro los Pitos. Located on moderately sloping ground. Shallow soil cover. Moderate erosion.

Modern Utilization: Grazing.

Archaeological Remains: Very light-to-light surface pottery, ground stone tools, and obsidian artifacts over an area of about 1.0 ha. No certain structural remains, though a concentration of artifacts on a slight rise possibly represented the poorly preserved remnants of a residential mound. The survey crew recorded a few Late Toltec potsheerds, though in insufficient quantities to define a site.

Classification: Small hamlet, 5-10 people.

Tm-Az-147

Natural Setting: 2,355 m, in the thin soil alluvium south of Cerro los Pitos. Located on gently sloping ground, the site bordered on the north and south by barrancas. Shallow-to-medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with maguey present at the time of survey.

Archaeological Remains: Light surface pottery, becoming moderate in a few places, combined with light rock rubble and scattered obsidian artifacts over an area of about 1.2 ha. The survey crew noted the remains of one mound near the west-central portion of the site, measuring 26.0 by 13.0 m at its base and 1.0 m in height.

Classification: Small hamlet, 6-12 people.

Tm-Az-148

Natural Setting: 2,360 m, in the thin soil alluvium south of Cerro los Pitos. Located on moderately sloping ground east of a major barranca. Shallow soil cover. Moderate erosion.

Modern Utilization: Rainfall cultivation, with maguey present at the time of survey.

Archaeological Remains: Generally light surface pottery, coupled with scattered obsidian and basalt artifacts, over an area of about 0.3 ha. Light rock rubble also occurred, primarily in the northeastern part of the site and reaching substantial densities in places. The survey crew noted the remains of one mound, measuring 10.0 by 10.0 m at its base and 0.2 m in height and associated with considerable basalt rubble.

Classification: Small hamlet, 5-10 people.

Tm-Az-149

Natural Setting: 2,355 m, in the thin soil alluvium south of

Cerro los Pitos. Located on gently sloping ground composed of mixed soil and tepetate immediately east of a large barranca. Shallow soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey.

Archaeological Remains: Light surface pottery and rock rubble over an area of about 0.3 ha. No structural remains.

Classification: Small hamlet, 2-3 people.

Tm-Az-150

Natural Setting: 2,365 m, in the thin soil alluvium south of Cerro los Pitos. Located on gently sloping ground immediately east of a major barranca. Shallow-to-medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with maguey present at the time of survey, in fields equipped with earth banks.

Archaeological Remains: Light-to-moderate surface pottery, sparse rock rubble (becoming light in a few places), and a scatter of obsidian blades over an area of about 0.1 ha. No structural remains.

Classification: Small hamlet, 1-3 people.

Tm-Az-151

Natural Setting: 2,375-2,470 m, in the middle piedmont and thin soil alluvium south of Cerro los Pitos. Located on level and gently sloping ground on two hilltops and the saddle connecting them. Generally very shallow soil cover, with large areas of exposed tepetate. Moderate-to-heavy erosion; much of the more extensive erosion was associated with a network of barrancas that transverse the southern part of the site.

Modern Utilization: Rainfall cultivation, with barley, beans, and maguey present at the time of survey. Several fields also were lying fallow. Despite the presence of banales, stone terraces, and earth banks throughout the site, much of this area had been badly damaged by erosion. At the time of survey, large-scale reclamation was underway, with much soil being moved about and plowed and many trees uprooted—in the process, bulldozing or otherwise modifying several prehispanic mounds. An old hacienda house occurred on the summit of a small hill on the site. The modern settlements of La Puerta and Zacatepec cover the northern portions of Tm-Az-151.

Archaeological Remains: Highly variable densities of surface pottery, ranging from very light to moderate-to-heavy, over an area of about 103.0 ha. Considerable rock rubble, reaching heavy densities in places, also occurred. Artifacts present included numerous manos and metates, obsidian cores and blades (including at least one obsidian workshop), and figurines. Two Huastec figurines also were noted. The survey crew recorded a total of 65 residential mounds, as

well as 26 ceremonial mounds (Figure 5.24), their basic characteristics presented in Table 5.22. The poorly preserved remains of likely prehispanic terraces and banales occurred on the northern and southeastern portions of the site; some of those that also may have been mounds are noted below in the mound descriptions. It is likely that this site once contained many more mounds, destroyed by a combination of natural erosion and post-conquest activities (primarily modern house and road construction and agricultural activity). The site possibly was substantially larger, but due to heavy erosion over about 60% of its area, heavy plowing and bulldozing over another 30%, and the disturbance associated with modern settlement in the northern third of the site, it is impossible to say with any certainty how large it may have been. This modern disturbance affected the evaluation of this site in the field, indicating the presence of four separate, smaller sites (based on the arrangement of mounds) that we now feel were barrios within the same administrative center.

Classification: Provincial center, 1,060-1,325 people. Although this site features the types of architectural remains that one would expect to find at a provincial center in the Basin of Mexico, it is not documented as such in ethnohistoric records. One possible explanation is that the site functioned as a center earlier during the Late Aztec period of occupation in the basin, only to lose its administrative status at a later date prior to the Spanish Conquest, such as occurred with Oxtotitlan (Gibson 1964:68-71).

Tm-Az-152

Natural Setting: 2,470 m, in the middle piedmont south of Cerro los Pitos. Located on moderately sloping ground. Shallow soil cover. Moderate-to-extensive erosion.

Modern Utilization: Rainfall cultivation, with maize, barley, and maguey present at the time of survey, in fields equipped with maguey banales.

Archaeological Remains: Light-to-moderate surface pottery over an area of about 1.0 ha. Two mounds occurred at opposite ends of this elongated site and connected by a light scatter of pottery. The eastern mound measured 4.0 by 4.0 m at its base and 0.3 m in height; it was heavily eroded and plowed, with very light ceramics associated. The western mound, measuring 7.0 by 5.0 m at its base and about 1.0 m in height, had light-to-moderate ceramics associated.

Classification: Hamlet, 10-25 people.

Tm-Az-153

Natural Setting: 2,460-2,475 m, in the middle piedmont south of Cerro los Pitos. Located on moderately sloping ground. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with barley and maize present at the time of survey, in fields equipped with maguey banales.

Archaeological Remains: Very light surface pottery over an area of about 1.0 ha. Slight rises with a few potsherds associated probably represented the remnants of three poorly preserved residential mounds; due to their condition, no dimensions were recorded.

Classification: Hamlet, 15-30 people.

Tm-Az-154

Natural Setting: 2,455 m, in the middle piedmont south of Cerro los Pitos. Located on gently sloping ground. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with barley present at the time of survey, in fields equipped with earth banks and maguey banales.

Archaeological Remains: Very light surface pottery (Aztec III), and light-to-substantial rock rubble, over an area of about 1.0 ha. The survey crew noted remains of six residential mounds, lying roughly in an east-west alignment. Two of these mounds measure 10.0 by 10.0 m at the base and about 0.8 m in height; the remaining four were very poorly preserved, defined primarily by concentrations of rubble and artifacts, with no dimensions recorded.

Classification: Hamlet, 30-60 people.

Tm-Az-155

Natural Setting: 2,430-2,450 m, in the middle piedmont south of Cerro los Pitos. Located on moderately to steeply sloping ground. Shallow soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, mainly of maize and barley but with some maguey and nopal also present at the time of survey. Maguey banales occurred in fields on the eastern part of the site. Parts of this site also were used for grazing. Modern roads passed along the eastern, northern, and southern borders of the site, making boundaries difficult to define.

Archaeological Remains: Generally moderate surface pottery (Aztec III and IV), light-to-substantial rock rubble, and assorted lithic artifacts over an area of about 7.5 ha. Concentrations of rubble and artifacts on slight rises in the western half of the site defined the remains of four poorly preserved residential mounds. Due to their condition, no dimensions were recorded. A small piece of mural (measuring 0.54 by 0.45 m) was noted on one of the mounds. Concentrations of ceramics near the eastern edge of the site possibly defined the remnants of two additional mounds. Although a few Early Toltec potsherds were found, they were insufficient to define an additional occupation.

Classification: Small nucleated village, 188-375 people.

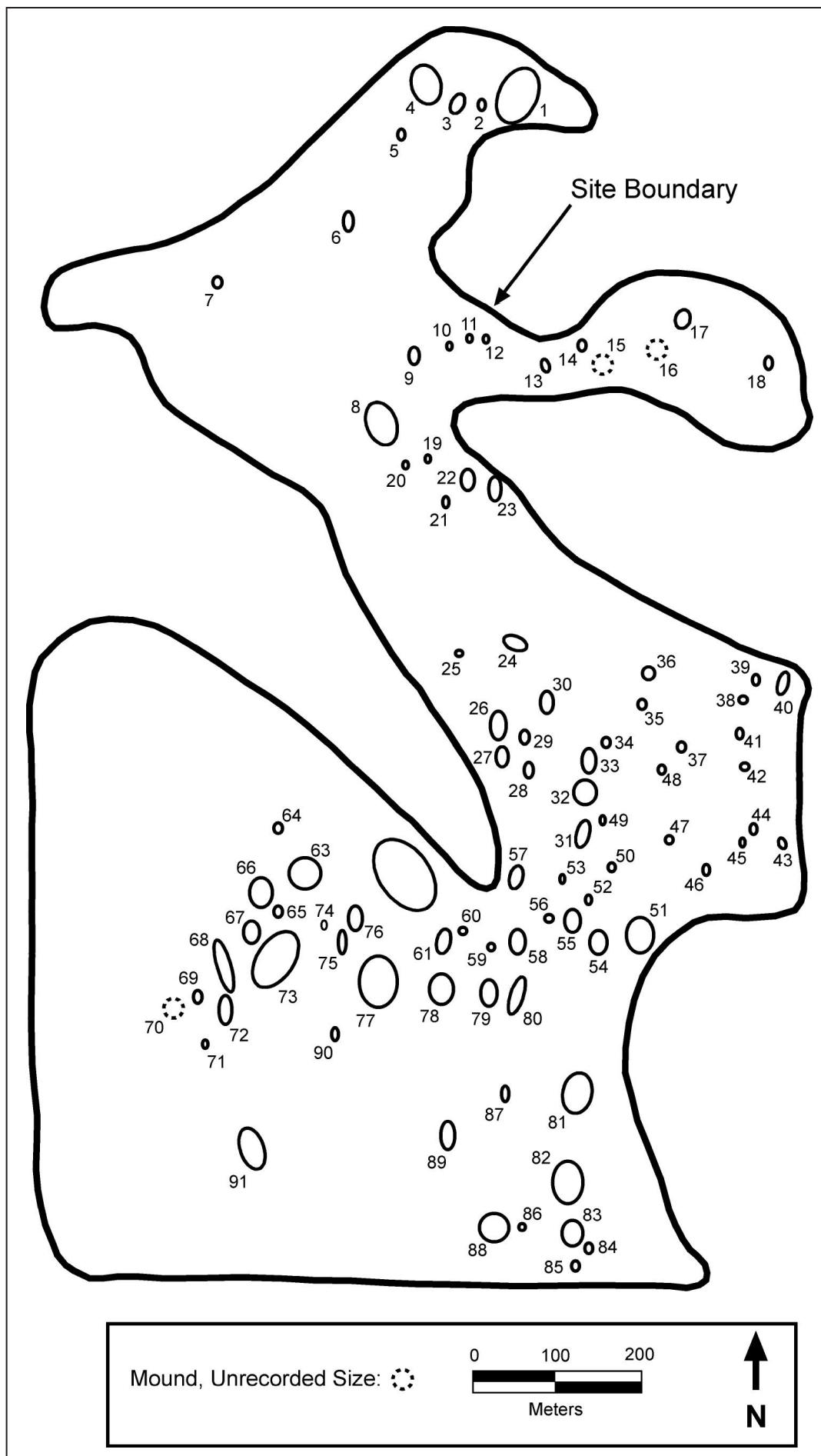


Figure 5.24. Tm-Az-151 Architectural Features

Table 5.22. Tm-Az-151 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	80 x 28	0.2	None	None	Residential mound or terrace
Mound 2	11 x 8	0.2	None	None	Residential
Mound 3	53 x 30	0.3	Light	Light	Residential mound or terrace
Mound 4	29 x 8	0.3	None	Light	Residential mound or terrace
Mound 5	12 x 6	0.3	Light	Light	Residential; badly eroded
Mound 6	26 x 15	0.7	Light	Light	Residential
Mound 7	10 x 6	0.2	Moderate	Substantial	Residential; moderate obsidian also present
Mound 8	57 x 30	5.0	Moderate	Heavy	Ceremonial; light obsidian also present
Mound 9	20 x 14	1.5	Heavy	Heavy	Ceremonial; heavy obsidian also present
Mound 10	4 x 2	0.1	None	None	Residential; poorly defined
Mound 11	5 x 5	0.4	Heavy	Heavy	Residential
Mound 12	12 x 8	0.2	Moderate	Heavy	Residential
Mound 13	19 x 13	1.0	Moderate	Heavy	Probably residential
Mound 14	7 x 7	0.2	Very light	Heavy	Residential
Mound 15	NR	NR	NR	NR	Probably residential; poorly preserved
Mound 16	NR	NR	NR	NR	Probably residential; poorly preserved
Mound 17	20 x 9	0.2	Light-moderate	Substantial	Residential
Mound 18	12 x 8	0.2	Moderate	Heavy	Residential
Mound 19	9 x 5	0.8	Moderate	Substantial-heavy	Residential
Mound 20	9 x 4	0.2	Moderate	Substantial	Residential; wall fragments also present
Mound 21	12 x 8	1.0	Light	Heavy	Probably residential
Mound 22	26 x 23	1.0	Heavy	Heavy	Probably residential; heavily disturbed (bulldozed)
Mound 23	29 x 17	1.0	Moderate-heavy	Heavy	Probably residential
Mound 24	26 x 20	1.5	Light-moderate	Heavy	Ceremonial
Mound 25	5 x 5	NR	Moderate-heavy	Heavy	Remnants of a heavily disturbed residential mound
Mound 26	30 x 12	0.2	Light-moderate	Heavy	Residential
Mound 27	17 x 12	0.4	Light-moderate	Heavy	Residential
Mound 28	18 x 11	0.4	Light	Heavy	Residential
Mound 29	15 x 13	1.5	Moderate	Heavy	Ceremonial
Mound 30	26 x 20	1.0	None	Heavy	Probably residential
Mound 31	36 x 15	2.0	Light	Heavy	Ceremonial; heavy obsidian also present
Mound 32	20 x 19	2.0	Moderate	Substantial	Ceremonial
Mound 33	25 x 15	0.5	Moderate	Heavy	Residential
Mound 34	30 x 15	1.5	Heavy	Heavy	Ceremonial; heavy obsidian also present
Mound 35	8 x 8	1.0	Light	Substantial	Probably residential
Mound 36	12 x 12	0.5	Light	Heavy	Residential
Mound 37	15 x 8	0.2	Very light	Heavy	Residential; very light obsidian also present
Mound 38	6 x 6	0.5	Light	Heavy	Residential
Mound 39	10 x 7	0.1	Moderate	Heavy	Residential; very light obsidian also present
Mound 40	21 x 10	0.1	Moderate	Substantial-heavy	Residential; very light obsidian also present
Mound 41	16 x 11	1.0	Very light	Heavy	Probably residential
Mound 42	8 x 6	1.0	Very light	Heavy	Probably residential; very light obsidian also present
Mound 43	16 x 9	0.2	Very light	Heavy	Residential
Mound 44	12 x 7	0.2	Moderate	Substantial	Residential
Mound 45	9 x 7	0.4	Very light	Heavy	Residential
Mound 46	11 x 6	0.4	Very light	Heavy	Residential

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 47	13 x 9	0.4	Very light	Heavy	Residential
Mound 48	8 x 7	0.2	Light	Substantial-heavy	Residential; very light obsidian also present
Mound 49	9 x 5	0.5	Moderate	Substantial	Residential
Mound 50	5 x 4	0.2	Heavy	Heavy	Residential
Mound 51	50 x 30	1.5	Light-moderate	Substantial	Ceremonial
Mound 52	11 x 7	0.3	Very light	Substantial	Residential
Mound 53	12 x 9	0.2	Heavy	Heavy	Residential
Mound 54	27 x 18	2.0	Moderate	Substantial-heavy	Ceremonial; scattered obsidian blades, flakes, and scrapers also present
Mound 55	30 x 18	2.5	Light-moderate	Substantial-heavy	Ceremonial
Mound 56	9 x 8	2.0	Very light	Heavy	Ceremonial
Mound 57	25 x 20	2.0	Moderate	None	Ceremonial
Mound 58	29 x 22	1.0	Moderate-heavy	Heavy	Probably residential; light-moderate obsidian also present
Mound 59	5 x 5	NR	Light	Substantial-heavy	Ceremonial; very light obsidian also present; partial remains of ceremonial mound cut by barranca
Mound 60	9 x 7	NR	Moderate	Heavy	Ceremonial; no height recorded due to heavy plowing
Mound 61	25 x 16	1.5	Very light	Heavy	Ceremonial
Mound 62					Three-tiered ceremonial mound
Tier A	100 x 60	7.0	Heavy	Heavy	
Tier B	46 x 43	3.5	Heavy	Heavy	
Tier C	6 x 4	NR	Light-moderate	Heavy	
Mound 63	29 x 29	1.5	None	None	Probably ceremonial
Mound 64	12 x 8	0.2	Very light	None	Residential; 3 x 3 m-house foundation present
Mound 65	14 x 11	0.5	Moderate-heavy	Heavy	Residential; 9 x 9 m-raised area at mound center
Mound 66	39 x 23	1.5	None	Substantial	Probably residential
Mound 67	28 x 13	0.1	Moderate	Substantial-heavy	Residential
Mound 68	75 x 13	1.5	None	None	Ceremonial; one Huastec potsherd; badly eroded
Mound 69	12 x 8	0.2	Light-moderate	Substantial	Residential
Mound 70	35 x NR	1.0	Light	Light	Probably ceremonial; ceramics and rubble within a 12 x 4 m-area; one side of the mound bulldozed
Mound 71	12 x 4	0.3	Light	Light	Residential; heavily plowed
Mound 72	33 x 15	0.1	Light-moderate	Light-substantial	Residential
Mound 73	45 x 90	2.0	None	None	Ceremonial
Mound 74	11 x 10	0.1	None	None	Residential; about half of mound badly eroded
Mound 75	24 x 10	0.2	None	None	Residential
Mound 76	31 x 13	0.1	Moderate	Light	Residential
Mound 77	70 x 50	5.0	None	None	Ceremonial; converted to jagüey
Mound 78	29 x 26	1.0	Moderate-heavy	Heavy	Probably residential; heavy obsidian also present
Mound 79	29 x 22	0.3	Moderate	Substantial	Residential; very light obsidian also present
Mound 80	50 x 20	0.8	Moderate	Substantial-heavy	Residential; moderate-heavy obsidian also present
Mound 81	50 x 35	3.0	Light-moderate	Substantial-heavy	Ceremonial
Mound 82					Two-tiered ceremonial mound
Tier A	45 x 60	2.5	Light-moderate	Heavy	

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Tier B	8 x 7	0.2	Light	Substantial-heavy	Situated atop Tier A
Mound 83	32 x 20	1.5	Moderate-heavy	Heavy	Ceremonial; light obsidian also present
Mound 84	12 x 8	1.0	Very light	Heavy	Probably ceremonial; situated atop <i>possible</i> platform mound measuring 30 x 12 m at the base, 0.3 m in height
Mound 85	14 x 10	1.0	None	Substantial-heavy	Probably residential
Mound 86	7 x 7	0.2	Very light	Heavy	Residential
Mound 87	16 x 11	1.5	Moderate	Heavy	Ceremonial
Mound 88	35 x 35	NR	None	None	Probably residential; height not measured due to heavy disturbance
Mound 89	32 x 13	0.2	Moderate	None	Residential; heavily plowed
Mound 90	16 x 4	1.0	Light	Heavy	Probably residential; scattered fragments of lime plaster with red paint present; mound has been bulldozed
Mound 91	69 x 26	1.0	Light-moderate	Heavy	Probably residential

Note: NR means “not recorded.”

Tm-Az-156

Natural Setting: 2,410-2,420 m, in the middle piedmont south of Cerro los Pitos. Located on gently sloping ground. Shallow soil cover. No erosion.

Modern Utilization: Rainfall cultivation, with maize, barley, and oats present at the time of survey, in fields equipped with earth banks.

Archaeological Remains: Very light-to-light surface pottery, a few basalt artifacts (manos), and light rock rubble over an area of about 3.2 ha. The survey crew noted remains of four residential mounds, three clustered in the southern portion of the site and the other in the northern portion. The latter mound measured about 10.0 by 10.0 m at its base, with no height determined; fragments of walls on top of this mound defined the remnants of a 3.0 by 3.0-m room. The remaining three mounds were very poorly preserved, defined primarily by concentrations of rubble and a few associated artifacts (ceramics, manos), and as a consequence were not measured. A small concentration of artifacts occurred near the center of the site between the two mound groups.

Classification: Hamlet, 20-40 people.

Tm-Az-157

Natural Setting: 2,430-2,480 m, in the middle piedmont south of Cerro los Pitos. Located on moderately to steeply sloping ground along the southern and eastern flank of a small hill. Shallow-to-medium soil cover. Slight erosion.

Modern Utilization: Rainfall cultivation, with barley and oats present at the time of survey. Part of the site also was used for grazing.

Archaeological Remains: Light surface pottery, and very light

obsidian artifacts (mainly blades and cores), over an area of about 13.0 ha. Variable densities of rock rubble also occurred, generally light but ranging from none to heavy. The remains of 32 mounds were noted, arranged around a small hill and falling into an eastern group and western group (Figure 5.25; Table 5.23). Some information on the house configuration on Mound 10 remained (Figure 5.26); wall fragments from the rooms on Mound 26 also occurred (Figure 5.27).

Classification: Small dispersed village, 125-250 people.

Tm-Az-158

Natural Setting: 2,435 m, in the middle piedmont south of Cerro los Pitos. Located on gently sloping ground adjacent to a small barranca lying immediately to the northeast. Medium soil cover. Slight erosion.

Moderate Utilization: Rainfall cultivation, with maguey present at the time of survey, in fields equipped with bancales.

Archaeological Remains: Light-to-moderate surface pottery, and substantial rock rubble, over an area of about 0.3 ha. The survey crew noted one poorly preserved residential mound, measuring 5.0 m in diameter and 0.5 m in height, with moderate ceramics and rubble associated.

Classification: Small hamlet, 5-10 people.

Tm-Az-159

Natural Setting: 2,435 m, in the middle piedmont south of Cerro los Pitos. Located on gently sloping ground. Shallow-to-medium soil cover. Slight erosion.

Modern Utilization: Grazing, though associated fields were equipped with earth banks.

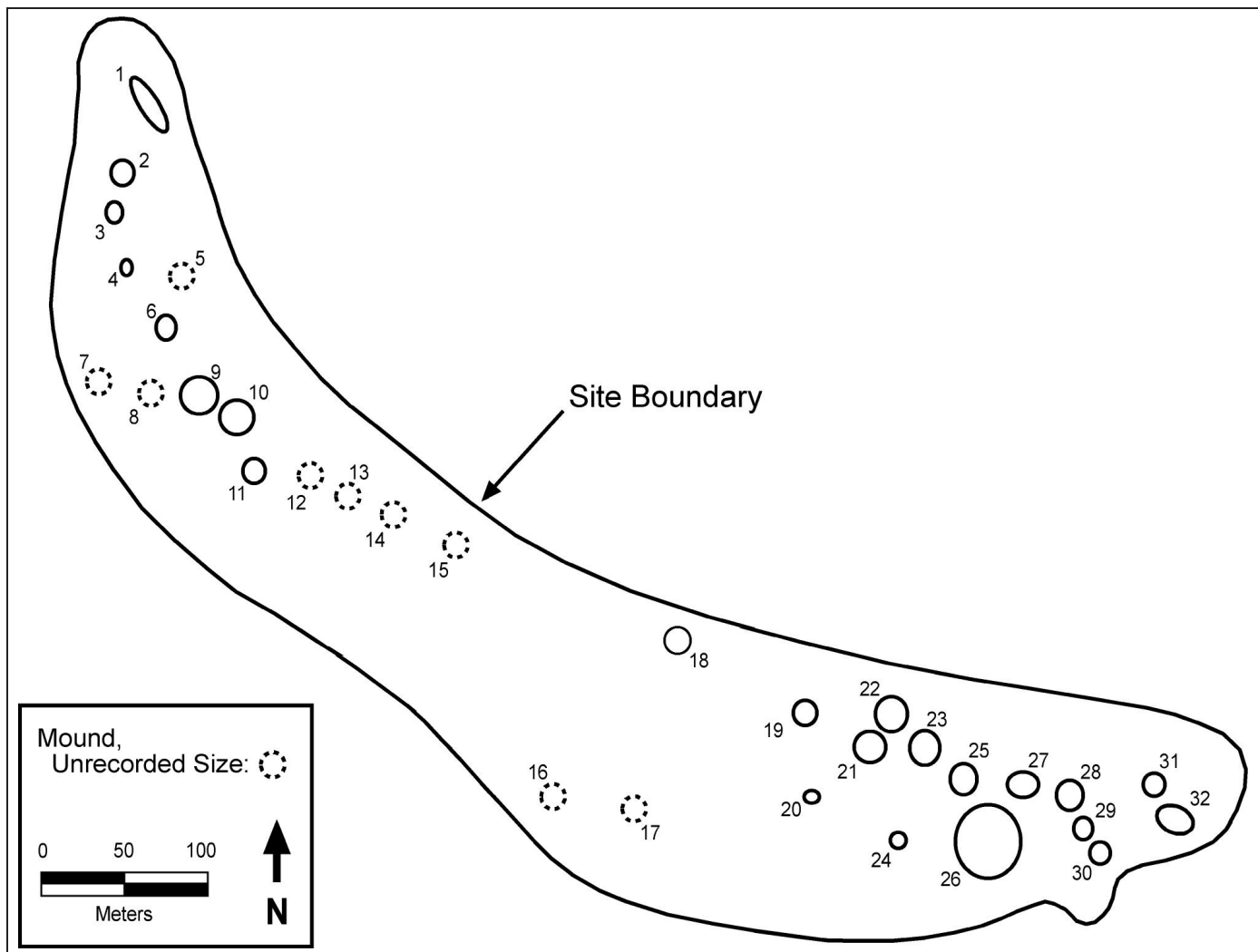


Figure 5.25. Tm-Az-157 Architectural Features

Archaeological Remains: Light-to-moderate surface pottery (Aztec III and IV), and substantial rock rubble, over an area of about 0.3 ha. The survey crew noted one mound, measuring 12.0 by 9.0 m at its base and 2.0 m in height, with moderate ceramics and rubble associated.

Classification: Small hamlet, 5-10 people.

Tm-Az-160

Natural Setting: 2,420 m, in the middle piedmont south of Cerro los Pitos. Located on gently sloping ground. Shallow soil cover. Extensive erosion.

Modern Utilization: Grazing.

Archaeological Remains: Very light surface pottery over an area of about 0.4 ha. The survey crew noted two residential mounds, each measuring 7.0 by 7.0 m at its base and 0.8 m in height.

Classification: Small hamlet, 10-20 people.

Tm-Az-161

Natural Setting: 2,410 m, in the middle piedmont south of Cerro los Pitos. Located on gently sloping ground. Shallow soil cover. Extensive erosion.

Modern Utilization: Grazing. Also, some rainfall cultivation, with maguey and nopal present at the time of survey.

Archaeological Remains: Very light surface pottery over an area of about 0.2 ha. The survey crew noted one residential mound, measuring 9.0 by 7.0 m at its base and 0.7 m in height.

Classification: Small hamlet, 5-10 people.

Tm-Az-162

Natural Setting: 2,405 m, in the Middle Piedmont south of Cerro los Pitos. Located on gently sloping ground. Shallow soil cover. Severe erosion.

Modern Utilization: Rainfall cultivation, with barley and wheat present at the time of survey in fields equipped with earth banks.

Table 5.23. Tm-Az-157 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	40 x 10	0.5	None	None	Probably elite residence; wall fragments (some with murals) define one 3 x 3 m-room on the east-central part of the mound
Mound 2	9 x 9	2.0	None	None	Ceremonial; wall fragments also present
Mound 3	6 x 6	1.5	Very light	None	Ceremonial; Aztec III; wall and mural fragments also present
Mound 4	4 x 4	0.8	None	None	Residential; wall and mural fragments also present
Mound 5	NR	2.0	None	None	Ceremonial; wall fragments; heavily disturbed on all sides
Mound 6	8 x 8	1.5	None	None	Ceremonial; one wall section about 2.5 m long on the northern part of the mound
Mound 7	NR	NR	None	None	Residential; very poorly preserved
Mound 8	NR	NR	None	None	Residential; very poorly preserved
Mound 9	13 x 12	3.0	Light	None	Ceremonial; Aztec IV; wall fragments define one 5 x 3 m-room near mound center
Mound 10	12 x 12	2.0	Light	None	Ceremonial; Aztec IV; wall fragments define two 6 x 3 m-rooms
Mound 11	8 x 8	NR	Light	Light	Residential; poorly preserved
Mound 12	NR	NR	None	Substantial	Residential; very poorly preserved
Mound 13	NR	NR	None	Substantial	Residential; very poorly preserved
Mound 14	NR	NR	None	Substantial	Residential; very poorly preserved
Mound 15	NR	NR	None	Substantial	Residential; very poorly preserved
Mound 16	NR	NR	None	Heavy	Residential; very poorly preserved
Mound 17	NR	NR	Light	Substantial	Residential; very poorly preserved
Mound 18	10 x 10	0.5	None	None	Residential
Mound 19	10 x 10	0.5	None	None	Residential
Mound 20	3 x 3	1.0	None	Heavy	Probably residential; composed almost entirely of rubble
Mound 21	20 x 20	0.5	None	Heavy	Residential; wall sections on northern end of mound
Mound 22	25 x 25	0.4	None	None	Residential; wall fragments on northern part of mound
Mound 23	20 x 20	0.4	Heavy	None	Probably elite residence; Aztec III ceramics; three wall fragments (one with mural remnants) on northern part of mound; mound cut by a modern road
Mound 24	5 x 4	0.1	None	Heavy	Residential
Mound 25	20 x 20	0.4	None	None	Residential; wall fragments on the northern portion of the mound
Mound 26	40 x 40	1.0	None	None	Probably residential; Aztec III and IV; stucco floor in northeast corner; sections of other floors and walls define at least two rooms, one 6 x 4 m and the other 15 m by an unknown width
Mound 27	15 x 10	0.2	None	None	Ceremonial; Aztec IV; long section of mural along southern edge of mound
Mound 28	15 x 15	1.5	Very light	None	Probably elite residence; wall sections and a few mural fragments also present
Mound 29	6 x 5	NR	Light	None	Probably elite residence; Aztec III; mural fragments also present
Mound 30	7 x 7	NR	Light	None	Probably residential; Aztec III and IV
Mound 31	7 x 7	0.1	None	None	Probably residential; poorly preserved
Mound 32	20 x 15	0.2	Very light	None	Residential; mural fragments also present

Note: NR means “not recorded.”

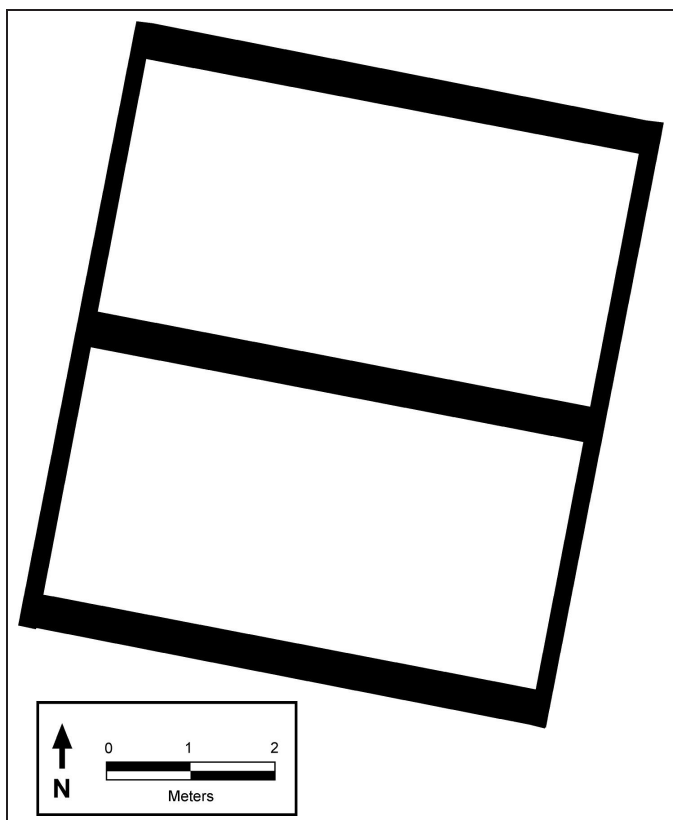


Figure 5.26. Room Details, Mound 10, Tm-Az-157

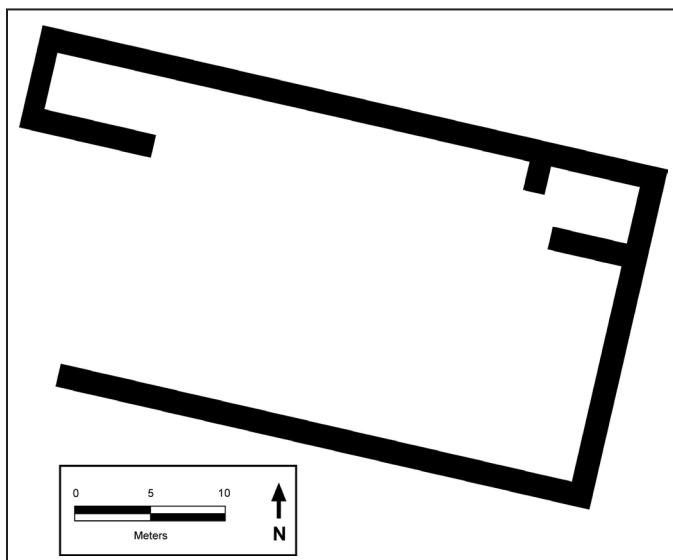


Figure 5.27. Room Details, Mound 26, Tm-Az-157

Archaeological Remains: Generally light surface pottery (Aztec III and IV), becoming heavy in places (primarily on mounds), and substantial rock rubble over an elongated area of 3.0 ha. Two mounds occurred on the eastern end of the site. The southern mound measured 4.0 by 4.0 m at its base and 0.3 m in height, with moderate-to-heavy ceramics associated. The northern mound also measured 4.0 by 4.0 m at its base and 0.3 m in height, with heavy ceramics associated. A few Late Toltec potsherds were found, but in an insufficient amount to define an earlier site.

Classification: Small hamlet, 10-20 people.

Tm-Az-163

Natural Setting: 2,410-2,445 m, in the middle piedmont south of Cerro los Pitos. Located on gently to moderately sloping ground slightly north of the head of a large barranca. Shallow-to-medium soil cover. Extensive erosion.

Modern Utilization: Rainfall cultivation, with barley and maguey present at the time of survey, in fields equipped with earth banks, stone terraces, and maguey bancales.

Archaeological Remains: Very light-to-light surface pottery (mostly Aztec III), along with substantial-to-heavy rock rubble and very light obsidian (blades, scrapers, and cores) and basalt (scrapers) artifacts, over an area of about 15.0 ha. Density of surface remains at this site was greatly affected by erosion patterns. The survey crew recorded 16 residential mounds and the remains of a possible *tepochcalli* on the site (Figure 5.28, Table 5.24), located on terraces that presumably dated to the Late Aztec occupation. Concentrations of tepetate rubble possibly represented the poorly preserved remnants of several other mounds.

Classification: Small dispersed village, 112-160 people.

Tm-Az-164

Natural Setting: 2,435 m, in the middle piedmont south of Cerro los Pitos. Located on gently sloping ground on the western flank of a large hill. Shallow soil cover. Extensive

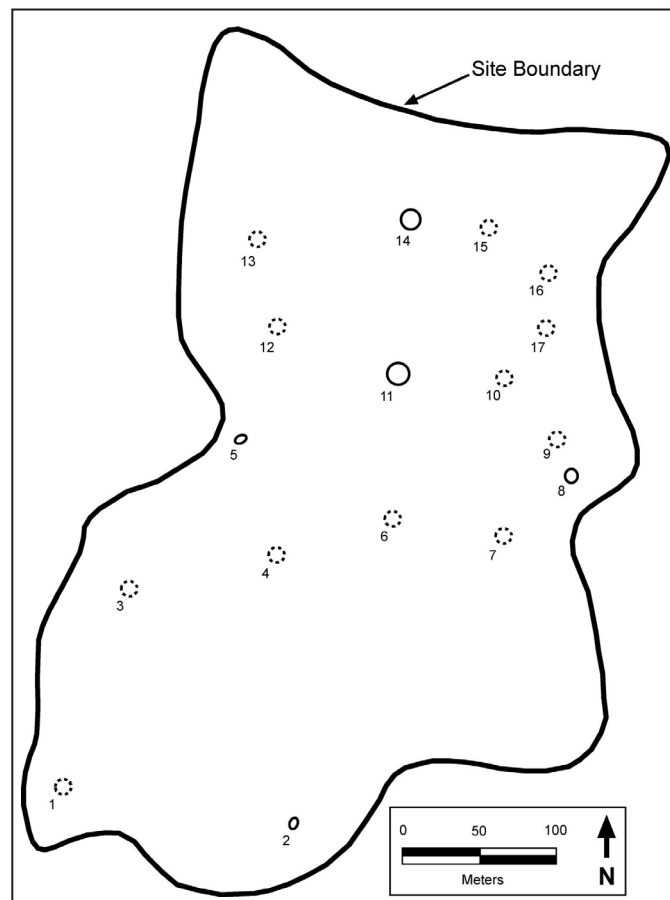


Figure 5.28. Tm-Az-163 Architectural Features

Table 5.24. Tm-Az-163 Architectural Features

Feature No.	Area (m)	Height (m)	Surface Pottery	Rock Rubble	Comments
Mound 1	NR	NR	Light	Substantial	Residential; poorly preserved
Mound 2	5 x 3	0.3	None	None	Residential
Mound 3	NR	NR	Light	Substantial	Residential; poorly preserved
Mound 4	NR	NR	Light-moderate	Heavy	Residential
Mound 5	5 x 3	0.2	Light	None	Residential
Mound 6	NR	NR	Light-moderate	Heavy	Residential; poorly preserved
Mound 7	NR	NR	Very light	Substantial	Residential; poorly preserved
Mound 8	6 x 4	0.4	Very light	Heavy	Residential
Mound 9	NR	NR	Light	Substantial	Residential; poorly preserved
Mound 10	NR	0.5	Light	Heavy	Residential; poorly preserved
Mound 11	20 x 20	NR	Moderate-heavy	Heavy	Residential; two rubble concentrations may define two separate mounds
Mound 12	NR	NR	Light	Substantial	Residential; poorly preserved
Mound 13	NR	NR	Light	Substantial	Residential; poorly preserved
Mound 14	15 x 15	NR	Light	None	Possible <i>tepochcalli</i> , based on artifacts and spatial relationship to other mounds
Mound 15	NR	NR	Light-moderate	Heavy	Residential; very badly eroded
Mound 16	NR	0.5	Light-moderate	Substantial	Residential; wall fragments also present; badly eroded
Mound 17	NR	NR	None	Substantial	Residential; poorly preserved

Note: NR means “not recorded.”

erosion.

Modern Utilization: Rainfall cultivation, with maize, barley, and some maguey present at the time of survey.

Archaeological Remains: Very light surface pottery (Aztec III) over an area of about 0.1 ha. The survey crew noted one residential mound, measuring 5.0 by 4.0 m at the base, its height unrecorded due to heavy disturbance.

Classification: Small hamlet, 5-10 persons.

Tm-Az-165

Natural Setting: 2,460 m, in the middle piedmont south of Cerro los Pitos. Located on gently sloping ground on the western flank of a large hill. Shallow soil cover. Extensive erosion.

Modern Utilization: Rainfall cultivation, with maize and maguey present at the time of survey, in fields equipped with earth banks. Part of the site also was used for grazing.

Archaeological Remains: Very light-to-light surface pottery (Aztec III) over an area of about 0.3 ha. The major feature of this site was one badly preserved ceremonial mound, almost totally destroyed by cultivation and heavy erosion. Due to its poor condition, no dimensions of this mound were recorded.

Classification: Questionable, due to the poor preservation of the site. Probably an isolated ceremonial center with no permanent population.

Tm-Az-166

Natural Setting: 2,450 m, in the middle piedmont south of Cerro los Pitos. Located on gently sloping ground on the western flank of a large hill. Shallow soil cover. Extensive erosion.

Modern Utilization: Rainfall cultivation, with maize present at the time of survey, in fields equipped with earth banks. A modern road passed immediately east of the site.

Archaeological Remains: Very light surface pottery and substantial rock rubble over an area of about 0.3 ha. The survey crew recorded one mound, measuring 18.0 by 7.0 m at its base, but of undetermined height due to heavy modern disturbance.

Classification: Small hamlet, 5-10 people.

Tm-Az-167

Natural Setting: 2,520 m, in the upper piedmont south of Cerro los Pitos. Located on gently sloping ground. Shallow-to-medium soil cover. Slight erosion.

Modern Utilization: No clear modern use, though part of the site may be used for grazing. Irrigation canals occurred nearby.

Archaeological Remains: Very light-to-light surface pottery (Aztec III and IV) over an area of about 0.2 ha. The site mainly consists of a single ceremonial mound, measuring 50.0 by 50.0 m at its base and 4.5 m in height when surveyed.

Fragments of a mural occurred on the north face of the mound.

Classification: Isolated ceremonial center, no permanent population.

Tm-Az-168

Natural Setting: 2,515 m, in the upper piedmont south of Cerro los Pitos. Located on gently sloping ground. Medium soil cover. Slight erosion.

Modern Utilization: Grazing.

Archaeological Remains: Light surface pottery, in conjunction with scattered obsidian and basalt artifacts, over an area of about 1.0 ha. A concentration of artifacts and some wall fragments on a slight rise probably represented the remnants of a single mound near the center of the site—although due to its poor condition no dimensions were recorded.

Classification: Small hamlet, 5-10 people.

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Table 5.25. Tabular Presentation of Terminal Formative Settlement Data

SITE NUMBER	CLASSIFICATION	ELEV (m)	ENVIRONMENTAL ZONE	RAINFALL (mm)	AREA (ha)	POPULATION	OTHER OCCUPATIONS															
							EF	MF	LF	TF	EC	MC	LC	ET	LT	EA	LA					
TM-TF-1	Small Hamlet	2285	Thin Soil Alluv-Hill	560	1.0	5	0	0	0	0	0	0	0	0	1	1	0	0				
TM-TF-2	Small Hamlet	2275	Thin Soil Alluvium	570	0.9	5	0	0	0	0	0	0	0	0	0	1	0	0				
TM-TF-3	Small Hamlet	2255	Thin Soil Alluvium	590	2.0	10	0	0	0	0	1	0	0	1	0	1	1					
TM-TF-4	Questionable	2265	Thin Soil Alluvium	580	0.4	0	0	0	0	0	0	0	0	0	0	1	0	1				
TM-TF-5	Hamlet	2265	Thin Soil Alluvium	580	5.5	28	0	0	0	0	1	1	1	1	1	1	0	0				
TM-TF-6	Small Hamlet	2250	Thin Soil Alluvium	590	0.9	9	0	0	0	0	1	0	1	1	1	1	0	0				
TM-TF-7	Small Hamlet	2265	Thin Soil Alluvium	580	0.4	4	0	0	0	0	0	0	0	0	0	0	0	1				
TM-TF-8	Hamlet	2265	Thin Soil Alluvium	600	1.0	30	0	0	0	0	0	0	0	0	0	0	0	0				
TM-TF-9	Small Hamlet	2265	Thin Soil Alluvium	600	0.4	10	0	0	0	0	0	0	0	0	0	0	0	0				
TM-TF-10	Hamlet	2260	Thin Soil Alluvium	600	3.0	30	0	0	0	0	1	1	1	1	0	1	0	1				
TM-TF-11	Small Hamlet	2270	Thin Soil Alluvium	580	0.4	4	0	0	0	0	0	0	0	0	0	0	0	1				
TM-TF-12	Small Hamlet	2275	Thin Soil Alluvium	580	0.4	4	0	0	0	0	0	0	0	0	0	0	0	1				
TM-TF-13	Small Hamlet	2272	Thin Soil Alluvium	580	0.4	4	0	0	0	0	0	0	0	0	0	0	0	1				
TM-TF-14	Small Hamlet	2265	Thin Soil Alluvium	590	0.4	4	0	0	0	0	0	0	0	0	0	0	0	0				
TM-TF-15	Small Hamlet	2275	Thin Soil Alluvium	580	1.0	10	0	0	0	0	0	0	0	0	1	0	0	1				
TM-TF-16	Small Hamlet	2280	Thin Soil Alluvium	570	0.4	10	0	0	0	0	0	0	0	0	0	1	1	0	1			
TM-TF-17	Hamlet	2280	Thin Soil Alluvium	580	0.9	23	0	0	0	0	0	0	0	0	1	1	0	1				
TM-TF-18	Small Hamlet	2290	Thin Soil Alluvium	570	0.4	4	0	0	0	0	1	1	1	0	0	0	0	0				
TM-TF-19	Small Hamlet	2315	Lower Piedmont	570	0.4	4	0	0	0	0	1	1	1	1	1	0	1					
TM-TF-20	Small Hamlet	2310	Lower Piedmont	570	0.4	4	0	0	0	0	0	0	0	0	1	1	0	1				
TM-TF-21	Small Hamlet	2300	Lower Piedmont	560	1.0	10	0	0	0	0	1	1	1	1	1	0	0	0				
TM-TF-22	Small Hamlet	2265	Thin Soil Alluvium	600	0.5	5	0	0	0	0	0	0	0	0	0	0	0	1				
TM-TF-23	Small Hamlet	2285	Lower Piedmont	600	0.9	5	0	0	0	0	0	0	0	0	0	0	0	1				
TM-TF-24	Questionable	2265	Thin Soil Alluvium	600	0.1	0	0	0	0	0	1	0	0	0	0	0	0	1				
TM-TF-25	Small Hamlet	2270	Thin Soil Alluvium	600	0.4	2	0	0	0	0	1	1	1	1	0	1	0	1				
TM-TF-26	Small Hamlet	2265	Thin Soil Alluvium	600	0.4	2	0	0	0	0	1	1	1	1	0	1	0	1				
TM-TF-27	Small Hamlet	2270	Thin Soil Alluvium	600	2.0	10	0	0	0	0	0	0	0	0	0	1	0	0				
TM-TF-28	Questionable	2260	Thin Soil Alluvium	600	0.1	0	0	0	0	0	0	0	0	0	1	1	1	1				
TM-TF-29	Questionable	2260	Lower Piedmont	600	0.1	0	0	0	0	0	1	1	1	1	0	1	1	1				
TM-TF-30	Questionable	2335	Lower Piedmont-Hill	590	0.1	0	0	0	0	0	1	1	1	1	0	1	0	1				
TM-TF-31	Small Hamlet	2315	Lower Piedmont	580	1.0	10	0	0	0	0	1	1	1	1	0	1	0	1				

Table 5.25. Tabular Presentation of Terminal Formative Settlement Data

SITE		ELEV	RAINFALL		AREA	OTHER OCCUPATIONS											
NUMBER	CLASSIFICATION	(m)	ENVIRONMENTAL ZONE	(mm)	(ha)	POPULATION	EF	MF	LF	TF	EC	MC	LC	ET	LT	EA	LA
TM-TF-32	Small Hamlet	2370	Middle Piedmont	560	1.0	10	0	0	0	0	1	1	0	0	1	0	1
TM-TF-33	Questionable	2390	Middle Piedmont	540	0.1	0	0	0	0	0	0	0	0	0	1	0	1
TM-TF-34	Small Hamlet	2320	Thin Soil Alluvium	550	1.5	15	0	0	0	0	1	1	1	0	1	0	1
TM-TF-35	Questionable	2305	Thin Soil Alluvium	560	0.1	0	0	0	0	1	1	1	1	0	1	0	1
TM-TF-36	Questionable	2300	Thin Soil Alluvium	550	0.1	0	0	0	0	1	1	1	1	0	0	0	1
TM-TF-37	Questionable	2300	Thin Soil Alluvium	560	0.5	0	0	0	0	0	0	0	0	0	1	0	0
TM-TF-38	Questionable	2280	Thin Soil Alluv-Hill	560	0.1	0	0	0	0	1	1	1	0	0	0	0	1
TM-TF-39	Small Hamlet	2390	Lower Piedmont	510	0.4	2	0	0	0	0	1	0	0	0	1	0	1

Table 5.26. Tabular Presentation of Teotihuacan Period Settlement Data

SITE NUMBER	CLASSIFICATION	ELEV (m)	ENVIRONMENTAL ZONE	RAINFALL		AREA		POPULATION	OTHER OCCUPATIONS											
				(mm)	(ha)	EF	MF		LF	TF	EC	MC	LC	ET	LT	EA	LA			
TM-CL-1	Sm Nucl Village	2255	Thin Soil Alluvium	590	2.2	110	0	0	0	0	1	0	0	0	0	1	0	1	1	
TM-CL-2	Small Hamlet	2250	Thin Soil Alluvium	590	1.5	8	0	0	0	0	0	0	0	0	0	0	1	1	1	
TM-CL-3	Sm Nucl Village	2265	Thin Soil Alluvium	580	5.5	275	0	0	0	1	0	0	0	0	0	1	1	0	0	
TM-CL-4	Sm Nucl Village	2250	Thin Soil Alluvium	590	3.0	150	0	0	0	0	0	0	0	0	0	1	0	0	0	
TM-CL-5	Sm Nucl Village	2250	Thin Soil Alluvium	590	2.5	250	0	0	0	1	0	0	0	0	0	1	1	0	0	
TM-CL-6	Small Hamlet	2290	Thin Soil Alluvium	570	0.4	10	0	0	0	1	0	0	0	0	0	0	0	0	0	
TM-CL-7	Questionable	2310	Lower Piedmont	570	0.1	0	0	0	0	1	0	0	0	0	0	1	1	0	1	
TM-CL-8	Lg Nucl Village	2300	Lower Piedmont	560	12.0	1200	0	0	0	1	0	0	0	0	0	1	0	0	0	
TM-CL-9	Lg Nucl Village	2260	Thin Soil Alluvium	600	13.0	1300	0	0	0	1	0	0	0	0	0	0	1	0	1	
TM-CL-10	Hamlet	2265	Thin Soil Alluvium	590	0.6	30	0	0	0	0	0	0	0	0	0	0	0	0	0	
TM-CL-11	Small Hamlet	2265	Thin Soil Alluvium	600	1.0	20	0	0	0	1	0	0	0	0	0	0	0	0	1	
TM-CL-12	Small Hamlet	2270	Thin Soil Alluvium	600	0.4	10	0	0	0	1	0	0	0	0	0	0	1	0	1	
TM-CL-13	Sm Nucl Village	2270	Thin Soil Alluvium	600	6.0	300	0	0	0	1	0	0	0	0	0	0	1	0	1	
TM-CL-14	Questionable	2260	Thin Soil Alluvium	600	2.0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
TM-CL-15	Questionable	2270	Thin Soil Alluvium	600	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
TM-CL-16	Small Hamlet	2235	Lakeshore Plain	600	0.4	4	0	0	0	0	0	0	0	0	0	0	1	0	0	
TM-CL-17	Small Hamlet	2260	Thin Soil Alluvium	600	0.3	3	0	0	0	1	0	0	0	0	0	0	1	1	1	
TM-CL-18	Sm Nucl Village	2290	Thin Soil Alluvium	590	3.0	300	0	0	0	0	0	0	0	0	0	0	0	0	0	
TM-CL-19	Sm Nucl Village	2295	Thin Soil Alluvium	590	2.0	200	0	0	0	0	0	0	0	0	0	0	0	0	0	
TM-CL-20	Sm Nucl Village	2338	Lower Piedmont-Hill	590	3.8	190	0	0	0	1	0	0	0	0	0	0	1	0	1	
TM-CL-21	Sm Nucl Village	2310	Lower Piedmont	590	2.5	125	0	0	0	0	0	0	0	0	0	0	0	0	1	
TM-CL-22	Sm Nucl Village	2315	Lower Piedmont	580	4.0	200	0	0	0	1	0	0	0	0	0	0	1	0	1	
TM-CL-23	Sm Nucl Village	2380	Middle Piedmont	550	6.0	300	0	0	0	0	0	0	0	0	0	0	1	0	1	
TM-CL-24	Lg Nucl Village	2375	Middle Piedmont	560	12.0	600	0	0	0	1	0	0	0	0	0	0	1	0	1	
TM-CL-25	Small Hamlet	2340	Lower Piedmont	570	0.5	13	0	0	0	0	0	0	0	0	0	0	0	0	1	
TM-CL-26	Hamlet	2325	Thin Soil Alluvium	550	0.5	25	0	0	0	0	0	0	0	0	0	0	1	0	0	
TM-CL-27	Sm Nucl Village	2320	Thin Soil Alluvium	550	6.0	300	0	0	0	1	0	0	0	0	0	0	1	0	1	
TM-CL-28	Questionable	2305	Thin Soil Alluvium	560	0.1	0	0	0	0	1	0	0	0	0	0	0	1	0	1	
TM-CL-29	Questionable	2305	Thin Soil Alluvium	560	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
TM-CL-30	Small Hamlet	2290	Thin Soil Alluvium	560	1.0	5	0	0	0	0	0	0	0	0	0	0	1	0	1	
TM-CL-31	Hamlet	2280	Thin Soil Alluv-Hill	560	1.0	25	0	0	0	1	0	0	0	0	0	0	0	0	1	

Table 5.26. Tabular Presentation of Teotihuacan Period Settlement Data

SITE		ELEV		RAINFALL		AREA		OTHER OCCUPATIONS									
NUMBER	CLASSIFICATION	(m)	ENVIRONMENTAL ZONE	(mm)	(ha)	POPULATION	EF	MF	LF	TF	EC	MC	LC	ET	LT	EA	LA
TM-CL-32	Questionable	2290	Thin Soil Alluvium	550	0.1	0	0	0	0	0	0	0	0	0	1	0	1
TM-CL-33	Questionable	2290	Thin Soil Alluvium	550	0.5	0	0	0	0	0	0	0	0	0	1	0	0
TM-CL-34	Lg Nucl Village	2303	Thin Soil Alluvium	550	12.0	600	0	0	0	0	0	0	0	0	1	0	1
TM-CL-35	Sm Disp Village	2310	Thin Soil Alluvium	540	3.0	110	0	0	0	0	0	0	0	0	0	0	1
TM-CL-36	Sm Nucl Village	2305	Thin Soil Alluvium	550	3.5	350	0	0	0	0	0	0	0	0	0	0	1
TM-CL-37	Hamlet	2300	Thin Soil Alluvium	550	1.0	50	0	0	0	1	0	0	0	0	0	0	1
TM-CL-38	Sm Nucl Village	2300	Thin Soil Alluvium	550	5.0	250	0	0	0	0	0	0	0	0	1	0	1
TM-CL-39	Small Hamlet	2365	Thin Soil Alluvium	530	1.0	10	0	0	0	0	0	0	0	0	0	0	0
TM-CL-40	Small Hamlet	2390	Lower Predmont	510	0.4	10	0	0	0	1	0	0	0	0	1	0	1
TM-CL-41	Hamlet	2380	Lower Predmont	510	2.0	100	0	0	0	0	0	0	0	0	0	0	0
TM-CL-42	Small Hamlet	2355	Lower Predmont	500	0.5	13	0	0	0	0	0	0	0	0	0	0	0
TM-CL-43	Small Hamlet	2360	Thin Soil Alluvium	490	0.1	10	0	0	0	0	0	0	0	0	0	0	1

Table 5.27. Tabular Presentation of Early Toltec Settlement Data

SITE NUMBER	CLASSIFICATION	ELEV (m)	ENVIRONMENTAL ZONE	RAINFALL (mm)	AREA (ha)	POPULATION	OTHER OCCUPATIONS											
							EF	MF	LF	TF	EC	MC	LC	ET	LT	EA	LA	
TM-ET-1	Questionable	2285	Thin Soil Alluv-Hill	560	1.0	0	0	0	0	1	0	0	0	1	0	0		
TM-ET-2	Hamlet	2250	Thin Soil Alluvium	590	2.0	50	0	0	0	0	0	0	0	0	0	0		
TM-ET-3	Questionable	2255	Thin Soil Alluvium	590	2.2	0	0	0	0	1	1	0	0	0	0	1		
TM-ET-4	Small Hamlet	2255	Thin Soil Alluvium	590	2.5	13	0	0	0	0	0	0	0	0	1	0		
TM-ET-5	Hamlet	2265	Thin Soil Alluvium	580	6.5	65	0	0	0	1	1	1	1	0	1	0		
TM-ET-6	Questionable	2250	Thin Soil Alluvium	590	3.0	0	0	0	0	0	1	1	0	0	0	0		
TM-ET-7	Hamlet	2250	Thin Soil Alluvium	590	2.0	50	0	0	0	1	1	0	1	0	1	0		
TM-ET-8	Hamlet	2275	Thin Soil Alluvium	570	1.5	38	0	0	0	0	0	0	0	0	1	0		
TM-ET-9	Sm Nucl Village	2275	Thin Soil Alluvium	580	6.0	150	0	0	0	1	0	0	0	0	0	1		
TM-ET-10	Sm Nucl Village	2269	Thin Soil Alluvium	580	16.0	400	0	0	0	0	0	0	0	0	1	0		
TM-ET-11	Regional Ctr	2305	Thin Soil Alluvium	570	75.0	1875	0	0	0	4	1	1	1	0	1	0		
TM-ET-12	Ceremonial Ctr	2360	Lower Piedmont-Hill	570	0.5	0	0	0	0	0	0	0	0	0	1	0		
TM-ET-13	Sm Nucl Village	2300	Lower Piedmont	560	5.5	138	0	0	0	1	1	1	1	0	0	0		
TM-ET-14	Questionable	2260	Thin Soil Alluvium	600	1.0	0	0	0	0	1	0	0	0	0	1	1		

Table 5.28. Tabular presentation of Late Toltec Settlement Data

SITE			ELEV		RAINFALL		AREA		OTHER OCCUPATIONS									
NUMBER	CLASSIFICATION	(m)	ENVIRONMENTAL ZONE	(mm)	(ha)	POPULATION	EF	MF	LF	TF	EC	MC	LC	ET	LT	EA	LA	
TM-LT-1	Small Hamlet	2280	Thin Soil Alluvium	530	1.0	10	0	0	0	0	0	0	0	0	0	0	1	
TM-LT-2	Hamlet	2285	Thin Soil Alluvium	530	7.0	70	0	0	0	0	0	0	0	0	0	0	1	
TM-LT-3	Small Hamlet	2270	Thin Soil Alluvium	550	1.5	15	0	0	0	0	0	0	0	0	0	0	1	
TM-LT-4	Questionable	2285	Thin Soil Alluv-Hill	560	1.0	0	0	0	0	1	0	0	0	1	0	0	0	
TM-LT-5	Small Hamlet	2275	Thin Soil Alluvium	570	1.0	5	0	0	0	1	0	0	0	0	0	0	0	
TM-LT-6	Hamlet	2270	Thin Soil Alluvium	570	2.0	50	0	0	0	0	0	0	0	0	0	0	0	
TM-LT-7	Small Hamlet	2275	Thin Soil Alluvium	580	2.0	10	0	0	0	0	0	0	0	0	0	0	1	
TM-LT-8	Small Hamlet	2258	Thin Soil Alluvium	580	4.0	20	0	0	0	0	0	0	0	0	0	0	1	
TM-LT-9	Small Hamlet	2265	Thin Soil Alluvium	580	0.5	5	0	0	0	1	0	0	0	0	0	0	1	
TM-LT-10	Small Hamlet	2250	Thin Soil Alluvium	590	1.5	8	0	0	0	0	1	1	1	0	0	1	1	
TM-LT-11	Small Hamlet	2255	Thin Soil Alluvium	590	2.5	13	0	0	0	0	0	0	0	1	0	0	0	
TM-LT-12	Hamlet	2265	Thin Soil Alluvium	580	10.0	100	0	0	0	1	1	1	1	1	0	0	0	
TM-LT-13	Questionable	2250	Thin Soil Alluvium	590	2.0	0	0	0	0	1	1	0	1	1	0	0	0	
TM-LT-14	Small Hamlet	2275	Thin Soil Alluvium	540	2.0	20	0	0	0	0	0	0	0	0	0	0	1	
TM-LT-15	Hamlet	2275	Thin Soil Alluvium	550	5.0	50	0	0	0	0	0	0	0	0	0	0	0	
TM-LT-16	Questionable	2275	Thin Soil Alluvium	570	1.5	0	0	0	0	0	0	0	0	1	0	0	0	
TM-LT-17	Hamlet	2265	Thin Soil Alluvium	580	6.0	60	0	0	0	0	0	0	0	1	0	0	1	
TM-LT-18	Sm Disp Village	2305	Thin Soil Alluvium	570	75.0	375	0	0	0	4	1	1	1	1	0	0	1	
TM-LT-19	Ceremonial Ctr	2360	Lower Predmont-Hill	570	0.5	0	0	0	0	0	0	0	0	1	0	0	0	
TM-LT-20	Small Hamlet	2280	Lower Piedmont	570	1.0	10	0	0	0	0	0	0	0	0	0	0	1	
TM-LT-21	Small Hamlet	2275	Lower Predmont	580	0.5	13	0	0	0	0	0	0	0	0	0	0	1	
TM-LT-22	Small Hamlet	2275	Thin Soil Alluvium	580	0.4	4	0	0	0	0	0	0	0	0	0	0	1	
TM-LT-23	Small Hamlet	2275	Thin Soil Alluvium	590	2.7	14	0	0	0	0	0	0	0	0	0	0	1	
TM-LT-24	Small Hamlet	2250	Thin Soil Alluvium	600	0.4	10	0	0	0	0	0	0	0	0	0	0	1	
TM-LT-25	Hamlet	2260	Thin Soil Alluvium	600	6.0	60	0	0	0	1	1	1	1	0	0	0	1	
TM-LT-26	Hamlet	2290	Lower Predmont	600	3.0	40	0	0	0	0	0	0	0	0	0	0	1	
TM-LT-27	Small Hamlet	2255	Thin Soil Alluvium	600	0.5	3	0	0	0	0	0	0	0	0	0	0	0	
TM-LT-28	Hamlet	2270	Thin Soil Alluvium	600	2.3	58	0	0	0	1	1	1	1	0	0	0	1	
TM-LT-29	Hamlet	2270	Thin Soil Alluvium	600	6.0	30	0	0	0	1	1	1	1	0	0	0	1	
TM-LT-30	Sm Nucl Village	2265	Thin Soil Alluvium	600	6.0	220	0	0	0	1	1	1	1	0	0	0	0	
TM-LT-31	Sm Disp Village	2258	Thin Soil Alluvium	600	16.0	160	0	0	0	1	0	0	0	1	0	1	1	

Table 5.28. Tabular presentation of Late Toltec Settlement Data

SITE		CLASSIFICATION	ELEV (m)	ENVIRONMENTAL ZONE	RAINFALL		OTHER OCCUPATIONS												
NUMBER	AREA				(mm)	(ha)	POPULATION	EF	MF	LF	TF	EC	MC	LC	ET	LT	EA	LA	
TM-LT-32	Sm Nucl Village	2263	Thin Soil Alluvium	600	13.0	325	0	0	0	0	1	1	1	1	0	0	1	1	
TM-LT-33	Small Hamlet	2235	Lakeshore Plain	600	2.3	12	0	0	0	0	0	1	0	0	0	0	0	0	
TM-LT-34	Hamlet	2338	Lower Piedmont-Hill	590	3.8	38	0	0	0	1	1	1	1	1	0	0	0	1	
TM-LT-35	Small Hamlet	2315	Lower Piedmont	580	1.0	10	0	0	0	0	1	1	1	1	0	0	0	1	
TM-LT-36	Small Hamlet	2270	Thin Soil Alluvium	570	0.4	10	0	0	0	0	0	0	0	0	0	0	0	1	
TM-LT-37	Small Hamlet	2290	Thin Soil Alluvium	550	0.4	2	0	0	0	0	0	0	1	0	0	0	0	0	
TM-LT-38	Sm Nucl Village	2287	Thin Soil Alluvium	560	5.0	500	0	0	0	0	0	1	1	1	0	0	0	1	
TM-LT-39	Hamlet	2289	Thin Soil Alluvium	550	2.0	50	0	0	0	0	0	1	1	1	0	0	0	1	
TM-LT-40	Sm Nucl Village	2303	Thin Soil Alluvium	550	12.0	300	0	0	0	0	0	0	1	1	0	0	0	1	
TM-LT-41	Sm Nucl Village	2310	Thin Soil Alluvium	550	4.0	400	0	0	0	0	0	0	0	0	0	0	0	1	
TM-LT-42	Hamlet	2315	Thin Soil Alluvium	540	1.5	38	0	0	0	0	0	0	0	0	0	0	0	0	
TM-LT-43	Small Hamlet	2300	Thin Soil Alluvium	550	0.1	10	0	0	0	0	0	0	0	0	0	0	0	0	
TM-LT-44	Small Hamlet	2300	Thin Soil Alluvium	560	0.5	20	0	0	0	1	0	0	0	0	0	0	0	0	
TM-LT-45	Lg Disp Village	2315	Thin Soil Alluvium	540	34.0	600	0	0	0	0	0	0	0	0	0	0	0	1	
TM-LT-46	Sm Nucl Village	2300	Thin Soil Alluvium	550	5.0	250	0	0	0	0	0	1	1	1	0	0	0	1	
TM-LT-47	Small Hamlet	2300	Thin Soil Alluvium	550	1.5	15	0	0	0	0	0	0	0	0	0	0	0	1	
TM-LT-48	Small Hamlet	2305	Thin Soil Alluvium	560	1.5	15	0	0	0	0	1	1	1	1	0	0	0	1	
TM-LT-49	Small Hamlet	2315	Thin Soil Alluvium	560	0.5	10	0	0	0	0	0	0	0	0	0	0	0	0	
TM-LT-50	Small Hamlet	2305	Thin Soil Alluvium	560	0.3	8	0	0	0	0	0	0	0	0	0	0	0	0	
TM-LT-51	Small Hamlet	2315	Thin Soil Alluvium	560	1.8	18	0	0	0	0	0	0	0	0	0	0	0	1	
TM-LT-52	Small Hamlet	2310	Lower Piedmont	570	0.5	5	0	0	0	0	0	0	0	0	0	0	0	0	
TM-LT-53	Hamlet	2345	Lower Piedmont	550	1.6	40	0	0	0	0	0	0	0	0	0	0	0	0	
TM-LT-54	Small Hamlet	2330	Thin Soil Alluvium	560	1.7	17	0	0	0	0	0	0	0	0	0	0	0	0	
TM-LT-55	Hamlet	2320	Thin Soil Alluvium	550	3.0	30	0	0	0	1	1	1	1	1	0	0	0	1	
TM-LT-56	Hamlet	2325	Thin Soil Alluvium	550	0.5	25	0	0	0	0	0	1	1	1	0	0	0	0	
TM-LT-57	Questionable	2340	Lower Piedmont	550	0.7	0	0	0	0	0	0	0	0	0	0	0	0	1	
TM-LT-58	Small Hamlet	2340	Lower Piedmont	560	1.8	18	0	0	0	0	0	0	0	0	0	0	0	1	
TM-LT-59	Small Hamlet	2385	Middle Piedmont	560	0.3	3	0	0	0	0	0	0	0	0	0	0	0	0	
TM-LT-60	Hamlet	2385	Middle Piedmont	570	1.0	25	0	0	0	0	0	0	0	0	0	0	0	1	
TM-LT-61	Small Hamlet	2390	Middle Piedmont	560	0.4	20	0	0	0	0	0	0	0	0	0	0	0	1	
TM-LT-62	Hamlet	2375	Middle Piedmont	560	12.0	60	0	0	0	0	1	1	1	1	0	0	0	1	

Table 5.28. Tabular presentation of Late Toltec Settlement Data

SITE		ELEV		RAINFALL		AREA		OTHER OCCUPATIONS									
NUMBER	CLASSIFICATION	(m)	ENVIRONMENTAL ZONE	(mm)	(ha)	POPULATION	EF	MF	LF	TF	EC	MC	LC	ET	LT	EA	LA
TM-LT-63	Sm Nucl Village	2350	Middle Piedmont	560	4.3	108	0	0	0	0	0	0	0	0	0	0	1
TM-LT-64	Hamlet	2363	Middle Piedmont	560	4.0	100	0	0	0	0	0	0	0	0	0	0	1
TM-LT-65	Sm Disp Village	2380	Middle Piedmont	550	10.0	150	0	0	0	0	1	1	1	0	0	0	1
TM-LT-66	Hamlet	2390	Middle Piedmont	550	1.0	25	0	0	0	0	0	0	0	0	0	0	1
TM-LT-67	Small Hamlet	2390	Middle Piedmont	540	0.4	10	0	0	0	1	0	0	0	0	0	0	1
TM-LT-68	Small Hamlet	2380	Middle Piedmont	540	0.4	20	0	0	0	0	0	0	0	0	0	0	1
TM-LT-69	Hamlet	2375	Middle Piedmont	540	20.0	100	0	0	0	0	0	0	0	0	0	0	1
TM-LT-70	Hamlet	2430	Middle Piedmont	540	5.5	55	0	0	0	0	0	0	0	0	0	0	1
TM-LT-71	Questionable	2390	Lower Piedmont	520	2.0	0	0	0	0	0	0	0	0	0	0	1	1
TM-LT-72	Hamlet	2373	Lower Piedmont	520	4.5	45	0	0	0	0	0	0	0	0	0	1	1
TM-LT-73	Small Hamlet	2390	Lower Piedmont	510	0.5	5	0	0	0	1	1	0	0	0	0	0	1
TM-LT-74	Small Hamlet	2390	Lower Piedmont	500	0.1	3	0	0	0	0	0	0	0	0	0	0	1
TM-LT-75	Small Hamlet	2345	Thin Soil Alluvium	490	2.0	20	0	0	0	0	0	0	0	0	0	0	1
TM-LT-76	Sm Nucl Village	2343	Thin Soil Alluvium	490	9.0	180	0	0	0	0	0	0	0	0	0	0	1
TM-LT-77	Small Hamlet	2375	Thin Soil Alluvium	490	0.4	20	0	0	0	0	0	0	0	0	0	0	1

Table 5.29. Tabular Presentation of Early Aztec Settlement Data

SITE NUMBER	CLASSIFICATION	ELEV (m)	ENVIRONMENTAL ZONE	RAINFALL (mm)	AREA (ha)	POPULATION	OTHER OCCUPATIONS											
							EF	MF	LF	TF	EC	MC	LC	ET	LT	EA	LA	
TM-EA-1	Unknown	2255	Thin Soil Alluvium	590	-	-	0	0	0	1	1	0	0	1	0	0	1	
TM-EA-2	Unknown	2250	Thin Soil Alluvium	590	-	-	0	0	0	0	1	1	1	0	1	0	1	
TM-EA-3	Unknown	2260	Thin Soil Alluvium	600	-	-	0	0	0	1	0	0	0	1	1	0	1	
TM-EA-4	Unknown	2269	Thin Soil Alluvium	600	-	-	0	0	0	1	1	1	1	0	1	0	1	
TM-EA-5	Unknown	2390	Lower Piedmont	520	-	-	0	0	0	0	0	0	0	0	1	0	1	
TM-EA-6	Unknown	2373	Lower Piedmont	520	-	-	0	0	0	0	0	0	0	0	1	0	1	

Table 5.30. Tabular Presentation of Late Aztec Settlement Data

SITE NUMBER	CLASSIFICATION	ELEV (m)	ENVIRONMENTAL ZONE	RAINFALL (mm)	AREA (ha)	POPULATION	OTHER OCCUPATIONS										
							EF	MF	LF	TF	EC	MC	LC	ET	LT	EA	LA
TM-AZ-1	Sm Disp Village	2320	Lower Piedmont	580	10.0	250	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-2	Hamlet	2275	Thin Soil Alluvium	540	2.0	50	0	0	0	0	0	0	0	0	1	0	0
TM-AZ-3	Sm Disp Village	2298	Thin Soil Alluvium	530	15.0	150	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-4	Small Hamlet	2280	Thin Soil Alluvium	530	1.0	10	0	0	0	0	0	0	0	0	1	0	0
TM-AZ-5	Sm Disp Village	2285	Thin Soil Alluvium	530	7.0	110	0	0	0	0	0	0	0	0	1	0	0
TM-AZ-6	Questionable	2270	Thin Soil Alluvium	550	1.5	0	0	0	0	0	0	0	0	0	1	0	0
TM-AZ-7	Small Hamlet	2275	Thin Soil Alluvium	580	2.0	10	0	0	0	0	0	0	0	0	1	0	0
TM-AZ-8	Hamlet	2258	Thin Soil Alluvium	580	4.0	30	0	0	0	0	0	0	0	0	1	0	0
TM-AZ-9	Hamlet	2255	Thin Soil Alluvium	590	2.2	22	0	0	0	1	1	0	0	1	0	1	0
TM-AZ-10	Hamlet	2245	Thin Soil Alluvium	590	20.0	100	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-11	Hamlet	2250	Deep Soil Alluvium	590	1.5	38	0	0	0	0	/	/	/	0	1	1	0
TM-AZ-12	Hamlet	2265	Thin Soil Alluvium	580	4.0	60	0	0	0	1	0	0	0	0	1	0	0
TM-AZ-13	Small Hamlet	2250	Deep Soil Alluvium	590	1.0	10	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-14	Hamlet	2255	Thin Soil Alluvium	590	3.0	80	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-15	Lg Nucl Village	2270	Thin Soil Alluvium	580	33.0	825	0	0	0	4	0	0	0	1	1	0	0
TM-AZ-16	Hamlet	2275	Thin Soil Alluvium	580	6.0	60	0	0	0	1	0	0	0	1	0	0	0
TM-AZ-17	Sm Disp Village	2305	Thin Soil Alluvium	570	75.0	375	0	0	0	4	/	/	/	1	1	0	0
TM-AZ-18	Small Hamlet	2280	Lower Piedmont	570	1.0	10	0	0	0	0	0	0	0	0	1	0	0
TM-AZ-19	Small Hamlet	2275	Lower Piedmont	580	0.5	13	0	0	0	0	0	0	0	0	1	0	0
TM-AZ-20	Small Hamlet	2290	Lower Piedmont	580	2.0	10	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-21	Small Hamlet	2275	Thin Soil Alluvium	590	2.7	14	0	0	0	0	0	0	0	0	1	0	0
TM-AZ-22	Small Hamlet	2275	Thin Soil Alluvium	580	0.5	13	0	0	0	0	0	0	0	0	1	0	0
TM-AZ-23	Sm Disp Village	2260	Thin Soil Alluvium	600	16.0	160	0	0	0	1	1	1	1	0	2	0	0
TM-AZ-24	Lg Disp Village	2275	Thin Soil Alluvium	600	39.0	550	0	0	0	2	0	0	0	0	1	0	0
TM-AZ-25	Small Hamlet	2265	Thin Soil Alluvium	600	1.0	5	0	0	0	1	1	0	0	0	0	0	0
TM-AZ-26	Small Hamlet	2275	Thin Soil Alluvium	600	1.0	10	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-27	Small Hamlet	2270	Thin Soil Alluvium	600	2.3	12	0	0	0	1	/	/	/	0	1	0	0
TM-AZ-28	Hamlet	2270	Thin Soil Alluvium	600	6.0	30	0	0	0	1	1	1	1	0	1	0	0
TM-AZ-29	Hamlet	2270	Thin Soil Alluvium	600	2.5	50	0	0	0	0	/	/	/	0	0	0	0
TM-AZ-30	Sm Nucl Village	2285	Lower Piedmont	590	5.5	138	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-31	Sm Disp Village	2258	Thin Soil Alluvium	600	20.5	300	0	0	0	1	0	0	0	1	1	1	0

Table 5.30. Tabular Presentation of Late Aztec Settlement Data

SITE NUMBER	CLASSIFICATION	ELEV (m)	ENVIRONMENTAL ZONE	RAINFALL			AREA		OTHER OCCUPATIONS													
				(mm)	(ha)	POPULATION	EF	MF	LF	TF	EC	MC	LC	ET	LT	EA	LA					
TM-AZ-32	Small Hamlet	2255	Thin Soil Alluvium	600	0.5	10	0	0	0	0	0	0	0	0	0	0	0	0	0			
TM-AZ-33	Hamlet	2270	Lower Piedmont	600	6.0	30	0	0	0	0	0	0	0	0	0	0	0	0	0			
TM-AZ-34	Hamlet	2255	Thin Soil Alluvium	600	6.0	30	0	0	0	1	/	/	/	0	1	1	0					
TM-AZ-35	Small Hamlet	2235	Lakeshore Plain	600	0.5	10	0	0	0	0	0	0	0	0	0	0	0	0	0			
TM-AZ-36	Small Hamlet	2300	Lower Piedmont	590	0.1	10	0	0	0	0	0	0	0	0	0	0	0	0	0			
TM-AZ-37	Hamlet	2285	Lower Piedmont	590	1.0	25	0	0	0	0	0	0	0	0	0	0	0	0	0			
TM-AZ-38	Hamlet	2315	Lower Piedmont	580	1.0	25	0	0	0	1	1	1	1	0	1	0	0	0	0			
TM-AZ-39	Hamlet	2310	Lower Piedmont	590	1.5	75	0	0	0	0	0	/	/	0	0	0	0	0	0			
TM-AZ-40	Hamlet	2305	Lower Piedmont	590	4.0	100	0	0	0	0	0	0	0	0	0	0	0	0	0			
TM-AZ-41	Hamlet	2338	Lower Piedmont-Hill	590	3.8	38	0	0	0	1	/	/	/	0	1	0	0	0	0			
TM-AZ-42	Sm Nucel Village	2320	Lower Piedmont-Hill	590	5.0	125	0	0	0	0	0	0	0	0	0	0	0	0	0			
TM-AZ-43	Small Hamlet	2270	Thin Soil Alluvium	570	0.5	3	0	0	0	0	0	0	0	0	0	1	0	0	0			
TM-AZ-44	Hamlet	2287	Thin Soil Alluvium	560	5.0	50	0	0	0	0	0	/	/	0	1	0	0	0	0			
TM-AZ-45	Hamlet	2280	Thin Soil Alluv-Hill	560	0.5	50	0	0	0	1	1	1	1	0	0	0	0	0	0			
TM-AZ-46	Small Hamlet	2289	Thin Soil Alluvium	550	4.0	20	0	0	0	0	0	/	/	0	1	0	0	0	0			
TM-AZ-47	Small Hamlet	2290	Thin Soil Alluvium	550	0.1	10	0	0	0	0	0	0	0	0	0	0	0	0	0			
TM-AZ-48	Hamlet	2279	Thin Soil Alluvium	560	0.8	80	0	0	0	0	0	0	0	0	0	0	0	0	0			
TM-AZ-49	Small Hamlet	2285	Thin Soil Alluvium	550	0.5	5	0	0	0	0	0	0	0	0	0	0	0	0	0			
TM-AZ-50	Sm Disp Village	2303	Thin Soil Alluvium	550	12.0	120	0	0	0	0	0	0	1	1	0	1	0	0	0			
TM-AZ-51	Hamlet	2310	Thin Soil Alluvium	550	4.0	30	0	0	0	0	0	0	0	0	0	1	0	0	0			
TM-AZ-52	Lg Disp Village	2315	Thin Soil Alluvium	540	37.0	600	0	0	0	0	1	1	1	0	0	1	0	0	0			
TM-AZ-53	Small Hamlet	2315	Thin Soil Alluvium	540	1.5	10	0	0	0	0	0	0	0	0	0	0	0	0	0			
TM-AZ-54	Hamlet	2310	Thin Soil Alluvium	550	3.0	50	0	0	0	0	0	0	0	0	0	0	0	0	0			
TM-AZ-55	Small Hamlet	2305	Thin Soil Alluvium	550	3.5	18	0	0	0	0	1	1	1	0	0	0	0	0	0			
TM-AZ-56	Questionable	2300	Thin Soil Alluvium	550	0.5	0	0	0	0	1	/	/	/	0	0	0	0	0	0			
TM-AZ-57	Hamlet	2295	Thin Soil Alluvium	550	3.0	75	0	0	0	0	0	0	0	0	0	0	0	0	0			
TM-AZ-58	Sm Nucel Village	2305	Thin Soil Alluvium	560	4.5	113	0	0	0	0	0	/	/	0	0	0	0	0	0			
TM-AZ-59	Hamlet	2305	Thin Soil Alluvium	560	8.0	40	0	0	0	1	/	/	/	0	1	0	0	0	0			
TM-AZ-60	Sm Disp Village	2300	Thin Soil Alluvium	550	15.5	180	0	0	0	0	1	1	1	1	0	2	0	0	0			
TM-AZ-61	Small Hamlet	2305	Thin Soil Alluvium	550	2.0	20	0	0	0	0	0	0	0	0	0	0	0	0	0			
TM-AZ-62	Hamlet	2320	Thin Soil Alluvium	550	10.0	100	0	0	0	1	1	1	1	0	1	0	0	0	0			

Table 5.30. Tabular Presentation of Late Aztec Settlement Data

SITE		ELEV		RAINFALL		AREA		OTHER OCCUPATIONS									
NUMBER	CLASSIFICATION	(m)	ENVIRONMENTAL ZONE	(mm)	(ha)	POPULATION	EF	MF	LF	TF	EC	MC	LC	ET	LT	EA	LA
TM-AZ-63	Hamlet	2313	Thin Soil Alluvium	560	5.0	25	0	0	0	0	0	0	0	0	1	0	0
TM-AZ-64	Small Hamlet	2345	Lower Piedmt	570	1.5	15	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-65	Hamlet	2338	Lower Piedmt	570	2.0	50	0	0	0	0	1	0	0	0	0	0	0
TM-AZ-66	Questionable	2375	Middle Piedmont	570	0.5	0	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-67	Small Hamlet	2375	Middle Piedmont	570	1.5	15	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-68	Hamlet	2385	Middle Piedmont	570	1.5	35	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-69	Hamlet	2365	Middle Piedmont	560	1.5	80	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-70	Sm Disp Village	2330	Thin Soil Alluvium	560	27.0	275	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-71	Hamlet	2350	Middle Piedmont	560	14.0	70	0	0	0	0	0	0	0	0	1	0	0
TM-AZ-72	Small Hamlet	2395	Middle Piedmont	560	0.5	5	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-73	Sm Nucl Village	2395	Middle Piedmont	570	5.5	275	0	0	0	0	0	0	0	0	1	0	0
TM-AZ-74	Small Hamlet	2420	Middle Piedmont	570	0.5	5	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-75	Small Hamlet	2400	Middle Piedmont	560	0.2	10	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-76	Small Hamlet	2390	Middle Piedmont	560	0.5	10	0	0	0	0	0	0	0	0	1	0	0
TM-AZ-77	Hamlet	2375	Middle Piedmont	560	16.0	80	0	0	0	1	1	1	0	0	1	0	0
TM-AZ-78	Questionable	2360	Middle Piedmont	560	0.3	0	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-79	Hamlet	2393	Middle Piedmont	560	3.0	30	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-80	Hamlet	2370	Middle Piedmont	560	4.0	100	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-81	Sm Disp Village	2383	Middle Piedmont	550	13.5	140	0	0	0	0	1	1	1	0	1	0	0
TM-AZ-82	Lg Nucl Village	2373	Middle Piedmont	560	10.0	1000	0	0	0	0	0	0	0	0	1	0	0
TM-AZ-83	Questionable	2350	Middle Piedmont	560	4.3	0	0	0	0	0	0	0	0	0	1	0	0
TM-AZ-84	Small Hamlet	2345	Thin Soil Alluvium	550	1.0	10	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-85	Hamlet	2345	Lower Piedmont	550	1.2	60	0	0	0	0	0	0	0	0	1	0	0
TM-AZ-86	Small Hamlet	2330	Thin Soil Alluvium	550	0.7	18	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-87	Hamlet	2340	Thin Soil Alluvium	550	7.0	70	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-88	Small Hamlet	2340	Lower Piedmont	550	1.0	10	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-89	Hamlet	2355	Middle Piedmont	550	0.7	35	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-90	Sm Disp Village	2390	Middle Piedmont	550	4.0	170	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-91	Small Hamlet	2365	Middle Piedmont	550	0.2	2	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-92	Small Hamlet	2355	Middle Piedmont	550	0.7	7	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-93	Hamlet	2340	Thin Soil Alluvium	540	1.0	25	0	0	0	0	0	0	0	0	0	0	0

Table 5.30. Tabular Presentation of Late Aztec Settlement Data

SITE NUMBER	CLASSIFICATION	ELEV (m)	ENVIRONMENTAL ZONE	RAINFALL			AREA		OTHER OCCUPATIONS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
				(mm)	(ha)	POPULATION	EF	MF	LF	TF	EC	MC	LC	ET	LT	EA	LA																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
TM-AZ-94	Small Hamlet	2370	Middle Piedmont	550	0.2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Table 5.30. Tabular Presentation of Late Aztec Settlement Data

SITE		ELEV		RAINFALL		AREA		OTHER OCCUPATIONS									
NUMBER	CLASSIFICATION	(m)	ENVIRONMENTAL ZONE	(mm)	(ha)	POPULATION	EF	MF	LF	TF	EC	MC	LC	ET	LT	EA	LA
TM-AZ-125	Hamlet	2334	Thin Soil Alluvium	490	6.0	60	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-126	Hamlet	2383	Middle Piedmont	490	1.5	30	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-127	Sm Nucl Village	2360	Middle Piedmont	490	13.0	325	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-128	Sm Nucl Village	2370	Middle Piedmont	490	6.0	300	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-129	Small Hamlet	2340	Thin Soil Alluvium	490	1.0	10	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-130	Hamlet	2340	Thin Soil Alluvium	490	7.5	38	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-131	Ceremonial Ctr	2360	Middle Piedmont	490	0.1	0	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-132	Ceremonial Ctr	2380	Middle Piedmont-Hill	490	0.1	0	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-133	Lg Nucl Village	2365	Thin Soil Alluvium	480	20.0	1000	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-134	Sm Disp Village	2395	Thin Soil Alluvium	480	7.0	160	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-135	Sm Nucl Village	2390	Middle Piedmont	480	11.0	275	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-136	Sm Disp Village	2380	Middle Piedmont	480	9.0	160	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-137	Small Hamlet	2475	Middle Piedmont	480	0.3	2	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-138	Small Hamlet	2475	Middle Piedmont	480	0.5	3	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-139	Hamlet	2488	Middle Piedmont	480	1.0	25	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-140	Lg Nucl Village	2435	Middle Piedmont	480	10.0	1000	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-141	Hamlet	2375	Thin Soil Alluvium	490	0.5	25	0	0	0	0	0	0	0	0	1	0	0
TM-AZ-142	Sm Disp Village	2418	Middle Piedmont	480	5.0	125	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-143	Small Hamlet	2370	Middle Piedmont	490	0.1	5	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-144	Ceremonial Ctr	2360	Thin Soil Alluvium	490	0.3	0	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-145	Small Hamlet	2360	Thin Soil Alluvium	490	0.1	10	0	0	0	0	1	1	0	0	0	0	0
TM-AZ-146	Small Hamlet	2365	Thin Soil Alluvium	490	1.0	10	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-147	Small Hamlet	2355	Thin Soil Alluvium	490	1.2	12	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-148	Small Hamlet	2360	Thin Soil Alluvium	490	0.3	10	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-149	Small Hamlet	2355	Thin Soil Alluvium	490	0.3	3	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-150	Small Hamlet	2365	Thin Soil Alluvium	500	0.1	3	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-151	Provincial Ctr	2423	Middle Piedmont	500	103.0	1325	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-152	Hamlet	2470	Middle Piedmont	490	1.0	25	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-153	Hamlet	2468	Middle Piedmont	490	1.0	30	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-154	Hamlet	2455	Middle Piedmont	490	1.0	60	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-155	Sm Nucl Village	2440	Middle Piedmont	490	7.5	375	0	0	0	0	0	0	0	0	0	0	0

Table 5.30. Tabular Presentation of Late Aztec Settlement Data

SITE NUMBER	CLASSIFICATION	ELEV (m)	ENVIRONMENTAL ZONE	RAINFALL (mm)	AREA (ha)	POPULATION	OTHER OCCUPATIONS											
							EF	MF	LF	TF	EC	MC	LC	ET	LT	EA	LA	
TM-AZ-156	Hamlet	2415	Middle Piedmont	490	3.2	40	0	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-157	Sm Disp Village	2455	Middle Piedmont	490	13.0	250	0	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-158	Small Hamlet	2435	Middle Piedmont	490	0.3	10	0	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-159	Small Hamlet	2435	Middle Piedmont	490	0.3	10	0	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-160	Small Hamlet	2420	Middle Piedmont	490	0.4	20	0	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-161	Small Hamlet	2410	Middle Piedmont	490	0.2	10	0	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-162	Small Hamlet	2405	Middle Piedmont	490	3.0	20	0	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-163	Sm Disp Village	2428	Middle Piedmont	490	15.0	160	0	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-164	Small Hamlet	2435	Middle Piedmont	490	0.1	10	0	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-165	Ceremonial Ctr	2460	Middle Piedmont	490	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-166	Small Hamlet	2450	Middle Piedmont	490	0.3	10	0	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-167	Ceremonial Ctr	2520	Upper Piedmont	490	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0
TM-AZ-168	Small Hamlet	2515	Upper Piedmont	480	1.0	10	0	0	0	0	0	0	0	0	0	0	0	0

CHAPTER 6: REGIONAL DEMOGRAPHICS AND SETTLEMENT IN THE TEMASCALAPA REGION

Introduction

The archaeological survey of the Temascalapa region identified 341 prehispanic archaeological sites, occupied over a span of about 1,500 years. Although locating these sites and systematically recording key characteristics of each are useful endeavors in their own right—particularly in an area such as the Temascalapa region where so much destruction of the archaeological record has occurred in recent decades—a major aim of this project is to increase our understanding of cultural ecology and cultural evolution in this portion of the Basin of Mexico. Towards that end, in the following pages we present basic analyses of prehispanic settlement and regional demographics in the Temascalapa region. Understanding many aspects of settlement patterns and cultural evolution in this region ultimately requires placing the Temascalapa data in the context of settlement and cultural evolution in the Basin of Mexico as a whole and the Teotihuacan region, a task we undertake in Chapter 8.

The approach used in analyzing data on regional demographics and settlement in the Temascalapa region is quite straightforward. Our primary aim is to examine selected variables and their possible role in cultural evolution and the geographic arrangement of pre-Columbian population. We designed our analyses to address these issues to determine how settlement patterns and population changed over time in the Temascalapa region, and how certain environmental factors and levels of cultural development relate to the geographic arrangement of settlement. To conduct such analyses, we opted for an approach based on examining total number of sites, population, settlement size and type, and settlement distribution with respect to certain variables. Such an analytical strategy generates what in essence is a thorough *description* of regional demographics and settlement patterns in terms of selected variables. In examining the results of these analyses, we focus on particular themes—total population, site size and type, and site location—in effect taking several different passes at the same archaeological data. With each pass, we gain increased understanding of regional settlement in the Temascalapa region at various times in its prehispanic past.

Regional Demographics and Demographic Change in the Temascalapa Region

One of the most useful roles of intensive archaeological survey is the insight that resulting data can provide on regional demography. Although the questions to address with data on pre-Columbian settlement in the Temascalapa region extend well beyond the likely number of people living there at various points in its past, because of their central role in other issues demographics are a good place to start. It is

important to consider the limitations of the archaeological settlement data produced by this project as a basis for estimating past population. One of the most fundamental is determining contemporaneity of settlements in sites where age is based on ceramic markers whose periods of use often span several centuries (see Figure 4.2). This key issue is the central challenge for studies of demography based on archaeological data (Dewar 1991; Kintigh 1994). We treat sites assigned to each time period as contemporary—that is, occupied at the same time—though this almost certainly is incorrect and yields overestimates of population.

Another important consideration in studying pre-Columbian demographics of the Temascalapa region based on survey data is the accuracy of the population estimates for each site. As noted in the earlier synopsis of the Basin of Mexico data (Sanders et al. 1979:34-40), and discussed in Chapter 4 of this monograph, deriving accurate *absolute* population estimates from surface archaeological remains was beyond the scope of the Temascalapa settlement pattern survey. We treat the demographic estimates in this and following sections as absolute figures, but in truth their role probably is more appropriate as *relative* indicators of prehispanic population—identifying how the level of occupation in one period of the Temascalapa region's past compares to that of another period. To examine the magnitude of prehispanic occupation as it changed over time, we augment the analysis of population estimates with complementary analyses of number of settlements and settlement area.

The population profile of the Temascalapa region during prehispanic times indicates relatively late colonization of this region by a small number of people during the Terminal Formative period, followed by general population growth through the Late Aztec occupation, with one notable exception (Figure 6.1). Using midpoints of the time periods associated with each occupation, we calculated rates of demographic change over time. In large part because of the long length of time between midpoints, rates of change in the Temascalapa region—both positive and negative—generally are quite modest (Table 6.1). Such low rates do not themselves indicate any major events, that is, any occurrences that would dramatically alter the balance between fertility, mortality, and migration, the three processes that cause population change. To put this in perspective, average annual population growth of 1.1% (calculated between Terminal Formative and Teotihuacan periods) would lead to doubling of population in about 64 years; in contrast, average annual population growth of 0.3% (calculated between Early and Late Toltec, and between Late Toltec and Late Aztec) would require more than 230 years for population to double. That stated, the story of population change in the Temascalapa region almost certainly is more complex than merely periods of a slow, steady increase or decrease in total inhabitants. If midpoints are not good representations of the demographic apex for each major period of occupation, rates of increase or decrease could be considerably higher or lower than we present. Similarly, assigning population to time periods of several hundred

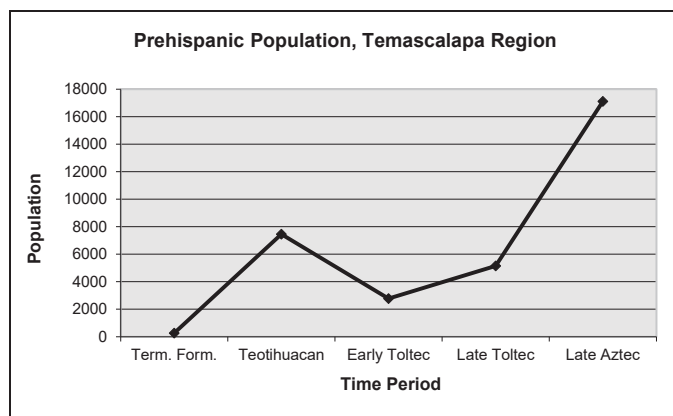


Figure 6.1 Prehispanic Population in the Temascalapa Region, by Period of Occupation

Table 6.1. Rates of Change from Preceding Periods for Measures of Prehispanic Occupation in the Temascalapa Region

Time Period	Average Annual Change (%)		
	Population	No. of Sites	Site Area
Terminal Formative ^a	NA	NA	NA
Teotihuacan	1.1	-	0.5
Early Toltec	-0.2	-0.2	-
Late Toltec	0.3	0.9	0.5
Late Aztec	0.3	0.2	0.3

a: Tzacualli sub-phase

“NA” means “not applicable” (here because no prior occupation occurred); “-” signifies a percent that rounds to 0.0

years can easily mask major events. For instance, slight population growth could indeed result from dramatic population decline followed by dramatic population growth within the same period of occupation—the conclusion of steady, unremarkable population growth thus inaccurately characterizing a period of major demographic upheaval. Potential misinterpretation due to coarse temporal resolution certainly emerges in our analysis of Late Toltec-Late Aztec population change. We exclude Early Aztec settlement because we do not control the data as well as for other periods and because we lack population estimates for this period of occupation—with sites defined by presence of Early Aztec (Aztec II) ceramics on Late Aztec settlements. However, in so doing, we exclude a period where considerable depopulation likely occurred between two periods (Late Toltec and Late Aztec) where large numbers of people occupied the Temascalapa region (see Parsons and Gorenflo 2022), calling into question the smooth Postclassic demographic transition that our demographic data suggest.

We estimate the total population of the Temascalapa region during the Terminal Formative period at fewer than 300 people, in part because several sites dating to this occupation likely had no permanent population (see Chapter 5; see also Sanders et al. 1979:204). The surge in population during the Teotihuacan period, to nearly 7,500 people, represents a substantial increase in population at a time when Teotihuacan emerged as an urban center a short distance south of the Temascalapa region. The average annual rate of population growth between the Terminal Formative and Teotihuacan periods, 1.1%, although not particularly high

nevertheless is the most rapid rate of prehispanic population growth calculated for the Temascalapa region. A decline in Temascalapa population followed in the Early Toltec period, when the estimated total inhabitants of the region fell to fewer than 2,800. Although this represents a population decline of nearly 4,700 people—a loss of about 63% from the Teotihuacan period total—as calculated here it occurred over about five centuries, resulting in a relatively slow –0.2% rate of average annual decline. Although demographic resurgence ensued in the Late Toltec period, growth was relatively slow (0.3% annually) and the resulting total of about 5,100 inhabitants fell well short of the total recorded during the Teotihuacan period. Growth continued at a similar rate into the Late Aztec. The resulting population of the Temascalapa region eventually reached more than 17,100, easily the largest occupation in the region during prehispanic times. By way of comparison, the total population of the largely rural agrarian Temascalapa region between 1930 and 1960 ranged between about 8,100 and 11,500 (see Chapter 3). In 1980, total regional population was about 28,400, still not much greater than the Late Aztec occupation. This changed considerably by 2010, when the population exceeded 94,000, considerably larger than at any point during the prehispanic past.

Other measures of occupation for the Temascalapa region—total number of archaeological sites and total site area—generally are consistent with the account of proposed prehistoric demographic evolution just described. The number of sites increased between the Terminal Formative and Teotihuacan periods, decreased between the Teotihuacan and Early Toltec periods, and then increased thereafter (Figure 6.2), paralleling the demographic profile. However, the specifics varied. The increase in number of sites between Terminal Formative and Teotihuacan periods was very small, the number of Late Toltec sites exceeded the number of Teotihuacan period sites nearly 2:1, and the number of Late Aztec sites was slightly more than double that of the preceding Late Toltec total. Rates of change point up the differences between using number of sites and estimated population to measure occupational intensity (see Table 6.1). The modest increase in the number of sites between the Terminal Formative and Teotihuacan periods rounded to 0.0%, while the Early-Late Toltec growth in number of

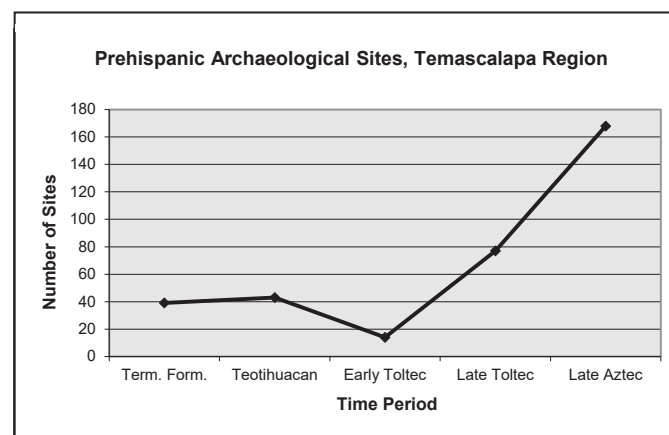


Figure 6.2. Number of Archaeological Sites in the Temascalapa Region, by Period of Occupation

sites was 0.9%, the highest for between any two periods of occupation using this measure of human presence.

Total hectares of site area in the Temascalapa region increased over the entire time span considered (Figure 6.3). The Teotihuacan-Early Toltec decline found in total population and total sites did not occur in site area, although a single site (Tm-Et-11) accounted for more than 60% of the total Early Toltec site area and the increase in total site area in the survey region was less than 2.0 ha. Growth in site area occurred as three moderate surges (see Table 6.1). Between the Terminal Formative and Teotihuacan periods, and between Early and Late Toltec periods, total site area increased at an average annual rate of 0.5%, while between the Late Toltec and Late Aztec periods site area grew at 0.3% annually. Considering that site area remained essentially constant (as opposed to declining) between the Teotihuacan period and Early Toltec occupations, the contrast between this measure of occupation and the two preceding measures is not marked. As with the prior two measures, change in total site area does not indicate any major events in the prehistory of the Temascalapa region.

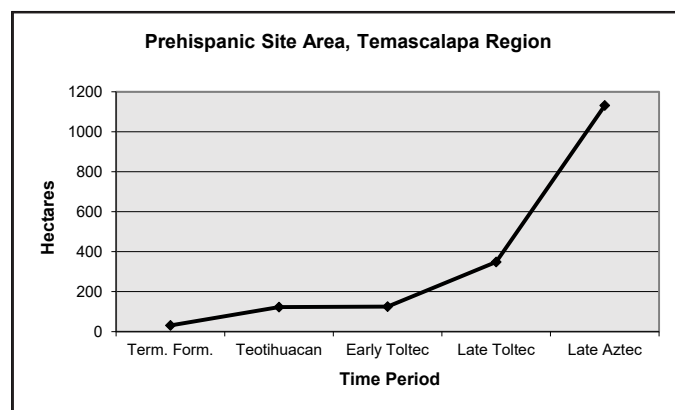


Figure 6.3. Prehispanic Site Area in the Temascalapa Region, by Period of Occupation

Population density in the Temascalapa region ranged from about 1.2 persons per km², in the Terminal Formative period, to nearly 75 persons per km², in the Late Aztec occupation (Figure 6.4). None of these values is particularly remarkable apart from their low values. The Terminal Formative density, when settlement occurred in only a small part of the region, is reminiscent of hunter-gatherer densities (see Figure 5.1). One characteristic noteworthy about the Late Aztec occupation is that population density involved settlement throughout the entire region (see Figure 5.10)—that is, the Late Aztec occupation was much denser than other periods, mainly due to the large number of sites dispersed across both the western and northern tracts of the Temascalapa region. Changes in population density obviously paralleled changes in population, the only decline occurring between Teotihuacan period and Early Toltec occupations. Population densities during prehispanic times in the Temascalapa region are similar to those during the first six decades of the 20th century, which reached about 50 persons per km² in 1960 (see Table 3.2). In contrast, the population density of the Temascalapa region in 2010—involving rural

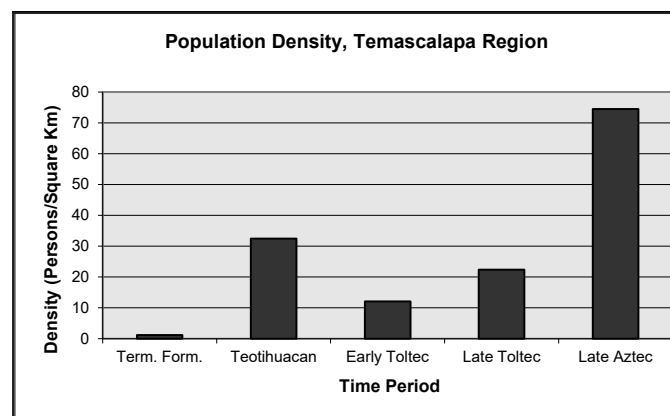


Figure 6.4. Prehispanic Site Density in the Temascalapa Region, by Period of Occupation

agricultural communities as well as mixed economies based on agriculture, small-scale manufacturing, and services (particular in the western tract of the survey area)—was nearly 410 persons per km², more than five times the greatest density reached during prehispanic times.

Compared to other portions of the Basin of Mexico, which supported populations in preceramic and earliest ceramic times (Aveleyra Arroyo de Anda 1964:393-404; Niederberger 1969, 1976; Sanders et al. 1979:94-105), people settled the Temascalapa region relatively late in its prehistory. The Terminal Formative occupation was minimal, totaling fewer than 300 people distributed among about 40 sites. Subsequent occupations generally grew throughout pre-Columbian times, though never very rapidly, with the largest prehispanic population about 17,100. Levels of prehispanic occupation were entirely in line with the largely agrarian occupations of the generally marginal Temascalapa region during the early and mid-twentieth century; after 1960, and especially 1980, population began to grow more rapidly and distance itself from its pre-Columbian past. This consistency with the historic occupation of the region by agriculturalists for at least the first six decades of the twentieth century provides a potentially important clue to its prehispanic occupations, an issue we explore further in this chapter and Chapter 8.

Settlement Size and Type in the Temascalapa Region

Analyzing total population and other indicators of occupational intensity in the Temascalapa region provides a sense of how prehispanic occupations ebbed and flowed in the survey area. But such analyses do not take advantage of all the information available for individual settlements that possibly influenced them. A given total population can result from a range of different settlement scenarios. A few large sites concentrated in one environmental zone, for instance, can contain the same total number of people as a much greater number of small sites scattered among several environmental zones, but the implications are very different. Fortunately, the archaeological survey of the Temascalapa region yielded data on settlement type and settlement location with respect to environmental characteristics in addition to various measures of size.

Examining characteristics of settlements can provide insights on apparent adaptive strategies and cultural evolution with respect to their types and geographic arrangement.

It is important to revisit the limitations of some of the data on settlement size and type generated by the Temascalapa settlement survey. The caveats on population estimates, noted in the preceding section as a potential problem for aggregate estimates of occupation for the entire survey region, hold for individual archaeological sites as well; indeed, it is where the possible shortcomings originate. We consider alternative measures of occupation—number of sites and site area—when possible and appropriate. The designation of site type, as discussed in Chapter 4, was based in part on estimated population and in part on the presence of prehispanic architectural remains (mounds) with certain dimensions. Population helped to distinguish between types of hamlets and between hamlets and villages. We used mound size, in turn, to identify sites with likely administrative function, notably sites featuring mounds exceeding 3.0 m in height. The definition of different site types is consistent with the way regional settlement systems tend to be organized in settlement *hierarchies* (Haggett et al. 1977:139-146). The typology used here is consistent with Late Aztec settlement systems and modern (circa 1950s and 1960s) settlement densities in the Teotihuacan Valley (Sanders 1965:50). In estimating population and assigning site type, it is likely that designations based on surface survey have erred. Nevertheless, both assessments employ systematic methods that help place some order on the settlement data. We remain convinced that the approach used is the best option with the data available, but at the same time we acknowledge possible problems to alert the reader to possible shortcomings in our analyses.

The pattern that one generally finds in the arrangement of regional settlement is a large number of communities with few people and a small number of communities with many people. Such a frequency distribution is consistent with regional settlement hierarchies—few centers, usually with larger populations, administer many other communities, the latter containing comparatively smaller populations and occupying lower tiers of the hierarchy. Settlement from the Temascalapa region fits this pattern for all prehispanic periods of occupation, though the Terminal Formative correspondence with this pattern is not as obvious as all sites likely contained small populations (Table 6.2). Of the 39 Terminal Formative sites in the region, we estimated that 10 contained no permanent population, signifying likely temporary occupations. The remaining 29 fell into the category of 1-50 people.

Measuring site size in terms of area yields a similar pattern. Here considering 5-ha categories, we see that all but one Terminal Formative site covered 5.0 ha or less (Table 6.3). The remaining site fell in the 5.1-10.0 ha category. Once again, the absence of Terminal Formative sites covering larger areas makes it difficult to identify a discernable pattern in the size distribution beyond fairly uniform small settlements. The settlement pattern dating to this period likely represents an initial expansion into a

Table 6.2. Total Sites, and Percent of Sites, by Categories of Population Size for Prehispanic Occupations in the Temascalapa Region

	Time Period ^a				
	TF	TE	ET	LT	LA
Total Sites	39	43	14	77	168
Population Category	Percent				
0	25.6	16.3	35.7	7.8	7.1
1-50	74.4	37.2	28.6	64.9	57.1
51-100	-	2.3	7.1	11.7	11.9
101-150	-	9.3	14.3	2.6	6.5
151-200	-	7.0	-	2.6	4.8
201-250	-	4.7	-	2.6	1.8
251-300	-	11.6	-	1.3	3.6
301-350	-	2.3	-	1.3	0.6
351-400	-	-	7.1	2.6	1.8
401-450	-	-	-	-	-
451-500	-	-	-	1.3	-
501-550	-	-	-	-	0.6
551-600	-	4.7	-	1.3	0.6
601-650	-	-	-	-	-
651-700	-	-	-	-	-
701-750	-	-	-	-	-
751-800	-	-	-	-	0.6
801-850	-	-	-	-	0.6
851-900	-	-	-	-	-
901-950	-	-	-	-	-
951-1,000	-	-	-	-	1.8
1,001-1,050	-	-	-	-	-
1,051-1,100	-	-	-	-	-
1,101-1,150	-	-	-	-	-
1,151-1,200	-	2.3	-	-	-
1,201-1,250	-	-	-	-	-
1,251-1,300	-	2.3	-	-	-
1,301-1,350	-	-	-	-	0.6
	-	-	-	-	-
1,551-1,600	-	-	-	-	-
	-	-	-	-	-
1,801-1,850	-	-	7.1	-	-

a: Time periods TF (Late Terminal Formative, Tzacualli sub-phase), TE (Teotihuacan Period), ET (Early Toltec), LT (Late Toltec), and LA (Late Aztec)

“-“ signifies a percent that rounds to 0.0

particularly arid portion of the Basin of Mexico that would have posed considerable risk for the dominant economic activity in the basin, intensive maize agriculture. The presence of small, rural sites is consistent with such an initial expansion when occupation had yet to develop many distinguishing characteristics, possibly exploring economic (adaptive) alternatives.

Although the settlement survey of the Temascalapa

Table 6.3. Total Sites, and Percent of Sites, by Categories of Geographic Size for Prehispanic Occupations in the Temascalapa Region

	Time Period ^a				
	TF	TE	ET	LT	LA
Total Sites	39	43	14	77	168
Site Area Category (ha)	Percent				
0.1-5.0	97.4	81.4	64.3	79.2	70.8
5.1-10.0	2.6	9.3	21.4	11.7	13.7
10.1-15.0	-	9.3	-	3.9	5.4
15.1-20.0	-	-	7.1	2.6	4.2
20.1-25.0	-	-	-	-	1.2
25.1-30.0	-	-	-	-	1.2
30.1-35.0	-	-	-	1.3	0.6
35.1-40.0	-	-	-	-	1.2
70.1-75.0	-	-	7.1	1.3	0.6
100.1-105.0	-	-	-	-	0.6
155.1-160.0	-	-	-	-	0.6

a: Time periods TF (Late Terminal Formative, Tzacualli sub-phase), TE (Teotihuacan Period), ET (Early Toltec), LT (Late Toltec), and LA (Late Aztec)

“-” signifies a percent that rounds to 0.0

region identified only four more Teotihuacan period sites than the total identified for Terminal Formative, estimated populations for Teotihuacan period settlements were much more varied (see Table 6.2). Twenty-three of the 43 total sites—nearly 54% of the total—contained 50 persons or fewer. The frequencies of remaining site sizes varied, though no single population category contained more than five sites. The number of sites with larger estimated populations tapered off as site population increased. The frequency distribution of site areas generally replicates this pattern, though the range of site areas was small during the Teotihuacan period (see Table 6.3). This contrast in estimated site populations and site areas itself is interesting, the variability in the former accounted for primarily by densities of occupation. Beyond that, the differences in distributions of estimated populations and site sizes between the Terminal Formative and Teotihuacan periods indicate a substantial change. Whereas the Terminal Formative occupation was minimal, and in a sense simple—a scatter of small occupations probably largely independent of one another—the Teotihuacan period occupation with its variability in site population and size, and a total population nearly 28 times larger, was something altogether different.

Estimated populations for Early Toltec sites in the Temascalapa region yielded a frequency distribution vaguely similar to that of the Teotihuacan period (see Table 6.2). This is somewhat surprising in that the survey identified only 14 total sites. One Early Toltec site, Tm-Et-11, estimated with a maximum population of nearly 1,900 people, is largely

responsible for maintaining similarity with the preceding period—this one location helping to *stretch* the frequency distribution into the large population-low occurrence form that we see for this occupation. The same can be said for the distribution of site areas, the similarity with that found during the Teotihuacan period largely due to the same single, large (75.0 ha) site (see Table 6.3). Of greater interest is what the presence of such a site indicates for the Early Toltec occupation of the Temascalapa region. Tm-Et-11 is nearly five times the estimated population, and nearly five times the site area, of the next largest site in the region during the Early Toltec occupation. Although such primate community population distributions certainly exist on rare occasions (Zipf 1949), an explanation of this pattern for the Early Toltec Temascalapa region likely requires enlarging the area considered to investigate other portions of the Basin of Mexico (or beyond) to understand where this large site might *fit into* the larger sociopolitical or economic system. We expand our geographic focus to examine this question in greater detail in Chapter 8.

The distribution of Late Toltec site population continues the tendency for many sites with low (or no) estimated populations and few sites with large populations (see Table 6.2). The frequency distribution of sites by population resembles those for the Terminal Formative and Teotihuacan periods in that the number of sites with no permanent population is lower than the number of sites with estimated populations of 1-50 people. The distribution of Late Toltec site areas, although similar to the distribution of estimated populations, is particularly reminiscent of the Early Toltec—a single site (here Tm-Lt-18) responsible for extending the distribution into larger site areas (see Table 6.3). With 77 sites in the Temascalapa region dating to the Late Toltec occupation, it is possible to discuss frequencies of estimated site populations and areas with a certain amount of confidence. The dominant settlements during this occupation are overwhelmingly small in population and area. Nearly 73% of the sites identified contained 50 people or fewer, with more than 79% of Late Toltec sites covering 5.0 ha or less.

Finally, the population estimates for Late Aztec sites maintain the pattern where the vast majority of sites contain small populations, and relatively few contain large populations (see Table 6.2). Although the dominance of sites with no permanent population or fewer than 50 people is not as great as during the Late Toltec, more than 64% of the Late Aztec sites fell into one of these two categories. More than in the preceding occupations, an increased number of sites with larger populations occurred in the Late Aztec period—still very few in relative terms (a single site in a particular category representing only about 0.6% of the total), but more clearly showing low frequencies of sites with large populations compared to the preponderance of sites with smaller populations. Measuring settlement size in terms of site area maintains this pattern, particularly in the heavy representation of small sites with nearly 71% of the total covering 5.0 ha or less (see Table 6.3). A single site serves to extend the frequency distribution of estimated

populations and site areas to larger values, though in contrast to the Early and Late Toltec periods the site responsible for the largest population (Tm-Az-151) was not the same as the site with the largest area (Tm-Az-105). In neither case is the larger site as much as twice the population or area of the next larger, indicating regional settlement with more continuous representation of settlement size. This, too, may indicate a difference between regional organization during the Late Aztec occupation and regional organization during either of the Toltec occupations.

In addition to examining the distribution of all recorded sites in the Temascalapa region by some measure of size or occupation, we can also examine the presence of various types of sites, both in relative and absolute terms. For each site shown on settlement pattern maps in Chapter 5, we present a map below of site types. For tabular presentations, we collapse the 10 different site types defined in the region for various occupations into four: hamlets, villages, centers, and *other*. Our reasons for reducing the number of site types are two. In terms of examining cultural ecology and cultural evolution, what in essence is a three-tiered settlement hierarchy of hamlets, villages, and centers probably encompasses the range of likely sociopolitical organization roles present in each period of prehispanic occupation in the Temascalapa region. This supports a scenario of centers (when present) directly administering villages and, in some cases, hamlets, and villages in some sense administratively superior to hamlets. It also proposes that in administrative function, there is no real sociopolitical distinction among types of villages and among types of hamlets. Although Parsons has proposed a possible distinction between large and small hamlets in their roles in regional settlement—the latter possibly more temporary settlements (Parsons et al. 1982:269)—we treat them as similar in their likely functions in sociopolitical integration. The category of “other” includes questionable occupations, the sites that we have interpreted as briefly occupied houselots or small hamlets, as well as hilltop ceremonial centers. We separate sites in the *other* category from the three remaining categories as the latter more likely reflect substantive sociopolitical differences and changes in regional settlement associated with cultural evolution and regional adaptation.

The geographic arrangement of site types for the Terminal Formative occupation in the Temascalapa region appears in Figure 6.5. As was the case when considering population and area, the variety of site types in the Terminal Formative is limited. Of the 39 total sites, we classified 29 as hamlets and the remaining 10 as questionable occupations that probably represent temporarily used localities with no resident population (Table 6.4). Such a collection of sites likely represents small, independent farming communities or resource exploitation sites, though because there are no specialized resources in the Temascalapa region specifics concerning potential exploitation remain unclear. The relative breakdown of site types underscores the obvious dominance of hamlets over temporary occupations, the latter identified as *other* in Table 6.4.

Table 6.4. Total Sites, and Percent of Sites by Type, for Prehispanic Occupations in the Temascalapa Region

	Time Period ^a				
	TF	TE	ET	LT	LA
Total Sites	39	43	14	77	168
Site Type	Percent				
Hamlet	74.4	39.5	35.7	76.6	69.0
Village	-	44.2	21.4	15.6	23.2
Center	-	-	7.1	-	0.6
Other	25.6	16.3	35.7	7.8	7.1

a: Time periods TF (Late Terminal Formative, Tzacualli sub-phase), TE (Teotihuacan Period), ET (Early Toltec), LT (Late Toltec), and LA (Late Aztec)

“-“ signifies a percent that rounds to 0.0

The apportionment of population by site type during the Terminal Formative occupation of the Temascalapa region is similarly simple. A tabular summary of population by site type shows the dominance of hamlets to the exclusion of other site types (Table 6.5). Measuring occupation in terms of site area reveals a similar pattern (Table 6.6), despite the inclusion of sites categorized as *other* (here temporary occupations) which, though they had no permanent population, did cover a small amount of the survey region.

Table 6.5. Total Population, and Percent of Population by Site Type, for Prehispanic Occupations in the Temascalapa Region

	Time Period ^a				
	TF	TE	ET	LT	LA
Total Population	273	7,456	2,779	5,148	17,116
Site Type	Percent				
Hamlet	100.0	4.6	7.8	30.7	19.5
Village	-	95.4	24.8	69.3	72.7
Center	-	-	67.5	-	7.7
Other	-	-	-	-	-

a: Time periods TF (Late Terminal Formative, Tzacualli sub-phase), TE (Teotihuacan Period), ET (Early Toltec), LT (Late Toltec), and LA (Late Aztec)

“-“ signifies a percent that rounds to 0.0

Table 6.6. Total Site Area, and Percent of Area by Site Type, for Prehispanic Occupations in the Temascalapa Region

	Time Period ^a				
	TF	TE	ET	LT	LA
Total Area	31.0	122.9	124.7	349.0	1,131.3
Site Type	Percent				
Hamlet	94.5	10.3	11.6	42.4	23.8
Village	-	87.1	22.1	55.4	66.3
Center	-	-	60.1	-	9.1
Other	5.5	2.7	6.2	2.2	0.8

a: Time periods TF (Late Terminal Formative, Tzacualli sub-phase), TE (Teotihuacan Period), ET (Early Toltec), LT (Late Toltec), and LA (Late Aztec)

“-“ signifies a percent that rounds to 0.0

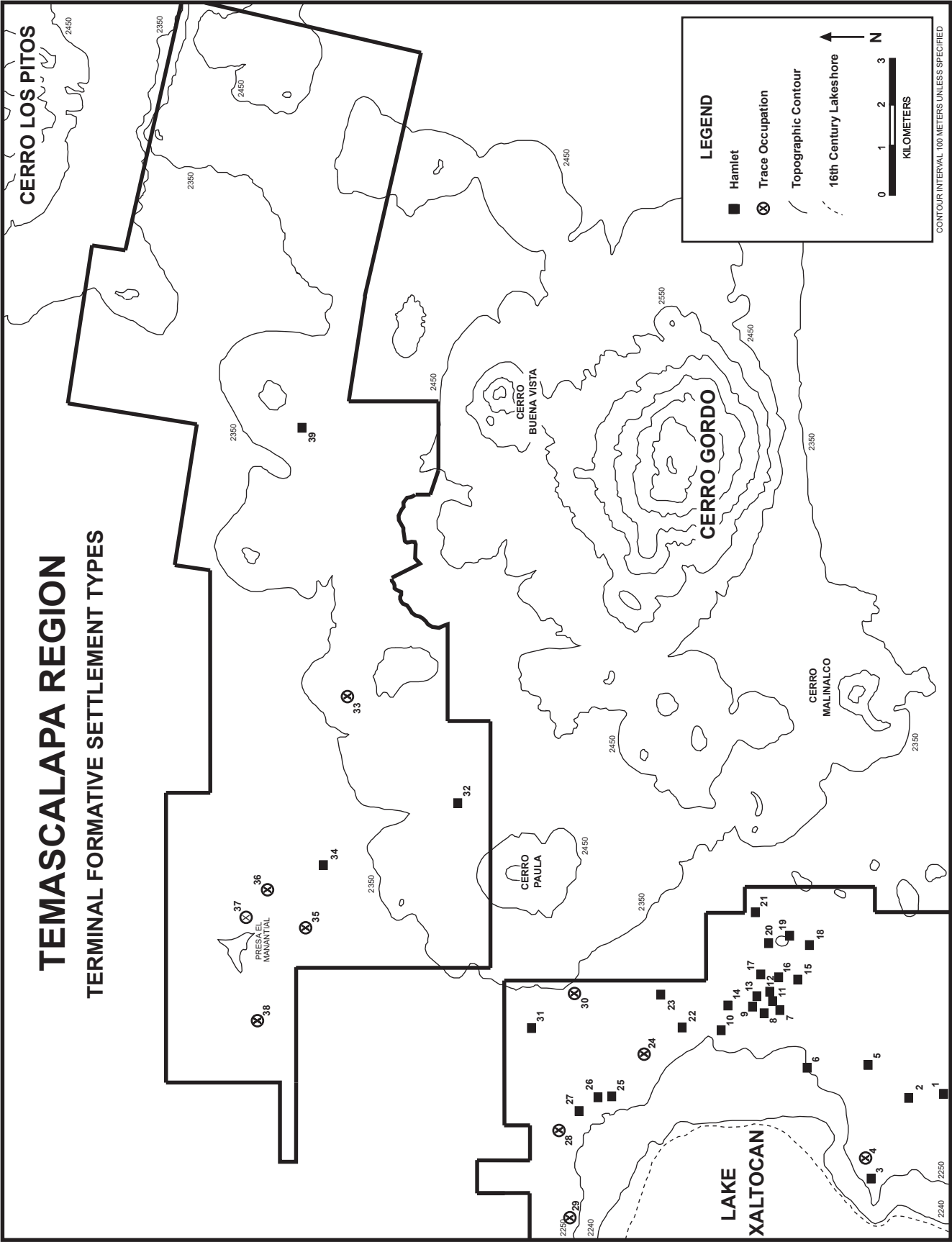


Figure 6.5. Terminal Formative Settlement Types in the Temascalapa Region

The geographic distribution of settlement types for the Teotihuacan period represents a marked shift from those seen in the Terminal Formative (Figure 6.6). Although the total number of sites in the Temascalapa region dating to the Teotihuacan period is only slightly greater than that recorded for the Terminal Formative period, the types of sites differed substantially. This difference is due to the presence of villages which, at more than 44% of the total, represent the most frequently encountered site type during this period of occupation (see Table 6.4). The appearance of villages and the decline of temporary occupations represent a fundamental change in the settlement system with the introduction of several larger, long-term settlements. Although the Teotihuacan period in the Basin of Mexico is not known as one characterized by villages, it is so in the Temascalapa region. Indeed, this period is the only occupation in this region where villages are more prevalent than any other site type. Note that two of these village sites (Tm-Cl-24 and Tm-Cl-36) appear to be typical rural sites of the sort found in the Teotihuacan region during this period (see Chapter 5; Sanders 1965:107-121; Sanders et al. 1979:354-355).

Examining population by site type indicates that villages played an even more significant role in regional settlement during the Teotihuacan period. Our population estimates indicate that villages accounted for more than 7,100 people during a time when the entire survey region contained a population of fewer than 7,500 (see Table 6.5). Indeed, removal of village sites during this time period yields a total population only slightly larger than that estimated for the Terminal Formative occupation. Villages during the Teotihuacan period accounted for more than 95% of the total estimated population, the remainder found in the handful of hamlets that date to this occupation. Considering site area by site type yields similar results. Although the survey recorded only 122.9 ha of site area during the Teotihuacan period, more than 87% of total site area was accounted for by villages, the remainder divided between hamlets and sites in the *other* category (see Table 6.6). As was the case when analyzing the number of sites by category of settlement, villages play a more important role in relative terms in the Teotihuacan period than during any other occupation, when measured in terms of both estimated population and site area.

Mapping site types for the Early Toltec period in the Temascalapa region shows how one large center dominates the few sites that date to this occupation (Figure 6.7). Regional settlement by site type during the Early Toltec occupation indicates that hamlets and sites in the *other* category are the most frequently encountered, closely followed by villages (see Table 6.4). That stated, the small total number of Early Toltec sites makes it difficult to say anything definitive about regional trends in this period. This constraint holds when examining the percentage of sites falling into each site type category, with about 36% of the total classified as hamlets or *other*, slightly more than 21% as villages, and about 7% (one site) as centers (see Table 6.4). The most noteworthy part of the site typology during

the Early Toltec period is the appearance of a center for the first time in the Temascalapa region.

Considering Early Toltec site types in terms of estimated population reinforces the utility of using different measures to assess occupation. Although only one of the 14 sites dating to this period was a center, that site accounted for nearly 1,900 people of a total population in the survey region numbering fewer than 2,800. The three villages contained nearly 700 people, while the summed population of hamlets totaled only about 220. Despite the presence of only one center, that single site accounted for more than 67% of the Early Toltec population in the region (see Table 6.5). The center and village population together contained more than 92% of the Early Toltec population, despite their relatively low representation in total site types. Measuring occupation in terms of site area reveals a similar pattern. The single center accounts for 75.0 ha of settlement, and villages for another 27.5 ha, in a total of 124.7 ha of settled area for the entire region. Center and village site areas amount to about 60% and 22% of the Early Toltec occupation in the Temascalapa survey region, respectively (see Table 6.6).

Mapping Late Toltec site types in the Temascalapa region reveals both the geographic expansion of settlement during this period and the importance of small, rural sites (Figure 6.8). With the Late Toltec we see a return to hamlets as the dominant site type, with 59 of the 77 sites assigned to this category. Villages account for another 12 sites, with the remaining six placed in the *other* category. This seems to suggest many settlements with no evidence of local administration. The absence of sites that might fill this role suggest that the Late Toltec occupation of the Temascalapa region was generally rural and oriented primarily towards agriculture, possibly integrated within larger market systems to exchange the limited crop types possible in this arid region. The Late Toltec center just outside the survey region at San Miguel Eyecalco (Appendix D) may have filled the local administrative role that appears to be lacking in the region, though centers in other surveyed portions of the basin may have served this role as well. For the Temascalapa region itself, hamlets comprise nearly 77% of the sites in the Late Toltec period; villages account for another nearly 16% of the total sites (see Table 6.4). No other occupation in this region has such a large percentage of hamlets, underscoring the broad, rural nature of settlement during this period.

In contrast to frequencies of site types by category, Late Toltec population resided mostly in villages. More than 3,500 of the 5,100-person total population lived in villages, the remaining roughly 1,600 people occupying sites classified as hamlets. These differences in settlement amount to about 69% of the total Late Toltec population living in villages and about 31% in hamlets (see Table 6.5). This shift in emphasis to villages when considering site demographics does not undermine the assessment of Late Toltec settlement as a geographically broad rural occupation, instead identifying villages as the demographically dominant site type during this occupation. Although measuring occupation in terms of site area also indicates greater occupation in villages, the relative difference between villages and hamlets

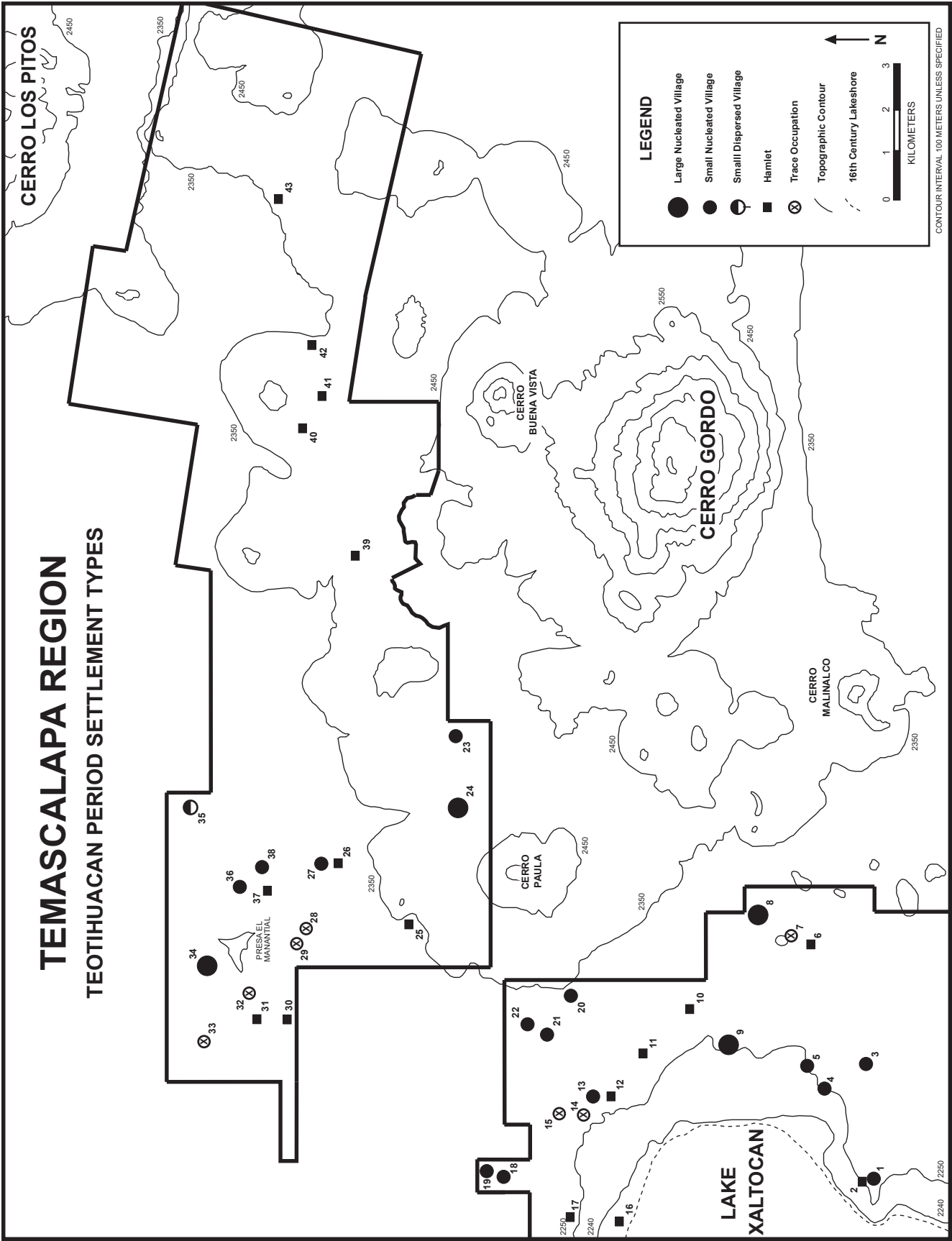


Figure 6.6. Teotihuacan Period Settlement Types in the Temascalapa Region

TEMASCALAPA REGION
EARLY TOLTEC SETTLEMENT TYPES

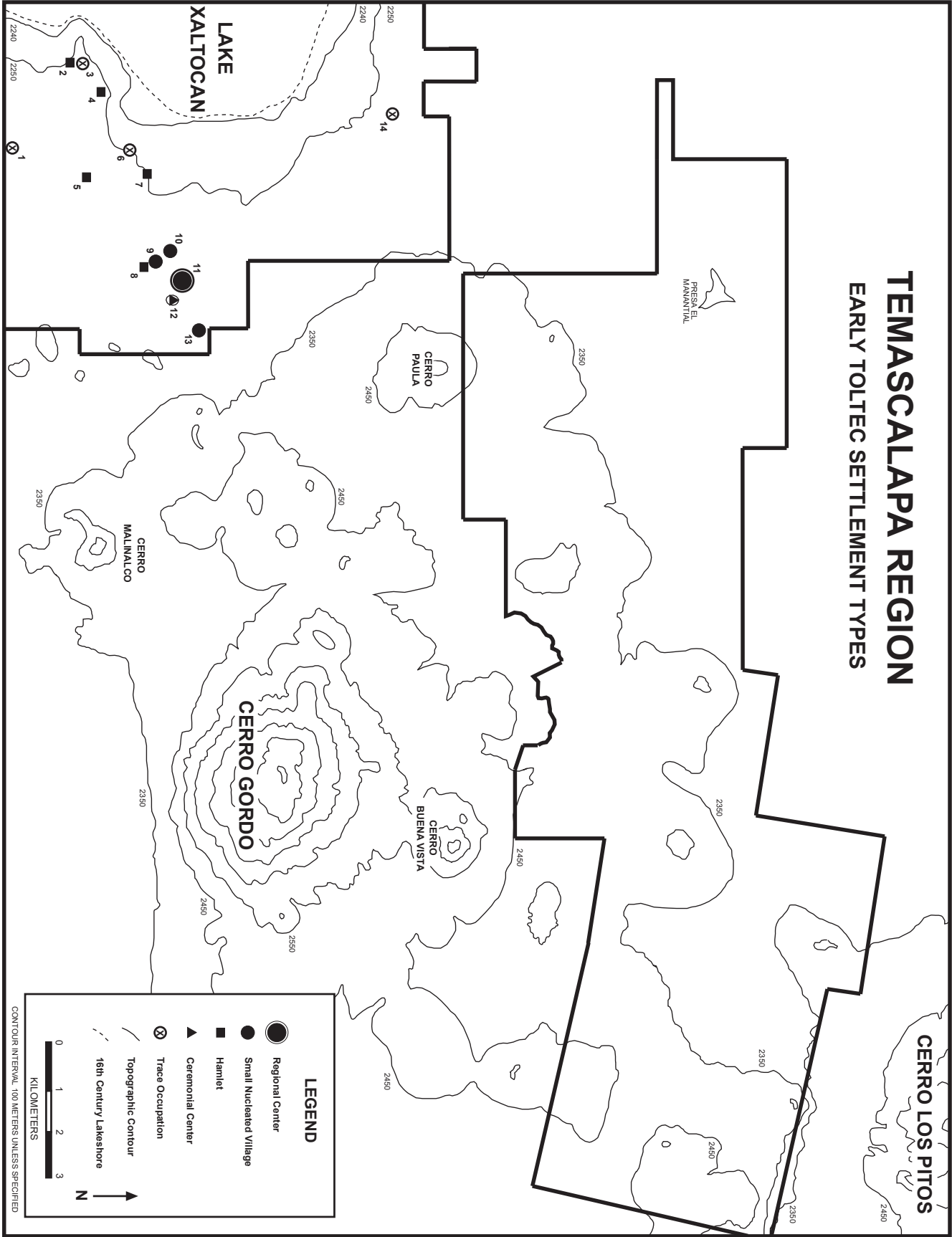


Figure 6.7. Early Toltec Settlement Types in the Temascalapa Region

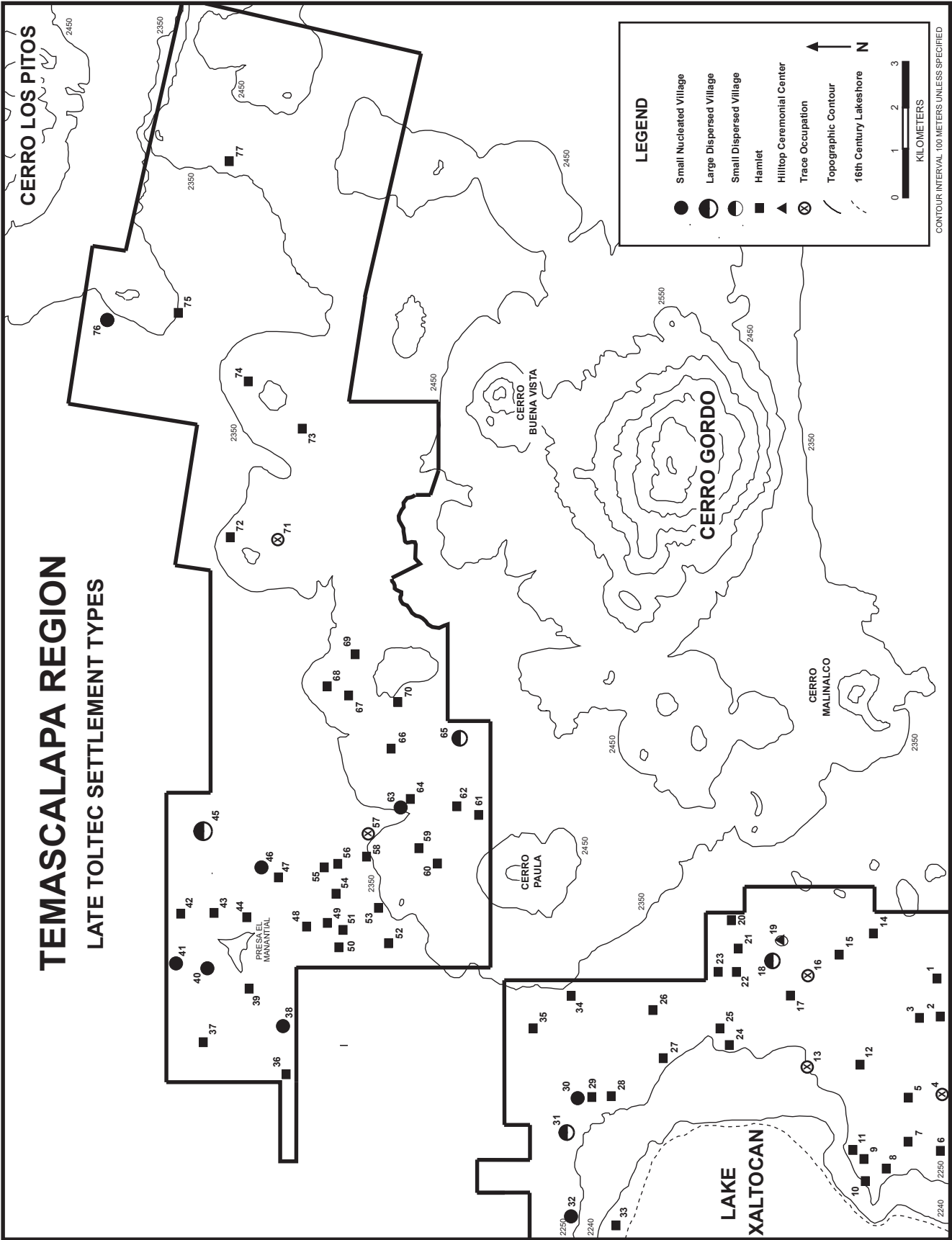


Figure 6.8. Late Toltec Settlement Types in the Temascalapa Region

declines. About 190 of the nearly 350 ha total settled area involved villages, nearly 150 ha of the remainder involving hamlets. Villages accounted for roughly 55% of total site area during the Late Toltec, hamlets another 42%, and sites in the *other* category the remaining approximately 2% (see Table 6.6).

The geographic expansion of hamlets and villages appears in a map of Late Aztec site types (Figure 6.9). Examining Late Aztec settlement data for the Temascalapa region indicates high frequencies of hamlets and villages similar to the Late Toltec occupation. Of 168 total sites, 155 were either hamlets (116) or villages (39). The remaining settlements were divided between a dozen that we assigned to the *other* category and a single provincial center. Proportionally there are more hamlets in the Terminal Formative and Late Toltec periods than occur in the Late Aztec occupation, and more villages in the Teotihuacan period than occur in the Late Aztec occupation (see Table 6.4). However, if one combines these rural residential site types the Late Aztec period contains proportionally more than any other prehispanic occupation in the Temascalapa region. Despite the presence of a Late Aztec provincial center, settlement during this period appears to have been overwhelmingly rural. This marks yet another instance of a recurring theme with regard to site type, namely an absence of administrative sites amid an expanse of small sites—a pattern we have found throughout the prehistory of the region, with the only partial exception found in the Early Toltec likely affected by the small total number of sites.

As one might expect, most Late Aztec residents of the Temascalapa region lived in the small rural sites so prevalent during that occupation. Nearly 15,800 of the 17,100 people estimated for the Temascalapa region during the Late Aztec period lived in hamlets and villages, with the vast majority (nearly 12,500) residing in the latter site type. The remaining roughly 1,300 residents of the region lived in the single provincial center. Nearly 20% of the regional population lived in hamlets during the Late Aztec period, and almost 73% lived in villages (see Table 6.5). The resulting ratio between residents of rural sites and residents of administrative sites is nearly 12:1, indicating particularly low demographic representation in administrative sites when the latter in fact are present. This heavily skewed ratio suggests a possible administrative role for other sites lying beyond the bounds of the Temascalapa region, a proposition supported by evidence that at least four administrative centers in the Teotihuacan region administered many sites within the region (see Figure 7.12) while the Acolhua regime, based in Texcoco, administered several others (Gibson 1964:43-44, 48-49). Beyond precedence for geographically interweaving administration patterns during Late Aztec times in the Basin of Mexico (Carrasco 1984; Evans 1980:103-105; Gibson 1964:36, 40-41), it remains important to remember that the Temascalapa region likely was largely an extension of the more substantial Late Aztec settlement in the Teotihuacan Valley immediately to the south (Evans and Sanders 2000:3; see also Gorenflo and Sanders 2000:576; Sanders et al. 1979:201; Sanders et al. 2001:894), as we discuss in greater

detail in Chapter 8.

Of 1,131 ha of Late Aztec settlements in the Temascalapa region, nearly 750 ha occurred in villages and about 270 occurred in hamlets. This pattern, with more occupation in villages than hamlets and these two site types together dominating the Late Aztec settled area, is very similar to the results of examining population by site type just discussed (see Table 6.5). The proportional representation of site area included in hamlets and villages also is similar to the population distribution—with hamlets accounting for 24% of all Late Aztec site area and villages accounting for another 66% (see Table 6.6).

Our examinations of prehispanic settlement size and type in the Temascalapa region indicate recurring patterns over time. Regardless of the measure of settlement size—estimated population or site area—the tendency for all periods is one where small sites occur in large numbers and large sites occur much less frequently. Specifics certainly vary, though this variability likely is due largely to the number of sites analyzed rather than any substantive differences in the frequency distributions of site sizes. Patterns of site types for all periods of occupation generally are consistent with the distributions of site sizes. Hamlets and villages tend to compose the most frequently encountered site types, the categories that contain most of the regional population, and the site types that contain the greatest aggregate site area. The exception to this characterization of site types is the Early Toltec occupation, where disproportionately large amounts of population and site area occur in the single regional center recorded by the survey. However, with a total of only 14 sites, it is difficult to make definitive statements about Early Toltec settlement types, and we would not argue that the Early Toltec data clearly indicate a different pattern than other periods of pre-Columbian occupation in the Temascalapa region. It also is worth reiterating that villages played a particularly important role in the region during the Teotihuacan period occupation, both in terms of estimated population and in terms of site area.

Based on analyses of settlement size and type in the Temascalapa region, we see a tendency for rural settlement that probably focused on some sort of agricultural production throughout pre-Columbian times. Sites tend to be small both in terms of estimated population and in terms of geographic area and usually took the form of hamlets or villages. Proposing an agricultural function for these rural sites itself has some problems, for as discussed in the next section crop production in a region with both little annual precipitation and limited potential for irrigation would have been a risky endeavor. The settlement survey recorded only two centers—in the Early Toltec and Late Aztec periods—despite locating more than 360 other sites. Lying on the northeastern periphery of the Basin of Mexico, prehispanic settlement in the Temascalapa region seems to lack the administrative presence that one might expect in the regional hierarchy of a complex society. Once again, a clearer understanding of regional settlement in the Temascalapa region, including the general absence of administrative sites, requires an

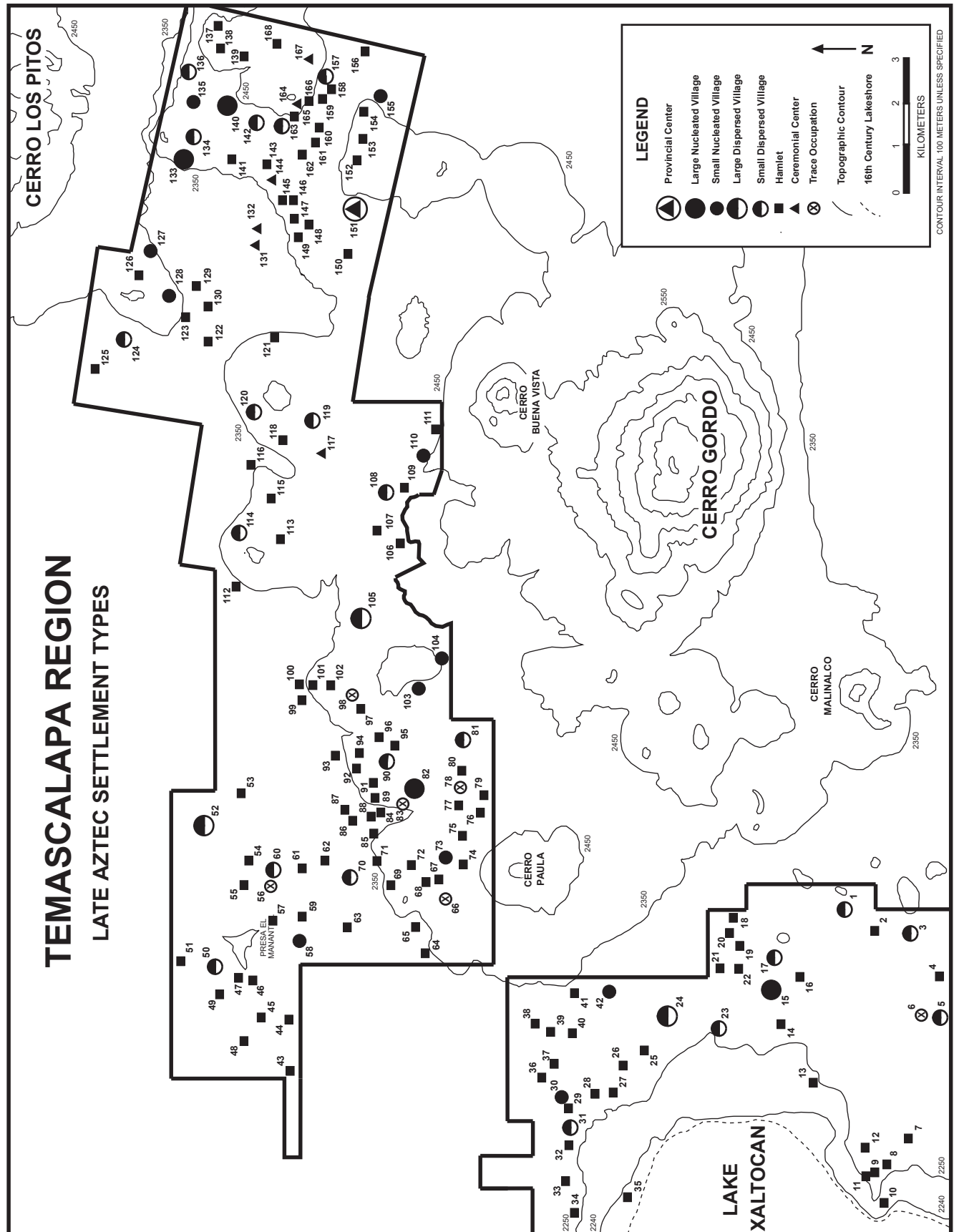


Figure 6.9. Late Aztec Settlement Types in the Temascalapa Region

expansion of geographic focus to include more of the Basin of Mexico, beginning with the Teotihuacan region.

Patterns of Settlement Location with Respect to Key Environmental Characteristics in the Temascalapa Region

Although we have examined various aspects of prehispanic regional settlement in the Temascalapa region—overall demographics and changes in site type—we have not addressed issues associated with the regional *arrangement* of settlement. In a complex natural environment such as that found in the Temascalapa region, and with considerable human demands placed on the natural environment at certain times in its prehistoric past, site placement with respect to key environmental characteristics presumably provides important clues to important cultural processes underlying the organization of settlement. As with much of the analysis in this volume, our approach here is in many ways exploratory. We do not know *a priori* which environmental variables influenced prehispanic settlement in this region. Moreover, it may well be that the importance of different variables rose and fell with changing sociopolitical and socioeconomic conditions in the region. But we can identify some key environmental characteristics that would affect the arrangement of settlement in the Temascalapa region, in the sense that they would support different economic activities and affect the level of risk that settlements in the region would face. In the following paragraphs, we consider patterns of site placement with respect to environmental zones, annual rainfall, and distance to the central lake system.

We begin by examining the role of environmental zones in site occurrence over time. In particular, our interest here is in identifying tendencies in each period of prehispanic occupation, and noting any changes between time periods. We believe that the placement of human settlements reflects in part the economic activities pursued by those settlements, determined by some combination of local adaptive considerations and regional economic and political considerations in the Temascalapa region (or beyond). Examining settlement with respect to environmental zones can provide clues to the reasons underlying settlement patterns in a certain period as well as identify apparent shifts in these underlying motivating factors over time. To examine settlement in the context of environmental zones, we consider several complementary measures: the number of sites per environmental zone, as well as population, site area, and population density per environmental zone.

The majority of Terminal Formative archaeological sites—28 of the total 39 sites—occurred in the thin soil alluvium, an area thin loam and sandy loam soils that accounts for slightly more than half the survey region (Table 6.7). Another eight sites occurred in the lower piedmont, and the remaining three occurred in the middle piedmont or deep soil alluvium. Apart from identifying these patterns, because Terminal Formative settlement in the Temascalapa

Table 6.7. Total Sites, and Percent of Sites by Environmental Zone, for Prehispanic Occupations in the Temascalapa Region

	Time Period ^a				
	TF	TE	ET	LT	LA
Total Sites	39	43	14	77	168
Environmental Zone	Percent				
Lakeshore Plain	-	2.3	-	1.3	0.6
Deep Soil Alluvium	2.6	4.7	14.3	2.6	1.2
Thin Soil Alluvium	71.8	60.5	71.4	58.4	46.4
Lower Piedmont	20.5	27.9	7.1	20.8	14.3
Middle Piedmont	5.1	4.7	7.1	16.9	36.3
Upper Piedmont	-	-	-	-	1.2

a: Time periods TF (Late Terminal Formative, Tzacualli sub-phase), TE (Teotihuacan Period), ET (Early Toltec), LT (Late Toltec), and LA (Late Aztec)

“-” signifies a percent that rounds to 0.0

region consisted mainly of small hamlets and temporary occupations, it is difficult to extract any tendencies from these data that might increase our understanding of sociocultural evolution. Whatever the focus of these small settlements was, the thin soil alluvium apparently was the most desirable zone in which to pursue it.

Shifting our attention to population as a measure of occupation reveals a similar pattern of settlement by environmental zone in the Terminal Formative Temascalapa region. Consistent with the number of sites, the vast majority of Terminal Formative population (nearly 75% of the estimated 273 total population) lived in the thin soil alluvium (Table 6.8). Examining Terminal Formative settlement in terms of site area for each environmental zone yields a pattern very similar to population (Table 6.9). However, the thin soil alluvium in the Temascalapa region is a large area. When we consider population density, thereby compensating for geographic area, we see that settlement in the lower piedmont slightly exceeded that in the thin soil alluvium during the Terminal Formative period (Table 6.10). Again, the small amount of human occupation during this period makes it difficult to say much about processes underlying settlement. Even if one assumes that all Terminal Formative settlement was contemporaneous—which almost certainly was not the case—population densities in the thin soil alluvium and lower piedmont only reached about 2 persons/km², comparable to that found among certain hunter-gatherer societies. Both these environmental zones likely would work to some degree for agriculture, lower piedmont more so, though it is unclear that such ephemeral settlement would have had to rely much on crop production as opposed to some other economic activity.

The distribution of Teotihuacan period sites in the Temascalapa region is very similar to that found in the Terminal Formative. Twenty-six of the 43 total sites

Table 6.8. Total Population, and Percent of Population by Environmental Zone, for Prehispanic Occupations in the Temascalapa Region

	Time Period ^a				
	TF	TE	ET	LT	LA
Total Population	273	7,456	2,779	5,148	17,116
Environmental Zone	Percent				
Lakeshore Plain	-	0.1	-	0.2	0.1
Deep Soil Alluvium	3.3	5.4	1.8	0.1	0.6
Thin Soil Alluvium	74.7	46.8	93.2	79.6	36.8
Lower Piedmont	18.3	35.7	5.0	7.0	12.9
Middle Piedmont	3.7	12.1	-	13.1	49.6
Upper Piedmont	-	-	-	-	0.1

a: Time periods TF (Late Terminal Formative, Tzacualli sub-phase), TE (Teotihuacan Period), ET (Early Toltec), LT (Late Toltec), and LA (Late Aztec)

“-“ signifies a percent that rounds to 0.0

Table 6.9. Total Site Area, and Percent of Site Area by Environmental Zone, for Prehispanic Occupations in the Temascalapa Region

	Time Period ^a				
	TF	TE	ET	LT	LA
Total Area (ha)	31.0	122.9	124.7	349.0	1,131.3
Environmental Zone	Percent				
Lakeshore Plain	-	0.3	-	0.7	-
Deep Soil Alluvium	2.9	4.5	4.0	0.7	1.9
Thin Soil Alluvium	75.2	50.6	91.2	72.0	39.8
Lower Piedmont	18.4	29.9	4.4	9.5	14.7
Middle Piedmont	3.5	14.6	0.4	17.1	43.5
Upper Piedmont	-	-	-	-	0.1

a: Time periods TF (Late Terminal Formative, Tzacualli sub-phase), TE (Teotihuacan Period), ET (Early Toltec), LT (Late Toltec), and LA (Late Aztec)

“-“ signifies a percent that rounds to 0.0

occur in the thin soil alluvium, more than 60% of all sites dating to the Teotihuacan period, with another 12 (about 28% of all sites) occurring in the lower piedmont and two in the middle piedmont; the remaining three sites occur in the deep soil alluvium and saline lakeshore plain (see Table 6.7). This general similarity is interesting, given the

Table 6.10. Population Density (persons/km²) by Environmental Zone for Prehispanic Occupations in the Temascalapa Region

	Time Period ^a				
	TF	TE	ET	LT	LA
Total	1.2	32.5	12.1	22.4	74.6
Environmental Zone	Percent				
Lakeshore Plain	-	0.6	-	1.8	1.5
Deep Soil Alluvium	0.8	33.5	4.2	0.3	9.2
Thin Soil Alluvium	1.7	28.8	21.4	33.8	52.0
Lower Piedmont	2.1	112.5	5.8	15.2	93.1
Middle Piedmont	0.2	17.4	-	13.0	163.7
Upper Piedmont	-	-	-	-	3.4

a: Time periods TF (Late Terminal Formative, Tzacualli sub-phase), TE (Teotihuacan Period), ET (Early Toltec), LT (Late Toltec), and LA (Late Aztec)

“-“ signifies a population density that rounds to 0.0

differences in settlement characteristics. Teotihuacan period population is considerably larger than that found in the Terminal Formative and includes much larger sites, notably villages, implying very different adaptation. The persisting importance of the thin soil alluvium and lower piedmont under very different demographic and settlement conditions may indicate a persisting economic importance of these two regions under widely varying sociocultural conditions.

Consistent with the arrangement of sites by environmental zone, the distribution of Teotihuacan period population in the Temascalapa region emphasizes the thin soil alluvium (see Table 6.8). But this zone is not as dominant demographically, the nearly 47% of sites occurring there only slightly greater than the 36% of the population living in the lower piedmont. Considering settlement in terms of site area yields a similar pattern for the Teotihuacan period (see Table 6.9), thin soil alluvium dominating but with nearly 30% of the total site area in the Temascalapa region lying in the lower piedmont. Adjusting for the larger size of the thin soil alluvium by calculating population density reveals the importance of the lower piedmont in this survey region, population density nearly four times that of the thin soil alluvium, with the deep soil alluvium population density also higher than its thin soil counterpart (see Table 6.10). Exceeding 112 persons/km², the density of settlement in the lower piedmont during the Teotihuacan period is the second greatest recorded for any environmental zone in the survey region during prehispanic times. The presence of several villages—notably Tm-CI-8, Tm-CI-20, Tm-CI-21, and Tm-CI-22—accounts for the dense lower piedmont occupation but does not explain it. The reason for this surge in both population and population density in the lower piedmont is uncertain, but it is tempting to look beyond the bounds of the Temascalapa survey region to potential

integration into a geographically broader economic system. Any role that these villages, all lying less than 15 km west of the city of Teotihuacan, might have played in supporting the urban center remains unknown.

During the Early Toltec occupation in the Temascalapa region, the greatest number of sites once again occurred in the thin soil alluvium (see Table 6.7). All but four of the total 14 sites occurred in that zone. However, several differences emerge that contrast settlement patterns in this period with other occupations in the region. As shown in Figure 6.7, all Early Toltec settlement in the Temascalapa region occurred in the western portion of the survey area, the only time period when this occurred. In addition to the greatest number of sites, the thin soil alluvium also contained the largest proportion of people in the Early Toltec period as well as the greatest proportion of site area and highest population density (see Tables 6.8, 6.9, and 6.10). In terms of number of sites, population, site area, and population density, the lower piedmont figures much less in Early Toltec settlement than in the earlier periods of occupation in the Temascalapa region, with occupational density falling from more than 112 persons/km² during the preceding Teotihuacan period to about 6 persons/km². All this stated, because the survey found so few Early Toltec sites it is difficult to make definitive statements about tendencies in the arrangement of settlement; indeed, much of the Early Toltec population and population density is associated with a single regional center, Tm-Et-11, and its estimated population of 1,875 people.

Continuing earlier tendencies, the predominantly small, rural sites that occupied the Temascalapa region during the Late Toltec period occurred mainly in the thin soil alluvium. Forty-five of the 77 total sites associated with this period of occupation, about 58% of the total, occurred in this environmental zone, with the remainder largely split mainly between the lower (21%) and middle piedmont (17%) (see Table 6.7). In terms of the environmental arrangement of settlements, the greatest change emerging in the Late Toltec occupation is the increased importance of the middle piedmont. Although preceding occupations included sites located in the middle piedmont, the Late Toltec occupation is the first to make considerable use of this zone.

By far, the majority of Late Toltec occupants of the Temascalapa region lived in the thin soil alluvium, with nearly 80% of the estimated Late Toltec total of about 5,150 total living in this environmental zone (see Table 6.8). The remainder was split primarily between the middle and lower piedmont. The thin soil alluvium also contained the greatest amount of total site area (see Table 6.9) and the highest population densities (see Table 6.10). The latter occurred despite that zone accounting for more than half of the entire survey region. Population density in the thin soil alluvium approached 34 persons/km², not particularly high but noteworthy when one considers that its basis is 45 relatively small, rural sites. Understanding this first truly broad geographic surge of population into the Temascalapa region is one of the important research questions to emerge from this study, and a problem we return to later in this chapter in the context how rainfall affected settlement in the region.

Population densities in remaining environmental zones were less than half that in the thin soil alluvium.

Late Aztec settlement in the Temascalapa region witnessed several changes from prior periods of occupation. As discussed earlier in this chapter, the Late Aztec occupation contained much more prehispanic settlement than previously found in the Temascalapa region, with sites occurring across the entire western and northern tracts of the surveyed area. The most notable change in the ecological arrangement of settlement was the emergence of the middle piedmont as a major host of human occupation. This is by far the most substantial pre-Columbian occupation in this zone. Although the greatest number of sites still occurred in the thin soil alluvium (78), nearly as many (61) appeared in the middle piedmont (see Figure 6.7). Late Aztec occupants of the Temascalapa region also used the lower piedmont, but far less frequently than either the thin soil alluvium or middle piedmont. The survey found two Late Aztec sites each in the deep soil alluvium and in the upper piedmont, the first time the latter hosted prehispanic settlement in the Temascalapa region. One site occurred in the saline lakeshore plain, an ecological zone that continued to play a very limited role in settlement in this survey region throughout the five prehispanic occupations considered.

The middle piedmont also hosted the largest population during the Late Aztec occupation, about 50% of the total and nearly 8,500 people in all (see Figure 6.8). This noteworthy demographic presence in the middle piedmont provides additional evidence of its importance in regional settlement during this period of occupation. The thin soil alluvium and lower piedmont account for most of the remaining Late Aztec population, with the remaining environmental zones containing few people by comparison. The middle piedmont also contained the greatest amount of site area during the Late Aztec occupation, though it exceeded the total settled area in the thin soil alluvium by a relatively small amount (see Table 6.9). In contrast, population density in the middle piedmont is much higher than any other environmental zone, at nearly 164 persons/km² far exceeding density levels recorded for any environmental zone at any point in its prehistory (see Table 6.10). Population densities for both the lower piedmont and thin soil alluvium—93 and 52 persons/km², respectively—represent levels of occupation that are quite high by comparison to nearly all other estimates for this region prior to the Spanish Conquest. Remaining population densities are below 10 persons/km², suggesting that the saline lakeshore plain, deep soil alluvium, and upper piedmont all played limited roles during this period of prehispanic occupation in the Temascalapa region.

Examining settlement patterns in terms of rainfall focuses attention on an essential resource in short supply in the Temascalapa region. As discussed in Chapter 2, the Temascalapa region is the most arid of all archaeological survey regions in the Basin of Mexico. The potential to augment rainfall through irrigation is limited, due to topography and an absence of permanent water sources, such as springs or streams. As a result, any preindustrial economy

with an agricultural base would have had to rely largely on precipitation as its only source of water, which likely would pose a considerable challenge in a region where average rainfall (based on historic data from the 20th century) varied between about 480 and 610 mm per year (see Figure 2.2). At best, rain-fed agriculture for most crops would have been a risky venture during prehistoric times in much of the Basin of Mexico. Expanding settlement into even drier portions of the region would have only increased this risk.

During the Terminal Formative occupation in the Temascalapa region, both total number of sites and estimated population increased with average annual rainfall (Tables 6.11 and 6.12). Total site area diverged only slightly from this same pattern (Table 6.13). Although the greatest number of Terminal Formative sites occurred in localities receiving the greatest annual rainfall—581-600 mm—nearly as many sites occurred in localities receiving 561-580 mm of rainfall per year. A substantial decline in number of sites occurred in localities falling in the next driest category, with only two sites occurring in the localities receiving 540 mm or less rainfall annually. The distribution of estimated Terminal Formative population with respect to rainfall is virtually identical to the distribution of the number of sites. The greatest number of people during this period of occupation lived in settlements receiving the most rainfall, though nearly as many lived in localities receiving slightly less annual precipitation. Very few people during the Terminal Formative occupation of the Temascalapa region lived in areas receiving 540 mm or less rainfall per year. The vast majority of occupied site area also occurred in locations with greater average annual rainfall, though a slightly larger amount appeared in the second wettest portion of the settlement region.

The largest number of Teotihuacan period sites in the Temascalapa region also occurred in areas receiving the largest amounts of annual rainfall, 581-600 mm (see Table 6.11). Although the number of sites declines markedly with a slight reduction in annual precipitation, site frequency

Table 6.11. Total Sites, and Percent of Sites, by Average Annual Rainfall for Prehispanic Occupations in the Temascalapa Region

	Time Period ^a				
	TF	TE	ET	LT	LA
Total Sites	39	43	14	77	168
Annual Rainfall (mm)	Percent				
461-480	-	-	-	-	6.0
481-500	-	4.7	-	5.2	23.8
501-520	2.6	4.7	-	3.9	7.1
521-540	2.6	4.7	-	11.7	10.1
541-560	20.5	34.9	14.3	37.7	26.2
561-580	35.9	11.6	42.9	22.1	11.9
581-600	38.5	39.5	42.9	19.5	14.9

a: Time periods TF (Late Terminal Formative, Tzacualli sub-phase), TE (Teotihuacan Period), ET (Early Toltec), LT (Late Toltec), and LA (Late Aztec)

“-“ signifies a percent that rounds to 0.0

Table 6.12. Total Population, and Percent of Population, by Average Annual Rainfall for Prehispanic Occupations in the Temascalapa Region

	Time Period ^a				
	TF	TE	ET	LT	LA
Total Population	273	7,456	2,779	5,148	17,116
Annual Rainfall (mm)	Percent				
461-480	-	-	-	-	16.1
481-500	-	0.3	-	4.3	21.8
501-520	0.7	1.5	-	1.0	5.2
521-540	-	1.6	-	17.9	14.5
541-560	14.7	49.7	5.0	43.9	18.7
561-580	41.8	6.7	91.0	13.6	12.1
581-600	42.9	40.2	4.1	19.3	11.5

a: Time periods TF (Late Terminal Formative, Tzacualli sub-phase), TE (Teotihuacan Period), ET (Early Toltec), LT (Late Toltec), and LA (Late Aztec)

“-“ signifies a percent that rounds to 0.0

Table 6.13. Total Site Area, and Percent of Site Area, by Average Annual Rainfall for Prehispanic Occupations in the Temascalapa Region

	Time Period ^a				
	TF	TE	ET	LT	LA
Total Area (ha)	31.0	122.9	124.7	349.0	1,131.3
Annual Rainfall (mm)	Percent				
461-480	-	-	-	-	5.7
481-500	-	0.5	-	3.3	19.7
501-520	1.3	2.0	-	2.0	7.2
521-540	0.3	3.3	-	20.6	23.1
541-560	17.1	49.5	5.2	23.9	17.3
561-580	41.6	8.5	84.6	30.7	13.5
581-600	39.7	36.3	10.2	19.5	13.5

a: Time periods TF (Late Terminal Formative, Tzacualli sub-phase), TE (Teotihuacan Period), ET (Early Toltec), LT (Late Toltec), and LA (Late Aztec)

“-“ signifies a percent that rounds to 0.0

rebounds in the area receiving 541-560 mm of rainfall, with nearly as many sites occurring in this area as in the area receiving the greatest rainfall. Very few Teotihuacan period sites occur in localities receiving 540 mm of rainfall or less per year. The geographic distribution of population during this period of occupation once again is similar to the distribution of sites (see Table 6.12). Most of the Teotihuacan period population in the Temascalapa region lived in places receiving 541-560 and 581-600 mm of rainfall, with a considerable decline in population again occurring in the 561-580 mm zone. Similarly, very few people during this period lived in parts of the Temascalapa region receiving 540 mm of rainfall or less per year, though two sites did occur in that part of the region receiving 500 mm or less rainfall annually. In their basic forms, the geographic arrangement of sites and population are quite similar between Terminal

Formative and Teotihuacan period occupations. But the population numbers are quite different, with more than 3,700 people in the Teotihuacan period living in localities receiving on average 541-560 mm of rainfall annually, compared to 40 people in the preceding period. Settlement in terms of site area during the Teotihuacan period with respect to rainfall follows the patterns found for total sites and population, particularly the latter, with the largest amount of settled area occurring in localities receiving 541-560 mm of rainfall per year (see Table 6.13).

All settlement in the Early Toltec occupation of the Temascalapa region occurred in the three zones receiving the most rainfall. However, in contrast to the preceding two periods of prehispanic occupation the Early Toltec is the first where the zone receiving the most rainfall does not contain the greatest number of archaeological sites, instead the two zones registering the highest annual rainfall contained the same number of sites (see Table 6.11). The relative importance of the zone receiving the second highest average annual rainfall increases considerably when one considers the geographic distribution of population and site area during the Early Toltec occupation (see Tables 6.12 and 6.13). We estimate that more than 2,500 people (from a total of about 2,800) lived in this slightly more arid zone. In addition to representing a large absolute number, the number of people living in this slightly more arid area accounts for nearly 91% of the Early Toltec population in the Temascalapa region. Similarly, out of about 125 ha of settled area in the region during the Early Toltec occupation, more than 105 ha occurred in the zone receiving 561-580 mm of annual rainfall—about 85% of the total. A couple of caveats are in order here. As noted previously, the Temascalapa survey recorded only 14 Early Toltec sites, a small number upon which to base any strong conclusions. Moreover, the three sites with the largest populations and largest geographic extents, including Tm-Et-11, occurred in the 561-580 mm zone. Nevertheless, the occurrence of such a large number of people in an arid part of the region again begs the question of how these people managed to support themselves.

The distribution of Late Toltec settlements with respect to annual rainfall reflects the geographic expansion of settlement into the more northern, arid portions of the survey region, with sites occurring in six of the seven rainfall zones considered (see Table 6.11). The largest number of sites occurred in that part of the region receiving 541-560 mm of rainfall annually, here accounting for nearly 38% of all Late Toltec sites in the Temascalapa region. Although most sites during this period of occupation occur in the three zones with the greatest average annual precipitation, nearly 21% occur in the three more arid zones. The geographic distribution of Late Toltec population with respect to precipitation generally resembles the arrangement of sites. Most people—about 44%—occurred in the 541-560 mm zone, with the majority of inhabitants again living in the three zones receiving the greatest amount of rainfall (see Table 6.12). However, nearly 18% of the Late Toltec population lived in the zone receiving only 521-540 mm of rainfall on average annually, with more than 23% of the

Late Toltec population living in the three most arid zones hosting Late Toltec population, the latter representing a marked increase over anything seen previously (less than 4% of Teotihuacan period population lived in the same more arid zones). The geographic arrangement of site area during the Late Toltec period is broadly similar as those observed for sites and estimated population, with one key difference: the wettest zone contained the fourth largest aggregated site area. Nearly 26% of the entire site area during the Late Toltec occupation occurred in three more arid portions of the survey region. Once again, this represents what appears to be an important shift in prehispanic occupation to parts of the Temascalapa region that would have presented considerable challenges to human survival based on crop production.

The geographic arrangement of Late Aztec settlement with respect to rainfall differs in important ways from any preceding pattern documented for the Temascalapa region. Although the largest number of sites (44) occurred in localities receiving 541-560 mm of rainfall per year—a zone important in three of the four earlier occupations—the second highest number of sites (40) occurred in that part of the region receiving 481-500 mm of rainfall annually (see Table 6.11). Some expansion into arid portions of the Temascalapa survey region had occurred in both the Teotihuacan and Late Toltec occupations, but never close to this degree. Accounting for 47% of all Late Aztec sites recorded by the Temascalapa survey, this emphasis on the four most arid zones in the northeastern part of the region distinguishes the Late Aztec occupation from any that preceded it. Included among the sites in this arid part of the region was the sole provincial center recorded for the region, along with several large villages.

The tendency for Late Aztec settlement to expand into the most arid portions of the survey region also is reflected when measuring estimated population and total site area. Nearly 38% of the Late Aztec population lived in the driest two zones in the Temascalapa region, with another 20% living in the next two most arid zones (see Table 6.12). More than one-fourth of total Late Aztec site area occurred in the driest two zones in the survey region, while more than 30% of settled area occurred in the next two driest zones (see Table 6.13). Simply stated, we estimate that nearly 6,500 people lived in an area receiving on average one-half meter or less rainfall annually. Why such a large population resided in such a high-risk area, and how it managed to feed itself, remain fundamental questions to answer.

Examining prehispanic settlement according to distance from Lake Xaltocan provides some sense of the role of the lake system, if any, in the prehispanic Temascalapa region, given its importance in the Basin of Mexico as a whole at the time of Spanish Conquest. Two factors complicate this task. One is that there is little lakeshore in the Temascalapa region (see Figure 2.1). Although about 10.3 km of lakeshore occurs in the western tract of the survey region, the northern tract has no lakeshore adjacent, lying minimally about 6.5 km northeast of the lake. Moreover, increasing distance from the lake *tends* to coincide with declining rainfall. As a result, the discussion

in the preceding several paragraphs about settlement patterns with respect to rainfall in large part addresses the essence of settlement with respect to the lake system. The nature of this shallow lake system, with a shoreline prone to relatively great horizontal shifts with slight changes in lake level, of course makes the analysis of proximity to lakeshore uncertain, and although we use a proposed lakeshore along a 2,238 m contour the actual shoreline would have shifted year-to-year, or even season-to-season, with changes in the amount of water in the lakes. We provide a brief discussion of prehispanic settlement in terms of distance from Lake Xaltocan primarily to explore settlement explicitly with respect to this key feature in the Basin of Mexico. We do so to understand the possible role of lacustrine resources and proximity to the lake (as a means of interacting with other parts of the basin) in the prehispanic Temascalapa region as geographic patterns of human occupation evolved over time. This analysis provides a means of comparing the potential influence of lake proximity found in the Temascalapa region with that found elsewhere in the basin, discussed in greater detail in Chapter 8 (see Gorenflo 2015; Sanders and Gorenflo 2007).

During the Terminal Formative period, most sites in the Temascalapa region occurred near, though not necessarily adjacent to, the edge of Lake Xaltocan. More than 56% of the 39 Terminal Formative sites occurred within 4.0 km of the lakeshore; adding one additional kilometer increases the proportion of sites to nearly 72% (Table 6.14). Although settlement does not lie immediately along the lakeshore, there is a clear tendency for more sites to occur close to the lake, with 5.0 km being within an hour's walk over generally level ground with no burden (see Gorenflo and Gale 1990). Examining Terminal Formative population in terms of distance to Lake Xaltocan indicates even greater inclination to settle near the lakeshore, with nearly 84% of the regional population living within 5.0 km of the lakeshore and about 56% living between 2.1 and 4.0 km of the lakeshore (Table 6.15). Measuring settlement in terms of total site area indicates a similar pattern, with the strip between 2.1 and 3.0 km of the lakeshore even more important than the other two measures (Table 6.16).

Teotihuacan period settlement in the Temascalapa region also shows a tendency for proximity to Lake Xaltocan, but the pattern is more complicated than in the preceding period. The frequency distribution of the number of sites is bimodal (see Table 6.14). Most sites lie within 6.0 km of the lakeshore, with more than 30% occurring within 3.0 km of the lake. However, another 33% of the Teotihuacan period sites occur between 9.1 and 13.0 km of the lakeshore, represented by the cluster of settlements in the western part of the northern surveyed tract (see Figure 5.2). The geographic arrangement of Teotihuacan period population with respect to the lakeshore resembles the arrangement of sites, with roughly the same bi-modal frequency distribution. As with Terminal Formative population in the region, compared to the number of sites a larger percentage of regional population lies close to Lake Xaltocan, with nearly 63% of Teotihuacan period residents

Table 6.14. Total Sites, and Percent of Sites, by Distance from Lake System for Prehispanic Occupations in the Temascalapa Region

	Time Period ^a				
	TF	TE	ET	LT	LA
Total Sites	39	43	14	77	168
Distance from Lake (km)	Percent				
0.0 - 1.0	-	4.7	-	2.6	1.8
1.1 - 2.0	10.3	9.3	35.7	6.5	3.6
2.1 - 3.0	20.5	16.3	14.3	13.0	6.0
3.1 - 4.0	25.6	7.0	14.3	5.2	3.6
4.1 - 5.0	15.4	7.0	28.6	14.3	6.5
5.1 - 6.0	7.7	7.0	7.1	3.9	3.6
6.1 - 7.0	-	-	-	-	-
7.1 - 8.0	-	-	-	-	-
8.1 - 9.0	-	2.3	-	2.6	2.4
9.1 - 10.0	2.6	4.7	-	9.1	5.4
10.1 - 11.0	5.1	14.0	-	14.3	7.1
11.1 - 12.0	7.7	9.3	-	6.5	9.5
12.1 - 13.0	-	4.7	-	6.5	5.4
13.1 - 14.0	2.6	-	-	3.9	4.2
14.1 - 15.0	-	2.3	-	2.6	2.4
15.1 - 16.0	-	-	-	-	1.2
16.1 - 17.0	-	-	-	-	0.6
17.1 - 18.0	-	2.3	-	-	1.8
18.1 - 19.0	-	-	-	2.6	2.4
19.1 - 20.0	-	-	-	-	1.2
20.1 - 21.0	2.6	4.7	-	1.3	1.8
21.1 - 22.0	-	2.3	-	1.3	0.6
22.1 - 23.0	-	-	-	-	0.6
23.1 - 24.0	-	-	-	-	1.8
24.1 - 25.0	-	-	-	2.6	4.8
25.1 - 26.0	-	2.3	-	-	4.2
26.1 - 27.0	-	-	-	1.3	5.2
27.1 - 28.0	-	-	-	-	6.0
28.1 - 29.0	-	-	-	-	3.0
29.1 - 30.0	-	-	-	-	3.0

a: Time periods TF (Late Terminal Formative, Tzacualli sub-phase), TE (Teotihuacan Period), ET (Early Toltec), LT (Late Toltec), and LA (Late Aztec)

“-“ signifies a percent that rounds to 0.0

located within 6.0 km of the lakeshore (see Table 6.15). About one-third of the Teotihuacan period population lived between 10.1 and 13.0 km from the lake, broadly similar to the Terminal Formative pattern. However, the former sites accounted for nearly 2,500 people living at an increased distance from lacustrine resources as well as more efficient transportation. The greatest amount of total site area during the Teotihuacan period occupation also occurred within 6.0 km of the lakeshore, though the more distant cluster increased to more than 38% (see Table 6.16). The role of the lake in transportation was important in the prehispanic Basin of Mexico, given the absence of beasts of burden and

Table 6.15. Total Population, and Percent of Population, by Distance from Lake System for Prehispanic Occupations in the Temascalapa Region

	Time Period ^a				
	TF	TE	ET	LT	LA
Total Population	273	7,456	2,779	5,148	17,116
Distance from Lake (km)	Percent				
0.0 - 1.0	-	0.2	-	0.4	0.9
1.1 - 2.0	7.0	6.9	4.1	7.1	1.1
2.1 - 3.0	28.2	25.5	2.3	12.5	3.9
3.1 - 4.0	27.5	7.1	14.4	3.1	9.6
4.1 - 5.0	20.9	6.9	74.2	11.4	5.0
5.1 - 6.0	6.6	16.2	5.0	0.8	2.8
6.1 - 7.0	-	-	-	-	-
7.1 - 8.0	-	-	-	-	0.1
8.1 - 9.0	-	0.2	-	0.3	0.3
9.1 - 10.0	-	0.4	-	11.9	3.0
10.1 - 11.0	3.7	8.4	-	7.9	4.8
11.1 - 12.0	5.5	16.8	-	10.0	10.0
12.1 - 13.0	-	8.0	-	14.0	2.9
13.1 - 14.0	-	-	-	12.9	6.8
14.1 - 15.0	-	1.5	-	2.3	1.0
15.1 - 16.0	-	-	-	-	4.8
16.1 - 17.0	-	-	-	-	0.1
17.1 - 18.0	-	0.1	-	-	1.0
18.1 - 19.0	-	-	-	0.9	2.3
19.1 - 20.0	-	-	-	-	0.1
20.1 - 21.0	0.7	1.5	-	0.1	1.8
21.1 - 22.0	-	0.2	-	0.1	1.2
22.1 - 23.0	-	-	-	-	-
23.1 - 24.0	-	-	-	-	0.5
24.1 - 25.0	-	-	-	3.9	3.7
25.1 - 26.0	-	0.1	-	-	8.2
26.1 - 27.0	-	-	-	0.4	2.9
27.1 - 28.0	-	-	-	-	10.9
28.1 - 29.0	-	-	-	-	9.1
29.1 - 30.0	-	-	-	-	1.2

a: Time periods TF (Late Terminal Formative, Tzacualli sub-phase), TE (Teotihuacan Period), ET (Early Toltec), LT (Late Toltec), and LA (Late Aztec)

“-“ signifies a percent that rounds to 0.0

the inherent energetic inefficiency of transporting bulky products on the backs of humans (Sanders and Santley 1983; see also Gorenflo and Gale 1990). But the lake system probably would have played a limited role in the movement of resources during this period in the Temascalapa region, as much orientation of settlement beyond the bounds of the region likely would have been south and east, towards the urban center at Teotihuacan rather than across the lake. As was the case with our examination of expanding settlement into this area with respect to rainfall, Teotihuacan period

Table 6.16. Total Site Area, and Percent of Site Area, by Distance from Lake System for Prehispanic Occupations in the Temascalapa Region

	Time Period ^a				
	TF	TE	ET	LT	LA
Total Area (ha)	31.0	122.9	124.7	349.0	1,131.3
Distance from Lake (km)	Percent				
0.0 - 1.0	-	1.5	-	1.1	1.9
1.1 - 2.0	11.0	6.5	9.4	6.3	2.1
2.1 - 3.0	40.0	23.0	6.0	13.2	4.8
3.1 - 4.0	18.7	4.6	13.6	4.6	7.3
4.1 - 5.0	12.3	8.4	66.6	28.3	9.2
5.1 - 6.0	5.8	10.2	4.4	1.1	2.7
6.1 - 7.0	-	-	-	-	-
7.1 - 8.0	-	-	-	-	0.1
8.1 - 9.0	-	0.4	-	0.3	0.3
9.1 - 10.0	0.3	1.6	-	3.0	1.9
10.1 - 11.0	3.5	10.8	-	8.4	7.4
11.1 - 12.0	6.8	20.3	-	7.7	5.9
12.1 - 13.0	-	6.9	-	3.3	2.8
13.1 - 14.0	0.3	-	-	11.4	5.1
14.1 - 15.0	-	2.4	-	5.8	1.6
15.1 - 16.0	-	-	-	-	14.2
16.1 - 17.0	-	-	-	-	0.1
17.1 - 18.0	-	0.8	-	-	2.0
18.1 - 19.0	-	-	-	1.9	2.5
19.1 - 20.0	-	-	-	-	0.1
20.1 - 21.0	1.3	2.0	-	0.1	2.6
21.1 - 22.0	-	0.4	-	-	1.9
22.1 - 23.0	-	-	-	-	-
23.1 - 24.0	-	-	-	-	0.6
24.1 - 25.0	-	-	-	3.2	2.3
25.1 - 26.0	-	0.1	-	-	9.5
26.1 - 27.0	-	-	-	0.1	1.7
27.1 - 28.0	-	-	-	-	4.9
28.1 - 29.0	-	-	-	-	3.3
29.1 - 30.0	-	-	-	-	1.0

a: Time periods TF (Late Terminal Formative, Tzacualli sub-phase), TE (Teotihuacan Period), ET (Early Toltec), LT (Late Toltec), and LA (Late Aztec)

“-“ signifies a percent that rounds to 0.0

settlements in this region almost certainly were integrated into a larger regional economic system that justified settlement, and enabled survival, of so many people a comparatively long distance from important lacustrine resources.

Early Toltec sites in the Temascalapa region all occurred in the western surveyed tract within 6.0 km of Lake Xaltocan (see Table 6.14). Although the frequency distribution of sites appears bimodal, with larger numbers of sites lying 1.1-2.0 and 4.1-5.0 km from the lake, the small number of total sites in this period requires that any

pronouncements based on the geographic arrangement of sites be tentative. The arrangement of population by distance from the lake contrasts sharply with the arrangement of sites. Instead of a bimodal distribution, the vast majority of Early Toltec population in the Temascalapa region occurred 4.1-5.0 km from Lake Xaltocan (see Table 6.15), accounting for nearly 2,100 of a population that totaled fewer than 2,800 (more than 74% of the Early Toltec population in the region) and once again dominated by the largest site in the region. Five sites occur along the boundary between the thin soil alluvium and deep soil alluvium, within 2.0 km of the lakeshore—possibly indicating some sort of lacustrine orientation combined with an adaptation that emphasized this environmental boundary. But the importance of this area is not borne out by population numbers, as most people lived in a couple of sites slightly further removed from the lake. The importance of the 4.1-5.0 km strip also emerges when we consider site area as a measurement of settlement, though its dominance is less than that found with total population (see Table 6.16).

Late Toltec settlement in the Temascalapa region shows a pronounced and, given the total number of sites, more reliable bimodal frequency distribution based on distance from Lake Xaltocan. Nearly 46% of the sites dating to this occupation occurred within 6.0 km of the lakeshore (see Table 6.14). Another 36% occurred between 9.1 and 13.0 km of the lakeshore, in a second, less-pronounced spike in the frequency distribution. The geographic distribution of settlements tails off beyond 13.0 km, with a clear tendency for a decline in site frequency with increased distance from the lakeshore. Although the distribution of population in terms of distance to the lakeshore also shows a bimodal distribution, the two groupings of high values are interspersed with lower values and the more distant mode (9.1-14.0 km from the lake) contains the greatest number of people (see Table 6.15). When we consider occupation in terms of total site area, settlement occurs in a bi-modal distribution with sharper peaks—with nearly 30% of total Late Toltec site area occurring 3.1-5.0 km from the lakeshore and more than 17% occurring 13.1-15.0 km from the lake (see Table 6.16). As with the Teotihuacan period occupation, the occurrence of Late Toltec occupation at greater distances from the lake may provide clues to regional adaptation. The occurrence of nearly 57% of the regional population 9.1-14.0 km from the lakeshore, amounting to more than 2,900 people largely residing in a collection of villages (Tm-Lt-38, 40, 41, 45, 46, 63, and 65), again raises questions of adaptation and regional market integration. In the case of the latter, orientation towards Tula northwest of the Temascalapa region (possibly by way of the Late Toltec center at San Miguel Eyecalco north of the Temascalapa region; see Appendix D), or Teotihuacan south and east of the region, likely occurred during this occupation, removing much of the role for the lake system in transportation for regional exchange. Given the likely spatial organization that oriented regional interaction to the northwest and south and east, the nearly 35% of the Late Toltec population in the Temascalapa region (nearly 1,800 people) within 5.0

km of the lakeshore likely would have benefited more from local adaptive advantages through lake proximity than any regional integration advantage that the lake itself might have provided. Total sites and total site area support this general pattern and beg the same questions.

The frequency distribution of Late Aztec sites in the Temascalapa region with respect to distance from the lakeshore is trimodal, with relatively large numbers of sites at 1.1-6.0, 9.1-14.0, and 24.1-28.0 km from the lake (see Table 6.14). In addition to a third spike in the distribution, Late Aztec settlement differs from its predecessors in the occurrence of large numbers of sites in excess of 13.0 km from the lake. Nearly 45% of all sites in the region occur 13.1 km or further from the lakeshore, with more than 20% of the total occurring between 24.1 and 28.0 km away. Late Aztec population by distance from Lake Xaltocan also is trimodal, though the three spikes at 2.1-5.0, 10.1-14.0, and 25.1-29.0 km from the lake vary from the pattern based on the number of sites, both in their breadth and in the proportion of regional population included in each (see Table 6.15). Again, the greatest change from earlier distributions is in the number of people living far from the lake—with more than 73% of the total located in excess of 10.0 km from Lake Xaltocan and nearly one-third of the total living 25.1-29.0 km from the lake. A similar trimodal pattern occurs when we consider total site area with respect to distance from the lakeshore, although the importance of the 25.1-29.0 km distance is less (see Table 6.16). Ironically, at a time in Basin of Mexico prehistory when proximity to the central lake system would have provided the greatest advantages to people living in the northeastern part of the region, considerable settlement in the Temascalapa region occurred a relatively long distance from this potential means of integration with Tenochtitlan to the southwest. The emphasis of regional organization on local city-states removed the need for most communities, and people, to maintain direct contact with the main capital of the Triple Alliance, the settlements and population located at greater distances from the lake apparently focused more on nearby adaptive strategies and exchange patterns with localized as well as regional orientation. Again, the political affiliation between parts of the Temascalapa region and at least five administrative centers to the south (including Texcoco), based on ethnohistoric evidence (see Figure 7.12), supports this general claim.

The patterns of pre-Columbian settlement in the Temascalapa region with respect to environmental characteristics vary depending on the characteristic considered. However, it is possible to identify some tendencies that may provide important clues to the evolution of regional adaptation in this portion of the Basin of Mexico. With respect to environmental zones, one sees a persisting importance of the thin soil alluvium throughout the prehispanic occupation of the Temascalapa region, both in terms of number of sites and population. But this importance undoubtedly in part reflects the size of this environmental zone, which accounts for nearly 53% of the entire survey region. It may also reflect the nature of local geology, the

thin soil presumably obscuring fewer sites than in other environmental zones. Occasionally other areas emerge to contain large amounts of settlement—lower piedmont during the Teotihuacan and Late Aztec occupations, middle piedmont during the Late Aztec period—with the remaining environmental zones never of much importance in terms of the number of sites or estimated population located there. The relatively small amount of precipitation in the Temascalapa region presumably places an important constraint on human habitation where the dominant economic activity likely was some form of agriculture, and during the Terminal Formative and Early Toltec occupations we see settlement occurring in those portions of the region receiving larger amounts of rainfall. However, during the Teotihuacan period, Late Toltec, and Late Aztec occupations, settlement expanded into areas receiving less rainfall, with both the number of sites and population living in these higher risk areas particularly noteworthy in Late Aztec times. Finally, prehispanic occupation in the Temascalapa region tended to occur closer to the shore of Lake Xaltocan during Terminal Formative and Early Toltec times, with more settlement further inland in the Teotihuacan, Late Toltec, and Late Aztec periods. For all three environmental characteristics considered, Terminal Formative and Early Toltec settlement tend to resemble one another, while patterns of settlement in the remaining three periods mark occupations that expand into areas previously unused, by some measures into areas of increased risk. We offer two possible explanations for these instances of expansion: larger population elsewhere in the basin causing—in a sense, *forcing*—settlement of more marginal areas, and more developed regional economies enabling certain specialized adaptations to marginal areas by providing access via a geographically broad exchange system to other necessities of survival produced elsewhere in the basin. We discuss both possibilities in greater detail in Chapter 8, where we expand the geographic focus of our analysis and interpretation to include other parts of the Basin of Mexico.

Geographic Patterning of Settlement and Shifting Population

As a final analysis of settlement patterns in the Temascalapa region, we developed a series of maps that show settlement for each period of prehispanic occupation in the form of 1-km grid cells. The aim of this exercise is to focus on the regional arrangement of population and how this arrangement changed over time. The maps portray varying levels of population by different shading densities, with larger values represented by darker shading. Cartographically, these are choropleth maps—representations of enumeration data in map form to reveal any spatial patterns in their geographic arrangement (Dent 1993:124-156). Because the grid cells all are 1 km², the maps show both total population and population density (in terms of persons per km²). Through using shaded patterns in grid cells that correspond to population values rather than showing sites symbolically, we more clearly portray the geographic distribution of population across the entire

survey region. Other studies have used this same general approach to examine prehistoric settlement patterns, and propose processes underlying change in settlement over time, in the entire Basin of Mexico and the Valley of Oaxaca (Blanton et al. 1996; Gorenflo 2006, 2015; Sanders and Gorenflo 2007).

The method used to assign estimated prehistoric population in the Temascalapa region to grid cells involved generating a 1-km grid and summing the total population for each grid cell by period of prehispanic occupation. We developed a grid based on a Universal Transverse Mercator map projection (Zone 14, North America Datum 1983), with the boundaries of each cell defined by whole values for each kilometer in both an east-west and north-south direction. Placement of the grid in such an exercise usually is very important, as shifting it slightly in any direction potentially can greatly affect the resulting map. However, in the case of this exercise, where we really are exploring the data for evidence of broad patterns in their spatial arrangement, any strong tendencies should come through regardless of the grid placement. Assignment of population to a grid involved assigning to a particular cell the population of any site whose centroid occurred in that cell. This approach to arranging population in a grid ignores cases where a centroid occurs in one cell but the actual site area extends into one or more neighboring cells. Fortunately, the number of sites that occur in more than one grid cell is relatively few, so any errors introduced would be minimal. Moreover, once again because this analysis seeks broad patterns in the data, any erroneous assignment of a relatively small number of people to a neighboring grid cell should not obscure the presence of major tendencies in settlement.

One of the most striking features in these maps is the geographic ebb and flow of population from the western tract of the Temascalapa region, where most of the Terminal Formative settlement occurs, into the northern tract of the region (Figure 6.10). We see clearly the geographic expansion of regional settlement during the Teotihuacan period, the retraction of settlement entirely into the western tract during the Early Toltec period, and then the renewed expansion of regional settlement into the northern tract during the Late Toltec and (especially) Late Aztec occupations. Earlier in this chapter, we discussed this pattern of prehispanic regional settlement in the Temascalapa region expanding and retracting, particularly in light of the limited rainfall available in the northeastern part of the region. Of special interest is the expansion of settlement during the Late Aztec period into the eastern half of the northern tract. This area, which had virtually no evidence of prior occupation, contained considerable settlement during the Late Aztec period, including grid cells with the highest estimated populations and densities in the survey region during its prehispanic past. Estimated population reaches 1,300 persons in one grid cell (equivalent to 1,300 persons/km²) in the eastern part of the northern tract, and 1,000 or more in two other cells, marking densities of settlement very rarely reached in any part of the survey region during prehispanic times. How prehispanic populations of such

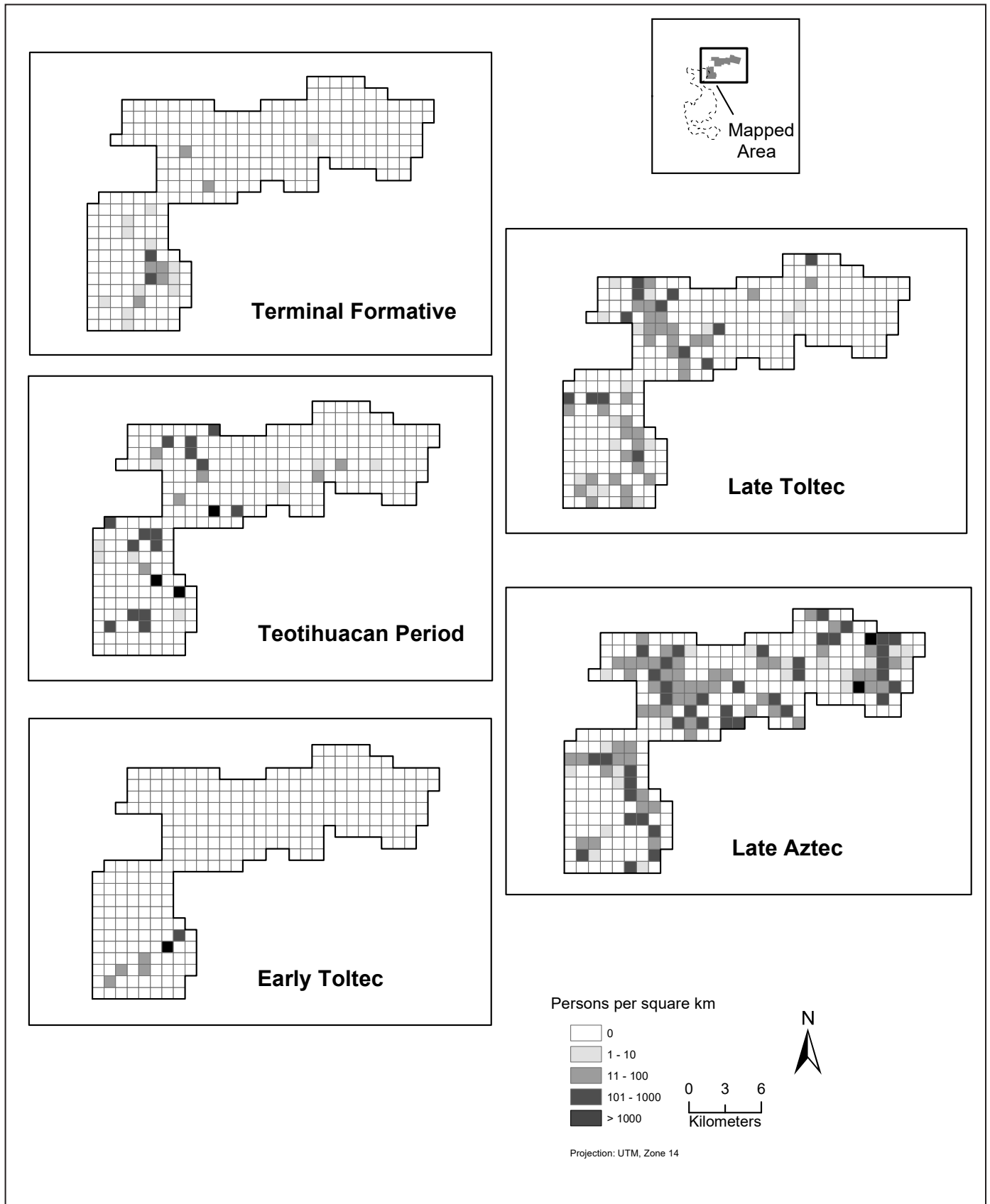


Figure 6.10. Distribution of Prehispanic Population in the Temascalapa Region, by 1-km Grid Cell

densities managed to survive in such an arid setting, where the maize agriculture that sustained most Basin of Mexico population would have been at best challenging, remains a fundamental question. In the absence of other key resources that these settlements might have exploited, the likelihood looms larger that the Late Aztec residents of this part of the survey region relied on specialized production of maguey (possibly for pulque and fiber) (see Evans 1992; Sanders and Evans 2001:1002-1007), exchanging these products with those from other parts of the Basin of Mexico through the market system that existed during this period of occupation (Gibson 1964:349-367; Hirth 2016; Lockhart 1992:185-198; Sahagún 1959-1982). Ethnohistoric evidence indicating routine interaction between Tenochtitlan and its political tributary Xaltocan, well to the north, provide further support that such integration was possible during the Late Aztec period even over long distances (Hodge and Neff 2005:337).

Displaying prehispanic settlement in grid cells also provides insights on regional demography and regional adaptive strategies as people relocated over time. Our examination of population change for the entire region already indicated that rates of change, either positive or negative, were modest. However, showing regional settlement in grid form indicates that considerable mobility that occurred from one period of prehispanic occupation to another *within the survey region*. Population growth in a particular grid cell from one period to another could have been due to natural growth—fertility exceeding mortality—depending on the rate of change observed. But instances where a particular cell contained no estimated population in one period and some level of population in the succeeding period *must have* experienced in-migration—that is, people moving from elsewhere into that grid cell. Maps of population change between succeeding periods of prehispanic occupation indicate that much of the settlement that occurred in the Temascalapa region was a consequence of people moving into a particular 1 x 1-km grid cell (Figure 6.11). We see evidence of population movement responsible for much regional settlement distribution in the Teotihuacan, Late Toltec, and Late Aztec periods of occupation. In some cases, such movement possibly occurred as one area became unproductive—say, due to soil exhaustion—or as residents discovered greater advantages of another area. In other cases, people moving to a new portion of the region likely were part of overall regional economic strategies, such as possibly occurred with the movement of people into the arid eastern part of the northern surveyed tract.

Mapping population decline between periods may also indicate mobility, though the interpretation is not as straightforward as in the population growth case. A reduction in the estimated population of a grid cell from some number to a smaller number may indicate natural processes (deaths exceeding births), mobility (out-migration), or some combination of the two. However, a complete disappearance of population in a particular grid cell does not *necessarily* indicate out-migration, as such an occurrence theoretically might result from natural processes that introduce extremely high mortality and completely suppressed fertility. Figure

6.11 shows instances of population decline as well as the complete disappearance of population in grid cells between successive periods of occupation—the former probably resulting from some combination of natural processes and mobility, the latter likely a consequence primarily of mobility. Once again, we find evidence that mobility likely played an important role in the pattern of settlement in the Temascalapa region, here through people moving to other localities in the survey region or beyond.

Summary and Conclusions

Prehispanic occupation in the Temascalapa region began modestly in the Terminal Formative period with a few hamlets and temporary occupations confined largely to the most southwestern portion of the survey region. Some 1,500 years later, during the Late Aztec occupation, population had grown by nearly 63 times the Terminal Formative total while the number of sites more than quadrupled. Settlement had expanded into much of the region, and although the nature of settlement remained generally rural, Late Aztec settlement featured a three-tiered settlement hierarchy much more complex than its Terminal Formative predecessor. Over the centuries between these two periods, many changes occurred that likely reflect shifts in local and regional economy and sociopolitical systems. Tendencies in site sizes, types, and relationships to environmental features all changed over time. And settlement shifted its location over time, showing a strong tendency to relocate from period to period.

Throughout this chapter, we have offered possible explanations for settlement patterns in the Temascalapa region. In some cases, these explanations have suggested shifts in adaptation or economic activity, such as when an environmental zone that hosted little settlement in one period contained much more settlement in another, or when more arid parts of the survey region became occupied during a particular part of the pre-Columbian past. We also have considered settlement changes in terms of what was happening elsewhere in the Basin of Mexico or beyond (notably in Tula, lying just northwest of the basin). Placing the Temascalapa region in a broader regional context reflects our general understanding of how complex societies tend to work, integrating multiple sites politically and economically into a single functioning system. Our hypothesis is that expansion into the high-risk arid portion of the Basin of Mexico represented by the Temascalapa region became possible during periods when geographically broad markets were present in the basin, enabling an area such as this survey region where production of xerophytic crops such as maguey would have supported market participation through exchange for agricultural products and other items from parts of the basin with higher rainfall (see Evans 1992; Sanders and Evans 2001:1002-1007). In Chapter 8, we consider Temascalapa survey data with respect to data from other parts of the Basin of Mexico, to explore various explanations for settlement patterns in the Temascalapa region as part of a larger system.

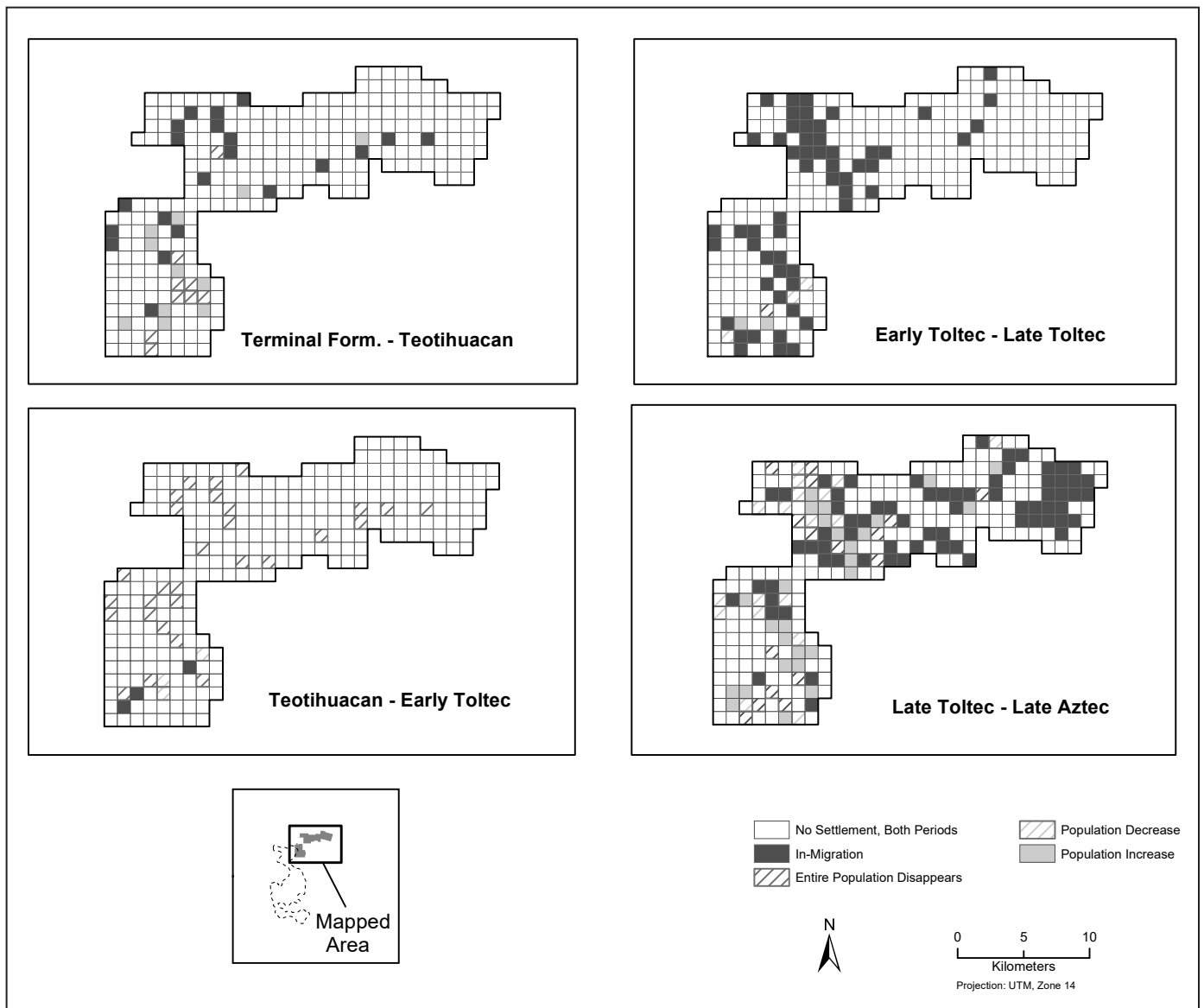


Figure 6.11. Mobility as a Possible Means of Prehispanic Population Change in the Temascalapa Region

CHAPTER 7: ECOLOGICAL AND SETTLEMENT PATTERNS IN THE TEMASCALAPA REGION

Introduction

In Chapter 2, we discussed the natural environment of the Temascalapa region to provide a basis for understanding the challenges *and* opportunities facing prehispanic agriculturalists in this part of the Basin of Mexico. In subsequent chapters, we presented and discussed data on historic and prehistoric settlement in the Temascalapa region, the consequences of adapting to the natural and sociocultural environment. Attention now turns towards cultural adaptation in the Temascalapa region at a regional scale. In the absence of detailed ethnohistoric data on late prehispanic strategies of regional adaptation during the Late Aztec occupation, this chapter draws heavily on environmental and archaeological data, complemented by the limited amount of ethnohistoric evidence available as well as observations of land use documented during the settlement pattern survey.

The following discussion of the cultural ecology of the Temascalapa region focuses on the arrangement of prehispanic, Colonial period, and twentieth century settlement patterns in five *ecological zones* that we define to characterize the survey region. These zones are portions of the Temascalapa region that would have made adaptation difficult for prehispanic agrarian economies of the sort found in the Basin of Mexico and characteristic of many operating in the Temascalapa region until late in the twentieth century. We begin with a discussion of the five ecological zones in the survey region, including patterns of modern settlement and land use when the survey occurred in 1974 and 1975. We then examine historic settlement in 1980, shortly after completion of the settlement pattern survey and towards the end of a period of dramatic population growth and land use change throughout much of the Basin of Mexico (less so in the Temascalapa region; Gorenflo 2022). Attention turns to Late Aztec settlement in the five ecological zones, focusing primarily on archaeological data but when possible linking these data and our interpretations to ethnohistoric documentation of the survey region. The chapter closes with an examination of pre-Aztec settlement in the five ecological zones as we seek insights on how the arrangement of communities and people during these earlier periods of occupation are consequences of ecological adaptation *and* to the sociopolitical environment of the broader Basin of Mexico.

Major Ecological Zones in the Temascalapa Region

Based on characteristics of settlement patterns during both the Late Aztec period and (especially) the late twentieth century, we divided the Temascalapa region into five different ecological zones (Figure 7.1). These zones are based in part on the environmental characteristics of different parts of the region and in part on human use of the region. The five zones also reflect the survey region's division into

two parts, notably the lakeshore, alluvium, and piedmont in the smaller western tract of the survey region near Lake Xaltocan, and the piedmont and thin soil alluvium in the larger and more arid northern tract of the survey region (see Figure 2.1). Unlike many other survey regions in the Basin of Mexico where ethnohistoric sources provide important information on economic and political activities during the late prehispanic and early colonial times, the Temascalapa region has little of such information available. In part, we suspect that the low rainfall in this region created marginal conditions that apparently attracted limited settlement in the years immediately following the Spanish Conquest (see Chapter 3), serving to reduce the amount of attention paid to this part of the basin in terms of settlement or documenting that settlement. We defined the five ecological zones in the Temascalapa region as follows.

Zone 1 consists of the lakebed, lakeshore plain, and related alluvium and piedmont that compose the smaller western tract of the survey region. This ecological zone lies between the eastern edge of Lake Xaltocan (including a small portion of the lakebed) and the lower southwestern flank of Cerro Paula. Although the eastern portion of Zone 1 includes lower and middle piedmont, this zone really is dominated by natural environment associated with the lake, much of it consisting of thin and deep soil alluvium but including lakeshore and a small section of lakebed itself. The fertile deep soil of Zone 1 has high agricultural potential, particularly the deep soil alluvium that composes about 11.9 km² (15%) of the western tract of the survey area, though the constraint of low rainfall would have at least partially countered whatever advantages soil quality and depth might have provided. Rainfall irrigation from the highlands to the east—Cerro Paula and the more distant and much more massive Cerro Gordo—would have been possible, but obviously the paucity of precipitation would have limited the potential benefits of this type of water control. Other environmental components of Zone 1 would have been of less interest agriculturally, notably the lakebed and saline lakeshore—the former inundated, at least during part of the year, and both featuring salinized soil that would have reduced or eliminated any potential for crop production. Land use observed at the time of survey supports these observations. Rainfed agriculture dominated Zone 1, complemented by a small amount of rainfall irrigation, with maize, barley, oats, nopal, and maguey all present (Figure 7.2). Crop production in areas with sloping fields often featured some sort of erosion control, primarily maguey banales but also stone terraces. Agricultural productivity was limited in the old lakebed and saline lakeshore plain, probably due to the salinized soil (though possibly to drainage problems, particularly in the latter). Zone 1 hosted the largest amount of settlement when the survey occurred, notably the larger towns of Los Reyes Acozac and Tecamac de Felipe Villanueva as well as smaller dispersed communities of Santa Lucía and Santa María Ajoloapán (Figure 7.3; see also Figure 3.1),

Zone 2 consists of the plain surrounding the lake Presa el Manantial (also called Presa del Rey), a small body

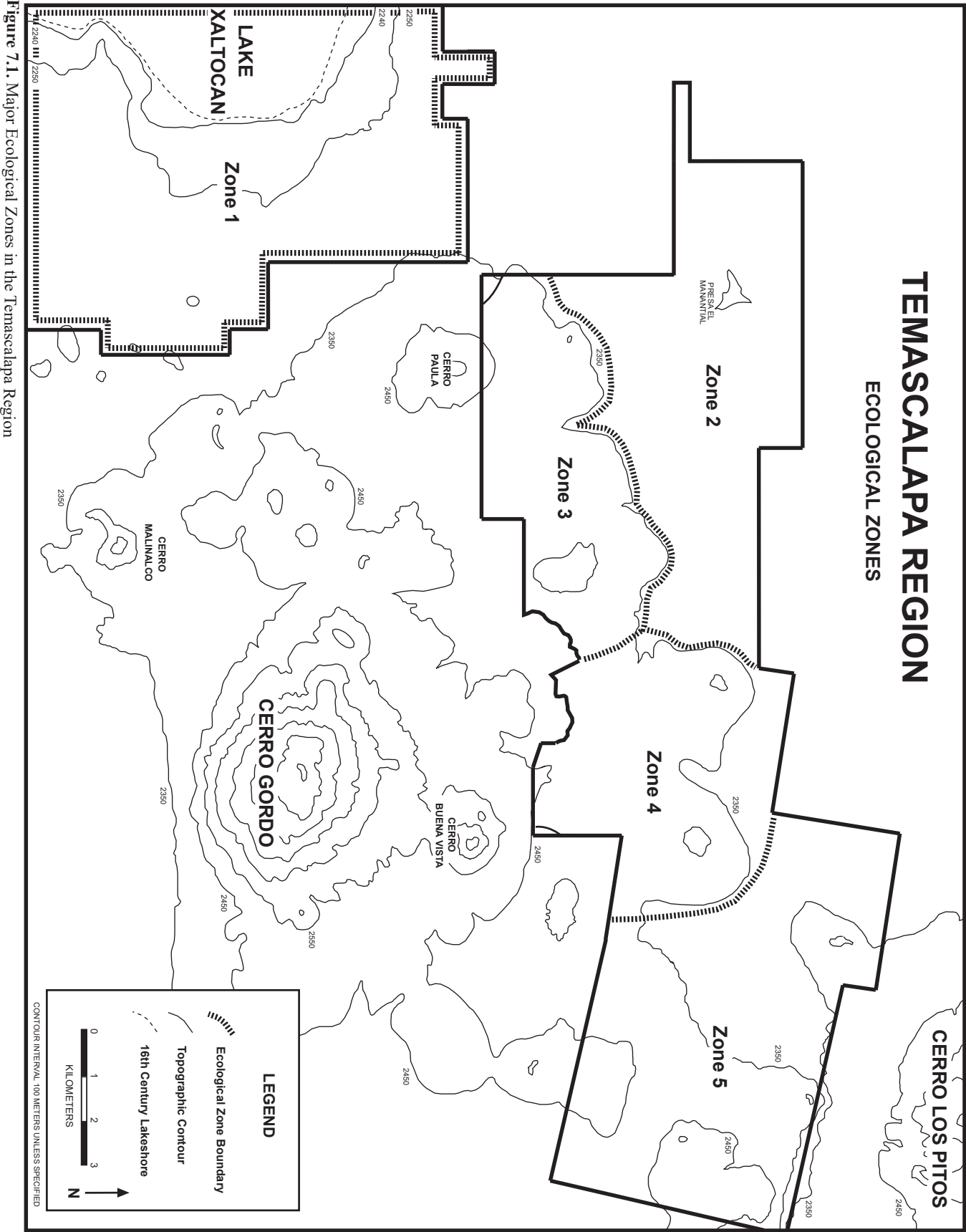


Figure 7.1. Major Ecological Zones in the Temascalapa Region

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Figure 7.2. Air Photo, Dating to the Early 1970s, Showing a Portion of Ecological Zone 1 of the Temascalapa Region

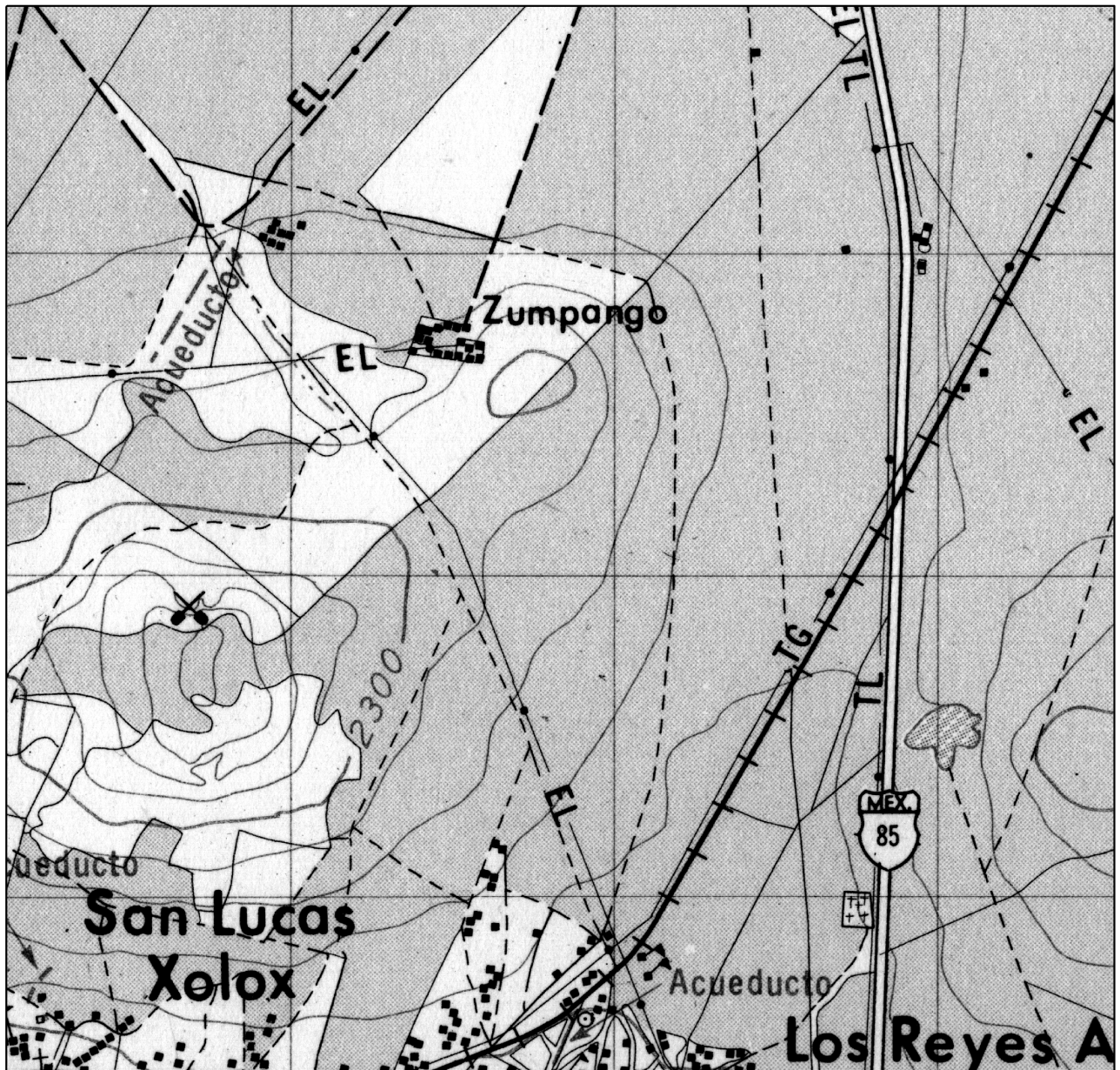


Figure 7.3. Section of the 1:50,000 Topographic Map (Comisión de Estudios del Territorio Nacional 1976), Based on 1971 Aerial Photography, Corresponding to a Portion of Ecological Zone 1 of the Temascalapa Region

of water formed by a dam in the northwestern portion of the larger northern tract in the survey region. The northern tract of the Temascalapa region lies in the watershed of one of the largest streams in the Basin of Mexico, known alternatively as Avenidas de Pachuca and Arroyo Papalote (Gorenflo and Sanders 2000:576). This drainage extends far to the north, near higher elevations called Sierra de Pachuca (Secretaría de Planeación y Desarrollo Regional 2011), though it also drains the area to the east coming off the lower flanks of Cerro Gordo and Cerro los Pitos. Presa el Manantial relies on water from the Arroyo Papolote, enabling the creation and maintenance of a lake despite the arid conditions in this part of the Basin of Mexico. Zone 2 largely consists of thin soil alluvium, this scant soil adding to the limitations of low rainfall to create challenging conditions for crop production. Most of this area featured rainfed agriculture at the time of survey, with barley, nopal, wheat, maize, beans, and maguey all grown, often in fields equipped with maguey banales (Figure 7.4). Several fields also were used for grazing, further indication of constraints on agricultural productivity. A few small, dispersed settlements occurred in Zone 2 at the time of survey, including Tepojaco, Emiliano Zapata, and Presa del Rey (Figure 7.5; see also Figure 3.1).

Zone 3 consists of the northern flank of Cerro Paula and the entirety of Cerro Verde, including its flanks northwest of Cerro Gordo, the dominant volcanic cone in the northern part of the Teotihuacan region. As with Zone 2, Zone 3 lies within the drainage of Avenidas de Pachuca/Arroyo Papalote, near the eastern headwaters which originate on the northern flanks of Cerro Gordo. Lower and (especially) middle piedmont dominate this zone, with a small amount of thin soil alluvium in its eastern reaches. Crop production again dominated the land use in this ecological zone in the mid-1970s, primarily rainfed though with some rainfall irrigation noted as well. Crops included nopal, maguey, maize, beans, and barley, though much of Zone 3 also featured grazing, often in fields labelled “marginal agricultural land” by the survey crews (Figure 7.6). One community that was large for the survey region occurred in this zone, the town of Temascalapa, along with the small, dispersed community of San Mateo Teopancala and a couple of very small settlements or named scatters of structures (Figure 7.7; see also Figure 3.1).

Zone 4 lies immediately east of Zone 3 and shares some important general environmental characteristics with that area: it extends northward from the lower flanks of Cerro Gordo and includes more modest volcanic cones, including Cerro Coayucán, and their piedmont. But compared to its neighbor to the west, Zone 4 comprises a more variable environment, with the dominant thin soil alluvium complemented by large amounts of lower and middle piedmont. Zone 4 lacks surface hydrology apart from some seasonal streams in the bottom of barrancas extending off the higher elevations of Cerro Gordo and the smaller peaks, and two small jagüeyes (see the description of Tm-Az-108). This lack of surface water is particularly important as precipitation is less in this zone than those to its west, exacerbating the persistent constraint of aridity on

agriculture in the survey region. Cultivation involved rainfed agriculture, with maguey, nopal, maize, barley, and haba all recorded at the time of survey (Figure 7.8). Grazing also occurred in Zone 4. Settlement in Zone 4 was quite limited in the mid-1970s, the sole community of any note being San Bartolomé Actopan, which contained only slightly more than 1,100 people in 1980 (Instituto Nacional de Estadística, Geografía e Informática 1990b; Figure 7.9; see also Figure 3.1).

Zone 5 occupies the northeastern portion of the larger northern tract of the Temascalapa survey region. Consisting primarily of gently rolling terrain located on the broad saddle of thin soil alluvium and lower piedmont between Cerro Gordo to the southwest and Cerro los Pitos to the northeast, this zone occurs in the most arid part of the entire area surveyed in the Basin of Mexico. Survey crews recorded modern land use on 47 Late Aztec sites in this zone, noting crop production on most. Crops included maguey, maize, nopal, habas, barley, wheat, oats, and beans (Figure 7.10). The locations of several Late Aztec sites also hosted grazing at the time of their survey, and some were listed as either fallow or unused. As in the other ecological zones, several of the agricultural fields featured erosion controls of some form, usually maguey banales. Despite the lack of rainfall, Zone 5 contained several communities at the time of survey, the largest being Santa María Aticpac; smaller, dispersed settlements also occurred in this zone, including Guadalupe Relinas and San Felipe Zacatepec (Figure 7.11; see also Figure 3.1).

Historic Settlement in the Temascalapa Region: The Pattern in 1980

We begin our study of regional ecological adaptation in the Temascalapa region by examining regional settlement in 1980 (Table 7.1). The year of a national decennial census of population and housing in Mexico, 1980 also was only five years after the settlement pattern survey of the Temascalapa region occurred, providing a glimpse of the modern settlement encountered by survey crews. Although much of the modern population growth in the Basin of Mexico occurred between 1960 and 1980 (Gorenflo 2022), the location of the Temascalapa region in the marginal northeast of the basin insulated it from the major demographic increases during decades where most growth involved Mexico City and nearby municipios. Total population of the survey region approached 29,000 people in 1980, about 66% higher than the Late Aztec total but still sparse compared to much of the basin and largely engaged in an agrarian economy. Nevertheless, the 1980 population was nearly three times the roughly 11,500 inhabitants that occupied the region in 1960 (see Table 3.1), when Basin of Mexico settlement pattern surveys began in the Teotihuacan region.

Although Zone 1 contained only five modern communities in 1980, those settlements accounted for more than 63% of the population in the Temascalapa region that year. Most people lived in Los Reyes Acozac and Tecámac de Felipe Villanueva, which contained about 7,500 and

Table 7.1. Historic Settlement in the Temascalapa Region by Ecological Zone: 1980

Ecological Zone	No. of Communities (%)	Population (%) ^a
Zone 1	5 (20.0)	17,940 (63.2)
Zone 2	8 (32.0)	2,535 (8.9)
Zone 3	4 (16.0)	3,377 (11.9)
Zone 4	1 (4.0)	1,129 (4.0)
Zone 5	7 (28.0)	3,398 (12.0)
Total	25 (100.0)	28,379 (100.0)

a: Population figures based on communities whose geographic center occurs in each ecological zone, according to the 2010 census (Instituto Nacional de Estadística y Geografía 2013).

Source: Instituto Nacional de Estadística, Geografía e Informática 1990a, 1990b.

6,100 individuals in 1980, respectively. Zone 1 settlements in 1980 were largely agrarian, and their domination of regional demographics probably reflects comparatively better agricultural conditions—deeper soil and higher rainfall—than those found elsewhere in the survey region. Surprisingly, the second highest population in 1980 occurred in Zone 5, the most arid portion of the survey area, which hosted 12% of the survey region total population. Most of the population in Zone 5 lived in Santa María Aticpac, which alone contained more than 1,960 people in 1980. Zone 3 contained nearly as many people as Zone 5 in 1980, with the remaining two ecological zones each hosting less than 9% of the Temascalapa region inhabitants.

The clear demographic dominance of Zone 1, in terms of total population and the presence of large settlements in that ecological zone, is the most noteworthy characteristic of the geographic arrangement of settlement in 1980. The settlement pattern that year involved habitation of a few generally small communities which apparently served as centers for agricultural activity. Only two settlements in the survey region exceeded 6,000 people in 1980, both in Zone 1; another six ranged between 1,000 and 3,000 residents, the remaining settlements in the survey region consisting of small rural communities. The arrangement of 1980 population thus tended to be concentrated in a few places, some of them larger but most small and sparsely scattered throughout the five ecological zones in the Temascalapa region. This pattern in particular characterizes the five ecological zones in the larger northern tract of the survey region, in contrast to the larger settlements (and greater population) in Zone 1 in the western tract. Much of the landscape in 1980 consisted of agricultural fields amid xerophytic natural vegetation, with little evidence of irrigation.

Late Aztec Settlement in the Temascalapa Region

Detailed presentation of Late Aztec settlement in the Temascalapa region appears in Chapter 5, including site descriptions and a map of Late Aztec sites (see Figure 5.10); discussion of demographics in this period, in turn, appears in Chapter 6 (see Figure 6.9). Late Aztec settlement is noteworthy for its broad geographic presence in the

survey region. As discussed in the next section, prior to the Late Aztec occupation settlement tended to favor southern and western parts of the survey region, possibly because of higher rainfall and access to Lake Xaltocan in addition to proximity to settlement in the Teotihuacan region and points south. It seems like the Late Aztec settlement pattern was the end of centuries of prehispanic demographic ebb and flow into and out of the Temascalapa region where settlement at certain times elsewhere in the Basin of Mexico forced expansion into the region and geographically broad economic systems supported settlement in an area that likely specialized in production of arid area crops.

We present three measures of Late Aztec occupation in Table 7.2: number of sites, estimated population, and site area. All three indicate generally similar distributions of Late Aztec settlement among Zones 1, 2, 3, and 5, with Zone 4 containing less than 10% of Temascalapa region occupation for all three measures. This contrasts sharply with the arrangement of population in 1980, where Zone 1 contained the majority of residents. The similar roles played by the Zones 1, 2, 3, and 5 is surprising because of the very different ecological opportunities characterizing each, particularly zones 1 and 5. In addition to proximity to Lake Xaltocan, Zone 1 receives as much as 25% more annual rainfall than Zone 5. The dominance of Zone 5 demographically is particularly noteworthy in an area that in earlier periods hosted much more modest occupations, or no occupations at all. In the absence of systematically collected archaeological data beyond those obtained through surface reconnaissance, and with little ethnohistoric data available, we have little basis to explain these differences. Much of Zone 5 occupational dominance during the Late Aztec reflects the presence of Tm-Az-151, the only provincial center identified in this period and indeed one of only two centers identified for any period of prehispanic occupation in the Temascalapa region.

We defined Tm-Az-151 as a provincial center based entirely on archaeological evidence and in the absence of ethnohistoric references to an *altepetl* (plural *altepemeh*), or city state, in this part of the Basin of Mexico. Most *altepemeh* in the basin are identified in ethnohistoric references (see Bray 1972; Carrasco 1999; Evans 2001; Gibson 1964:32-57; Hicks 1982, 1992; Hodge 1984). However, the geographic location of Tm-Az-151 likely put it in a situation where continuation as an administrative center may have been unlikely following the Spanish Conquest if its prominence required a functioning regional economy to provide access to a range of resources unavailable locally. Such a change in political roles is not unprecedented, as other sites with city state status during prehispanic times saw their administrative importance reduced during the Spanish administration, such as Oxtotitpac (Gibson 1964:68-71). It is possible that disruption of this geographically broad economic system undermined the preconditions for maintaining such a large settlement in a highly marginal setting. We also offer as a potential explanation that the site may have lost its provincial center status prior to the conquest, as had happened to other centers in the basin (e.g.,



Figure 7.4. Air Photo, Dating to the Early 1970s, Showing a Portion of Ecological Zone 2 of the Temascalapa Region

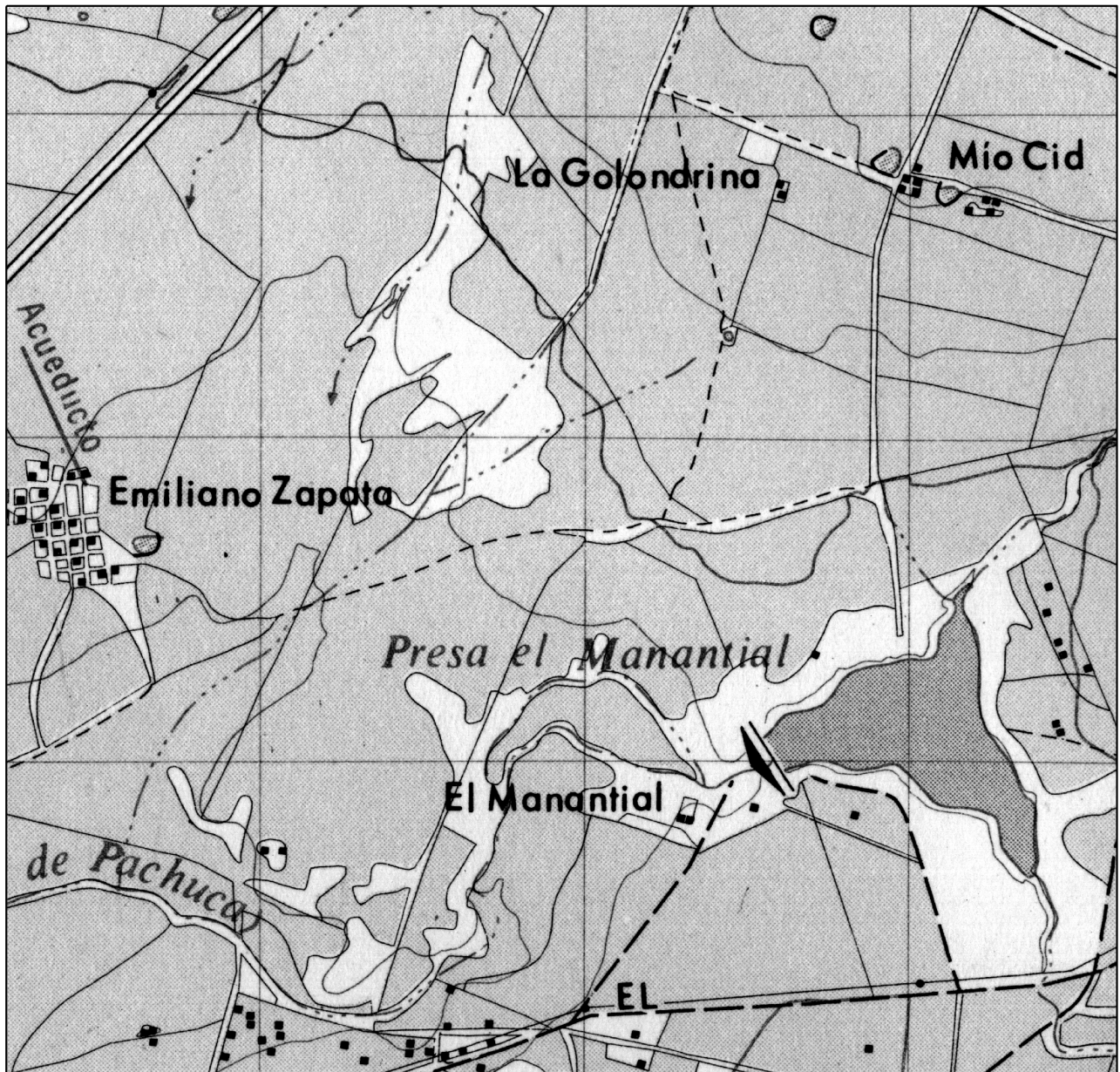


Figure 7.5. Section of the 1:50,000 Topographic Map (Comisión de Estudios del Territorio Nacional 1976), Based on 1971 Aerial Photography, Corresponding to a Portion of Ecological Zone 2 of the Temascalapa Region

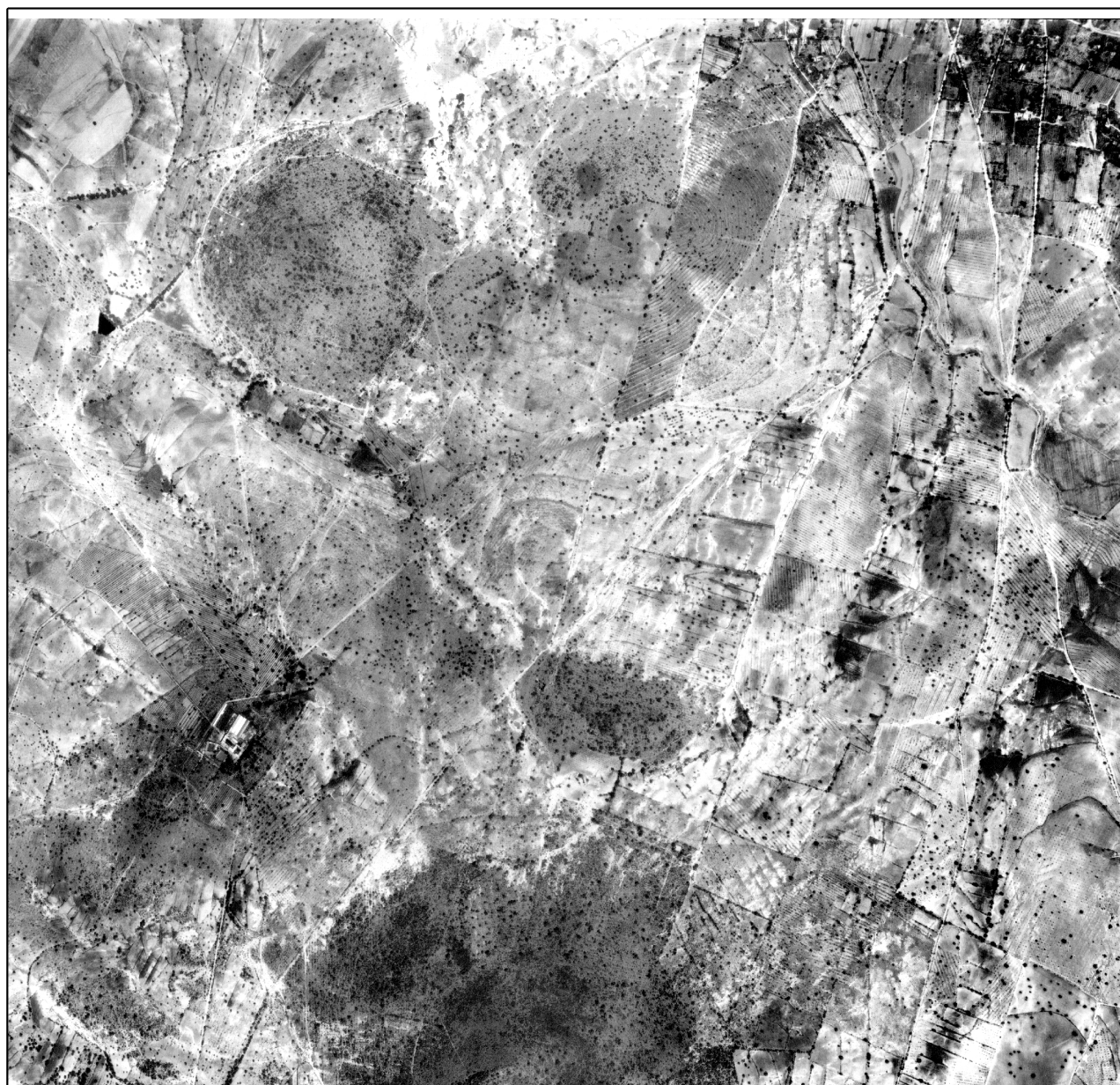


Figure 7.6. Air Photo, Dating to the Early 1970s, Showing a Portion of Ecological Zone 3 of the Temascalapa Region

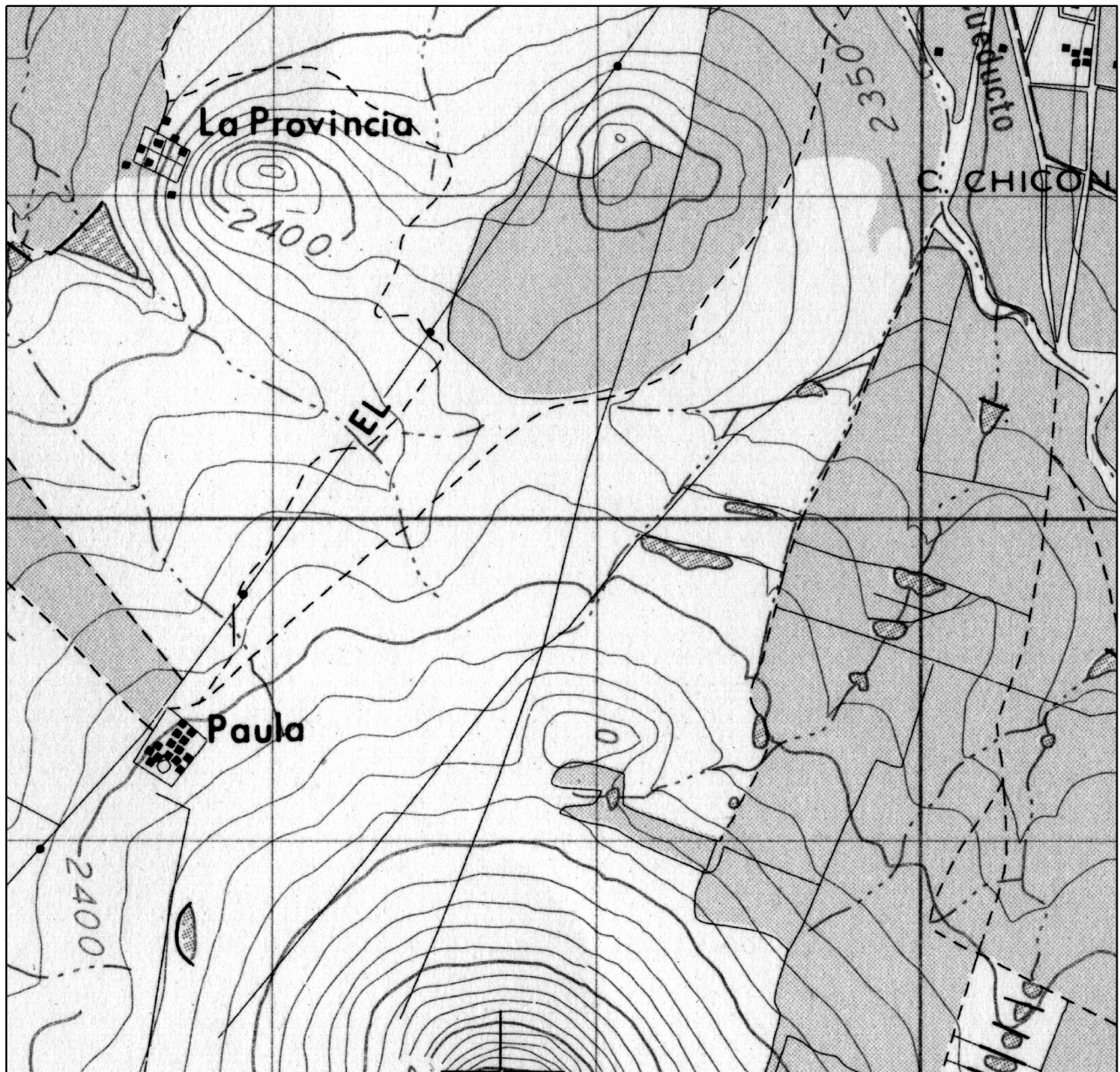


Figure 7.7. Section of the 1:50,000 Topographic Map (Comisión de Estudios del Territorio Nacional 1976), Based on 1971 Aerial Photography, Corresponding to a Portion of Ecological Zone 3 of the Temascalapa Region



Figure 7.8. Air Photo, Dating to the Early 1970s, Showing a Portion of Ecological Zone 4 of the Temascalapa Region

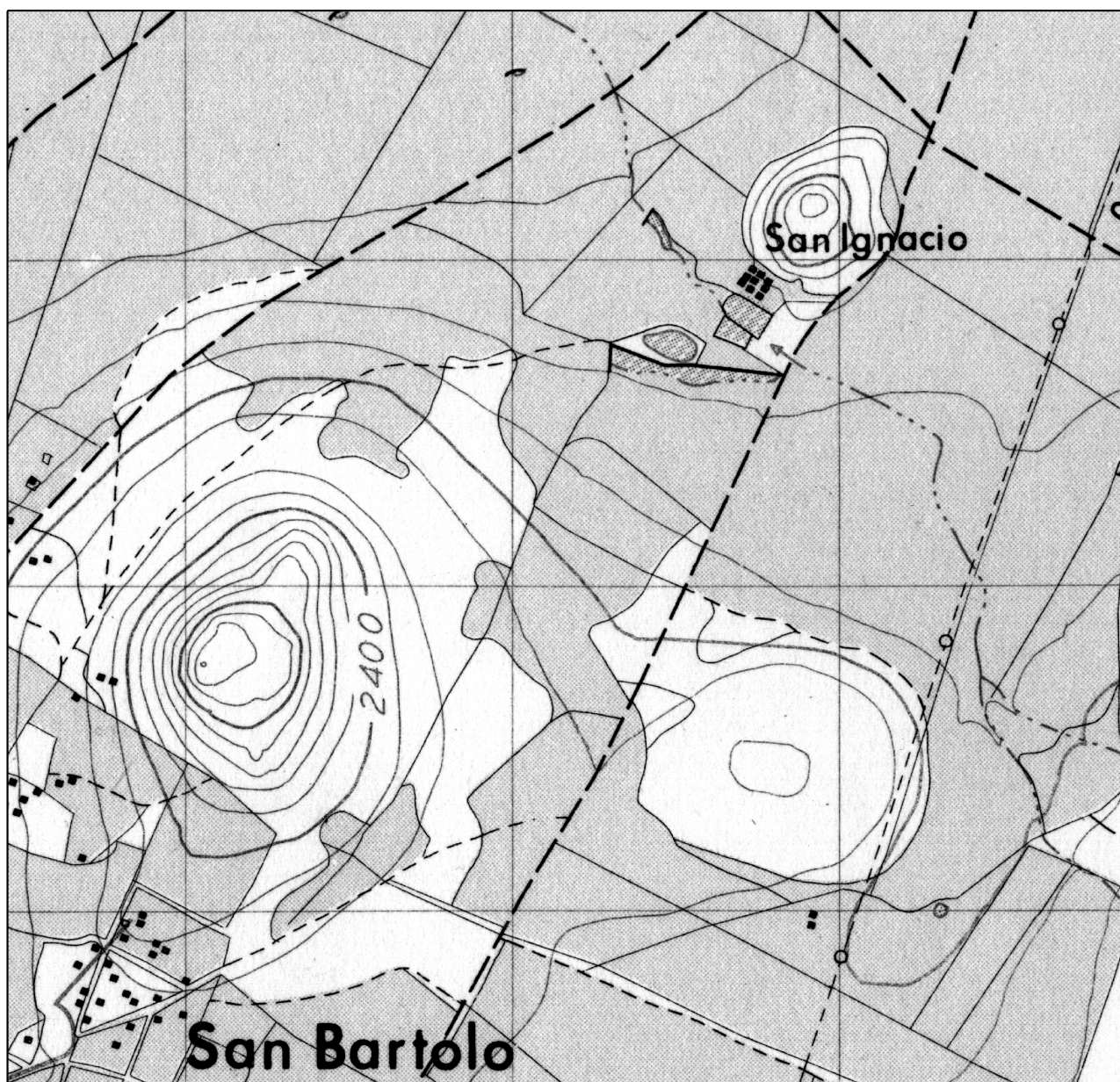


Figure 7.9. Section of the 1:50,000 Topographic Map (Comisión de Estudios del Territorio Nacional 1976), Based on 1971 Aerial Photography, Corresponding to a Portion of Ecological Zone 4 of the Temascalapa Region



Figure 7.10. Air Photo, Dating to the Early 1970s, Showing a Portion of Ecological Zone 5 of the Temascalapa Region

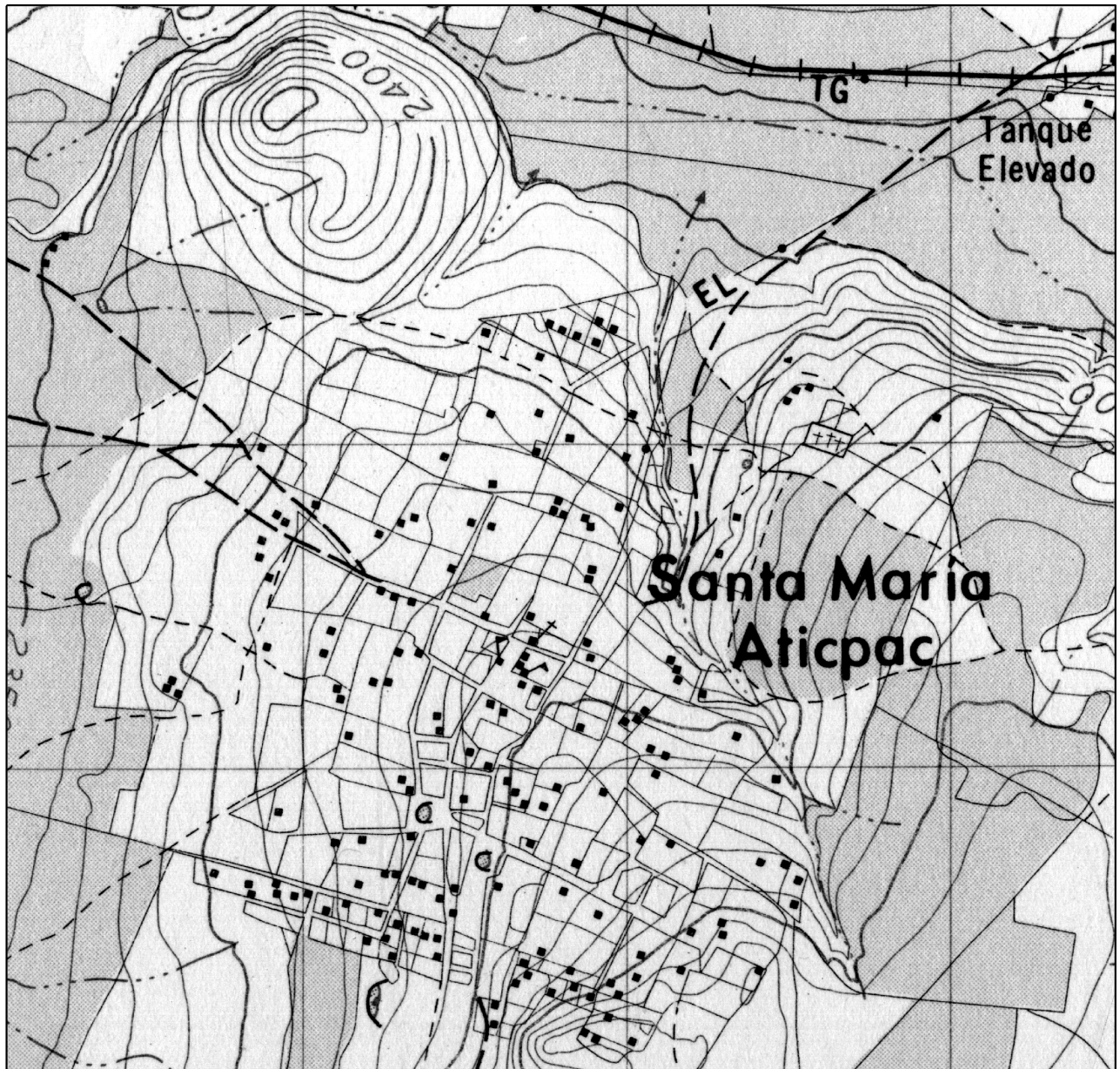


Figure 7.11. Section of the 1:50,000 Topographic Map (Comisión de Estudios del Territorio Nacional 1976), Based on 1971 Aerial Photography, Corresponding to a Portion of Ecological Zone 5 of the Temascalapa Region

Table 7.2. Late Aztec Occupation in the Temascalapa Region, by Ecological Zone

Ecological Zone	No. of Sites (%)	Population (%)	Site Area, ha (%)
Zone 1	42 (25.0)	3,973 (23.2)	318.1 (28.1)
Zone 2	33 (19.6)	2,195 (12.8)	170.6 (15.1)
Zone 3	32 (19.0)	3,567 (20.8)	273.6 (24.2)
Zone 4	14 (8.3)	1,125 (6.6)	103.3 (9.1)
Zone 5	47 (28.0)	6,256 (36.6)	265.7 (23.5)
Total	168 (100.0)	17,116 (100.0)	1,131.3 (100.0)

Gibson 1964:68-71). Whatever the reason for its absence in ethnohistoric sources, archaeological remains on Tm-La-151 were quite impressive, particularly by the standards of the Temascalapa region (see the site description in Chapter 5): 91 mounds in all, 65 domestic and 26 ceremonial, scattered over roughly 103.0 ha (see Table 5.22; Figure 5.24); concentrations of rock rubble, indicating more substantial structures; and a broad range of artifacts. Inspection by the field crew in 1975 suggested that Late Aztec remains previously had been more extensive, with erosion and various forms of land use following the Spanish Conquest destroying much of the archaeological evidence. Gorenflo, along with Jeff and Mary Parsons, visited Tm-Az-151 in June 2008 to assess its condition and identify any surface evidence of a maguey-based economy (e.g., spindle whorls; see also Parsons 1972). At that point, the site had been damaged further by chisel plowing, though sheet erosion apparently further compromised the site before the heavy equipment arrived, and we noted no surface evidence for economic activities involving maguey nor much potential for further investigation given the site's condition.

Zones 1, 2, and 3 also included considerable Late Aztec presence, depending on the indicator for occupation used. As discussed in general above for the ecological zone definitions, the presence of pre-Columbian settlement in Zone 1 is not especially surprising given its proximity to Lake Xaltocan and the many resources that the lake system would have provided. Expansion into Zones 2 and 3, both more marginal than Zone 1, may represent diffusion of settlement into less desirable areas in response both to increased total population in the Temascalapa region during the Late Aztec period and the potential for producing more specialized xerophytic crops that a region-wide economic system would support. Given the limitations of little precipitation and few sources of surface water, the Temascalapa region likely would not support dense occupations in any area, helping to explain the diffusion of settlement into other parts of the survey region. At this point, we have no reason to suspect economic pursuits other than crop production in the Temascalapa region during the Late Aztec occupation, possibly employing slightly different approaches where rainfall irrigation could occur. One potential exception is Zone 1, which was slightly less arid and would enable a focus on nearby lake resources. Further understanding is not forthcoming in the absence of more data, archaeological, ethnohistorical, or both. This is disappointing, as explaining how a such large number of people could occupy a marginal area during prehispanic times is central to understanding the cultural ecology of the

Temascalapa region.

Integrating settlements in the Temascalapa region into the broader Basin of Mexico likely would have been challenging during prehispanic times, given the difficulties of exchanging information and materials that came with increased geographic distance (Gorenflo and Gale 1990). The actual association of Late Aztec communities in the survey region was further complicated by affiliations of resident settlements with several administrative centers to the south (Figure 7.12). This interruption of continuous areas of geographic affiliation tended to undermine the potential for communities to revolt against the Late Aztec administrative order (Carrasco 1984; Evans 1980; Gibson 1964:36, 40-41; Hodge 1984:25-26, 1991:126, 129; Sterpone 1996:49-53). Regardless of the reasons underlying this complex political geography, the connection of sites in various ecological zones in the Temascalapa region to different administrative centers further to the south likely had important implications for surviving in this marginal northern setting.

Pre-Aztec Settlement in the Temascalapa Region

As noted in Chapter 5, prehispanic settlement in the Temascalapa survey region began with Terminal Formative (Tzacualli) occupation. Earlier settlements were not discovered, consistent with patterns in the Zumpango region in the northwestern Basin of Mexico (Parsons 2008). Pre-Aztec settlement patterns in the Temascalapa region tended to take two forms: those with a heavy emphasis on Zone 1, to the near or total exclusion of other ecological zones; and those with a broader distribution of settlement that involved all ecological zones in the survey region (Table 7.3).

The Terminal Formative occupation of the Temascalapa region occurred primarily in Zone 1, which contained nearly 80% of the Tzacualli sites and about 90% of both the estimated population and total site area (see Table 7.3). Sites occurred well above the prehispanic lakeshore, primarily in the deep and thin soil alluvium; the distance from the lakeshore, coupled with an emphasis on alluvial soils, suggest that extraction of lacustrine resources may not have been the primary activity pursued by these settlements. Remaining sites, in Zones 2, 3, and 4, all are quite scattered. None of the Terminal Formative sites were more substantial than a hamlet, and indeed most were small hamlets ($n=25$) or trace occupations that we categorized as "questionable" ($n=10$; see Table 5.25, Figure 5.1, Figure 6.5). Based on the modest nature of the Terminal Formative remains, settlement during this period likely involved small resource extraction sites and possibly subsistence agriculture, the latter possibly

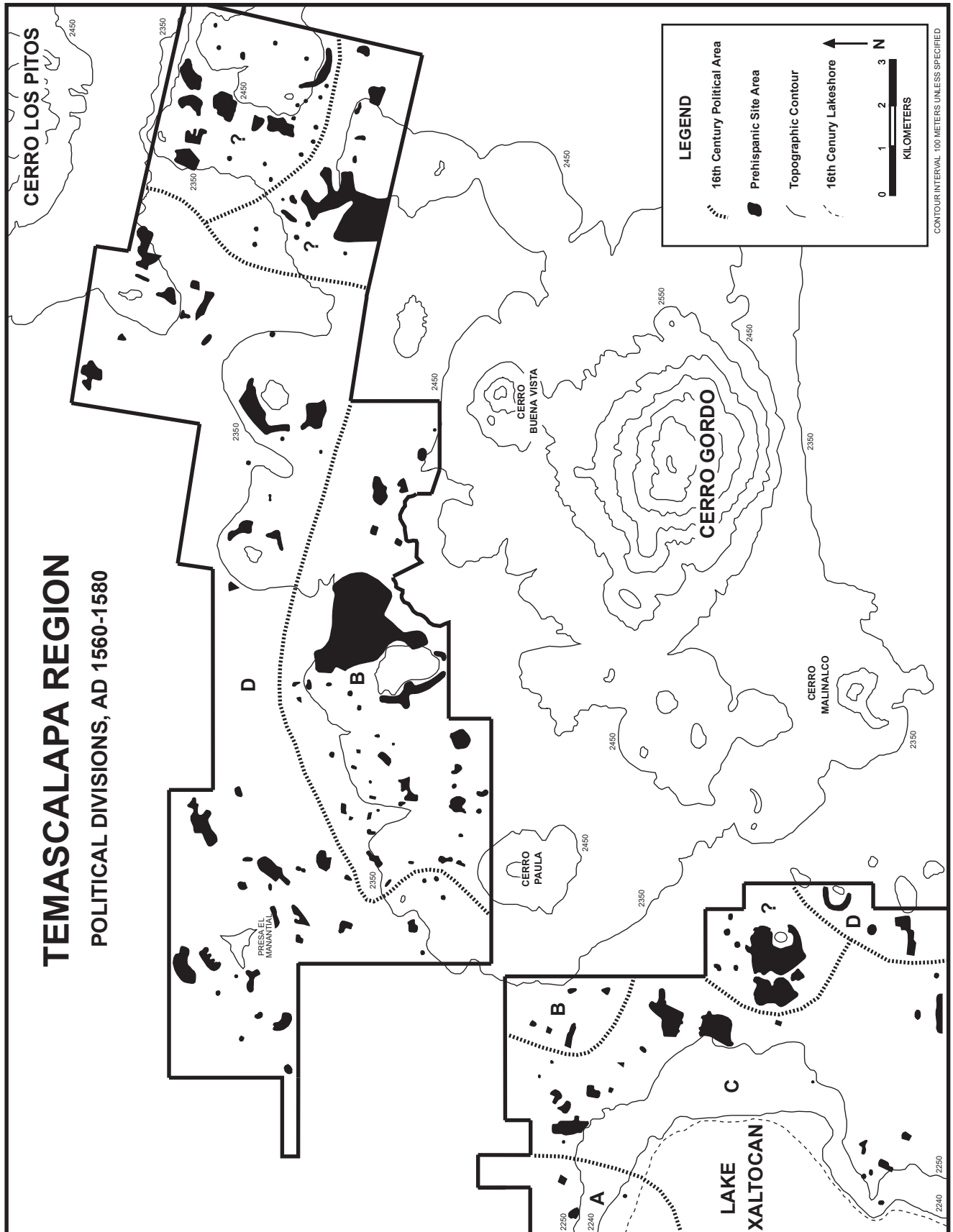


Figure 7.12. Political Divisions in the Sixteenth Century Temascalapa Region, Shown with Late Aztec Settlement and Political Affiliations: A, Tlateolco; B, Tepexpan; C, Tecámac; D, Acolman (after Sanders and Evans 2001:956-957)

Table 7.3. Pre-Aztec Occupation in the Temascalapa Region, by Ecological Zone

Occupation/Ecological Zone	No. of Sites (%)	Population (%)	Site Area, ha (%)
Terminal Formative			
Zone 1	31 (79.5)	246 (90.1)	27.2 (87.7)
Zone 2	5 (12.8)	15 (5.5)	2.3 (7.4)
Zone 3	2 (5.1)	10 (3.7)	1.1 (3.5)
Zone 4	1 (2.6)	2 (0.7)	0.4 (1.3)
Zone 5	- (-)	- (-)	- (-)
Total	39 (100.0)	273 (100.0)	31.0 (100.0)
Teotihuacan Period			
Zone 1	22 (51.2)	4,685 (62.8)	66.6 (54.2)
Zone 2	2 (4.7)	900 (12.1)	18.0 (14.6)
Zone 3	14 (32.6)	1,728 (23.2)	34.3 (27.9)
Zone 4	4 (9.3)	133 (1.8)	3.9 (3.2)
Zone 5	1 (2.3)	10 (0.1)	0.1 (0.1)
Total	43 (100.0)	7,456 (100.0)	122.9 (100.0)
Early Toltec			
Zone 1	14 (100.0)	2,779 (100.0)	124.7 (100.0)
Zone 2	- (-)	- (-)	- (-)
Zone 3	- (-)	- (-)	- (-)
Zone 4	- (-)	- (-)	- (-)
Zone 5	- (-)	- (-)	- (-)
Total	14 (100.0)	2,779 (100.0)	124.7 (100.0)
Late Toltec			
Zone 1	35 (45.5)	1,818 (35.3)	190.9 (54.7)
Zone 2	23 (29.9)	2,381 (46.3)	80.3 (23.0)
Zone 3	12 (15.6)	676 (13.1)	59.3 (17.0)
Zone 4	4 (5.2)	53 (1.0)	7.1 (2.0)
Zone 5	3 (3.9)	220 (4.3)	11.4 (3.3)
Total	77 (100.0)	5,148 (100.0)	349.0 (100.0)

“-” signifies 0 or a percent that rounds to 0.0

taking advantage of rainfall runoff from higher elevations in the eastern part of Zone 1 along with the alluvial, non-salinized soil. Most sites probably survived as autonomous settlements, their modest sizes making them likely incapable of generating much surplus and their distance from more substantial settlement to the south making it very costly to transport materials to administrative centers outside the Temascalapa region (see Gorenflo and Gale 1990; Sanders and Santley 1983).

A second pre-Aztec occupation that emphasized Zone 1 is the Early Toltec occupation, a period when all settlement in the Temascalapa region occurred in this one ecological zone (see Table 7.3). Although sites once again tended to be fairly small, there were notable exceptions. Three small villages occurred in the thin soil alluvium or lower piedmont in Zone 1 during the Early Toltec period (see Figure 6.7), in contrast to the more ephemeral settlements that characterized the Terminal Formative occupation, though none are particularly impressive in terms of their geographic size or estimated populations (see Figure 5.5). But the Early Toltec Temascalapa region also featured one much larger site, Tm-Et-11, which we classified as a

regional center (see Table 5.27). This center, located more 4 km from the prehispanic lakeshore, is one of only two centers identified in the entire Temascalapa region during prehispanic times. Given its distance from the lakeshore, Tm-Et-11 likely relied primarily on agricultural production for support. Other nearby settlements, including three small nucleated villages, may have contributed to the support of this center, though once again crop production in this area would have been a precarious endeavor. Other Early Toltec sites did not occur nearby, including sites in the Teotihuacan region (Gorenflo and Sanders 2007:206-207), suggesting that tribute from other places likely did not provide much regular support. Explaining both the emergence of this Early Toltec regional center in the Temascalapa region, and the broader role of this center in the Early Toltec economic and political landscapes, are tasks that remain to be resolved.

In the Teotihuacan and Late Toltec periods, occupation was broadly dispersed across the Temascalapa region. In both of these periods, settlement occurred throughout much of the Basin of Mexico to the south, providing a possible explanation for why settlement expanded substantively into this marginal area in the

northeastern basin. Zone 1 played an important role during the Teotihuacan period, containing more than half the total settlements, estimated population, and total site area during that period of occupation (see Table 7.3). Estimated Teotihuacan period population during this period was much less as one examines the larger northern tract in the survey region, occupation declining as one moves further to the east. The number of sites and total site area both are lower in the eastern three ecological zones (see Figures 5.2, 6.6). Two Teotihuacan period sites occur within 1 km of the prehispanic lakeshore in Zone 1, but most settlements dating to this occupation of Zone 1 lie in the alluvial soils and piedmont east of Lake Xaltocan. Compared to other occupations, a large percentage of sites are villages. Zone 2 also contains several Teotihuacan period sites, including five villages located on thin soil alluvium. Teotihuacan period sites lying in ecological Zones 1 and 2 likely pursued agriculture, if not occupying salinized soil close to the lake in Zone 1, based on their locations in portions of the survey area with slightly more annual rainfall and where some form of rainfall irrigation likely was possible, and in the absence of clear economic alternatives. The sites near the lakeshore possibly exploited lacustrine resources. Once again, more detailed understanding of the adaptive strategies used by sites dating to this period of occupation, as well as how those sites might have fit into broader economic and political strategies, await further investigation of the archaeological remains. The relative proximity of the Temascalapa region to the urban center of Teotihuacan, as well as to other Teotihuacan period settlements that occurred in the northern Teotihuacan region, suggest a likely connection with the economic and political order that dominated the entire basin (and especially the northeastern basin) at that time.

The geographic arrangement of Late Toltec settlement in the Temascalapa region generally resembled that found during the Teotihuacan period, though Zone 1 was not as dominant demographically and Zone 2 contained twice the proportion of population as Zone 1 (see Table 7.3). Although there were many more Late Toltec settlements in this region than any period of prehispanic occupation apart from the Late Aztec, the vast majority were small hamlets and hamlets (see Table 5.28). Only two of the sites in Zone 1, both small hamlets that might have been resource exploitation sites, occurred within 1 km of the prehispanic lakeshore (see Figure 6.8). Remaining sites occurred in the alluvium and piedmont in this ecological zone. Similar tendencies for site location characterized Zone 2 as well as Zones 3, 4, and 5. Based on their locations and on surface evidence for archaeological remains, we suspect that most of the Late Toltec sites throughout the Temascalapa region focused on small-scale agriculture. The small size of most sites, coupled with the persisting challenges to crop production in this region, may indicate subsistence agriculture similar to that proposed for the Terminal Formative occupation. At this point, any relationship between these sites and the larger Late Toltec political and economic landscapes remains uncertain. A possible connection with the Late Toltec center at San Miguel

Eyecalco (see Appendix D) may have existed, given the size and proximity of this site to the Temascalapa region, though this remains speculative. In the absence of evidence on economic and political affiliations, we are uncertain if these sites focused on xerophytic crops (as hypothesized for the Late Aztec period), on other crops, or on a combination of the two, though given the environmental characteristics of the Temascalapa region and the nature of the Late Toltec sites present the options would have been limited.

Ecological Adaptation in the Temascalapa Region

Exploring the cultural ecology of the Temascalapa region helps to understand prehistoric and historic settlement patterns in this marginal area in the northeastern Basin of Mexico. Unfortunately, for this region we lack detailed information on adaptation during the Late Aztec and Early Colonial periods—economic activities, sociopolitical affiliations, and regional demographics—that ethnohistoric sources might provide. Access to data on the natural environment and historic land use provides a basis for proposing ecological zones that would have provided certain adaptive opportunities and prohibited others, ideas that we can propose to explain the arrangement of prehistoric and historic settlement. But many of the insights we can provide on ecological considerations underlying settlement patterns are circumstantial and, ultimately, tentative. In a part of the Basin of Mexico where the low rainfall would have made reliance on crop production a precarious endeavor, having more empirical evidence on Late Aztec and Early Colonial adaptive strategies would be an enormous benefit. Unfortunately, the marginal existence for which we seek insights may be the very reason why ethnohistoric sources are of little help: prehispanic occupation of this region likely would have been tenuous, often predicated on a need to expand into unoccupied, high-risk portions of the basin, and population decline following the Spanish Conquest may well have caused settlement in the northeast to retract to less marginal parts of the basin to the south.

We defined five ecological zones in the Temascalapa region based in part on physical geography and in part on land use patterns observed during the archaeological survey of this area in 1974 and 1975. The smaller western tract of the Temascalapa region composed the entirety of ecological Zone 1, an area characterized by its proximity to Lake Xaltocan and the thin and deep soil alluvium and piedmont lying east of the lake. This zone would have had the greatest access to lake resources as well as the highest average annual rainfall in the survey region, though at a maximum of 610 mm during modern times the latter remains quite modest (see Figure 2.2) and its benefits to crop production compromised by salinized soils near the lake. The remaining four ecological zones, labeled Zones 2, 3, 4, and 5, all lie in the larger northern tract of the survey region. We defined these zones in part based on their physiography and in part based on their potential to use runoff from different landforms for rainfall irrigation. Low rainfall in these four ecological zones, on average 480–580

mm annually, an absence of rivers and permanent streams to use for irrigation, and large expanses of thin soil likely made crop production challenging, with precipitation decreasing as one moves to the east. We proposed elsewhere in this monograph (Chapters 2 and 6) that prehispanic residents may have specialized in xerophytic crops, notably maguey, at certain times in the past when they could take advantage of geographically broad economic systems that would enable people in the north to exchange such crops for other agricultural products grown elsewhere where more water is available. The tendencies of the survey region to be settled from the relatively wetter south and west, and with the exception of the Late Aztec period to host relatively few sites in the drier east, seem to support these general propositions.

Much of what we discuss for the cultural ecology of the Temascalapa region remains speculative, though based on what we feel is sound logic for a settlement system relying on prehispanic crop production in central Mexico. The region remained uninhabited until the Terminal Formative period, possibly because other areas in the Basin of Mexico more reliable for crop production were available to settle and use. Occupation of the Temascalapa region seemed to occur from the south and west to east during the Terminal Formative through Late Toltec periods, with only the Late Aztec period showing heavy occupation in the more arid eastern part of the survey region. We suspect that xerophytic cultigens requiring little rainfall may have dominated the crops grown, possibly augmented by the production of other plants requiring more water through rainfall irrigation. Modern settlement and (especially) commercial agriculture have modified or destroyed many of the archaeological sites in this region, making it increasingly difficult to collect data, such as micro- and macro-botanical evidence on crops grown and archaeological evidence for water control strategies employed. These and other forms of data would support testing hypotheses about the cultural ecology of settlement patterns in the Temascalapa region, to understand better the prehispanic adaptive strategies employed in this marginal portion of the Basin of Mexico.

Our lack of solid understanding of this region, and of the economic activities pursued at different times in its pre-Columbian past, point up the importance of further archaeological and ethnohistoric investigations to address some of these problems. It would be particularly useful, for example, to examine Tm-Et-11 more carefully, along with nearby Early Toltec villages, to understand the role of this center and how it managed to support itself in such a marginal setting. The same might be said for several Teotihuacan period villages, in the hope of understanding how they both maintained themselves and contributed to the greater good of the Teotihuacan state. We have suggested that many sites probably pursued some form of agriculture, but the absence of adequate rainfall would have made this risky; examining larger sites as well as any well-preserved hamlets for evidence of rainfall irrigation might help to explain how prehispanic residents of this region could have survived through crop production. As noted earlier and discussed in the next chapter, in many ways the Temascalapa

region is an extension of the Teotihuacan region to its immediate south and east. The expansion of settlement into these marginal, arid lands may best be understood from the perspective of connections with areas where crop production is more reliable. But the nature of these connections remains to be defined, for to maintain some sort of political and economic link with the Teotihuacan region (or any other part of the Basin of Mexico) there must have some benefits generated by this settlement to the north.

CHAPTER 8: THE TEMASCALAPA REGION IN THE BASIN OF MEXICO AND AS AN EXTENSION OF THE TEOTIHUACAN REGION

Introduction

The Temascalapa region is one of eight areas defined by archaeologists to conduct settlement pattern surveys in the Basin of Mexico. Researchers in several disciplines, including archaeology, anthropology, ethnohistory, and history, often view the entire basin as an appropriate geographic unit of analysis. Although one can define the basin purely on physical geographic criteria—as a hydrologic basin—prehispanic sociocultural systems in the Basin of Mexico functioned differently at various times in the past. During the Teotihuacan and Late Aztec periods, all settlements in the entire basin apparently belonged to a single polity headed by Teotihuacan and the *Triple Alliance* of Tenochtitlan-Tlacopan-Texcoco, respectively. During the Late Toltec period, in contrast, the basin likely was administered by two large centers located outside the basin, sites in the northern portion overseen by Tula lying northwest of the basin and sites in the southern portion probably overseen by Cholula lying southeast of the basin. In all three cases, examining the Temascalapa region separately considers only a small part of much larger sociopolitical systems. During other periods of pre-Columbian occupation, the basin probably hosted several separate sociopolitical entities, with which communities in the Temascalapa region would have been somehow associated. In such cases, examining the Temascalapa region independently considers only some of the sites in a functioning sociopolitical system while ignoring the political relationships with settlements elsewhere in the basin. Although we make no attempt to identify details of these larger sociopolitical systems, understanding settlement in the Temascalapa region in any given time period certainly requires examining settlement beyond its very limited bounds.

In this chapter, we consider the Temascalapa survey data in the context of data from the Temascalapa region itself, the entire Basin of Mexico, and the basin excluding the Temascalapa region. We use the entire basin as a point of reference not because it was always the sociopolitically relevant unit, but rather because we have some sense of how the basin was administered at various times in its prehispanic past. We employ several measurements of settlement intensity and spatial organization used in Chapter 6—population, settlement types, and arrangement of settlement with respect to selected environmental characteristics. The aim here is to help interpret prehispanic settlement data from the Temascalapa region based on what we know of the basin at different times in its past, both during particular occupations and as settlement patterns evolved over time. Settlement pattern documentation in the Basin of Mexico remains incomplete, notably lacking data from a large and important area in the southwestern basin that

was covered by Mexico City and nearby suburbs when the archaeological surveys began in 1960 (Gorenflo 2022), but also deficient in the northern basin in an unsurveyed area between the Temascalapa and Zumpango regions stretching north towards Pachuca (see Figure 1.1). Other studies of prehispanic settlement in the Basin of Mexico have considered the entire basin despite these missing data (e.g., Gorenflo 2006, 2015; Sanders 1981; Sanders et al. 1979), yielding useful insights on past regional organization.

This chapter also examines the Temascalapa region as a northern extension of the Teotihuacan region. Although it is possible to define the Teotihuacan Valley hydrologically (Sanders et al. 1979:201), the area surveyed as the Teotihuacan region extended beyond that hydrological unit, particularly to the north. Preliminary analyses of the Temascalapa region, notably during the Late Aztec period of occupation, treated it as an extension of the Teotihuacan region in part due to physical geography and in part because virtually all settlements in the Temascalapa region during that period were administered by settlements in the Teotihuacan region (Evans and Sanders 2000:2-3; Gorenflo and Sanders 2000:576-577; Sanders and Evans 2001:956-957; see Figure 7.12). Here we revisit interpreting the Temascalapa region as an extension of the Teotihuacan region for all periods of occupation of the former, including the Late Aztec. The presence of substantial occupations in the Teotihuacan region for all period in which the Temascalapa region hosted settlements—Terminal Formative through Late Aztec—helps to justify further an analysis that combines the two regions and that considers the Temascalapa region as a component of its neighbor to the south.

A Brief Overview of the Prehispanic Basin of Mexico

The Basin of Mexico has played a central role in the economic, cultural, and social systems of what is now Mexico during prehistoric and historic times, extending into the present. Location of the administrative center of the Aztec Empire when Spanish *conquistadores* arrived in AD 1519, the basin maintained its importance as the capital of New Spain and independent Mexico over ensuing centuries (Burkholder 2016; Gibson 1964). But this region had established its status well before the arrival of the Spaniards, as demonstrated by more than 3,900 archaeological sites discovered by settlement pattern surveys as well as a variety of spectacular archaeological remains. Before examining settlement pattern remains from the Temascalapa survey region, we begin by presenting a brief synopsis of regional organization in the prehispanic Basin of Mexico as a foundation for understanding survey data on its northern periphery.

Initial human settlement in the Basin of Mexico occurred as preceramic occupations, dating from as early as 23,000 BC and continuing to around 1500 BC (Lorenzo and Mirambell 1986b; Sanders et al. 1979:162-165). Given preceramic occupations elsewhere in the central and southern Mexican highlands, including the Tehuacan Valley

and the Valley of Oaxaca (Flannery 1986; Lorenzo and Mirambell 1999; MacNeish et al. 1967), it is likely that the basin hosted hunter-gatherers throughout much of the period prior to 1500 BC. Unfortunately, the settlement pattern surveys that provide the basis for this chapter, including the Temascalapa survey, focused almost exclusively on sites with ceramics. Noteworthy preceramic sites in the basin include Tlapacoya (Lorenzo and Mirambell 1986b; Niederberger 1969), Tepexpan (Lamb et al. 2009), and Ixtapan (DeTerra 1957; Heizer and Cook 1959; Figure 8.1). The last two sites contain evidence of mammoth kills, along with others in the region providing evidence of humans exploiting Pleistocene megafauna (Lorenzo and Mirambell 1986a). However, the location of many preceramic sites in the basin near what would have been the shore of the central lake system suggests a lacustrine adaptation that would have provided access to a range of resources (Bradbury 1989; Gonzalez et al. 2001). Excavation data support this general contention. For example, in addition to involvement in hunting big game, archaeological evidence at Tlapacoya indicates use of a variety of animal and plant foods harvested in and around Lake Chalco (Lorenzo and Mirambell 1986b). Although a growing body of evidence indicates human presence in the Basin of Mexico during preceramic times, our understanding of this occupation requires further research. Preceramic basin residents likely composed small bands of hunter-gatherers whose numbers probably totaled in the hundreds or a few thousand for the entire region.

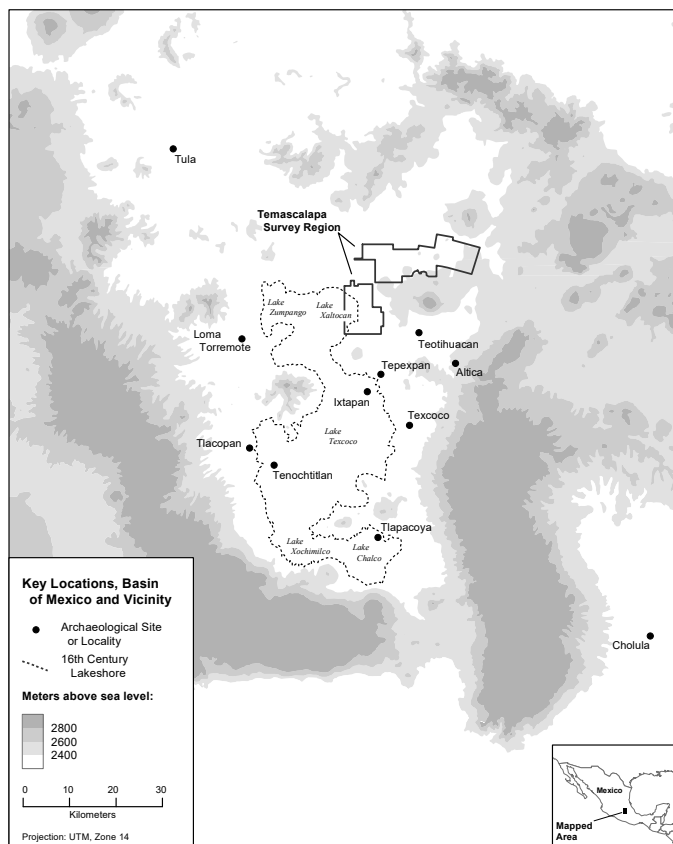


Figure 8.1. The Basin of Mexico and Near Vicinity Showing Locations of Places Mentioned in Text

Sites containing ceramics began to appear in the southern and western Basin of Mexico between about 1500 and 900 BC (Early through Middle Formative occupations; see Figure 4.2). This was a period of transition from hunting and gathering to food production, with early ceramic sites likely employing agriculture as well as harvesting wild foods and generally located in those portions of the basin where higher rainfall would have been most conducive to growing crops (Nichols 2015). Sanders (1981:166-167) suggested that these first ceramic sites possibly co-occurred with hunter-gatherers who continued to occupy the more arid northern Basin of Mexico. Recent research at Altica in the southern part of the Teotihuacan region indicates that the transition to food production during the Early and Middle Formative occurred in the northern part of the basin (Stoner and Nichols 2019). Altica excavations also provided evidence of an extensive exchange network that introduced goods from distant parts of Mesoamerica. Coupled with evidence of floodwater irrigation during the Middle Formative (Nichols 1982), the image one gets of early ceramic occupations is one of surprisingly elaborate economic systems and adaptive strategies (see also Nichols 2015). Early and Middle Formative sites often occurred near the lakeshore, similar to their preceramic predecessors, though these more complex adaptations supported expansion into piedmont locations as well. Two Early Formative villages in the southeastern basin lie in upland alluvium, in a location not occupied again for several centuries and possibly favorable for collecting wild nuts or other foods instead of growing crops, a reminder that generalities for early ceramic occupations can be elusive.

The Late Middle Formative through Early Terminal Formative periods in the Basin of Mexico, spanning 900-100 BC, witnessed a transition to more heavy reliance on agriculture (Sanders et al. 1979:97-103). Semi-sedentary communities, whose economies likely involved hunting and gathering supplemented by agriculture, evolved over these eight centuries into larger sedentary communities that relied heavily on crop production. Settlement still emphasized the southern and western portions of the basin but had begun to expand further into the north. Nonetheless, settlement pattern surveys discovered no sites dating to these periods in the far northern parts of the Basin of Mexico, possibly implying that hunter-gatherers may have persisted in this part of the region and suggesting that early agriculturalists avoided it. Larger settlements occurred in piedmont locations with higher annual rainfall, and few settlements occurred in more agriculturally marginal localities, circumstantial evidence of the increased importance of agriculture. But reliance on rainfall for crop production was replaced in much of the basin by irrigation systems (Nichols 2015:413), enabling geographic expansion of agriculture, reducing risk, and providing increasingly reliable support for growing populations. Excavations at Loma Torremote, a Late Formative village site in the Cuautitlan region (see Figure 8.1), yielded evidence for production of a range of crops, including early forms of maize as well as amaranth, beans, squash, chili pepper, and other cultigens, in addition to pits for storing surplus (Sanders et al. 1979:323-324; Santley

1977). Towards the end of this period, this agricultural foundation enabled the emergence of what appear to be complex chiefdoms at Cuicuilco in the southwestern basin and Teotihuacan in the northeastern basin (Sanders et al. 1979:99-103, 303-304), each likely with large geographic areas under their control.

Between 100 BC and AD 750, a time span encompassing the Late Terminal Formative through Teotihuacan periods, Teotihuacan evolved into a supra-regional center, rose to dominate the Basin of Mexico and points beyond both politically and economically, and then began to decline (Sanders et al. 1979:105-129). The emergence of a pristine state at Teotihuacan is one of the most important occurrences in prehispanic Mesoamerica (Wright 1977). This development is even more noteworthy given the location of Teotihuacan in the arid northeastern basin (Evans 2016). Population estimates for Terminal Formative Teotihuacan, when the urban center rose to prominence, ranged from “at least 20,000” (Cowgill 2015:53) during the Patlachique Phase (estimated by Ian Robertson as about 27,000 for the “Late Early Terminal Formative” [reported in Gorenflo and Sanders 2007:168]) to “around 60,000 to 80,000” (Cowgill 2015:61) during the Tzacualli Phase (estimated by Robertson at nearly 34,000 for the “Late Late Terminal Formative” [reported in Gorenflo and Sanders 2007:186]; see Figure 4.2). At its apex in the Teotihuacan period, the urban center may have contained as many as 100,000 residents (Cowgill 2015:79) (estimated by Robertson at nearly 96,000 [reported in Gorenflo and Sanders 2007:196]). Teotihuacan’s rise to prominence coincides with a shift in demographic focus from the southern Basin of Mexico to the northern basin, the attraction of this great center apparently overriding the appeal of greater agricultural security accompanying higher rainfall in the south. The growth and (especially) persistence of Teotihuacan as a large urban center likely involved a reliance on irrigated agriculture in and near the city (Cowgill 2015:30-34, 76-77; Nichols et al. 1991; Sanders et al. 1979:125, 127-128, 267), some based on springs that flowed within and close to the city, possibly coupled with nearby early *chinampas* that supported intensive crop production (Sanders et al. 1979:269-270).

The Early Toltec occupation in the Basin of Mexico marks the decline of Teotihuacan from a supra-regional center to a local center. Population decrease began at Teotihuacan by about AD 550, accompanied by other indicators of decline such as a reduction in trade goods and a breakdown of civic services (Cowgill 2015:233-235). Evidence of burning suggests civil unrest by AD 600. Although reasons for the demise of Teotihuacan remain unclear, population decline is consistent with its loss of sociopolitical status; Robertson estimates Early Toltec population of the site at about 22,000 (reported in Gorenflo and Sanders 2007:208), a substantial reduction from as many as 100,000 a few centuries earlier. Political control appears to have been much less centralized, with Sanders et al. (1979:129-137) suggesting as many as six polities in the Basin of Mexico based around local centers and geographic

clusters of proximal settlement. Settlement persisted in the Teotihuacan and Zumpango survey regions, indicating continued importance in the northern basin. But settlement began a resurgence into the southern basin where several local centers also occurred, presumably taking advantage of the favorable agricultural conditions as well as apparently reduced regional control by Teotihuacan.

Dating between roughly AD 950 and 1150, the Late Toltec occupation of the Basin of Mexico generally coincides with the emergence of Tula, located northwest of the basin, as a supra-regional center. Two characteristics of Late Toltec settlement in the basin stand out: dual geographic orientation of settlement, primarily towards the northwest but also towards the southeast; and the large number of small, rural sites scattered across much of the prehispanic landscape. The geographic arrangement of settlement seems to reflect orientation towards large centers outside the basin that possibly dominated the local sociopolitical environment—Tula to the northwest and Cholula to the southeast. In the northwest, for the first time the Zumpango survey region became heavily occupied (Parsons 2008). By comparison, the southern basin was less important archaeologically (Sanders et al. 1979:140-149), containing a reduced number of sites dispersed across the landscape. The central portion of the Texcoco region (slightly south of the Teotihuacan region; see Figure 1.1) contained notably little Late Toltec occupation, marking what appeared to be a boundary between north and south. This first major occupation of the northern basin would have come with special challenges due to the comparatively small amount of rainfall in that area. Northern basin communities may have encountered problems feeding themselves, let alone providing surplus food to Tula, also located in an arid area. Coupled with the inherent inefficiency of transporting food over land in the absence of beasts of burden (Sanders and Santley 1983), the economic relationship between Tula and the northwestern basin remains to be determined.

Despite more than four decades since the last large-scale archaeological survey in the Basin of Mexico, our understanding of the region immediately following the Late Toltec period remains poorly understood. Spanning AD 1150-1350, the Early Aztec occupation apparently experienced a population decline in the northern third of the basin (Parsons and Gorenflo 2022). Much of our lack of understanding reflects the difficulty in defining Early Aztec occupation on the ground. Aztec I black-on-orange and Aztec II black-on-orange pottery were lumped together during the surveys to signify Early Aztec occupations, though reanalysis of surface collections indicated very different geographic distributions—the former limited to the southeastern basin, the latter found in the southern three-fourths of the basin (generally delimited by the northern shores of lakes Zumpango and Xaltocan). Moreover, Aztec I black-on-orange pottery and the main marker of Late Toltec occupation, Mazapan pottery, may largely overlap chronologically (Parsons and Gorenflo 2022; see Parsons et al. 1996). Thus, amid the decline of Tula’s dominance at the end of the Late Toltec period, settlement in the Basin

of Mexico may have been complicated by the presence of separate sociocultural groups associated with distinct ceramics in different parts of the region. Because survey crews defined Early Aztec occupation not by density of remains but rather by presence-absence, we lack the ability to estimate population for that period systematically. Nonetheless, based on the number of sites with Early Aztec ceramic markers, considerable human occupation apparently persisted during this period. Although the Zumpango survey region in the northwestern basin possibly was briefly abandoned for one century or so, Early Aztec population in the southern three-fourths of the basin may have been similar to Early Toltec levels (Sanders et al. 1979:150-151).

The Late Aztec period, dating to AD 1350-1519, is the final period of pre-Columbian occupation in the Basin of Mexico. This was a period when dense settlement occurred throughout the entire region. Political administration was founded upon 40-60 city states which administered associated hinterlands (Bray 1972; Gibson 1964:32-57; Hodge 1984:1). A confederation of three of these city states—Tenochtitlan, Tlacopan, and Texcoco—formed the *Triple Alliance*, the political body that administered the Aztec Empire within the basin and throughout a broad geographic expanse that extended across much of Mesoamerica (Berdan et al. 1996). Late Aztec sites occurred throughout the basin and in all environmental settings, evidence of a large population and a need to extract considerable resources for its support. This broad presence plays out archaeologically in what often resembles a continual scatter of dispersed pottery, making it difficult to determine where one site ends and another begins (Sanders et al. 1979:163-166). Thanks to ethnohistoric sources, we know considerably more about the Late Aztec occupation than earlier occupations in the basin. One of the most important pieces of understanding is about a complex, integrated regional economy (Sahagún 1950-1982). At several social levels and multiple geographic scales, goods moved throughout the Basin of Mexico during Late Aztec times (Hirth 2016). The integration of more marginal areas, such as the more arid northern survey regions, may well have promoted settlement in those parts of the basin where emphasizing one resource did not preclude consumption of other resources available through the market. It also enabled specialized agricultural production, such as that in *chinampas* in the southern lakes, which has been estimated as capable of meeting basic food requirements of 100,000-500,000 people (Armillas 1971:660; Sanders et al. 1979:177). Food grown in these specialized, highly productive systems would have been distributed to other parts of the region in addition to meeting local requirements.

The complex societies that preceded state formation at Teotihuacan, and that followed its demise, consisted of multi-settlement systems that interacted with various components of the natural and human environment locally, in the entire basin, or beyond, depending on the period involved. These systems were complicated—as shown in the ethnohistoric descriptions of the Aztec state, and their reconstruction based on archaeological data is quite

challenging. What we can say is that levels of geographic integration seemed to vary over time, with basin-wide integration during Teotihuacan and Late Aztec periods contrasting with other periods of pre-Columbian occupation in the region where multiple centers controlled smaller areas. Amid these various shifts, the Temascalapa region played some sort of role in the basin as a whole or some subsection of it. The location of the Temascalapa region on the northeastern edge of the surveyed portion of the basin in an agriculturally marginal area underscores the importance of examining settlement in this region in a broader geographic context, a task that we undertake now.

The Temascalapa Region in Basin-wide Context

The settlement pattern survey of the Temascalapa region yielded information on 341 archaeological sites on the northeastern periphery of the Basin of Mexico dating to five different periods of pre-Columbian occupation. The methods used to survey the Temascalapa region were largely identical to those used to survey seven other large areas in the basin. As a result, the data reported in this monograph are largely commensurate with those obtained in these other surveys, enabling aggregation of data and comparisons among different parts of the basin. In this section, we compare the Temascalapa data to those obtained in the basin as a whole, and to the basin minus the Temascalapa results, focusing in particular on demographics, types of settlements, the geographic arrangement of settlement in general and with respect to environmental zones, and possible processes underlying the evolution of settlement patterns over time. Note that these comparisons rely entirely on data from sites discovered by settlement surveys and do not consider other information, such as ethnohistoric sources for the Late Aztec occupation (which are scanty at best for the Temascalapa region).

The pre-Columbian occupation of the Temascalapa region did not begin until the Terminal Formative period (see Chapter 5), so comparisons with the entire Basin of Mexico for Early, Middle, and Late Formative are limited by an absence of settlement in the survey region. Population in the Temascalapa region from the Terminal Formative through Late Aztec occupations vaguely parallels that seen for the Basin of Mexico as a whole (Figure 8.2). However, the population estimates for pre-Columbian occupations in the Temascalapa region are modest compared to those for the entire basin, making it difficult to establish comparisons based on visual inspection of graphs. In the basin, population grew between the Terminal Formative and Teotihuacan periods, declined in the Early and Late Toltec occupations, and grew considerably between the Late Toltec and Late Aztec periods. As discussed elsewhere (Gorenflo 2015:199-201), none of the rates of change indicated by basin population growth or loss are sufficiently great to indicate particularly dramatic underlying causes (Table 8.1). Population change is similar in the Temascalapa region with two notable exceptions: population growth between the Terminal Formative and Teotihuacan periods is much

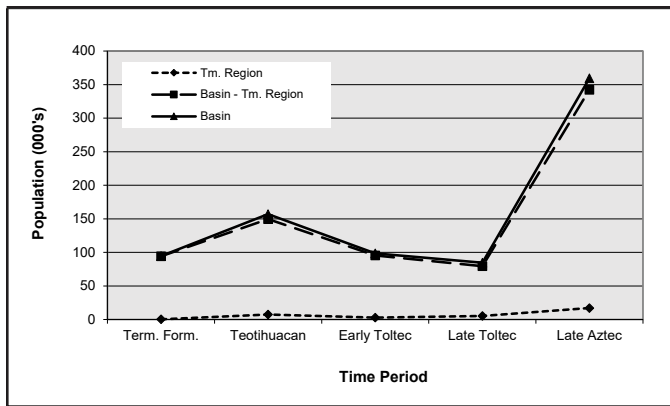


Figure 8.2. Prehispanic Population Based on Intensive Archaeological Survey in the Basin of Mexico, the Temascalapa Region, and the Basin Outside the Temascalapa Region, by Period of Occupation (note that Terminal Formative data are for the Tzacualli sub-phase)

more rapid than in the entire basin; and population grew, rather than declined, between the Early and Late Toltec periods. In the first case, the more rapid population growth in the Temascalapa region may reflect the influence of the proximate urban center of Teotihuacan. The Teotihuacan period growth is important as well as it represents one of the surges of population on the northern edge of the Basin of Mexico, the higher rate in part due to the small number of residents in the preceding Terminal Formative (the first occupation of the survey region). Population growth between Early and Late Toltec occupations in the Temascalapa region also likely resulted from proximity to a more dominant supra-regional center, in this case Tula northwest of the basin. Although the population growth rate was only about one-fourth that leading up to the Teotihuacan period, evidence for population growth rather than the loss experienced elsewhere in the basin is important, particularly in an area with limited potential for growing the crops upon which most of the basin economy relied.

Using the number of sites as an indicator of occupational intensity reveals a pattern for the Basin of Mexico that more closely resembles that for the Temascalapa region, and *vice versa*. The number of sites in the basin grew throughout the time span examined with the exception of the transition from Teotihuacan to Early Toltec periods (Figure 8.3). This decrease likely reflects the decline of the Teotihuacan state and the urban center of the same name. A similar profile characterizes the Teotihuacan period-Early Toltec transition in the Temascalapa region. Given the geographic proximity of the Temascalapa survey region to the urban center of Teotihuacan, and the likely political and economic relationship of the survey region to that center, decline in the fortunes of the latter surely would have affected sites in the former. Early Toltec settlement in the Temascalapa region is quite different from that in the preceding period, geographically concentrated in the western tract of the region and involving only 14 sites, one of them a regional center at Tm-Et-11. As discussed in the previous section, political control in the Basin of Mexico appears to have been much less centralized during the Early Toltec period compared to the preceding period, possibly organized around a half-dozen or so clusters of settlements

Table 8.1. Rates of Change from Preceding Occupations for Measures of Prehispanic Occupation in the Basin of Mexico, Temascalapa Region, and Basin Excluding the Temascalapa Region

Time Period ^a	Average Annual Change (%)		
	Population	No. of Sites	Site Area
Basin of Mexico			
Terminal Formative	0.1	0.2	0.2
Teotihuacan Period	0.2	-	-
Early Toltec	-0.1	-0.1	-
Late Toltec	-0.1	0.6	0.1
Late Aztec	0.4	0.2	0.4
Temascalapa Region			
Terminal Formative	NA	NA	NA
Teotihuacan Period	1.1	-	0.5
Early Toltec	-0.2	-0.2	-
Late Toltec	0.3	0.9	0.5
Late Aztec	0.3	0.2	0.3
Basin less Temascalapa			
Terminal Formative	0.1	0.1	0.2
Teotihuacan Period	0.2	0.1	-
Early Toltec	-0.1	-0.1	-
Late Toltec	-0.1	0.6	-
Late Aztec	0.4	0.2	0.4

^a“NA” means “not applicable” (given lack of reliable evidence for settlement in Temascalapa region prior to Terminal Formative); “-” signifies a percent that rounds to 0.0

a: Terminal Formative calculations based on Tzacualli sub-phase

associated with centers located throughout the basin. The site of Teotihuacan was much smaller than during the preceding period, but still possibly contained more than 20,000 people. This is much larger than the Early Toltec regional center in the Temascalapa region, suggesting that this northern center may have been a subsidiary in the Teotihuacan cluster. The role of Tm-Et-11 remains unclear, however, as its proximity to Lake Xaltocan a few kilometers to the west is not complemented by additional Early Toltec settlement near the lake that might indicate coordination of lacustrine resource extraction. The number of sites increased considerably throughout the basin as well as the Temascalapa region during the Late Toltec period, and subsequently in both areas during the Late Aztec period, supporting overall settlement increase as well as establishing the importance of the Temascalapa region during both of these periods. The nature of Late Toltec settlement in this region appears to be consistent with that found throughout the basin—a large number of fairly small, generally rural sites.

Plotting pre-Columbian population density for the Basin of Mexico, the Temascalapa region, and the basin excluding the Temascalapa region reveals a persisting pattern for the five periods considered (Figure 8.4). Population density in the Temascalapa region was consistently lower than in the basin and (as one would

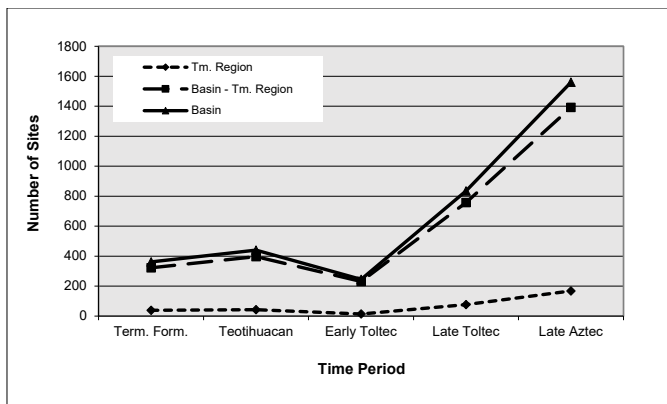


Figure 8.3. Prehispanic Archaeological Sites in the Basin of Mexico, the Temascalapa Region, and the Basin Outside of the Temascalapa Region, by Period of Occupation (note that plotted Terminal Formative data are for the Tzacualli sub-phase)

expect) in the basin excluding the Temascalapa region. Normally, population density was considerably lower in the Temascalapa region than the other two areas, including those periods when the region contained a fairly large amount of settlement—the Teotihuacan and Late Aztec periods—the density in the Temascalapa region during the former reaching about 64% of that found in the basin as a whole. It is only during the Late Toltec period that population density in the Temascalapa region approached that of the basin, reaching slightly more than 82% of the density for the Basin of Mexico. Given the likely challenges associated with prehispanic crop production in the Temascalapa region, this similarity is remarkable and deserves further attention.

Hamlets were the dominant site type in the prehispanic Basin of Mexico for all time periods, these small rural sites probably representing the remains of small farming settlements that likely provided the economic foundation for the pre-Columbian sociocultural systems occupying this area (Table 8.2). Villages tend to be the second most prevalent site type, save the Terminal Formative period when “other” (including ceremonial centers, quarries, sites labeled “questionable” [likely representing briefly occupied houselots or resource exploitation sites] and “unknown” site types) are the most frequently encountered. Note that this largely is a consequence of post-survey data processing in the Cuautitlan region (Sanders and Gorenflo 2007:291-292). This same pattern tends to hold for the Temascalapa region except for the Teotihuacan period settlement, when the number of villages exceeded the number of hamlets. Two of the other periods of occupation are difficult to compare with the entire basin. As just noted, site types in the Terminal Formative period are not well understood due to the large number of sites categorized as “other” after completion of fieldwork and data processing. Frequencies of various site types in the Early Toltec occupation of the Temascalapa region are difficult to compare with the rest of the basin due to the small number of sites in the Temascalapa region dating to this period, a problem we encountered throughout this study in trying to evaluate the Early Toltec occupation (see Chapter 6). Late Toltec site types in the Temascalapa region are consistent with those found throughout the basin, as are Late Aztec site

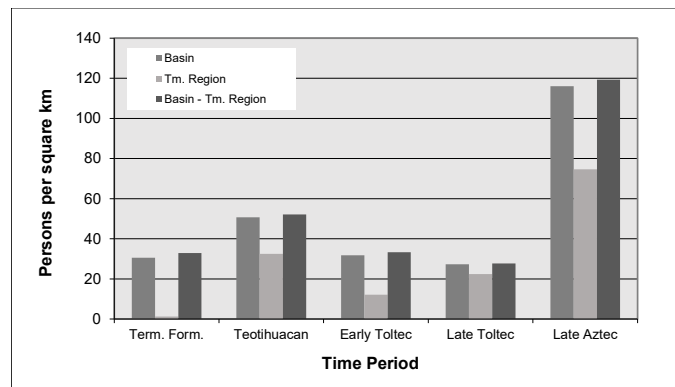


Figure 8.4. Prehispanic Population Density in the Basin of Mexico, the Temascalapa Region, and the Basin Outside of the Temascalapa Region, by Period of Occupation (note that plotted Terminal Formative data are for the Tzacualli sub-phase)

types, the slightly larger percentage of hamlets consistent with what we envision as the rural nature of settlement in this peripheral northern area (along with the lack of centers in the Late Toltec period and the single provincial center in the Late Aztec period). The larger number of villages compared to hamlets in the Teotihuacan period is surprising, though possibly an indication of the inclination by the urban center of Teotihuacan to concentrate resource extraction nearby, including agricultural production.

In the Basin of Mexico, centers tend to contain the greatest number of people, the exception for the five periods considered in this monograph being the Late Toltec period, where villages contain the most people (Table 8.3). This demographic dominance of centers is borne out for basin-wide Terminal Formative settlement as well, though once more compromised assessments of settlement types limit what we can say for this occupation. This pattern contrasts with the Temascalapa region, where only one period is dominated demographically by centers, the Early Toltec—a period where the small number of sites challenges the certainty of any broad pronouncements. Villages, which contained the largest number of people in the basin as a whole during the Late Toltec period, contained the largest number of people in the Teotihuacan, Late Toltec, and Late Aztec periods in the Temascalapa region. The percent of population living in villages is much higher in the survey region than in the entire basin. This demographic dominance likely is a consequence of the absence of centers in two of these periods and the presence of only one center in the third. The near total lack of centers in the Temascalapa region during these three periods, in turn, seems to indicate an absence of resident administrative functions, consistent with dominance of nearby urban Teotihuacan in the period of the same name, the generally rural nature of settlement during the Late Toltec occupation along with the likely presence of a provincial center north of the survey region at San Miguel Eyecalco (see Appendix D), and a primarily rural occupation throughout the region during the Late Aztec period. For the three time periods lacking centers in the survey region, the implication that administrative duties in the settlement hierarchy occurred outside the region is coupled with the likely support role of the region for other sociopolitical and

Table 8.2. Prehispanic Sites in the Basin of Mexico, Temascalapa Region, and Basin Excluding the Temascalapa Region, by Period of Occupation and Type of Site

Time Period ^a	Total	Percent			
	Sites	Hamlets	Villages	Centers	Other
Basin of Mexico					
Terminal Formative	379	51.2	11.6	2.6	34.6
Teotihuacan Period	439	63.1	20.5	2.7	13.7
Early Toltec	240	53.3	23.8	5.4	17.5
Late Toltec	832	70.2	15.6	1.1	13.1
Late Aztec	1,565	67.7	19.6	1.8	10.9
Temascalapa Region					
Terminal Formative	39	74.4	-	-	25.6
Teotihuacan Period	43	39.5	44.2	-	16.3
Early Toltec	14	35.7	21.4	7.1	35.7
Late Toltec	77	76.6	15.6	-	7.8
Late Aztec	168	69.0	23.2	0.6	7.1
Basin less Temascalapa					
Terminal Formative	340	48.5	12.9	2.9	35.6
Teotihuacan Period	396	65.7	17.9	3.0	13.4
Early Toltec	226	54.4	23.9	5.3	16.4
Late Toltec	755	69.5	15.6	1.2	13.6
Late Aztec	1,397	67.6	19.2	1.9	11.3

“-” signifies a percent that rounds to 0.0

a: Terminal Formative calculations based on Tzacualli sub-phase

economic entities. Population in the Terminal Formative occupation of the Temascalapa region entirely resides in hamlets in what may amount to an initial, possibly tentative, probe into a high risk, arid area that accompanied the emergence of urban Teotihuacan. If there is a surprise in the apportionment of Temascalapa region population, it is the Teotihuacan period and the relative importance of villages demographically over hamlets. Although hamlets account for nearly 40% of the Teotihuacan period sites, their estimated populations generally are quite small. If Temascalapa region sites helped provide necessary resources for urban Teotihuacan, the activities involved must have involved many people in a few sites as opposed to fewer people in a large number of settlements. Such an approach to resource extraction is entirely feasible. The apportionment of population likely reflects the lack of resident centers in two of the three periods discussed.

Analyzing settlement with respect to environmental zones can provide insights on possible adaptive strategies and economic activities that helped shape prehispanic sociocultural systems. These zones vary in different parts of the Basin of Mexico, where some are present and others are not. To complicate matters further, in some parts of the basin middle piedmont was not defined separately, instead combined with the lower piedmont. To facilitate comparison of environmental patterns of settlement in the Temascalapa region with other parts of the basin, here we combine the lower and middle piedmont under the former, which we

presented separately in Chapter 6, yielding six environmental zones in all.

In the Basin of Mexico as a whole, the majority of sites occurred in the lower piedmont for all five periods considered in this study (Table 8.4). A few sites also occurred in the lakeshore plain, deep soil alluvium, thin soil alluvium, lakebed, and upper piedmont at different times in the pre-Columbian past, all of these areas also occurring in the Temascalapa survey region. In contrast, in the Temascalapa region most sites occurred in the thin soil alluvium in four of the five time periods considered, the only exception during the Late Aztec occupation when slightly more sites were located in the lower piedmont. This shift in importance to the thin soil alluvium likely is due to two factors. One is rainfall, as prehispanic settlement in the Temascalapa region often occurred in locations that received greater amounts of rain. The survey region hosts two large expanses of thin soil alluvium, the one in the western tract of the region receiving more annual rainfall on average than the lower piedmont. The other factor is the geographic expanse of the thin soil alluvium, accounting for about 53% of the Temascalapa region compared to 33% lying in the lower piedmont. When the number of sites in the region increased, in the Teotihuacan, Late Toltec, and Late Aztec periods, settlement expanded into the northern and eastern areas where the lower piedmont lies. Indeed, it was this expansion into previously unsettled areas in the northeastern part of the Temascalapa region during the Late Aztec occupation that

Table 8.3. Prehispanic Population in the Basin of Mexico, Temascalapa Region, and Basin Excluding the Temascalapa Region, by Period of Occupation and Type of Site

Time Period ^a	Total	Percent			
	Population	Hamlets	Villages	Centers	Other
Basin of Mexico					
Terminal Formative	94,626	4.9	25.8	59.2	10.1
Teotihuacan Period	156,915	6.2	21.1	68.5	4.2
Early Toltec	98,358	4.6	24.9	67.7	2.9
Late Toltec	84,596	19.4	46.8	33.8	-
Late Aztec	359,434	7.8	31.3	57.8	3.1
Temascalapa Region					
Terminal Formative	273	100.0	-	-	-
Teotihuacan Period	7,456	4.6	95.4	-	-
Early Toltec	2,779	7.8	24.8	67.5	-
Late Toltec	5,148	30.7	69.3	-	-
Late Aztec	17,116	19.5	72.7	7.7	-
Basin less Temascalapa					
Terminal Formative	94,353	4.6	25.8	59.4	10.2
Teotihuacan Period	149,459	6.3	17.4	71.9	4.4
Early Toltec	95,579	4.5	24.9	67.7	3.0
Late Toltec	79,448	18.7	45.3	35.9	-
Late Aztec	342,318	7.2	29.3	60.3	3.2

^a“—” signifies a percent that rounds to 0.0

a: Terminal Formative calculations based on Tzacualli sub-phase

caused the number of sites in the lower piedmont to exceed the number of sites in the thin soil alluvium. The attraction of greater rainfall in the lakebed, lakeshore, and deep soil alluvium likely was insufficient to overcome the limitations of their relatively small areas in increasing the number of sites present, though ecological factors no doubt also played a role in site distribution.

Similar to patterns seen for numbers of sites by environmental zone, the largest populations in the Basin of Mexico tended to occur in the lower piedmont during four of the five pre-Columbian periods that also contained Temascalapa region settlement (Table 8.5). The only exception was the Teotihuacan period, when the urban center of the same name expanded into the deep soil alluvium of the Teotihuacan region and increased the population in that zone substantially. With the exception of the sierra, characterized by high elevations that tended to host ceremonial centers but no occupants, prehispanic population occurred in all environmental zones in the basin. Lower piedmont, deep soil alluvium, and lakeshore plain were particularly important locations of prehispanic population. The lakeshore plain, and to some extent the deep soil alluvium, both contained considerable amounts of population during later part of the basin's pre-Columbian past, indicating a geographic orientation towards the central lake system that one sees reflected in ethnohistoric literature as well (see Parsons 2006). In contrast to the basin as a whole, and largely consistent with the distribution of sites among environmental

zones, in the Temascalapa region much of the prehispanic population tended to live in the thin soil alluvium, with two important exceptions. As with sites, during the Late Aztec occupation, nearly twice as many people lived in the lower piedmont as the thin soil alluvium. Another exception was the Teotihuacan period; although the most sites occurred in the thin soil alluvium, slightly more people lived in the lower piedmont. These periods represent two instances in the prehispanic past when settlement substantially expanded into the Temascalapa region, and in both cases residents tended to favor the lower piedmont for settlement and, presumably, for the assorted economic activities they pursued. The third time when similar expansion occurred was the Late Toltec period. However, despite broad geographic occurrence of settlement nearly 80% of the Late Toltec population lived in the Thin Soil Alluvium. Population density was greatest in the lower piedmont during both Teotihuacan and Late Aztec periods; although density continued to be higher in the thin soil alluvium during the Late Toltec period, it was not as dominant as the percent of population in that zone (see Table 6.10). As was the case with the distribution of sites among environmental zones, the arrangement of population in the Temascalapa region again probably reflects a tradeoff between higher rainfall, which would have favored the thin soil alluvium in the western tract of the survey region, and a need to host more population, which likely brought into consideration more arid but less densely settled parts of the survey region with better soil.

Table 8.4. Prehispanic Sites in the Basin of Mexico, Temascalapa Region, and Basin Excluding the Temascalapa Region, by Environmental Zone and Period of Occupation

Environmental Zone	TF ^a	TE	ET	LT	LA
Basin of Mexico					
Total Sites	379	439	240	832	1,565
Island (%)	0.3	0.2	0.8	0.2	0.2
Lakebed (%)	0.3	0.5	2.1	1.6	11.4
Lakeshore Plain (%)	9.8	10.9	15.8	12.9	8.9
Deep Soil Alluvium (%)	5.8	8.0	13.8	7.5	5.6
Thin Soil Alluvium (%)	7.4	5.9	4.2	5.4	5.0
Lower Piedmont (%) ^b	64.1	65.6	60.0	66.8	58.1
Upper Piedmont (%)	11.3	7.3	2.9	4.8	8.9
Upper Alluvium (%) ^c	1.1	1.4	0.4	0.7	1.8
Sierra (%)	-	0.2	-	0.1	0.1
Temascalapa Region					
Total Sites	39	43	14	77	168
Island (%)	-	-	-	-	-
Lakebed (%)	-	-	-	-	-
Lakeshore Plain (%)	-	2.3	-	1.3	0.6
Deep Soil Alluvium (%)	2.6	4.7	14.3	2.6	1.2
Thin Soil Alluvium (%)	71.8	60.5	71.4	58.4	46.4
Lower Piedmont (%) ^b	25.6	32.6	14.3	37.7	50.6
Upper Piedmont (%)	-	-	-	-	1.2
Upper Alluvium (%) ^c	-	-	-	-	-
Sierra (%)	-	-	-	-	-
Basin less Temascalapa					
Total Sites	340	396	226	755	1,397
Island (%)	0.3	0.3	0.9	0.3	0.2
Lakebed (%)	0.3	0.5	2.2	1.7	12.7
Lakeshore Plain (%)	10.9	11.9	16.8	14.0	9.9
Deep Soil Alluvium (%)	6.2	8.3	13.7	7.9	6.2
Thin Soil Alluvium (%)	-	-	-	-	-
Lower Piedmont (%) ^b	68.5	69.2	62.8	69.8	59.1
Upper Piedmont (%)	12.6	8.1	3.1	5.3	9.9
Upper Alluvium (%) ^c	1.2	1.5	0.4	0.8	2.0
Sierra (%)	-	0.3	-	0.1	0.1

a: Terminal Formative calculations based on Tzacualli sub-phase

b: Because sites were assigned only to lower or upper piedmont in several survey regions, for comparison we combined middle piedmont sites with lower piedmont sites in the Temascalapa region

c: Upper Alluvium refers to sites located in the Amecameca Sub-Valley

“-“ signifies a percent that rounds to 0.0

Mapping the geographic arrangement of population density in standardized grid cells graphically complements the tabular summary of data presented in the preceding paragraphs. Here we expand cell size from the 1 x 1 km units used in Chapter 6 to 4 x 4 km units to facilitate comparisons across the entire Basin of Mexico as well as between the

Temascalapa region and elsewhere in the basin (Figure 8.5). We adjust cell values to represent population/km², thereby mapping this standard unit of population density. Some important tendencies emerge as one examines the maps of gridded population density:

- The peripheral role of Temascalapa region settlement compared to prehispanic occupations in other parts of the Basin of Mexico, particularly during Terminal Formative and Early Toltec times;
- The limited geographic expansion into the Temascalapa region of settlement from the Teotihuacan region, lying immediately to the southeast, during the Teotihuacan period;
- The fragmentation of population distribution during the Early Toltec period following the decline of Teotihuacan, with the Temascalapa region lying on the edge of the Teotihuacan cluster;
- The marked dispersal of Late Toltec settlement in general, though at low densities, including the first substantial geographic expansion of population throughout the Temascalapa region; and
- The broad, moderately dense geographic arrangement of Late Aztec population, with the Temascalapa region seeming to represent a continuation of this distribution as settlement expanded in moderate densities throughout nearly the entire survey region.

In general, the map of 4 x 4 grid cells shows not only the changing arrangement of population in the Basin of Mexico at certain times, but also the expansion and retraction of population into the Temascalapa region amid other changes in regional prehispanic settlement throughout the basin. These changes in Temascalapa region settlement broadly parallel those that occurred in the Zumpango region in the northwestern basin. In general, similar tendencies in the Zumpango region lend credence to what we have proposed were tentative initial forays into a more arid portion of the Basin of Mexico that in part likely were linked to sociopolitical developments occurring elsewhere in the basin and involving Tula to the north.

Finally, we examine settlement patterns to identify possible processes underlying changes in the regional arrangement of population over time (Figure 8.6). Using the same approach employed in Chapter 6 to examine the evolution of regional settlement in the Temascalapa region, we focus on both mobility and on instances where mobility might have been combined with mortality and fertility to cause population changes (see Figure 6.11 and the associated discussion on methodology). Although we do not show a map of Late Formative settlement (when there was no occupation in the Temascalapa region) transitioning to Terminal Formative, all occupied grid cells in such a map would have been due to in-migration in the absence of preceding occupation. During the Terminal Formative-Teotihuacan transition and the Early-Late Toltec transition, much of the Temascalapa region would have been populated through in-migration, during the latter transition perhaps more so than elsewhere in the Basin of Mexico. Cells showing population growth or loss may have experienced

Table 8.5. Prehispanic Population in the Basin of Mexico, Temascalapa Region, and Basin Excluding the Temascalapa Region, by Environmental Zone and Period of Occupation

Environmental Zone	TF ^a	TE	ET	LT	LA
Basin of Mexico					
Total Sites Population	94,626	156,915	98,358	84,596	359,434
Island (%)	0.1	-	3.6	2.4	-
Lakebed (%)	0.8	-	0.3	0.2	4.9
Lakeshore Plain (%)	8.1	3.3	7.9	11.3	18.0
Deep Soil Alluvium (%)	4.4	67.6	9.8	13.1	7.0
Thin Soil Alluvium (%)	0.2	2.2	2.6	4.8	1.8
Lower Piedmont (%) ^b	84.9	24.5	75.7	67.1	58.8
Upper Piedmont (%)	1.1	2.1	0.1	0.8	6.6
Upper Alluvium (%) ^c	0.3	0.3	-	0.2	2.9
Sierra (%)	-	-	-	-	-
Temascalapa Region					
Total Population	273	7,456	2,779	5,148	17,116
Island (%)	-	-	-	-	-
Lakebed (%)	-	-	-	-	-
Lakeshore Plain (%)	-	0.1	-	0.2	0.1
Deep Soil Alluvium (%)	3.3	5.4	1.8	0.1	0.6
Thin Soil Alluvium (%)	74.7	46.8	93.2	79.6	36.8
Lower Piedmont (%) ^b	22.0	47.8	5.0	20.1	62.5
Upper Piedmont (%)	-	-	-	-	0.1
Upper Alluvium (%) ^c	-	-	-	-	-
Sierra (%)	-	-	-	-	-
Basin less Temascalapa					
Total Population	94,353	149,459	95,579	79,448	342,318
Island (%)	0.1	-	3.7	2.5	-
Lakebed (%)	0.8	-	0.3	0.3	5.2
Lakeshore Plain (%)	8.2	3.4	8.1	12.1	18.9
Deep Soil Alluvium (%)	4.4	70.7	10.0	14.0	7.4
Thin Soil Alluvium (%)	-	-	-	-	-
Lower Piedmont (%) ^b	85.1	23.3	77.8	70.1	58.6
Upper Piedmont (%)	1.1	2.2	0.1	0.9	6.9
Upper Alluvium (%) ^c	0.3	0.3	-	0.2	3.1
Sierra (%)	-	-	-	-	-

a: Terminal Formative calculations based on Tzacualli sub-phase

b: Because sites were assigned only to lower or upper piedmont in several survey regions, for comparison we incorporate middle piedmont sites with lower piedmont sites in the Temascalapa region

c: Upper Alluvium refers to sites located in the Amecameca Sub-Valley

“-“ signifies a percent that rounds to 0.0

an excess of births over deaths, or *vice versa*, in-migration, or out-migration, with the relative contribution of these processes yielding net increases or decreases. Broad areas in the Temascalapa region indicating population growth, seen in the Terminal Formative-Teotihuacan period, Early-Late Toltec, and Late Toltec-Late Aztec maps, contrast sharply with the broad expanses of population decline in the region seen in the Teotihuacan period-Early Toltec period map. In some instances, change occurring in the Temascalapa

region is reminiscent of change documented elsewhere in the Basin of Mexico—for example, the population decline between the Teotihuacan and Early Toltec periods. In other instances, change in the Temascalapa region differs from that seen elsewhere in the basin; for example, growth in the Temascalapa region during the Terminal Formative-Teotihuacan period and the Early-Late Toltec geographic expansion of settlement amid considerable population decline in much of the southern basin.



Figure 8.5. Distribution of Prehispanic Population in the Basin of Mexico by 4-km Grid Cell

The Temascalapa Region as an Extension of the Teotihuacan Region

As we noted at the beginning of this monograph, the Temascalapa region in many ways is an extension of the Teotihuacan region. There was no physical feature that separated the Temascalapa and Teotihuacan regions, though that could be said of other survey regions as well (e.g., the Zumpango region in the northwestern basin). During the Teotihuacan survey, it was clear that prehispanic settlement continued to the north and west of that region (Charlton 1987). Moreover, in the sixteenth century many communities in the Temascalapa region were politically affiliated with administrative centers in the Teotihuacan region (see Figure 7.12). The Temascalapa survey was an attempt to understand the nature of that settlement beyond the bounds of the Teotihuacan region into an area that in many ways was more marginal in this generally arid portion of the basin, particularly to the north and northeast of the Teotihuacan region. The Temascalapa survey ultimately became an investigation of the "marginal frontier" of the Teotihuacan region (Sanders 1976:23). In this section, we place the Temascalapa region in a slightly broader geographic context, examining it in comparison to settlement in the neighboring Teotihuacan region. As discussed in Chapter 5, prehispanic

settlement in the Temascalapa region began in the Terminal Formative period, notably the Tzacualli phase, and continued through the Late Aztec period. In the following pages, we focus only on those periods of occupation—when settlement occurred in the Temascalapa region—though Teotihuacan region settlement extended back to the Early Middle Formative period (Gorenflo and Sanders 2007:143-147).

The initial occupation of the Temascalapa region, during the Terminal Formative period, contrasts dramatically with the occupation of the Teotihuacan region immediately to the south and east (Figure 8.7). The Tzacualli phase witnessed considerable expansion of the site of Teotihuacan, which was well on its way to becoming the most dominant urban center in all of Mesoamerica. Ian Robertson's estimate of nearly 34,000 inhabitants during this occupation indicates a population nearly 124 times that of the entire Temascalapa region during the same period (Gorenflo and Sanders 2007:186). Beyond the emerging urban center itself, the map of Terminal Formative settlement in the two regions shows a striking difference in both the number and estimated populations of sites. This difference is borne out in a plot of population estimates in both regions, the total of fewer than 300 in the Temascalapa region a tiny fraction of the nearly 43,200 estimated for the Teotihuacan region (Figure 8.8). All Terminal Formative population in the Temascalapa region

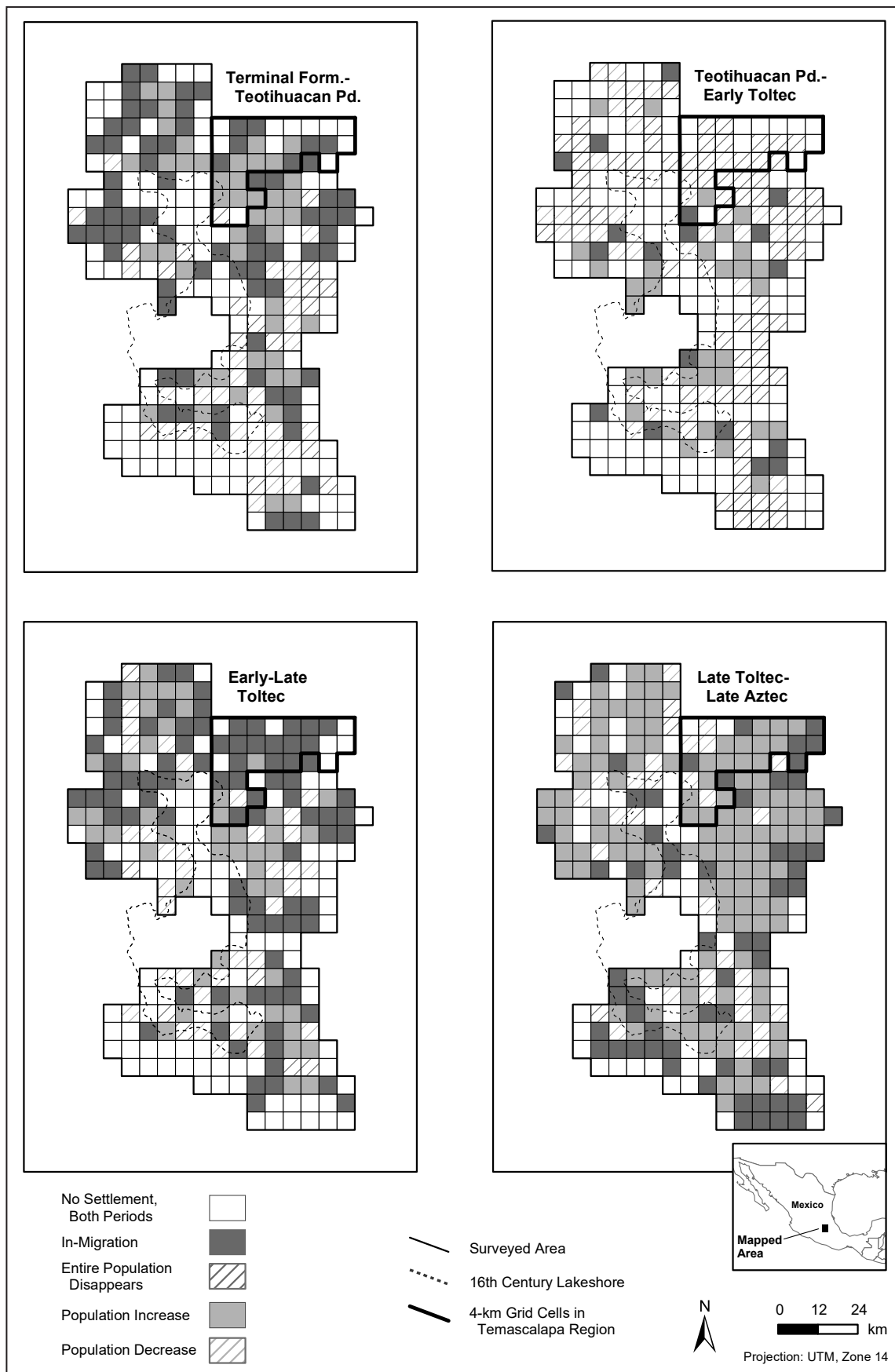


Figure 8.6. Four-km Grid Cells in the Basin of Mexico that Likely Experienced Mobility Between Periods of Prehispanic Occupation

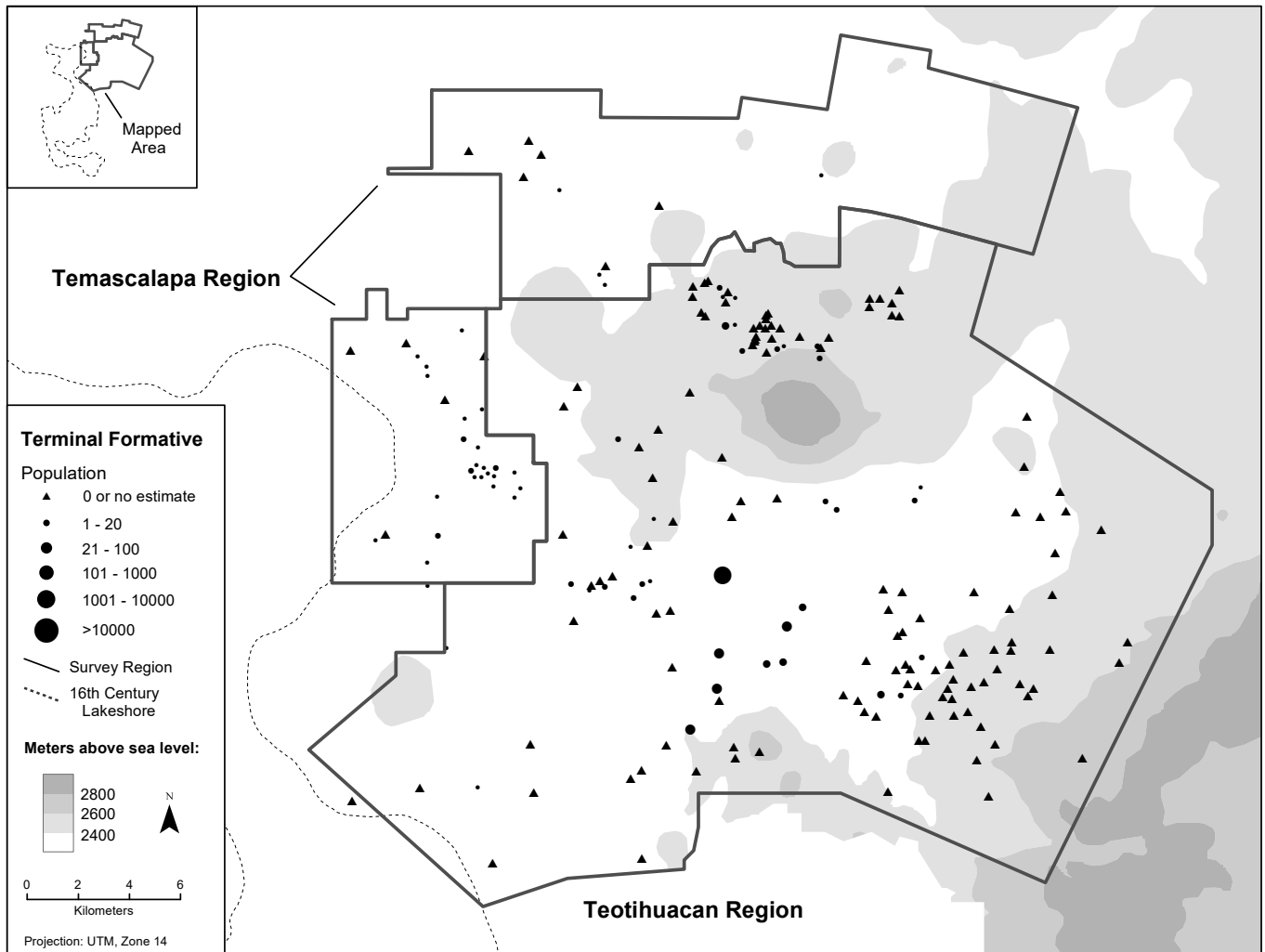


Figure 8.7. Terminal Formative Sites in the Temascalapa and Teotihuacan Regions

occurred in hamlets (Table 8.6). In contrast, barely 2% of the Teotihuacan region population lived in hamlets, with more than 86% in centers and another nearly 12% in villages. As one might expect, the Teotihuacan region contained many more Terminal Formative sites than the Temascalapa region (Figure 8.9). But the types of sites in each region varied as well. Both regions contained many hamlets, though in the Teotihuacan region we tabulated most sites in the “other” category—trace occupations, sites with questionable functions, ceremonial sites, etc. (Table 8.7). Finally, although

the Teotihuacan region is more than 2.5 times the size of the Temascalapa region geographically, population density of the former at nearly 73.0 persons/km² was much greater than the 1.2 persons/km² in the Temascalapa region (Figure 8.10). Ultimately, during the Terminal Formative occupation the Teotihuacan region dominated all the settlement indicators we considered in this monograph. But the expansion of settlement into the Temascalapa region for the first time was an extremely important event in this region on the northern fringe of the Basin of Mexico, an occurrence that

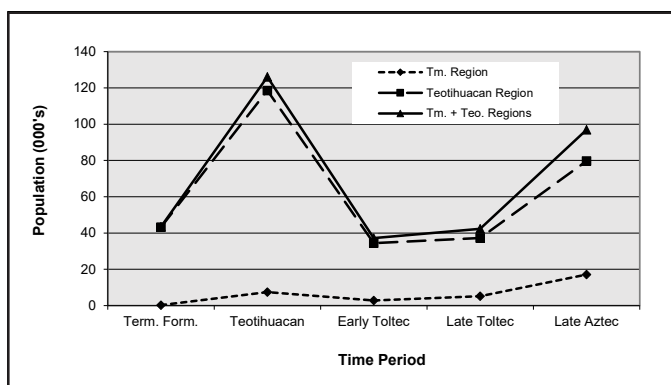


Figure 8.8. Population Estimates for the Temascalapa and Teotihuacan Regions, Individually and Combined

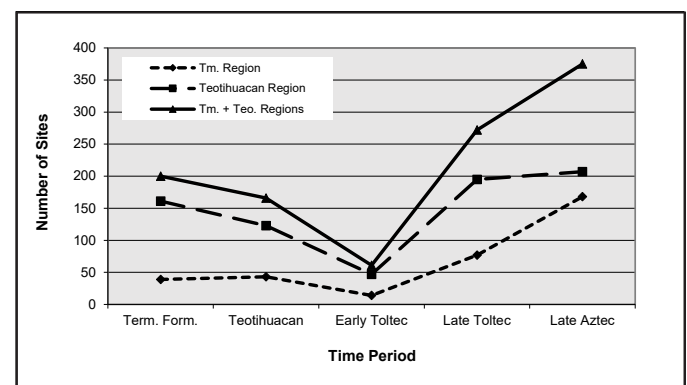


Figure 8.9. Total Sites in the Temascalapa and Teotihuacan Regions, Individually and Combined

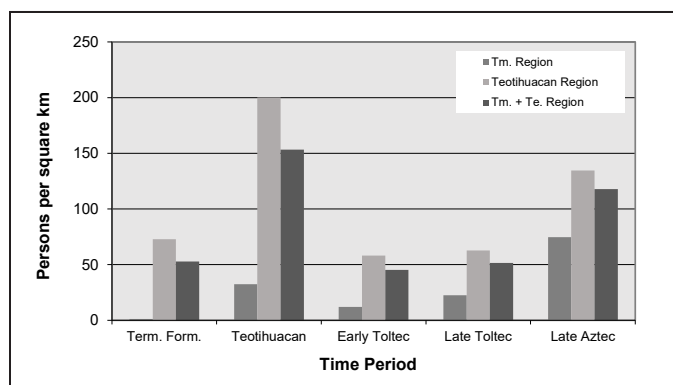


Figure 8.10. Population Density in the Temascalapa and Teotihuacan Regions, Individually and Combined

region, the Teotihuacan region, or the two combined (Table 8.8). Although the rate of demographic increase was less in the Teotihuacan region over the same years, the urban center continued to grow to its apex of nearly more than 95,500 (as estimated by Robertson; Gorenflo and Sanders 2007:196), pushing the survey region total beyond 118,500 (see Table 8.6). As a result, the population of the Temascalapa region was only about 6% of that of the Teotihuacan region. As one might expect, the considerable growth of population in the Temascalapa region amid a very modest increase in total sites witnessed a dramatic increase in site size and an important change in site types. Figure 8.11 shows the change in site sizes, while Tables 8.6 and 8.7 show the increased importance of villages in the Temascalapa region,

Table 8.6. Prehispanic Population in the Temascalapa Region, the Teotihuacan Region, and Both Regions Combined, by Period of Occupation and Type of Site

Time Period ^a	Total	Percent			
	Population	Hamlets	Villages	Centers	Other
Temascalapa Region					
Terminal Formative	273	100.0	-	-	-
Teotihuacan Period	7,456	4.6	95.4	-	-
Early Toltec	2,779	7.8	24.8	67.5	-
Late Toltec	5,148	30.7	69.3	-	-
Late Aztec	17,116	19.5	72.7	7.7	-
Teotihuacan Region					
Terminal Formative	43,198	2.3	11.5	86.2	-
Teotihuacan Period	118,590	1.9	14.2	83.7	0.1
Early Toltec	34,431	1.8	32.9	65.4	-
Late Toltec	37,237	6.7	39.2	54.1	-
Late Aztec	79,761	2.4	34.8	62.8	-
Temascalapa plus Teotihuacan Regions					
Terminal Formative	43,471	2.9	11.4	85.6	-
Teotihuacan Period	126,046	2.1	19.0	78.7	0.1
Early Toltec	37,210	2.2	32.3	65.5	-
Late Toltec	42,385	9.6	42.8	47.6	-
Late Aztec	96,877	5.4	41.5	53.1	-

^a—“—” signifies a percent that rounds to 0.0

a: Terminal Formative calculations based on Tzacualli sub-phase

we believe accompanied the dramatic growth of Teotihuacan immediately to the south along with diffused settlement throughout much of the Teotihuacan region (outside the urban center), the increased demand for resources, and the geographically broad market system that undoubtedly would have characterized the center of Teotihuacan and its hinterland.

During the Teotihuacan period, the Temascalapa region experienced a slight increase in the number of sites but a substantial increase in population, as indicated by a map of sites in terms of their estimated number of inhabitants (Figure 8.11). Population in the region approached 7,500, the result 1.1% average annual population growth from the preceding period that was more than double the rate seen between any other two time periods in the Temascalapa

accounting for slightly more than half the total sites but more than 95% of the Teotihuacan period population in that region. The Teotihuacan region, in contrast, continued to be demographically dominated by the urban center of Teotihuacan. Total sites declined markedly, and slightly more than half the sites in the Teotihuacan region during the occupation of the same name were hamlets. But hamlets accounted for less than 2% of the total population for the region, and villages 14% of the population, compared to more than 83% believed to have resided in the urban center. Thus, the dominance of the Teotihuacan region continued in terms of estimated population and total sites. However, again we feel the presence of Teotihuacan

Table 8.7. Prehispanic Sites in the Temascalapa Region, the Teotihuacan Region, and Both Regions Combined, by Period of Occupation and Type of Site

Time Period ^a	Total	Percent			
	Sites	Hamlets	Villages	Centers	Other
Temascalapa Region					
Terminal Formative	39	74.4	-	-	25.6
Teotihuacan Period	43	39.5	44.2	-	16.3
Early Toltec	14	35.7	21.4	7.1	35.7
Late Toltec	77	76.6	15.6	-	7.8
Late Aztec	168	69.0	23.2	0.6	7.1
Teotihuacan Region					
Terminal Formative	161	37.9	5.0	1.9	55.3
Teotihuacan Period	123	51.2	22.0	3.3	23.6
Early Toltec	47	40.4	29.8	2.1	27.7
Late Toltec	195	45.1	16.9	1.5	36.4
Late Aztec	207	37.7	46.4	2.4	13.5
Temascalapa plus Teotihuacan Regions					
Terminal Formative	200	45.0	4.0	1.5	49.5
Teotihuacan Period	166	48.2	27.7	2.4	21.7
Early Toltec	61	39.3	27.9	3.3	29.5
Late Toltec	272	54.0	16.5	1.1	28.3
Late Aztec	375	51.7	36.0	1.6	10.7

“-” signifies a percent that rounds to 0.0

a: Terminal Formative calculations based on Tzacualli sub-phase

period occupation in the Temascalapa region—indeed, the substantial expansion of settlement in that region—reflected the increasing importance of the large urban center a short distance to the south in conjunction with its geographically and economically expanded market and growing demand for resources (Cowgill 1997, 2015).

Early Toltec settlement in both the Temascalapa and Teotihuacan regions witnessed substantial declines in the number of sites and in estimated population (Figure 8.12; see Tables 8.6 and 8.7). Population decreased on average about 0.2% annually in both regions, while the number of sites fell on average by 0.2% annually in the Temascalapa region and 0.1% in the Teotihuacan region (see Table 8.8). These dramatic changes, quite similar statistically, accompanied what must have been extraordinary changes in central Mexico following the collapse of urban Teotihuacan. Occupation of the Temascalapa region continued into the Early Toltec period, though as discussed in Chapters 5 and 6, settlement occurred solely in the smaller western tract of that survey region and most of the population resided in one large center and three villages. The relationship of the Temascalapa region to the Teotihuacan region is uncertain during the Early Toltec period—in part due to the declining population of the center (to about 22,500 [Gorenflo and Sanders 2007:208]) and to the geographic separation between the major Temascalapa region Early Toltec sites and Teotihuacan (see Figure 8.12). In both regions, villages accounted for similar percentages of

the total estimated population, having decreased in the Temascalapa region with the emergence of a large Early Toltec center, and increased in the Teotihuacan region with the decline of urban Teotihuacan. Organization of both and most of the population resided in one large center and three villages. The relationship of the Temascalapa region to the Teotihuacan region is uncertain during the Early Toltec period—in part due to the declining population of the center (to about 22,500 [Gorenflo and Sanders 2007:208]) and to the geographic separation between the major Temascalapa region Early Toltec sites and Teotihuacan (see Figure 8.12). In both regions, villages accounted for similar percentages of the total estimated population, having decreased in the Temascalapa region with the emergence of a large Early Toltec center, and increased in the Teotihuacan region with the decline of urban Teotihuacan. Organization of both regions by site types was similar as well, with villages clearly playing important roles in the regional organization compared to other site types.

The Late Toltec period experienced a considerable resurgence in settlement in both the Temascalapa and Teotihuacan regions (Figure 8.13). As discussed in Chapter 6, the Temascalapa region still did not contain settlement throughout its entire geographic extent during this period, but the Late Toltec occupation was a considerable expansion beyond the geographic extent of settlement during the Early Toltec and Teotihuacan periods. Although total population during the Late Toltec occupation was only about 70% of

Table 8.8. Rates of Change from Preceding Occupations for Measures of Prehispanic Occupation in the Temascalapa Region, the Teotihuacan Region, and Both Regions Combined

Time Period ^a	Average Annual Change (%)		
	Population	No. of Sites	Site Area
Temascalapa Region			
Terminal Formative	NA	NA	NA
Teotihuacan Period	1.1	-	0.5
Early Toltec	-0.2	-0.2	-
Late Toltec	0.3	0.9	0.5
Late Aztec	0.3	0.2	0.3
Teotihuacan Region			
Terminal Formative	0.5	0.3	0.6
Teotihuacan Period	0.3	-0.1	0.1
Early Toltec	-0.2	-0.2	-0.1
Late Toltec	-	0.7	0.1
Late Aztec	0.2	-	0.4
Temascalapa plus Teotihuacan Regions			
Terminal Formative	0.5	0.3	0.6
Teotihuacan Period	0.4	-0.1	0.2
Early Toltec	-0.2	-0.2	-0.1
Late Toltec	0.1	0.8	0.1
Late Aztec	0.2	0.1	0.4

“NA” means “not applicable” (given lack of evidence for settlement in Temascalapa region prior to Terminal Formative); “-” signifies a percent that rounds to 0.0

a: Terminal Formative calculations based on Tzacualli sub-phase

the Teotihuacan period total, the number of sites was nearly twice as many as found in the Teotihuacan period (see Tables 8.6 and 8.7). More than three-fourths of the Late Toltec sites in the Temascalapa region were hamlets, helping to account for the dramatic increase in total sites but a comparatively small population—a nearly doubling in population despite a more than five-fold increase in sites from the Early Toltec period. The number of Late Toltec sites in the Teotihuacan region also increased dramatically over its Early Toltec predecessor, in this case by nearly four times. Population, however, grew by less than 10% over the same time. Settlement once again occurred throughout the Teotihuacan region during the Late Toltec occupation. These similarities in settlement patterns—broad geographic coverage, substantial growth in total number of mostly small sites—suggest common evolutionary trajectories and, presumably, common socioeconomic and sociopolitical underpinnings. But this was a complicated period of occupation, with the rise of Tula, northwest of the Basin of Mexico, as the center that replaced Teotihuacan in pan-regional influence. The site of Teotihuacan continued to be a substantial settlement, but the roughly 15,300 residents (Gorenflo and Sanders 2007:218) paled in comparison to the population of the urban center at its apex. The influence of Tula compared to

that of Teotihuacan in both regions is complicated by the presence of San Miguel Eyecalco, a substantial center lying just beyond the northern bounds of the Temascalapa region (see Chapter 6, Appendix D). Our general proposition that substantial settlement elsewhere in the basin and broad regional markets led to settlement expansion into the more marginal northeastern basin persists, but the administrative and economic structures underlying that expansion remain uncertain in the absence of additional site-specific research.

Finally, the Late Aztec occupations in both the Temascalapa and Teotihuacan regions witnessed considerable geographic expansion of settlement (Figure 8.14). Total sites in the Temascalapa region nearly doubled from the Late Toltec period; the Teotihuacan region also experienced an increase in total sites, though only by about 6% (see Table 8.7). Estimated population in both regions grew substantially, more than doubling in both regions from the preceding Late Toltec periods (see Table 8.6). But the nature of the settlement patterns differed. For example, most Late Aztec sites in the Temascalapa region were hamlets, whereas more Late Aztec sites in the Teotihuacan region were villages. In contrast, in the Temascalapa region villages contained most of the Late Aztec population, with centers containing most of the population in the Teotihuacan region. As noted earlier, in the late sixteenth century political centers in the Teotihuacan region administered areas in the Temascalapa region (Sanders and Evans 2001:956-957), consistent with a practice employed by political leaders of breaking up geographically contiguous areas during the Late Aztec period to improve their political control. We assume that geopolitical landscape had its roots in the Late Aztec period, providing further evidence for the Temascalapa region being functionally a part of the larger Teotihuacan region. The settlement pattern data—the Temascalapa region with most of its population in villages and hosting only a single provincial center, and the Teotihuacan region with many more provincial centers—seem to be consistent with this reconstruction of the relationship between the two regions.

We decided to present results of the Temascalapa region survey as an extension of the Teotihuacan region in part because of the ethnohistoric evidence in the sixteenth century and in part because of the peripheral, marginal qualities of the Temascalapa region. Our examination of the settlement pattern data from both regions supports this general belief, including the late occupation of the Temascalapa region and the ebb and flow of population into and out of this region over time based on what appears to be reactions to regional settlement in other parts of the Basin of Mexico. But this interpretation is far from complete. Terminal Formative sites in the Temascalapa region are quite small and may well have hosted populations of subsistence agriculturalists; the combination of marginal agricultural conditions and the limited producers does not present a strong case for the Temascalapa region providing tribute to other, more distant sites, including the then emerging Teotihuacan state. Teotihuacan period settlement in the Temascalapa region supports a possible relationship

between that region and the Teotihuacan region, as does Late Aztec settlement. The relationship between the Temascalapa and Teotihuacan regions during the Early and Late Toltec periods is less clear. This is based in part on our lack of detailed understanding of the Basin of Mexico sociopolitical landscape following the decline of urban Teotihuacan in the Early Toltec period. It is also based in part on the relationship between Tula to basin sociopolitical organization during the Late Toltec occupation. Ultimately, the Temascalapa region does appear to be some sort of geographic extension of the Teotihuacan region during most periods of prehispanic occupation, though the nature of the economic and political relationships between settlements in these two regions very likely varied at different times in the past.

Settlement Pattern and Culture Change in the Temascalapa Region

The settlement pattern survey of the Temascalapa region served two key purposes beyond simply providing additional data on the geographic arrangement of pre-Columbian sites in part of the Basin of Mexico. One was to fill in another portion of the basin that, as of the mid-1970s, had not been examined by intensive archaeological survey. Indeed, a small section between the Temascalapa and Zumpango regions remains unsurveyed (see Figure 1.1), representing the only portion of the basin that could have been surveyed at the time but was not. The second purpose was to complete, in a sense, the archaeological study of prehispanic settlement in the Teotihuacan region. Sanders et al. (1979:201) note that the northern part of the Teotihuacan region survey had expanded beyond the natural drainage of the San Juan River, entering what physiologically was the area containing the northern tract of the Temascalapa region. Evans and Sanders (2000:3) note that during Late Aztec period many Temascalapa region settlements were politically dependent on Teotihuacan region centers (see also Gibson 1964:48-49). Thus, the Temascalapa survey was an attempt to examine an area whose physical and human geography tied it to the Teotihuacan region, thereby completing some unfinished business. The results certainly were worthwhile: an additional 341 archaeological sites and possible insights on adaptation to the most agriculturally challenging part of the Basin of Mexico.

The Temascalapa region settlement survey, and the analysis of resulting data, support the image of a geographically peripheral location in the Basin of Mexico that hosted components of the greater regional settlement systems through five successive periods of prehispanic occupation. Survey crews discovered no settlement before the scatter of hamlets and temporary sites dating to the Terminal Formative. The cause of this Terminal Formative expansion into the Temascalapa region is uncertain, though it may represent expansion into an arid, challenging part of the basin as more desirable locations in the south *filled up*, with a growing population demanding access to reliable agricultural conditions and an increasingly

complex society developing a similarly complex adaptive strategy and economy. Teotihuacan period settlement may provide another example of this same process, the greater population in the neighboring Teotihuacan region promoting a greater presence in the Temascalapa region. Nonetheless, Teotihuacan period settlement in the Temascalapa region remained much less substantial than settlement during that same period in the Teotihuacan region. After a reduced presence during the Early Toltec period, possibly representing a regional retraction southward to less arid locations that accompanied declining basin-wide population and associated reduced demand, settlement in the Temascalapa region resurged during the Late Toltec and (especially) Late Aztec periods. For all pre-Columbian occupations in the Temascalapa region, a greater human presence tended to correspond with larger populations in more southern locations. More settlement also occurred when large sociopolitical entities controlled part or all of the basin, the geographically broad markets associated with these polities possibly providing a basis for integrating Temascalapa region settlement and the special products it might contribute to a regional economic system.

Apart from the Late Toltec and Late Aztec periods, we do not see evidence of settlement in the Temascalapa region that reflects what one finds in the Basin of Mexico as a whole. During the Late Toltec period, settlement in the Temascalapa region largely was rural, similar to what occurred elsewhere in the basin. During the Late Aztec period, settlement was largely rural, with a few villages and a single provincial center found among settlements occurring throughout the geographic breadth of the survey region. Remaining occupations appear to be extensions of what occurs further south in the basin, but in a sense scaled down demographically, administratively, and probably economically.

Pursuing preindustrial agriculture in the Temascalapa region would have come with risks. Lacking adequate rainfall to support important crops of the time, and in the absence of landscape and hydrology that would enable broad development of irrigation, two options seem reasonable: exploitation of other resources; and production of crops that have low water requirements. The former does not appear feasible in the absence of special resources with limited availability, such as the lime deposits in the Zumpango region (Sanders et al. 1979:140-141), that could have provided opportunities for economic exploitation and distribution to places that lacked access. Emphasizing the production of maguey would meet rainfall requirements; doing so during a period when geographically broad markets existed would have enabled residents in the Temascalapa region to supplement locally grown xerophytic crops would have made agricultural production in the area more feasible.

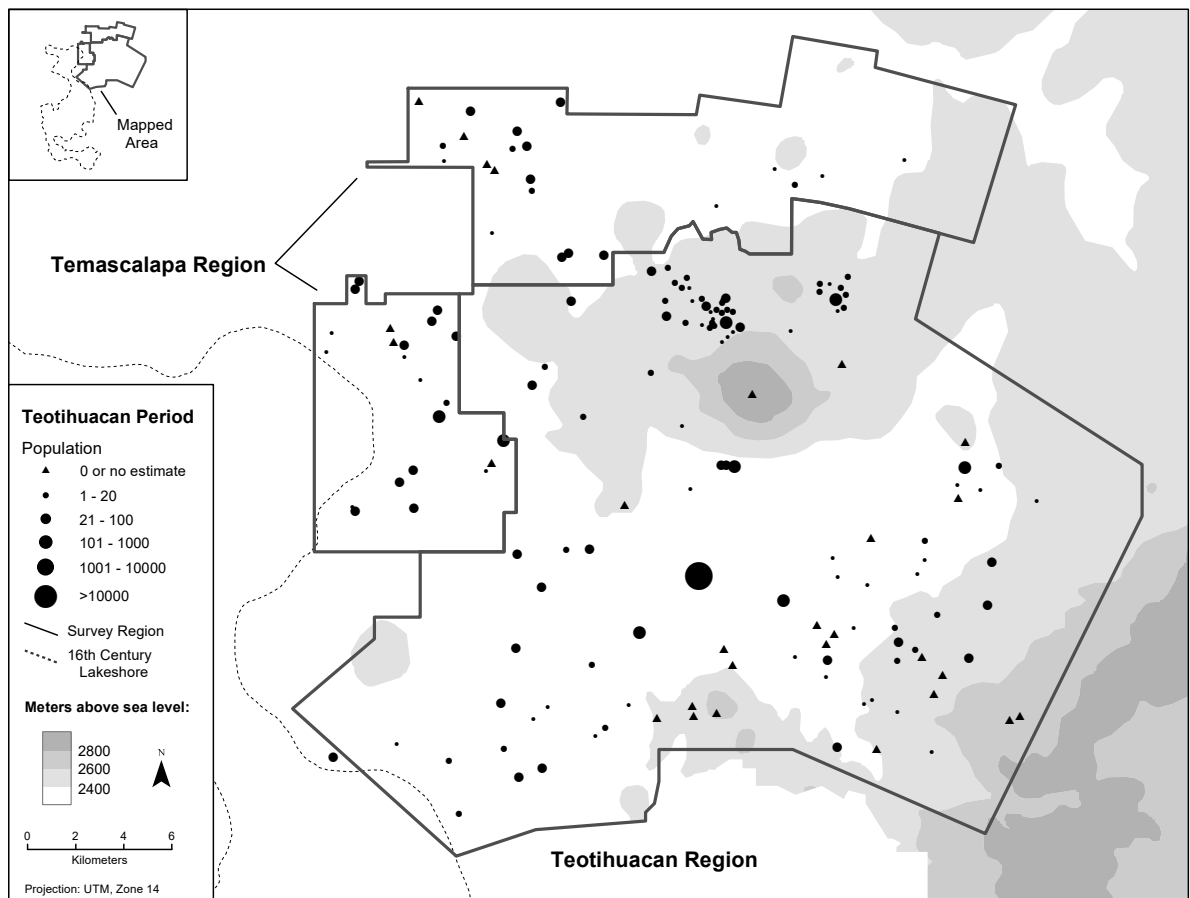


Figure 8.11. Teotihuacan Period Sites in the Temascalapa and Teotihuacan Regions

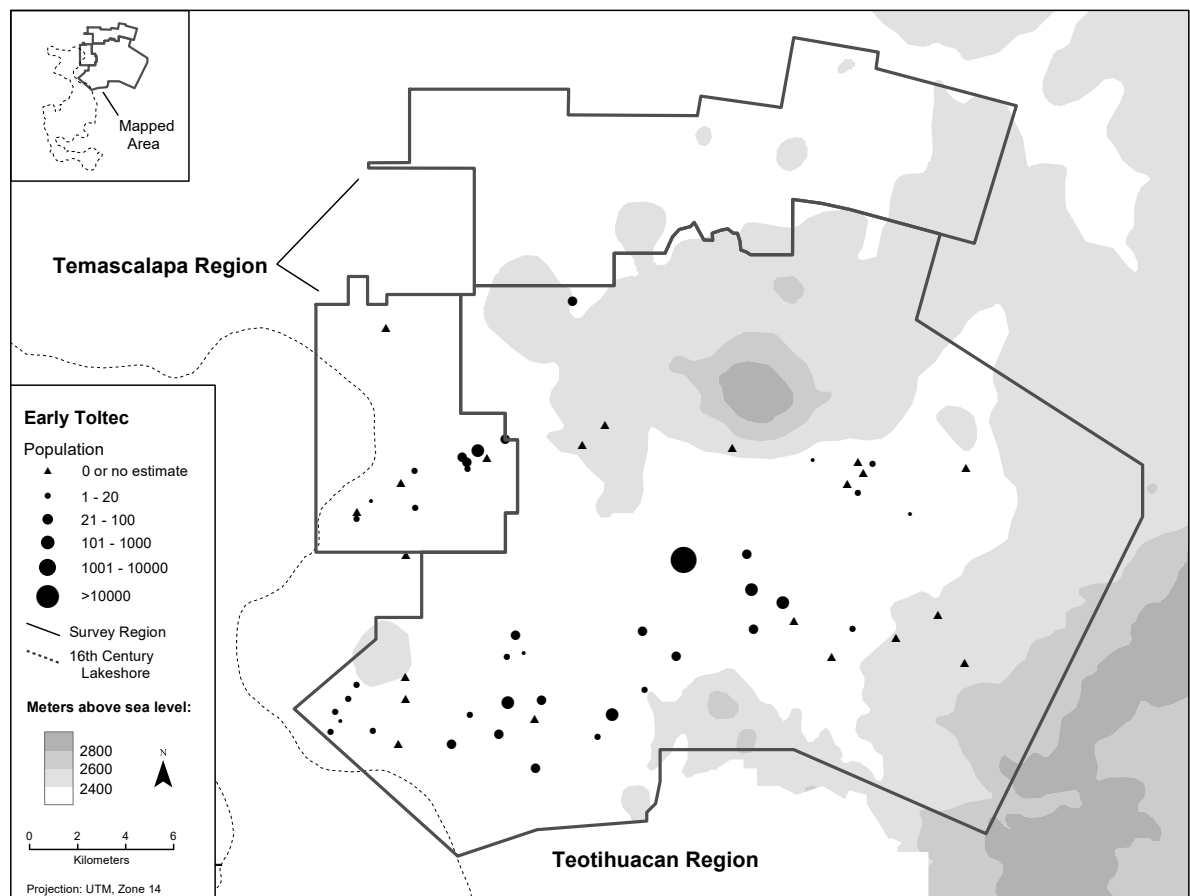


Figure 8.12. Early Toltec Sites in the Temascalapa and Teotihuacan Regions

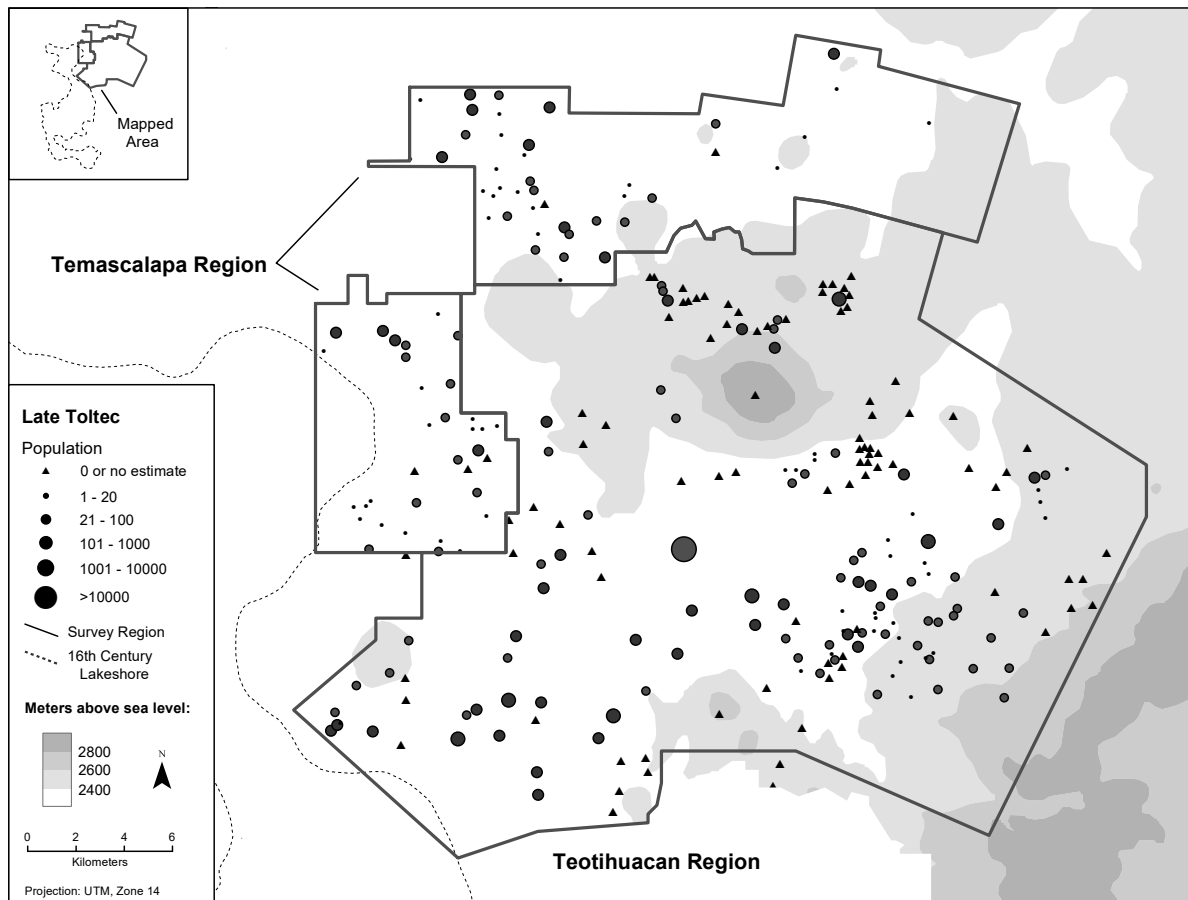


Figure 8.13. Late Toltec Sites in the Temascalapa and Teotihuacan Regions

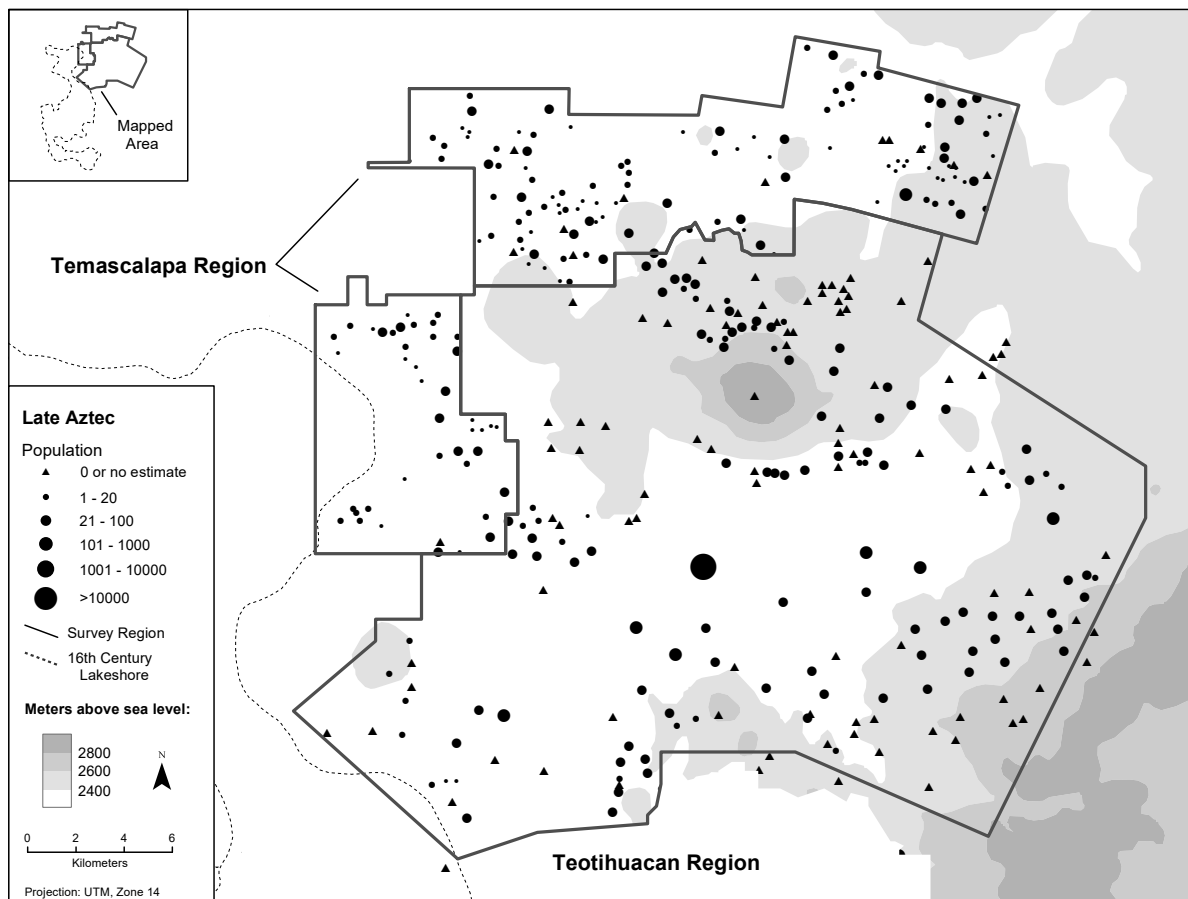


Figure 8.14. Late Aztec Sites in the Temascalapa and Teotihuacan Regions

Appendix A: Field Report Form, Temascalapa Region

Field Number _____	Recorder _____	Site – No Yes
Aerophoto Number _____	Date _____	Sampled – No Yes

Topography	1 Plain	2 Gentle Slope	3 Medium Slope		
	4 Steep Slope	5 Hilltop			
Soil Depth	1 5-10 cm	2 10-25	3 25-50	4 50-100	5 100+
Soil Color	1 Lt Brown	2 Brown	3 Grey	4 Pulverized Tepetate	
Soil Condition	1 Wet	2 Damp	3 Dry		
Erosion	1 Generalized	2 Extensive Areas	3 Small Localized Areas		
Barrancas	1 None				
	Position –	1 North	2 South	3 East	4 West
	Width (m) –	1 5-10	2 10-25	3 25-50	4 50-100
	Depth (m) –	1 less than 1	2 1-3	3 greater than 3	
Surface Cover	1 Sod Grass	2 Scattered Grass, Sod	3 Scattered Nopal and/or Maguey		
	4 Pirul Trees	5 Thorn Forest	6 Compact Bare Earth		
	7 Dense Crops	8 Sparse-Light Crops	9 Industrial/Domestic Refuse		
Modern Features	1 None	2 House	3 Jagüey	4 Field Houses	
	5 Factory	6 Street			
Crops	1 None	2 Fallow	3 Maize	4 Maize and Beans	
	5 Maize-Beans-Squash		6 Maize-Beans-Haba		
	7 Maize-Beans-Haba-Squash	8 Beans	9 Squash	10 Haba	
	11 Barley	12 Oats	13 Alfalfa	14 Wheat	15 Maguey
	16 Nopal	17 Fruit Tree Orchard	18 Vegetable Garden		
Maize Height (cm)	1 Less than 10	2 10-20	3 20-50	4 50-100	
	5 Greater than 100				
Maize Condition	1 Pre-tassle	2 Tassle	3 Ear	4 Ripe	5 Harvested
Erosion Control	1 Lateral and Front and Back Earth Banks	2 Front and Back Earth Banks			
	3 Front Earth Banks	4 Peripheral Ditches	5 Internal Ditches		
	6 Internal Banks	7 Stone Terraces	8 Maguey with Banks		
	9 Nopal with Banks				
Humidity Control	1 Wells	2 Irrigation Canals	3 Drainage Ditches	4 Dams	
	5 Cajetes	6 Interior Banks and Ditches			
Prehistoric Features	If occupation is scanty or absent, check below. If Aztec is light also, check below. If heavier, fill out site report.				
1 Absent	<u>Aztec</u>	<u>Non-Aztec</u>	<u>Post-Conquest</u>		
	2 Scanty	8 Middle Formative	18 Scanty		
	3 Scanty-Light	9 Terminal Formative	19 Scanty-Light		
	4 Light	10 Late Formative	20 Light		
	5 Aztec II	11 Early Classic	21 Moderate		
	6 Aztec III	12 Late Classic	22 Heavy		
	7 Aztec IV	13 Early Toltec			
		14 Late Toltec			
		15 Formative			
		16 Classic			
		17 Toltec			

Appendix B: Site Report Form, Temascalapa Region

Descriptive Data

Site Number _____

Recorder _____

Aerophoto Mosaic Number _____

Location-Municipio _____

Date _____

Village _____

Checked by _____

I. Natural Setting of Sites:

a. Zone – Los Pitos Tolcayuca Zapotatlan

 Tizayuca Temascalapa Aticpac

 Acozoc Nopaltepec

b. Topography – Alluvial Plain (main)

 Small Alluvial Fan – Plain Piedmont

 Gentle Slope Steep Slope Hill Top

 Ridge Top

c. Soil – (based upon exposed cuts – roads, canals, ravines)

 Depth (cms) Texture – Sand Loam Clay

d. Hydrography – Permanent streams

 Springs

 Barrancas – depth, location, width

 Washes

e. Vegetation – Type, Abundance

f. Special Resources (clay, lime, obsidian, basalt, tezontle, granite, tezontle, salt)

Site Number _____

II. Modern Cultural Features:

a. Structures (Note number and location with respect to site features)

b. Jagüeyes –

c. Agricultural Use

1. Crops, State of Growth

2. Erosion Control (Bancals, Terraces)

3. Humidity Control (Canals, Dams, Drainage, Ditches, Cajetes)

4. General Classification – Temporal, Humedad, Riego

d. General Relationship of Site to Agricultural and Other Land Use Today

Site Number _____

III. Prehistoric Features

a. General Condition of Site – erosion, excavation, pitting

b. Mounds – number, size, height, classification (ceremonial, domestic) (location, map)

(clustering, plaza-like plans)

Site Number _____

c. Specialized Features – (walls, floors, canals, dams, burials, forts, moats, quarries, workshops)

d. Pottery – quantity, description

<u>Subjective</u>		<u>Objective</u>
None	Even	Take several 1 x 1 m counts – on residential mounds, mounds, between them, empty areas between mound clusters
Sparse		
Moderate	Localized	
Heavy	& Variable	
Very Heavy		

e. Miscellaneous Artifacts – relative abundance

1. Obsidian

Scrapers	Points	Workshop Detritus
Blades – Cores		

2. Ground Stone

Manos	Figurines
Celts	Spindle Whorls
Pestles & Mortars	Pottery Discs

Site Number _____

- f. Depth and Nature of Archaeological Deposit (stratification, stone-shell-midden layers, soil changes, total depth)

IV. Miscellaneous Data

Site Number _____

Date _____

Aerophoto Mosaic Number _____

Recorder _____

Photographs

1. General Photos – showing ecological setting

Site Number _____

Photographs

2. Photographs of Modern and Ancient Terracing, Irrigation, Stream Beds

Site Number _____

Photographs

2. Archaeological Features (mounds, mound clusters, profiles of wall and floors, etc.)

Site Number _____

Date _____

Aerophoto Mosaic Number _____

Recorder _____

Problems, Summaries, Impressions

These three sheets are designed to permit the recorder to make tentative summary attempts about nature, plan, and function of site, its relationship to environment and land-use, problems of dating, relationships to other sites nearby, problems of relating structures to various periods of multi-period sites, desirability and need of further work to define the characteristics of the site, or any other problems or impressions he may wish to record.

Appendix C: Final and Temporary Site Numbers for Archaeological Sites in the Temascalapa Region

In discussing survey methodology in Chapter 4, we described how Temascalapa settlement survey crews used air photos as field maps to guide their movements and data collection as well as note the places where they recorded data on archaeological remains, modern land use patterns, and other observations as fieldwork proceeded. Initial data processing included numbering prehispanic sites discovered by the survey on aerial photos. Because site numbers were assigned by air photo, there was no clear order of numbering sites across the *entire* Temascalapa region—introducing the situation where sites 7 and 8 dating to a particular period might be near one another by virtue of being on the same air photo, but site 9 might be several kilometers away because it was on another air photo. To make information on the sites discovered by the Temascalapa survey easier to locate in this monograph, we followed Parsons’ approach of treating the initial numbers assigned in the field as *temporary site numbers* and assigning a set of *final numbers* that reflect final chronological assignments and proceed systematically across the entire region (Parsons et al. 1983:10-11)—beginning in the southwestern part of the region (in the smaller, western tract of the surveyed area) and generally proceeding to the north and east (into the northern tract of the surveyed area; see Gorenflo and Sanders 2007).

To our knowledge, the only place where temporary site numbers for Temascalapa region archaeological sites have appeared in print is Melissa Diamante’s master’s thesis (Diamante 1980). However, original field notes use temporary site numbers to label sites. To avoid any potential confusion, particularly when accessing field notes, we have listed temporary site numbers and final site numbers below (Table C.1). Temporary and final site numbers also appear in the tabular presentation of archaeological survey data for the Cuautitlan, Temascalapa, and Teotihuacan regions (Gorenflo and Sanders 2007).

Table C1. Final and Temporary Site Numbers, Temascalapa Region

Final Site No.	Temporary Site No.	Final Site No.	Temporary Site No.	Final Site No.	Temporary Site No.	Final Site No.	Temporary Site No.
Late Term. Form.		Late Term. Form. (cont.)		Teotihuacán Period (cont.)		Early Toltec	
TM-TF-1	TM-F-33	TM-TF-30	TM-F-11	TM-CL-18	TM-C-36	TM-ET-1	TM-T-74
TM-TF-2	TM-F-34	TM-TF-31	TM-F-38	TM-CL-19	TM-C-37	TM-ET-2	TM-T-88
TM-TF-3	TM-F-39	TM-TF-32	TM-F-1	TM-CL-20	TM-C-22	TM-ET-3	TM-T-86
TM-TF-4	TM-F-35	TM-TF-33	TM-F-2	TM-CL-21	TM-C-23	TM-ET-4	TM-T-80
TM-TF-5	TM-F-32	TM-TF-34	TM-F-3	TM-CL-22	TM-C-35	TM-ET-5	TM-T-72
TM-TF-6	TM-F-36	TM-TF-35	TM-F-4	TM-CL-23	TM-C-1	TM-ET-6	TM-T-70
TM-TF-7	TM-F-13	TM-TF-36	TM-F-5	TM-CL-24	TM-C-2	TM-ET-7	TM-T-82
TM-TF-8	TM-F-14	TM-TF-37	TM-F-8	TM-CL-25	TM-C-8	TM-ET-8	TM-T-62
TM-TF-9	TM-F-16	TM-TF-38	TM-F-7	TM-CL-26	TM-C-4	TM-ET-9	TM-T-61
TM-TF-10	TM-F-18	TM-TF-39	TM-F-6	TM-CL-27	TM-C-3	TM-ET-10	TM-T-64
TM-TF-11	TM-F-28	Teotihuacán Period		TM-CL-28	TM-C-5	TM-ET-11	TM-T-58
TM-TF-12	TM-F-31			TM-CL-29	TM-C-7	TM-ET-12	TM-T-60
TM-TF-13	TM-F-15			TM-CL-30	TM-C-41	TM-ET-13	TM-T-84
TM-TF-14	TM-F-17			TM-CL-31	TM-C-16	TM-ET-14	TM-T-44
TM-TF-15	TM-F-26	TM-CL-3	TM-C-32	TM-CL-32	TM-C-40	Late Toltec	
TM-TF-16	TM-F-25	TM-CL-4	TM-C-31	TM-CL-33	TM-C-17		
TM-TF-17	TM-F-24	TM-CL-5	TM-C-33	TM-CL-34	TM-C-15	TM-LT-1	TM-T-56
TM-TF-18	TM-F-22	TM-CL-6	TM-C-29	TM-CL-35	TM-C-13	TM-LT-2	TM-T-57
TM-TF-19	TM-F-21	TM-CL-7	TM-C-30	TM-CL-36	TM-C-19	TM-LT-3	TM-T-55
TM-TF-20	TM-F-23	TM-CL-8	TM-C-34	TM-CL-37	TM-C-6	TM-LT-4	TM-T-73
TM-TF-21	TM-F-37	TM-CL-9	TM-C-27	TM-CL-38	TM-C-18	TM-LT-5	TM-T-81
TM-TF-22	TM-F-19	TM-CL-10	TM-C-28	TM-CL-39	TM-C-14	TM-LT-6	TM-T-75
TM-TF-23	TM-F-20	TM-CL-11	TM-C-26	TM-CL-40	TM-C-10	TM-LT-7	TM-T-76
TM-TF-24	TM-F-42	TM-CL-12	TM-C-25	TM-CL-41	TM-C-11	TM-LT-8	TM-T-77
TM-TF-25	TM-F-41	TM-CL-13	TM-C-24	TM-CL-42	TM-C-12	TM-LT-9	TM-T-78
TM-TF-26	TM-F-40	TM-CL-14	TM-C-43	TM-CL-43	TM-C-9	TM-LT-10	TM-T-87
TM-TF-27	TM-F-12	TM-CL-15	TM-C-42			TM-LT-11	TM-T-79
TM-TF-28	TM-F-10	TM-CL-16	TM-C-20			TM-LT-12	TM-T-71
TM-TF-29	TM-F-9	TM-CL-17	TM-C-21			TM-LT-13	TM-T-83

Final Site No.	Temporary Site No.	Final Site No.	Temporary Site No.	Final Site No.	Temporary Site No.	Final Site No.	Temporary Site No.
Late Toltec (cont.)		Late Toltec (cont.)		Late Toltec (cont.)		Late Aztec (cont.)	
TM-LT-14	TM-T-53	TM-LT-44	TM-T-39	TM-LT-74	TM-T-23	TM-AZ-25	TM-A-145
TM-LT-15	TM-T-54	TM-LT-45	TM-T-38	TM-LT-75	TM-T-26	TM-AZ-26	TM-A-144
TM-LT-16	TM-T-63	TM-LT-46	TM-T-35	TM-LT-76	TM-T-25	TM-AZ-27	TM-A-143
TM-LT-17	TM-T-65	TM-LT-47	TM-T-17	TM-LT-77	TM-T-22	TM-AZ-28	TM-A-142
TM-LT-18	TM-T-59	TM-LT-48	TM-T-16			TM-AZ-29	TM-A-140
TM-LT-19	TM-T-60	TM-LT-49	TM-T-13			TM-AZ-30	TM-A-139
TM-LT-20	TM-T-66	TM-LT-50	TM-T-15	Late Aztec			
TM-LT-21	TM-T-67	TM-LT-51	TM-T-14	TM-AZ-1	TM-A-167	TM-AZ-31	TM-A-131
TM-LT-22	TM-T-68	TM-LT-52	TM-T-21	TM-AZ-2	TM-A-152	TM-AZ-32	TM-A-130
TM-LT-23	TM-T-69	TM-LT-53	TM-T-18	TM-AZ-3	TM-A-151	TM-AZ-33	TM-A-128
TM-LT-24	TM-T-51	TM-LT-54	TM-T-12	TM-AZ-4	TM-A-155	TM-AZ-34	TM-A-127
TM-LT-25	TM-T-50	TM-LT-55	TM-T-10	TM-AZ-5	TM-A-154	TM-AZ-35	TM-A-129
TM-LT-26	TM-T-49	TM-LT-56	TM-T-11	TM-AZ-6	TM-A-153	TM-AZ-36	TM-A-138
TM-LT-27	TM-T-52	TM-LT-57	TM-T-7	TM-AZ-7	TM-A-175	TM-AZ-37	TM-A-137
TM-LT-28	TM-T-48	TM-LT-58	TM-T-19	TM-AZ-8	TM-A-165	TM-AZ-38	TM-A-136
TM-LT-29	TM-T-47	TM-LT-59	TM-T-90	TM-AZ-9	TM-A-168	TM-AZ-39	TM-A-135
TM-LT-30	TM-T-46	TM-LT-60	TM-T-20	TM-AZ-10	TM-A-170	TM-AZ-40	TM-A-134
TM-LT-31	TM-T-43	TM-LT-61	TM-T-5	TM-AZ-11	TM-A-169	TM-AZ-41	TM-A-133
TM-LT-32	TM-T-42	TM-LT-62	TM-T-1	TM-AZ-12	TM-A-164	TM-AZ-42	TM-A-132
TM-LT-33	TM-T-41	TM-LT-63	TM-T-3	TM-AZ-13	TM-A-166	TM-AZ-43	TM-A-171
TM-LT-34	TM-T-45	TM-LT-64	TM-T-2	TM-AZ-14	TM-A-147	TM-AZ-44	TM-A-121
TM-LT-35	TM-T-85	TM-LT-65	TM-T-6	TM-AZ-15	TM-A-157	TM-AZ-45	TM-A-120
TM-LT-36	TM-T-89	TM-LT-66	TM-T-4	TM-AZ-16	TM-A-158	TM-AZ-46	TM-A-115
TM-LT-37	TM-T-34	TM-LT-67	TM-T-8	TM-AZ-17	TM-A-156	TM-AZ-47	TM-A-116
TM-LT-38	TM-T-33	TM-LT-68	TM-T-9	TM-AZ-18	TM-A-163	TM-AZ-48	TM-A-122
TM-LT-39	TM-T-31	TM-LT-69	TM-T-30	TM-AZ-19	TM-A-160	TM-AZ-49	TM-A-117
TM-LT-40	TM-T-32	TM-LT-70	TM-T-29	TM-AZ-20	TM-A-162	TM-AZ-50	TM-A-118
TM-LT-41	TM-T-91	TM-LT-71	TM-T-28	TM-AZ-21	TM-A-161	TM-AZ-51	TM-A-119
TM-LT-42	TM-T-36	TM-LT-72	TM-T-27	TM-AZ-22	TM-A-159	TM-AZ-52	TM-A-125
TM-LT-43	TM-T-37	TM-LT-73	TM-T-24	TM-AZ-23	TM-A-149	TM-AZ-53	TM-A-104
				TM-AZ-24	TM-A-146	TM-AZ-54	TM-A-124

Final Site No.	Temporary Site No.	Final Site No.	Temporary Site No.	Final Site No.	Temporary Site No.	Final Site No.	Temporary Site No.
Late Aztec (cont.)		Late Aztec (cont.)		Late Aztec (cont.)		Late Aztec (cont.)	
TM-AZ-55	TM-A-126	TM-AZ-85	TM-A-25	TM-AZ-115	TM-A-98	TM-AZ-145	TM-A-50
TM-AZ-56	TM-A-36	TM-AZ-86	TM-A-24	TM-AZ-116	TM-A-99	TM-AZ-146	TM-A-58
TM-AZ-57	TM-A-35	TM-AZ-87	TM-A-23	TM-AZ-117	TM-A-100	TM-AZ-147	TM-A-59
TM-AZ-58	TM-A-34	TM-AZ-88	TM-A-13	TM-AZ-118	TM-A-101	TM-AZ-148	TM-A-60
TM-AZ-59	TM-A-33	TM-AZ-89	TM-A-22	TM-AZ-119	TM-A-86	TM-AZ-149	TM-A-61
TM-AZ-60	TM-A-27	TM-AZ-90	TM-A-1	TM-AZ-120	TM-A-85	TM-AZ-150	TM-A-53
TM-AZ-61	TM-A-28	TM-AZ-91	TM-A-20	TM-AZ-121	TM-A-87	TM-AZ-151	TM-A-54
TM-AZ-62	TM-A-29	TM-AZ-92	TM-A-21	TM-AZ-122	TM-A-95	TM-AZ-152	TM-A-76
TM-AZ-63	TM-A-32	TM-AZ-93	TM-A-12	TM-AZ-123	TM-A-92	TM-AZ-153	TM-A-77
TM-AZ-64	TM-A-47	TM-AZ-94	TM-A-18	TM-AZ-124	TM-A-89	TM-AZ-154	TM-A-75
TM-AZ-65	TM-A-37	TM-AZ-95	TM-A-4	TM-AZ-125	TM-A-88	TM-AZ-155	TM-A-74
TM-AZ-66	TM-A-42	TM-AZ-96	TM-A-19	TM-AZ-126	TM-A-91	TM-AZ-156	TM-A-73
TM-AZ-67	TM-A-44	TM-AZ-97	TM-A-17	TM-AZ-127	TM-A-173	TM-AZ-157	TM-A-72
TM-AZ-68	TM-A-43	TM-AZ-98	TM-A-14	TM-AZ-128	TM-A-90	TM-AZ-158	TM-A-84
TM-AZ-69	TM-A-38	TM-AZ-99	TM-A-15	TM-AZ-129	TM-A-93	TM-AZ-159	TM-A-83
TM-AZ-70	TM-A-30	TM-AZ-100	TM-A-106	TM-AZ-130	TM-A-94	TM-AZ-160	TM-A-81
TM-AZ-71	TM-A-40	TM-AZ-101	TM-A-103	TM-AZ-131	TM-A-48	TM-AZ-161	TM-A-80
TM-AZ-72	TM-A-41	TM-AZ-102	TM-A-16	TM-AZ-132	TM-A-49	TM-AZ-162	TM-A-79
TM-AZ-73	TM-A-45	TM-AZ-103	TM-A-113	TM-AZ-133	TM-A-172	TM-AZ-163	TM-A-78
TM-AZ-74	TM-A-46	TM-AZ-104	TM-A-113	TM-AZ-134	TM-A-64	TM-AZ-164	TM-A-176
TM-AZ-75	TM-A-3	TM-AZ-105	TM-A-114	TM-AZ-135	TM-A-62	TM-AZ-165	TM-A-82
TM-AZ-76	TM-A-5	TM-AZ-106	TM-A-112	TM-AZ-136	TM-A-63	TM-AZ-166	TM-A-31
TM-AZ-77	TM-A-8	TM-AZ-107	TM-A-111	TM-AZ-137	TM-A-69	TM-AZ-167	TM-A-71
TM-AZ-78	TM-A-10	TM-AZ-108	TM-A-109	TM-AZ-138	TM-A-70	TM-AZ-168	TM-A-68
TM-AZ-79	TM-A-9	TM-AZ-109	TM-A-110	TM-AZ-139	TM-A-67		
TM-AZ-80	TM-A-6	TM-AZ-110	TM-A-108	TM-AZ-140	TM-A-65		
TM-AZ-81	TM-A-7	TM-AZ-111	TM-A-107	TM-AZ-141	TM-A-174		
TM-AZ-82	TM-A-2	TM-AZ-112	TM-A-102	TM-AZ-142	TM-A-66		
TM-AZ-83	TM-A-11	TM-AZ-113	TM-A-97	TM-AZ-143	TM-A-51		
TM-AZ-84	TM-A-26	TM-AZ-114	TM-A-96	TM-AZ-144	TM-A-52		

Appendix D: Survey and Preliminary Evaluation of the Site of San Miguel Eyecalco and its Surroundings

The Late Toltec site of San Miguel Eyecalco lies in the State of Hidalgo, about 12 km northeast of the modern town of Tizayuca in Tolcayuca Municipio. The site is located in front of the Hacienda San Miguel Eyecalco, which served as a psychiatric hospital operated by the Secretary of Health and Assistance in the mid-1970s at the time of the Temascalapa survey. With its large size and impressive ceremonial architecture, San Miguel Eyecalco would have been a settlement of considerable importance during the Late Toltec period in the northern Basin of Mexico. Unfortunately, considerable historic construction has occurred on the site, beginning as early as the Colonial period. For example, the pulque shed for the hacienda apparently was constructed with stone taken from the archaeological site. The site remained unguarded during the mid-1970s, as it was not registered with the Instituto Nacional de Antropología e Historia. By the mid-1970s, post-Hispanic construction and looters had disturbed much of the prehispanic remains.

Despite its apparent importance in pre-Columbian central Mexico, San Miguel Eyecalco has remained largely unstudied. During the summer of 1975, a student residing in Mexico named Janet Long Solís briefly examined the surface of the site and prepared a draft map of its main architectural components. She also identified three other prehispanic archaeological sites with ceremonial architecture in the vicinity of San Miguel Eyecalco. We present selected portions of her unpublished report (Solís 1975), translated and edited slightly for clarity, in the following paragraphs.

Natural Environment and Land Use

The climate in the vicinity of San Miguel Eyecalco is semi-arid, with annual precipitation averaging about 510 mm. Primary vegetation in the area is thick-stemmed thicket, characterized by the presence of large cacti that are cylindrical or flat in section. One of the most frequently encountered plants is *nopal* (*Opuntia miller*), which occurs both in sparse distributions and thick clumps.

Soil in the site area is quite eroded and as a consequence the vegetation cover is very thin; soil depth often is barely sufficient for cultivation. There is a great quantity of basalt in the region, constituting yet another obstacle to agriculture. In general, the region has very limited agricultural potential. Nevertheless, agriculture is the prevailing economic endeavor in the area.

Agriculture in the site area relies on rainfall. There was no irrigation used in the mid-1970s, nor was there evidence of its use in the area in prehispanic times. Today farmers in the area grow maize, beans, barley, maguey, and nopal, but in earlier times it was dominated by maguey agriculture for pulque production. Recently there has been an intensification of *nopal* cultivation at the expense of maguey

agriculture, in part as the commercial production of prickly pear fruit (*tunas*) has increased in importance in the arid areas in the northern Basin of Mexico.

The only natural resource in the area of San Miguel Eyecalco that has significant economic value, apart from soil and associated agricultural resources, is volcanic rock, or *tezontle*, used during prehispanic times and mined during the mid-1970s as well for construction material. As noted above, the area also contains basalt, which occasionally is used for construction.

San Miguel Eyecalco

San Miguel Eyecalco lies on generally flat terrain immediately north of the surveyed portion of the Basin of Mexico (as defined in Sanders et al. 1979:81-89), between 2,340 and 2,345 m above sea level. The central area of the site consists of two large pyramids, one ball court, and three platforms of lesser height that possibly represent the remnants of elite residences (Figure D.1). Some 300 m northwest of this core area lies another mound of significant size, though its dimensions were not recorded. A causeway, running northwest-southeast, occurs on the southern edge of the central core of San Miguel Eyecalco.

One of the most noteworthy components of the site, the ball court remained in quite good condition in 1975. It measured 80 by 34 m and has a north-south orientation roughly 10° east of astronomical north. In size and orientation, the San Miguel Eyecalco ball court resembles the large ball court at Tula, which is slightly larger and also oriented north-south. The remaining major architectural components of the site occur north of the ball court. The two main pyramids were arranged around a plaza lying immediately north of the ball court, with a third mound east of the plaza already destroyed by 1975. The largest pyramid, Mound A, occurs on the western edge of the plaza, measuring 33 by 31 m with an orientation of 26° 30' east of north. A slightly smaller pyramid, designated Mound C, occurs on the northern edge of the plaza; its dimensions were 31 by 24 m, with an orientation of 20° 30' east of north. Platform D, located slightly north of Mound C, measured 38 by 22 m with an orientation of 26° 45' east of north. The causeway skirts the southern edge of the site core. Although possibly prehispanic in date, because it passes between the pulque shed and the main hacienda building a colonial origin seems more likely.

Other archaeological remains were noted at San Miguel Eyecalco in addition to the ceremonial and elite architecture discussed above. Twelve other mounds of smaller size were scattered around the central core of the site and may represent the remains of houses or small temples. Two other possible residential zones also occurred, one west of the causeway and the other north of the plaza, both marked by dense surface scatters of ceramics. Remnants of prehispanic murals stretch across the site from north to south.

San Miguel Eyecalco apparently was founded during the Late Toltec period, lacking ceramics that indicate earlier occupations. Surface collections yielded several

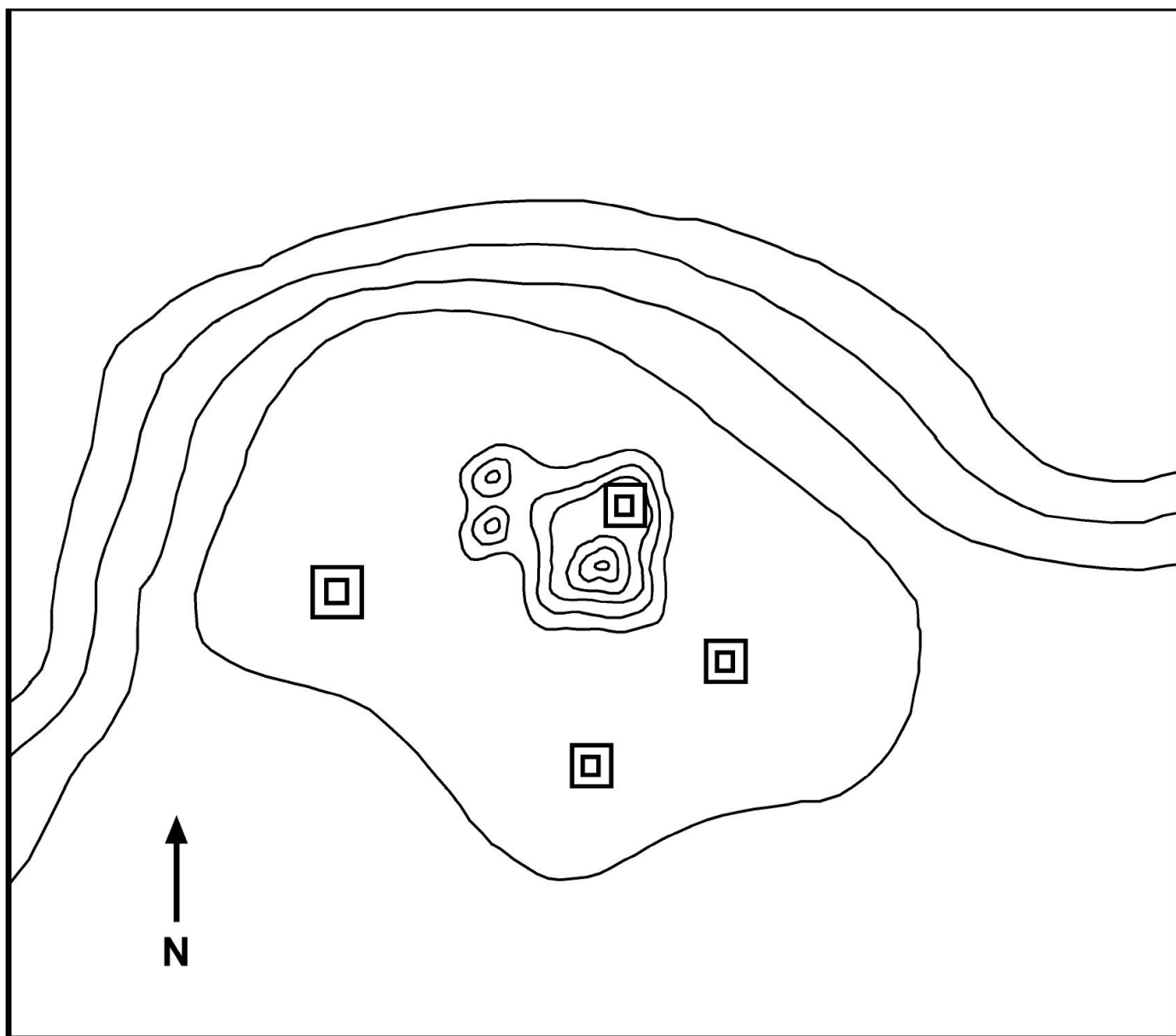


Figure D.1. Main Prehispanic Architectural Features at San Miguel Eyecalco (based on Solís 1975)

different types of pottery, including those dating to Late Toltec, Late Aztec, and Colonial occupations, as described below.

- Red-on-bay
 - Red undulating lines on bay
 - Red spiral decoration on bay
 - Wide red band on bay
- Orange
 - Orange with brushstrokes
 - Orange/Stamped decoration
- White
 - White with brushstrokes
 - White/Stamped decoration
 - Dull white slip
 - Orange-on-white
- Monochrome bowls
 - Brown burnished
 - Grey burnished
- Domestic ceramics
 - Ollas
 - Comales
 - Apaxtles
 - Ollas, as illustrated by Acosta in the Tula Project
 - Small incised ollas (local type)
- Possibly imported ceramics
 - Raised white
 - Orange burnished
 - Plomizo Tohil
 - Cholulan
 - Huatec
- Various
 - Figurines
 - Censers
 - Pipes
 - Flutes
 - Spindle whorls
 - Worked potsherds

- Aztec
 - Texcoco red/bichrome/polychrome
 - Black-on-orange
 - Aztec spindle whorls
- Lithic material
 - Green obsidian
 - Grey striped obsidian
 - Fragments of manos and metates
- Colonial
 - Blue-on-white ceramics
 - Green-on-white ceramics
 - Green-on-yellow ceramics
 - Brown-on-white ceramics
 - Figurines

Santa María Mogotes

Santa María Mogotes is located about 2 km southeast of San Miguel Eyecalco. It is a site with two mound complexes separated by some distance but with continuous surface ceramics between these two parts of the site (Figure D.2). Although there are Aztec ceramics on the entire site, the [Late] Toltec occupation appears to have been the most important. A preliminary examination of the site indicates that the Toltec occupation of this site was the first, with

no earlier ceramics noted. This establishment of new sites conforms with the pattern of settlement described for the Texcoco region during the Toltec period of occupation (Parsons 1971).

El Rey

El Rey is located about 1 km from the village Estación del Rey, in the State of Mexico. The site shows evidence of a long occupation, with ceramics from the Teotihuacan, Toltec, Late Aztec, and Colonial periods. There is prehispanic architecture, amongst the remains of a colonial hacienda, and considerable colonial ceramics (Figure D.3).

Los Olmos

The third site in the vicinity of San Miguel Eyecalco is very small and consists of a single mound on top of a hill, near the community of Los Olmos, about 3 km from the village of Estación del Rey. The ceramics on this site are Late Toltec, along with a small amount of Late Aztec remains.

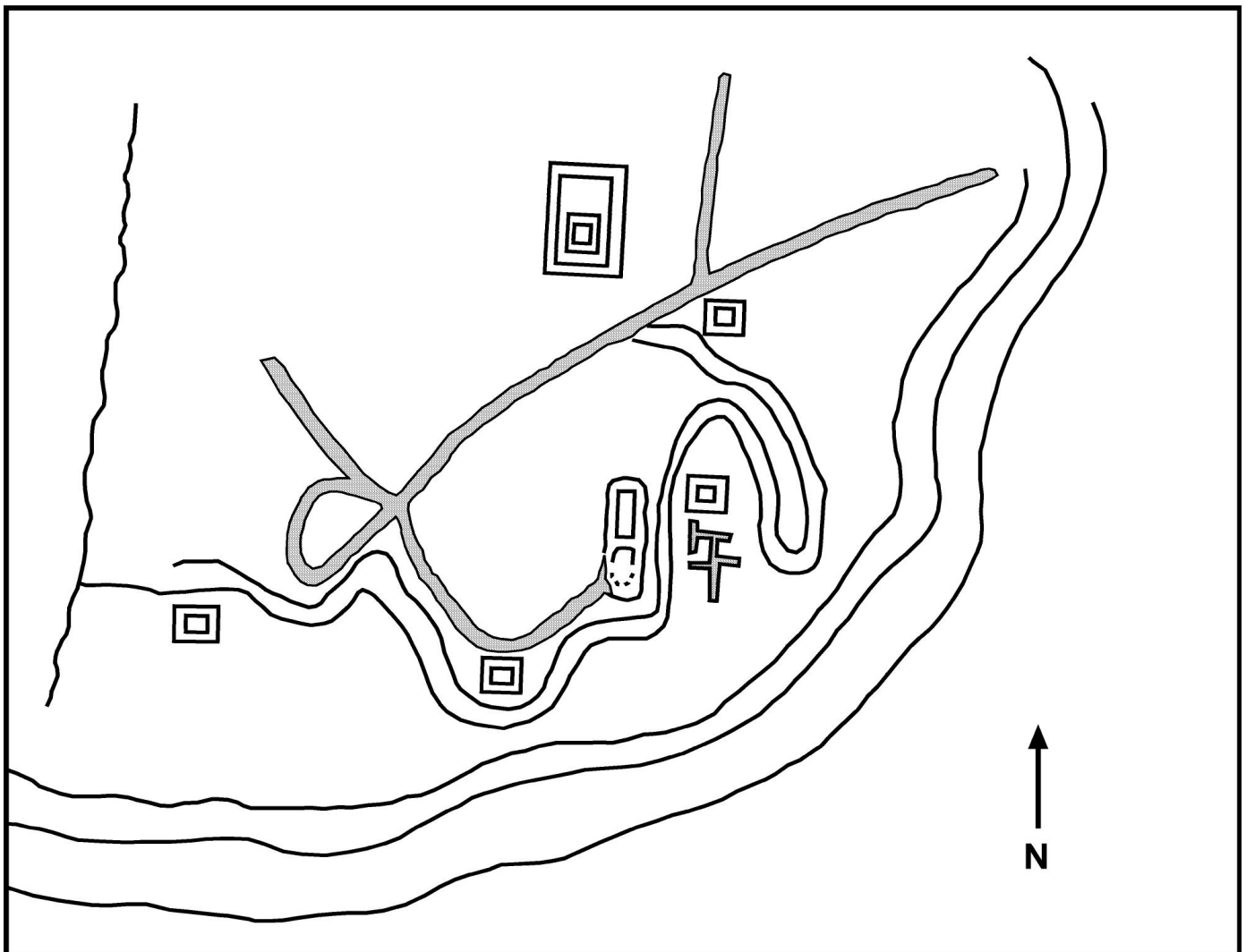


Figure D.2. Main Prehispanic Architectural Features at Santa María Mogotes (based on Solís 1975)

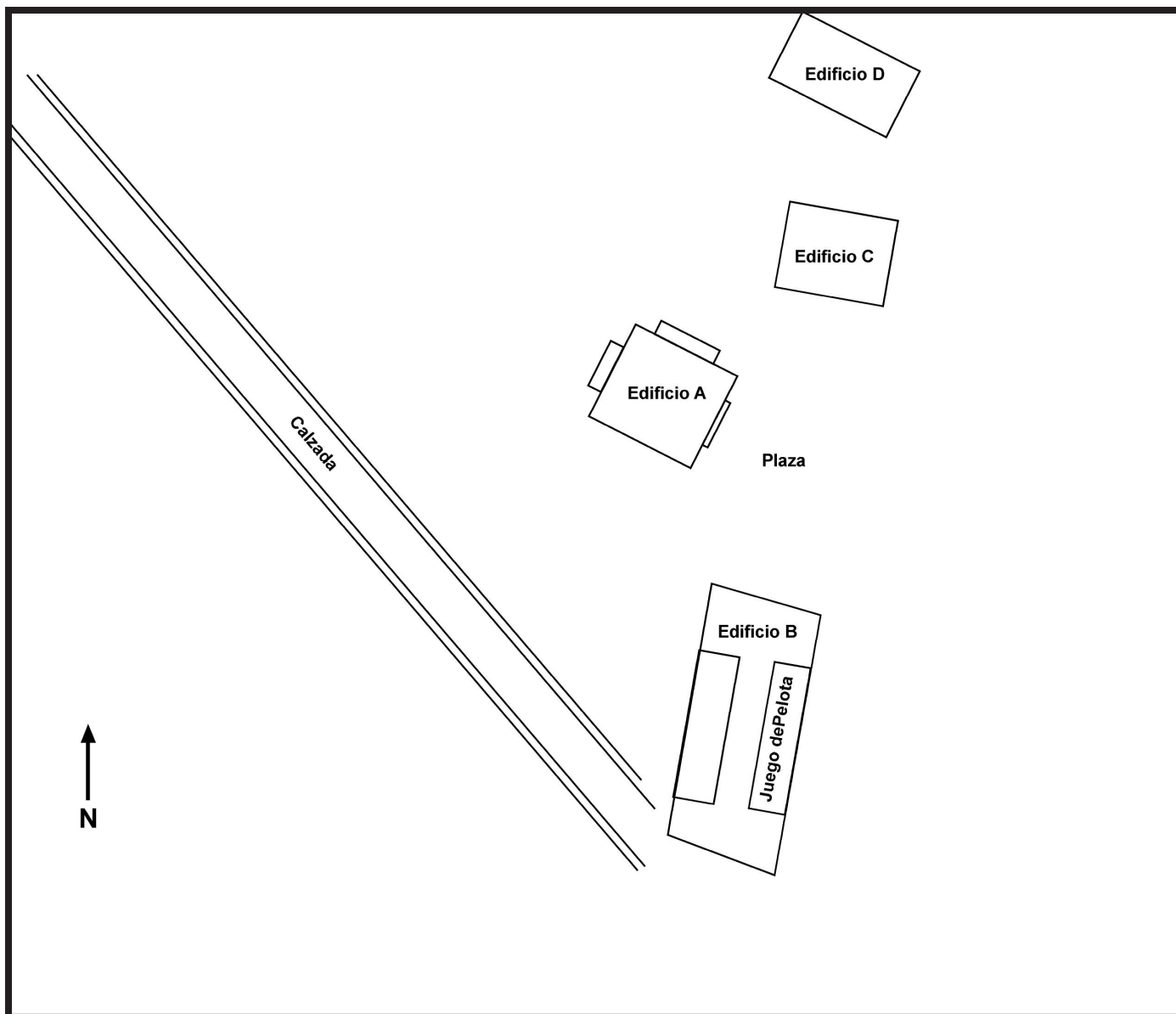


Figure D.3. Main Prehispanic Architectural Features at El Rey (based on Solís 1975)

REFERENCES CITED

- Arce, J.L., P.W. Layer, L.L. Macías, E. Morales-Casique, A. García-Palomo, F.J. Jiménez-Domínguez, J. Benowitz, and A. Vásquez-Serrano
2019 Geology and Stratigraphy of the Mexico Basin (Mexico City), Central Trans-Mexican Volcanic Belt. *Journal of Maps* DOI: 10.1080/17445647.2019.1593251.
- Arellano, M., and P. Rojas
1956 Aves Acuáticas Migratorias en México. Instituto Mexicano de Recursos Naturales Renovables, Mexico City.
- Armillas, P.
1971 Gardens on Swamps. *Science* 174:653-661.
- Aveleyra Arroyo de Anda, L.
1964 The Primitive Hunters. In *Handbook of Middle American Indians*, edited by R. Wauchope, vol. 1, pp. 384-412. University of Texas Press, Austin.
- Baños, E., and M. Sanchez
1998 La Industria Salinera Prehispánica en la Cuenca de México. In *La Sal en México II*, edited by J. Reyes, pp. 65-83. Universidad de Colima, Colima, Mexico.
- Bell, T.L., R.L. Church, and L. Gorenflo
1988 Late Horizon Regional Efficiency in the Northeastern Basin of Mexico: A Location-Allocation Perspective. *Journal of Anthropological Archaeology* 7:163-202.
- Berdan, F.F., R.E. Blanton, E.H. Boone, M.G. Hodge, M.E. Smith, and E. Umberger (eds.)
1996 *Aztec Imperial Strategies*. Dumbarton Oaks Research and Library Collection, Washington, DC.
- Blanton, R.E.
1972 *Prehispanic Settlement Patterns of the Ixtapalapa Peninsula Region, Mexico*. Occasional Papers in Anthropology No. 6. Department of Anthropology, The Pennsylvania State University, University Park.
- Blanton, R.E., L. Finsten, S. Kowalewski, and G. Feinman
1996 Migration and Population Change in the Prehispanic Valley of Oaxaca, Mexico. In *Arqueología Mesoamericana. Homenaje a William T. Sanders*, edited by A. Guadalupe Mastache, J.R. Parsons, R.S. Santley, and M.C. Serra Puche, Volume II, pp. 11-36. Instituto Nacional de Anthropología e Historia, Mexico City.
- Bray, W.
1972 The City State in Central Mexico at the Time of the Spanish Conquest. *Journal of Latin American Studies* 4:161-185.
- Bradbury, J.P.
1989 Late Quaternary Lacustrine Paleoenvironments in the Cuenca de Mexico. *Quaternary Science Reviews* 8:75-100.
- Brumfiel, E.
1976 Regional Growth in the Eastern Valley of Mexico: A Test of the Population Pressure Hypothesis. In *The Early Mesoamerican Village*, edited by In K.V. Flannery, pp. 234-248. Academic Press, New York.
- 1980 Specialization, Market Exchange, and the Aztec State: The View from Huexotla. *Current Anthropology* 21:459-478.
- 1986 The Division of Labor at Xico: The Chipped Stone Industry. In *Specialization, Exchange, and Complex Societies*, edited by E.M. Brumfiel and T.K. Earle, pp. 102-118. Cambridge University Press, New York.
- Brumfiel, E. (editor)
2005 *Production and Power at Postclassic Xaltocan*. Serie Arqueología de México No. 6. Instituto Nacional de Anthropología e Historia, Mexico City, and University of Pittsburgh, Pittsburgh, Pennsylvania.
- Burkholder, M.A.
2016 Spain's America: From Kingdoms to Colonies. *Colonial Latin American Review* 25:125-153.
- Calavera, J.
1991 *Documentos Relativos a la Desección del Valle de México*. INTEMAC, Mexico City.
- Carrasco, P.
1984 Royal Marriages in Ancient Mexico. In *Explorations in Ethnohistory*, edited by H. Harvey and H. Prem, pp. 41-81. University of New Mexico Press, Albuquerque.
- 1999 *The Tenochca Empire of Ancient Mexico: The Triple Alliance of Tenochtitlan, Tetzaco, and Tlacopan*. University of Oklahoma Press, Norman.

- Charlton, Thomas H.
 1970 Contemporary Settlement Patterns: The Cerro Gordo-North Slope and Upper Valley Areas. In *The Natural Environment, Contemporary Occupation and 16th Century Population of the Valley, The Teotihuacan Valley Project, Final Report, Volume 1*, edited by William T. Sanders, pp. 181-252. Occasional Papers in Anthropology No. 3. Department of Anthropology, The Pennsylvania State University, University Park.
- 1978 Teotihuacan, Tepeapulco, and Obsidian Exploitation. *Science* 200:1227-1236.
- 1987 Surface Survey of the Upper Valley. In *The Toltec Period Occupation of the Valley, The Teotihuacan Valley Project, Final Report, Volume 4*, edited by W.T. Sanders, pp. 539-576. Occasional Papers in Anthropology No. 15, Part 2, Surface Survey and Special Studies. Department of Anthropology, The Pennsylvania State University, University Park.
- Charlton, T.H., and D.L. Nichols (eds.)
 1990 *The Aztec City-State of Otumba, Mexico. Final Report Submitted to the National Science Foundation*. Mesoamerican Research Report No. 3. Department of Anthropology, University of Iowa, Iowa City.
- Charlton, T.H., D.L. Nichols, and C.O. Charlton
 1991 Craft Specialization within the Aztec City-state of Otumba, Mexico: The Archaeological Evidence. *World Archaeology* 23:98-114.
- 2000 Otumba and its Neighbors. *Ex Oriente Lux. Ancient Mesoamerica* 11:247-265.
- Comisión de Estudios del Territorio Nacional
 1976 Carta Topográfica, Tizayuca E14B11. 1st ed., first reprinting. Comisión de Estudios del Territorio Nacional, Aguascalientes, Mexico.
- Cook, S.F.
 1949 *Soil Erosion and Population in Central Mexico*. Ibero-Americana 34. University of California Press, Berkeley and Los Angeles.
- Cook, S.F., and W. Borah
 1960 *The Indian Population of Central Mexico, 1531-1610*. Ibero-Americana 44. University of California Press, Berkeley and Los Angeles.
- 1963 *The Aboriginal Population of Central Mexico in the Sixteenth Century*. Ibero-Americana 45. University of California Press, Berkeley and Los Angeles.
- 1979 *Essays in Population History*. Three volumes. University of California Press, Berkeley.
- Cook, S.F., and L.B. Simpson
 1948 *The Population of Central Mexico in the Sixteenth Century*. Ibero-Americana 31. University of California Press, Berkeley and Los Angeles.
- Córdova, Carlos
 1997 Landscape Transformation in Aztec and Spanish Colonial Texcoco, Mexico. PhD dissertation, Department of Anthropology, University of Texas, Austin.
- Córdova, Carlos, and Jeffrey R. Parsons
 1997 Geoarchaeology of an Aztec Dispersed Village on the Texcoco Piedmont of Central Mexico. *Geoarchaeology: An International Journal* 12:177-210.
- Cortés, H.
 1962 *5 Letters of Cortés*. Translated by J. Bayard Morris. Norton, New York.
- Cowgill, G.L.
 1996 Discussion. *Ancient Mesoamerica* 7:325-331.
- 1997 State and Society at Teotihuacan, Mexico. *Annual Review of Anthropology* 26:129-161.
- 2015 *Ancient Teotihuacan: Early Urbanism in Central Mexico*. Cambridge University Press, New York.
- Cruikshank G., G.
 1995 *Proyecto Lago de Texcoco. Rescate Hidroecológico*. Published by the author, Mexico City.
- Dent, B.
 1993 *Cartography. Thematic Map Design*. 3rd ed. Wm. C. Brown Communications, Inc., Dubuque, Iowa.
- DeTerra, H.
 1957 *Man and Mammoth in Mexico*. Hutchinson and Company, London.
- Dewar, R.E.
 1991 Incorporating Variation in Occupation Span into Settlement-Pattern Analysis. *American Antiquity* 56:604-620.
- Diamanti, M.
 1980 Description and Preliminary Analysis of Pre-Aztec Archaeological Sites of the Temascalapa Region, Mexico. Master's thesis, Department of Anthropology, The Pennsylvania State University, University Park.

- Díaz, B.
1956 *The Discovery and Conquest of Mexico, 1517-1521*. Translated by A.P. Maudslay. Farrar, Strauss, and Cudahy, New York.
- Dirección General de Estadística
1901a *Censo General de la República Mexicana. Estado de Hidalgo*. Oficina Tip. de la Secretaría de Fomento, Mexico City.
- 1901b *Censo General de la República Mexicana. Estado de México*. Oficina Tip. de la Secretaría de Fomento, Mexico City.
- 1933 *Quinto Censo de Población, 15 de Mayo 1930. Estado de México*. Dirección General de Estadística, Mexico City.
- 1935 *Quinto Censo de Población, 15 de Mayo 1930. Estado de Hidalgo*. Dirección General de Estadística, Mexico City.
- 1963a *VIII Censo General de Población. 1960. 8 de Junio de 1960. Estado de Hidalgo*. Dirección General de Estadística, Mexico City.
- 1963b *VIII Censo General de Población. 1960. 8 de Junio de 1960. Estado de México*. Dirección General de Estadística, Mexico City.
- Earle, T.K.
1976 A Nearest-neighbor Analysis of Two Formative Settlement Systems. In *The Early Mesoamerican Village*, edited by K.V. Flannery, pp. 196-222. Academic Press, New York.
- Evans, S.T.
1980 A Settlement System Analysis of the Teotihuacan Region, A.D. 1350-1520. PhD dissertation, Department of Anthropology, The Pennsylvania State University, University Park.
- 1985 The Cerro Gordo Site: A Rural Settlement in the Aztec Period in the Basin of Mexico. *Journal of Field Archaeology* 12:1-18.
- 1992 The Productivity of Maguey Terrace Agriculture in Central Mexico During the Aztec Period. In *Gardens of Prehistory: The Archaeology of Settlement Archaeology in Greater Mesoamerica*, edited by T.W. Killion, pp. 92-115. University of Alabama Press, Tuscaloosa.
- 2001 Aztec-Period Political Organization in the Teotihuacan Valley: Otumba as a City-State. *Ancient Mesoamerica* 12:89-100.
- 2016 Location and Orientation of Teotihuacan: Water Worship and Processional Space. In *Processions in the Ancient Americas*, edited by S.T. Evans, pp. 52-121. Occasional Papers in Anthropology No. 33. Department of Anthropology, Pennsylvania State University, University Park. Open access at: journals.psu.edu/opa/article/view/60110.
- Evans, S.T. (ed.)
1988 *Excavations at Cihuatecpán*. Publications in Anthropology No. 36. Department of Anthropology, Vanderbilt University, Nashville, Tennessee.
- Evans, S.T., and A. Freter
1996 Teotihuacan Valley, Mexico, Postclassic Chronology: Hydration Analysis of Obsidian from Cihuatecpán, an Aztec-period Village. *Ancient Mesoamerica* 7:267-280.
- Evans, S.T., and P. Gould
1982 Settlement Models in Archaeology. *Journal of Anthropological Archaeology* 1:275-304.
- Evans, S.T., and W.T. Sanders
2000 Introduction. In *The Teotihuacan Valley Project Final Report, Vol. 5. The Aztec Occupation of the Valley. Part 1 – Natural Environment, 20th Century Occupation, Survey Methodology, and Site Descriptions*, edited by S.T. Evans and W.T. Sanders, pp. 1-4. Occasional Papers in Anthropology No. 25. Department of Anthropology, The Pennsylvania State University, University Park.
- Evans, S.T., W.T. Sanders, and J.R. Parsons
2000 The Teotihuacan Valley Project: Aztec Period Site Descriptions. In *The Teotihuacan Valley Project Final Report, Vol. 5. The Aztec Occupation of the Valley. Part 1 – Natural Environment, 20th Century Occupation, Survey Methodology, and Site Descriptions*, edited by S.T. Evans and W.T. Sanders, pp. 85-499. Occasional Papers in Anthropology No. 25. Department of Anthropology, The Pennsylvania State University, University Park.
- Ferrari, L., M. López-Martínez, G. Aguirre-Díaz, and G. Carrasco-Núñez
1999 Space-time Patterns of Cenozoic Arc Volcanism in Central Mexico: From Sierra Madre Occidental to the Mexican Volcanic Belt. *Geology* 27:303-306.

- Ferrari, L., M. López-Martínez, N. González-Cervantes, J. Jacobo-Albarrán, and M. Hernández-Bernal
2003 Volcanic Record and Age of Formation of the Mexico City Basin. *Reunión Anual de la Unión Geofísica Mexicana* 23:120.
- Flannery, K.V. (editor)
1986 *Guilá Naquitz. Archaic Foraging and Early Agriculture in Oaxaca*, Mexico. Academic Press, New York.
- Fletcher, C.
1962 Cuauanalan: An Archaeological Excavation and Study of a Ticomán Period Site in the Valley of Teotihuacán, Estado de México. Master's thesis, Department of Sociology and Anthropology, The Pennsylvania State University, University Park.
- Frederick, C., and C. Córdova
2019 Prehispanic and Colonial Landscape Change and Fluvial Dynamics in the Chalco Region, Mexico. *Geomorphology* 331:107-126.
- Fried, M.
1967 *The Evolution of Political Society: An Essay in Political Anthropology*. Random House, New York.
- García Chávez, R.E., L.M. Gamboa Cabezas, and N. Vélez Saldaña
2015 Los Sitios Rurales y la Estrategia Expansionista del Estado Teotihuacano para la Captación de Recursos en la Cuenca de México. *Ancient Mesoamerica* 26:423-442.
- Gibson, C.
1964 *The Aztecs Under Spanish Rule*. Stanford University Press, Stanford, California.
- Good, K., and G. Obermeyer
1986 Excavations at Oxtotipac (TT82). In *The Toltec Period Occupation of the Valley. The Teotihuacán Valley Project, Final Report, Volume 4, Excavations and Ceramics*, edited by W.T. Sanders, pp. 195-266. Occasional Papers in Anthropology No. 13. Department of Anthropology, The Pennsylvania State University, University Park.
- Gómez-Tuena, A., M.T. Orozco-Esquivel, and L. Ferrari
2007 Igneous Petrogenesis of the Trans-Mexican Volcanic Belt. In *Geology of México: Celebrating the Centenary of the Geological Society of México*, edited by S.A. Alaniz-Alvarez and A.F. Nieto-Samaniego, pp. 129-181. Special Paper 422. The Geological Society of America, Boulder, Colorado.
- Gonzalez, S., D. Huddart, L. Morett-Alatorre, J. Arroyo-Cabral, and O.J. Polaco
2001 Mammoths, Volcanism, and Early Humans in the Basin of Mexico during the Late Pleistocene/Early Holocene. In *Proceedings of The World of Elephants – International Congress, Rome*, edited by G. Cavarretta, P. Gioia, M. Mussi, and M.R. Palambo, pp. 704-706. First International Congress, Rome.
- Gorenflo, L.J.
1996 Regional Efficiency in Prehispanic Central Mexico: Insights from Geographical Studies of Archaeological Settlement Patterns. In *Arqueología Mesoamericana. Homenaje a William T. Sanders*, edited by A.G. Mastache, J.R. Parsons, R.S. Santley, and M.C. Serra Puche, pp. 135-159. Instituto Nacional de Antropología e Historia, Mexico City.
- 2006 The Evolution of Regional Demography and Settlement in the Prehispanic Basin of Mexico. In *Population and Preindustrial Cities: A Cross-Cultural Perspective*, edited by G.R. Story, pp. 295-314. University of Alabama Press, Tuscaloosa.
- 2015 Compilation and Analysis of Precolumbian Settlement Data in the Basin of Mexico. *Ancient Mesoamerica* 26:197-212.
- 2022 Modern Regional Demographics and Land Use in the Basin of Mexico: Insights from, and Impacts on, the Archaeological Record. In *The Legacies of The Basin of Mexico: The Ecological Processes in the Evolution of a Civilization*, edited by C. Córdova, C. Morehart, and C. Frederick. University Press of Colorado, Boulder (forthcoming).
- Gorenflo, L.J., and N.D. Gale
1986 Population and Productivity in the Teotihuacán Valley: Changing Patterns of Spatial Association in Prehispanic Central Mexico. *Journal of Anthropological Archaeology* 5:199-228.
- 1990 Mapping Regional Settlement in Information Space. *Journal of Anthropological Archaeology* 9:240-274.

- Gorenflo, L.J., and W.T. Sanders
 2000 Temascalapa Region: Aztec Period Site Descriptions. In *The Teotihuacan Valley Project Final Report, Vol. 5. The Aztec Occupation of the Valley. Part 2 – Excavations at T.A. 40 and Related Projects*, edited by W.T. Sanders and S.T. Evans, pp. 575-685. Occasional Papers in Anthropology No. 26. Department of Anthropology, The Pennsylvania State University, University Park.
- 2007 *Archaeological Settlement Pattern Data from the Cuautitlan, Temascalapa, and Teotihuacan Regions, Mexico*. Occasional Papers in Anthropology Number 30. Department of Anthropology, The Pennsylvania State University, University Park.
- Haggett, P.
 1965 *Locational Analysis in Human Geography*. Edward Arnold, London.
- Haggett, P., A. Cliff, and A. Frey
 1977 *Locational Analysis in Human Geography*. 2nd ed. Two volumes. Wiley, New York.
- Hassig, R.
 1985 *Trade, Tribute, and Transportation. The Sixteenth Century Political Economy of the Valley of Mexico*. University of Oklahoma Press, Norman.
- Heizer, R.F., and S.F. Cook.
 1959 New Evidence of Antiquity of Tepexpan and Other Human Remains from the Valley of Mexico. *Journal of Anthropological Research* 15:36-42.
- Hicks, F.
 1982 Tetzaco in the Early 16th Century: The State, the City, and the Calpolli. *American Ethnologist* 9:230-249.
- 1992 Subject States and Tribute Provinces: The Aztec Empire in the Northern Valley of Mexico. *Ancient Mesoamerica* 3:1-10.
- Hirth, K.G.
 2016 *The Aztec Economic World: Merchants and Markets in Ancient Mesoamerica*. Cambridge University Press, New York.
- Hodge, M.G.
 1984 *Aztec City-States*. Memoir 18. Museum of Anthropology, The University of Michigan, Ann Arbor.
- 1991 Land and Lordship in the Valley of Mexico: The Politics of Aztec Provincial Administration. In *Land and Politics in the Valley of Mexico*, edited by H. Harvey, pp. 113-140. University of New Mexico Press, Albuquerque.
- Hodge, M.G. (ed.)
 2008 *Place of Jade: Society and Economy in Ancient Chalco*. Serie Arqueología de México No. 7. University of Pittsburgh, Pittsburgh, Pennsylvania, and Instituto Nacional de Anthropología e Historia, Mexico City.
- Hodge, M.G., and H. Neff
 2005 Xaltocan in the Economy of the Basin of Mexico: A View from Ceramic Trade Wares. In *Production and Power at Postclassic Xaltocan*, edited by E. Brumfiel, pp. 319-349. Serie Arqueología de México No. 6. University of Pittsburgh, Pittsburgh, Pennsylvania, and Instituto Nacional de Anthropología e Historia, Mexico City.
- Instituto Nacional de Estadística, Geografía e Informática
 1990a *X Censo General de Población y Vivienda: Integración Territorial, Estado de Hidalgo*. Instituto Nacional de Estadística, Geografía, e Informática, Aguascalientes, Mexico.
- 1990b *X Censo General de Población y Vivienda: Integración Territorial, Estado de México*. Instituto Nacional de Estadística, Geografía, e Informática, Aguascalientes, Mexico.
- 1998 Niveles de Bienestar por AGEb (Compact disk). Instituto Nacional de Estadística, Geografía, e Informática, Aguascalientes, Mexico.
- Instituto Nacional de Estadística y Geografía
 2013 *Censo de Población y Vivienda 2010*. Instituto Nacional de Geografía e Estadísticas, Mexico City. (https://www.inegi.org.mx/programas/ccpv/2010/default.html#Datos_abiertos, accessed 3 January 2021).
- 2020 Acerca del Censo. 2020 Censo de Población y Vivienda (<https://censo2020.mx/censo/>, accessed 14 January 2021).
- Johnson, N.E. and K.G. Hirth
 2019 Altica, Coapexco, and the Role of Middlemen in Formative Period Obsidian Exchange. *Ancient Mesoamerica* 30: 295-310.
- Kintigh, K.W.
 1994 Contending with Contemporaneity in Settlement-Pattern Studies. *American Antiquity* 59:143-148.

- Kolb, C.C., and W.T. Sanders
 1996 The Surface Survey. In *The Teotihuacan Period Occupation of the Valley. The Teotihuacan Valley Project, Final Report, Volume 3. The Surface Survey*, edited by W.T. Sanders, pp. 485-653. Occasional Papers in Anthropology No. 21. Department of Anthropology, The Pennsylvania State University, University Park.
- Koehler, T.H.
 1986 Excavations at Maquixco Bajo (TT25A). In *The Toltec Period Occupation of the Valley. The Teotihuacan Valley Project, Final Report, Volume 4. Excavations and Ceramics*, edited by W.T. Sanders, pp. 7-52. Occasional Papers in Anthropology No. 13. Department of Anthropology, The Pennsylvania State University, University Park.
- Kovar, A.
 1970 The Physical and Biological Environment of the Basin of Mexico. In *The Natural Environment, Contemporary Occupation and 16th Century Population of the Valley. The Teotihuacan Valley Project, Final Report, Volume 1*, edited by William T. Sanders, pp. 13-67. Occasional Papers in Anthropology No. 3. Department of Anthropology, The Pennsylvania State University, University Park.
- Lamb, A.L., S. Gonzalez, D. Huddart, S.E. Metcalfe, C.H. Vane, and A.W.G. Pike
 2009 Tepexpan Paleoindian Site, Basin of Mexico: Multi-proxi Evidence for Environmental Change during the Late Pleistocene-Late Holocene. *Quaternary Science Reviews* 28:2000-2016.
- Leupold, A.S.
 1959 *Wildlife of Mexico: The Game Birds and Mammals*. University of California Press, Berkeley.
- Lighthart Ponomarenko, A.
 2004 The Pachuca Obsidian Source, Hidalgo, Mexico: A Geoarchaeological Perspective. *Geoarchaeology: An International Journal* 19:71-91.
- Linné, S.
 1948 *El Valle y la Ciudad de México en 1550*. Publication No. 9. The Ethnographical Museum of Sweden, NS, Stockholm.
- Lockhart, J.
 1992 *The Nahuas after the Conquest*. Stanford University Press, Stanford, California.
- Lorenzo, J.L., and L. Mirambell
 1986a Mamuts Excavados en la Cuenca de México. *Cuadernos de Trabajo del Departamento de Prehistoria* 32:1-151.
 1999 The Inhabitants of Mexico During the Upper Pleistocene. In *Ice Age People of North America*, edited by R. Bonnicksen and K. Turnmire, pp. 482-496. Oregon State University Press, Corvallis.
- Lorenzo, J.L., and L. Mirambell (editors)
 1986b *Tlapacoya: 35.000 Años de Historia del Lago de Chalco*. Colección Científica, Serie Prehistórica. Instituto Nacional de Antropología e Historia, Mexico City.
- Lugo H., J.
 1984 *Geomorfología del Sur de la Cuenca de México*. Tomo 1, Número 9. Instituto de Geografía, Seria Varia, Universidad Nacional Autónoma de México, Mexico City.
- MacNeish, R.S., M.L. Fowler, A. García Cook, F.A. Peterson, A. Nelken-Terner, and J.A. Neely (editors)
 1967 *The Prehistory of the Tehuacán Valley, Volume 5: Excavations and Reconnaissance*. University of Texas Press, Austin.
- Maldonado-Koerdell, M.
 1964 Geohistory and Paleogeography of Middle America. In *Handbook of Middle American Indians*, Vol. 1, R. Waucope (ed.), pp. 3-32. University of Texas Press, Austin.
- Mann, P.
 2007 Overview of the Tectonic History of Northern Central America. In *Geologic and Tectonic Development of the Caribbean Plate Boundary in Northern Central America*, edited by P. Mann, pp. 1-19. Special Paper 428. Geological Society of America, Boulder, Colorado.
- Marino, J.D.
 1987 The Surface Survey. In *The Toltec Period Occupation of the Valley. The Teotihuacan Valley Project, Final Report, Volume 4. Part 2, Surface Survey and Special Studies*, edited by W.T. Sanders, pp. 381-516. Occasional Papers in Anthropology No. 15. Department of Anthropology, The Pennsylvania State University, University Park.
- McCaa, Robert
 2003 Missing Millions: The Demographic Costs of the Mexican Revolution. *Mexican Studies/Estudios Mexicanos* 19:367-400.

- McClung de Tapia, E.
 2012 Silent Hazards, Invisible Risks: Prehispanic Erosion in the Teotihuacan Valley, Central Mexico. In *Surviving Sudden Environmental Change*, edited by J. Cooper and P. Sheets, pp. 143-165. University Press of Colorado, Boulder.
- 2015 Holocene Paleoenvironment and Prehispanic Landscape Evolution in the Basin of Mexico. *Ancient Mesoamerica* 26:375-390.
- McClung de Tapia, E., M.C. Serra Puche, and A.E. Limn de Dyer
 1986 Formative Lacustrine Adaptation: Botanical Remains from Terremote-Tlatenco, DF, Mexico. *Journal of Field Archaeology* 13:99-113.
- Melville, E.G.K.
 1994 *A Plague of Sheep: Environmental Consequences of the Conquest of Mexico*. Cambridge University Press, New York.
- Millhauser, J.K.
 2012 Saltmaking, Craft, and Community at Late Postclassic and Early Colonial San Bartolome Salinas, Mexico. PhD dissertation, Department of Anthropology, Northwestern University, Evanston, Illinois.
- 2017 Aztec Use of Lake Resources in the Basin of Mexico. In *Oxford Handbook of the Aztecs*, edited by D.L. Nichols and E. Rodríguez-Alegría, pp. 301-318. New York: Oxford University Press.
- Morehart, C.T.
 2010 The Archaeology of Farmscapes: Production, Place, and the Materiality of Landscape at Xaltocan, Mexico. PhD dissertation, Department of Anthropology, Northwestern University, Evanston, Illinois.
- 2016 Chinampa Agriculture, Surplus Production, and Political Change at Xaltocan, Mexico. *Ancient Mesoamerica* 27:183-96
- 2018 The Political Ecology of Chinampa Landscapes in the Basin of Mexico. In *Water and Power in Past Societies*, edited by E. Holt, pp. 19-39. State University of New York Press, Albany.
- Morehart, C.T., and C. Frederick
 2014 The Chronology and Collapse of Pre-Aztec (Chinampa) Agriculture in the Northern Basin of Mexico. *Antiquity* 88:531-548.
- Morehart, C., K. De Lucia, and E. Rodríguez-Alegría (editors)
 2019 *Xaltocan: Arqueología, Historia y Comunidad*. Museo Arqueológico de Nextlalpan, Xaltocan, Mexico.
- Mooser, F.
 1961 Los Ciclos de Vulcanismo que Formaron la Cuenca de México. *Revista Mexicana de Ingeniería y Arquitectura* 50(3).
- 1963 Historia Tectónica de la Cuenca de México. *Boletín de la Asociación Mexicana de Geólogos Petroleros* 15:239-245.
- Nichols, D.L.
 1980 Prehispanic Settlement and Land Use in the Northwestern Basin of Mexico, the Cuautitlan Region. PhD dissertation, Department of Anthropology, The Pennsylvania State University, University Park, PA.
- 1982 Middle Formative Irrigation System near Santa Clara Coatitlan in the Basin of Mexico. *American Antiquity* 47:133-144.
- 2015 Intensive Agriculture and Early Complex Societies of the Basin of Mexico: The Formative Period. *Ancient Mesoamerica* 26:407-421.
- Nichols, D.L., and T.H. Charlton
 1996 The Postclassic Occupation at Otumba. *Ancient Mesoamerica* 7:231-244.
- Nichols, D., and J. McCullough
 1986 Excavations at Xometla (TT21). In *The Toltec Period Occupation of the Valley. The Teotihuacan Valley Project, Final Report, Volume 4. Excavations and Ceramics*, edited by W.T. Sanders, pp. 53-194. Occasional Papers in Anthropology No. 13. Department of Anthropology, The Pennsylvania State University, University Park.
- Nichols, D.L., M.W. Spence, and M.D. Borland
 1991 Watering the Fields of Teotihuacan: Early Irrigation at the Ancient City. *Ancient Mesoamerica* 2:119-129.
- Niederberger, C.
 1969 Paleoecología Humana y Playas Lacustres Post-Pleistocenos en Tlapacoya. *Boletín del Instituto Nacional de Antropología e Historia* 37:19-24.
- 1976 *Zoahapilco*. Colección Científica 30. Instituto Nacional de Antropología e Historia, Mexico City.

- O'Brien, M.J., and D.E. Lewarch
1992 Regional Analysis of the Zapotec Empire, Valley of Oaxaca, Mexico. *World Archaeology* 23:264-282.
- Orozco y Berra, M.
1864 *Memoria Para la Carta Hidrográfica del Valle de México*. Mexico City.
- Ortíz de Montellano, B.R.
1978 Aztec Cannibalism: An Ecological Necessity? *Science* 200:611-617.
- Palerm, A.
1973 *Obras Hidráulicas Prehispánicas en el Sistema Lacustre del Valle de México*. Instituto Nacional de Antropología, Centro de Investigaciones Superiores, Mexico City.
- Parsons, M.H.
1972 Spindle Whorls from the Teotihuacan Valley, Mexico. In *Miscellaneous Studies in Mexican Prehistory*, edited by M. Spence, J.R. Parsons, and M.H. Parsons, pp. 45-80. Anthropological Papers No. 45. Museum of Anthropology, The University of Michigan, Ann Arbor.
- Parsons, J.R.
1971 *Prehistoric Settlement Patterns in the Texcoco Region, Mexico*. Memoir 3. Museum of Anthropology, The University of Michigan, Ann Arbor.

1974 The Development of Prehistoric Complex Society: A Regional Perspective from the Valley of Mexico. *Journal of Field Archaeology* 1:81-108.

1990 Critical Reflections on a Decade of Full-Coverage Regional Survey in the Valley of Mexico. In *The Archaeology of Regions: A Case for Full-Coverage Survey*, edited by S.A. Fish and S.A. Kowalewski, pp. 7-31. Smithsonian Institution Press, Washington, DC.

2006 *The Last Pescadores of Chimalhuacan, Mexico: An Archaeological Ethnography*. Anthropological Papers No. 96. University of Michigan Museum of Anthropology, Ann Arbor.

2008 *Prehispanic Settlement Patterns in the Northwestern Valley of Mexico: The Zumpango Region*. Memoir 45. The University of Michigan Museum of Anthropology, Ann Arbor.

2015 An Appraisal of Regional Surveys in the Basin of Mexico, 1960-1975. *Ancient Mesoamerica* 26:183-196.
- Parsons, J.R., E. Brumfiel, and M. Hodge
1996 Developmental Implications for Early Aztec in the Basin of Mexico. *Ancient Mesoamerica* 7:217-230.
- Parsons, J.R., E. Brumfiel, M.H. Parsons, and D. Wilson
1982 *Prehispanic Settlement Patterns in the Southern Valley of Mexico: The Chalco-Xochimilco Region*. Memoir 14. Museum of Anthropology, The University of Michigan, Ann Arbor.
- Parsons, J.R., K.W. Kintigh, and S.A. Gregg
1983 *Archaeological Settlement Pattern Data from the Chalco, Xochimilco, Ixtapalapa, Texcoco, and Zumpango Regions, Mexico*. Technical Report 14. Museum of Anthropology, The University of Michigan, Ann Arbor.
- Parsons, J.R., and L.J. Gorenflo
2022 Why is Aztec II Black-on-Orange Pottery so Scarce in the Zumpango Region? A Regional Perspective from the Basin of Mexico on Tula's Collapse and its Aftermath. In *The Legacies of The Basin of Mexico: The Ecological Processes in the Evolution of a Civilization*, edited by C. Córdova, C. Morehart, and C. Frederick. University Press of Colorado, Boulder (forthcoming).
- Parsons, J.R., and L. Morett
2005 La Economía Acuática e el Valle de México: Perspectivas Arqueológicas, Históricas, y Etnográficas. In *Etnoarqueología: El Contexto Dinámico de la Cultura Material a Través del Tiempo*, edited by E. Williams, pp. 127-164. El Colegio de Michoacán, Zamora.
- Parsons, J.R., and M. H. Parsons
1990 *The Utilization of Maguey in Highland Central Mexico: An Archaeological Ethnography*. Anthropological Papers No. 82. Museum of Anthropology, The University of Michigan, Ann Arbor.
- Parsons, J.R., M.H. Parsons, V. Popper, and M. Taft
1985 Chinampa Agriculture and Aztec Urbanization in the Valley of Mexico. In *Prehistoric Intensive Agriculture in the Tropics*, edited by I. Farrington, pp. 49-96. International Series No. 232. British Archaeological Reports, Oxford, UK.
- Paso y Troncoso, F. del
1979 *Relaciones Geográficas de México*. Editorial Cosmos, Mexico City.

- Pastrana, A.
1998 *La Explotación Azteca de la Obsidiana en la Sierra de las Navajas*. Serie Arqueología Instituto Nacional de Historia e Antropología, Mexico City.
- Price, B.J.
1976 A Chronological Framework for Cultural Development in Mesoamerica. In *The Valley of Mexico: Studies in Pre-hispanic Ecology and Society*, edited by E. Wolf, pp. 13-22. University of New Mexico Press, Albuquerque.
- Rattray, E.C.
1991 Fechamientos por Radiocarbono en Teotihuacán. *Arqueología* 6:3-18.
- Rojas, T., R. Strauss, and J. Lameiras
1973 *Nuevas Noticias Sobre las Obras Hidráulicas Prehispánicas y Coloniales en el Valle de México*. Instituto Nacional de Antropología e Historia, Mexico City.
- Sahagún, Bernardino de
1950- *Florentine Codex: General History of the*
1982 *Things of New Spain*. Translated by C.E. Dibble and A.J.O. Anderson. University of Utah Press, Salt Lake City.
- Sánchez S., O.
1968 *La Flora del Valle de México*. Editorial Herrero, Mexico City.
- Sanders, William T.
1957 Land and Water. PhD dissertation, Department of Anthropology, Harvard University, Cambridge, Massachusetts.
1965 *The Cultural Ecology of the Teotihuacan Valley, Mexico*. Department of Sociology and Anthropology, The Pennsylvania State University, University Park.
1970 The Population of the Teotihuacan Valley, the Basin of Mexico and the Central Mexican Symbiotic Region in the Sixteenth Century. In *The Natural Environment, Contemporary Occupation and 16th Century Population of the Valley, The Teotihuacan Valley Project Final Report – Volume 1*, edited by William T. Sanders, pp. 385-457. Occasional Papers in Anthropology No. 3. Department of Anthropology, The Pennsylvania State University, University Park.
- 1976 Final Field Report. Cuauhtitlan – Temascalapa Survey Project. Manuscript on file, University Archives, The Pennsylvania State University, University Park.
- 1981 Ecological Adaptation in the Basin of Mexico: 21,000 B.C. to the Present. In *Archaeology*, edited by J.A. Sabloff, pp. 147-187. *Supplement to the Handbook of Middle American Indians*, Vol. 1, general editor B.F. Bricker. University of Texas Press, Austin.
- 2002 Tepetlaoztoc Project: Archaeological Investigations. Foundation for the Advancement of Mesoamerican Studies, Inc., Crystal River, Florida.
- Sanders, W.T. (ed.)
1994 *The Teotihuacan Period Occupation of the Valley. The Teotihuacan Valley Project, Final Report, Volume 3. The Excavations*. Occasional Papers in Anthropology No. 19. Department of Anthropology, The Pennsylvania State University, University Park.
- Sanders, W.T., and S.T. Evans
2001 The Teotihuacan Valley and Temascalapa Region during the Aztec Period. In *The Teotihuacan Valley Project Final Report, Vol. 5, Part 3 – The Aztec Period Occupation of the Valley*, edited by W.T. Sanders and S.T. Evans, pp. 931-1078. Occasional Papers in Anthropology No. 27. Department of Anthropology, The Pennsylvania State University, University Park.
- Sanders, W.T., S.T. Evans, and T.H. Charlton
2001 The Colonial Period Cultural Geography of the Teotihuacan Valley and the Temascalapa Region. Mapping Toltec Period Settlement in the Teotihuacan Valley: Commentary. In *The Teotihuacan Valley Project Final Report, Vol. 5, Part 3 – The Aztec Period Occupation of the Valley*, edited by W.T. Sanders and S.T. Evans, pp. 891-918. Occasional Papers in Anthropology No. 27. Department of Anthropology, The Pennsylvania State University, University Park.
- Sanders, W.T., and L.J. Gorenflo
2007 *Prehispanic Settlement Patterns in the Cuautitlan Region, Mexico*. Occasional Papers in Anthropology Number 29. Department of Anthropology, The Pennsylvania State University, University Park.

- Sanders, W.T., and H.C. Olea
 1986 Excavations at Cuanalan East (TT28). In *The Toltec Period Occupation of the Valley. The Teotihuacan Valley Project, Final Report, Volume 4., Excavations and Ceramics*, edited by W.T. Sanders, pp. 267-282. Occasional Papers in Anthropology No. 13. Department of Anthropology, The Pennsylvania State University, University Park.
- Sanders, W.T., J.R. Parsons, and R.S. Santley
 1979 *The Basin of Mexico: Ecological Processes in the Evolution of a Civilization*. Academic Press, New York.
- Sanders, W.T., and R.S. Santley
 1983 A Tale of Three Cities: Energetics and Urbanization in Prehispanic Central Mexico. In *Prehistoric Settlement Patterns. Essays in Honor of Gordon R. Willey*, edited by E.Z. Vogt and R.M. Leventhal, pp. 243-292. University of New Mexico Press, Albuquerque.
- Sanders, W.T., M. West, J. Marino, and C. Fletcher
 1975 *The Formative Period Occupation of the Valley. The Teotihuacan Valley Project, Final Report, Volume 2*. Occasional Papers in Anthropology No. 10. Department of Anthropology, The Pennsylvania State University, University Park.
- Santley, R.S.
 1977 *Intra-site Settlement Patterns at Loma Torremote and their Relationship to Formative Prehistory in the Cuautitlán Region, State of Mexico*. PhD dissertation, Department of Anthropology, The Pennsylvania State University, University Park.
- Sears, P.B.
 1952 Palynology in Southern North America I: Archaeological Horizons in the Basin of Mexico. *Bulletin of the Geological Society of America* 63:241-254.
- Secretaría de Planeación y Desarrollo Regional
 2011 *Programa de Desarrollo Urbano y Ordenamiento Territorial de la Zona Metropolitana del Valle de Tizayuca*. Subsecretaría de Desarrollo Metropolitano, Secretaría de Planeación y Desarrollo Regional, Pachuca, Hidalgo, Mexico.
- Serra Puche, M.C., and J.C. Lazcano Arce
 2009 Arqueología en el Sur de la Cuenca de México. Diagnóstico y Futuro. En *Memoriam W.T. Sanders. Cuicuilco* 47:19-38.
- Service, E.R.
 1971 *Primitive Social Organization*. 2nd ed. Random House, New York.
- Servicio de Información Agroalimentaria y Pesquera
 2019 Estadística de la Producción Agrícola de 2017. Servicio de Información Agroalimentaria y Pesquera, Mexico City. (<http://infosiap.siap.gob.mx/gobmx/datosAbiertos.php>, accessed 6 April 2019).
- Simpson, L.B.
 1952 *Exploitation of Land in Central Mexico in the Sixteenth Century*. Ibero-Americana 36. University of California Press, Berkeley and Los Angeles.
- Steponaitis, V.P.
 1981 Settlement Hierarchies and Political Complexity in Non-Market Societies: The Formative Period in the Valley of Mexico. *American Anthropologist* 83:320-363.
- Solís, J.L.
 1975 Reconocimiento y Estudio Preliminar del Sitio San Miguel Eyecalco y Alrededores. Manuscript on file, University Archives, The Pennsylvania State University, University Park.
- Sterpone, Osvaldo J.
 1996 *Geografía Histórica: Investigación Acerca del Urbanismo, Demografía y Medioambiente en el Norte de la Cuenca de México*. Instituto Nacional de Antropología e Historia, Pachuca, Hidalgo, Mexico.
- Stoner, W.D., and D.L. Nichols
 2019 The Altica Project: Reframing the Formative Basin of Mexico. *Ancient Mesoamerica* 30:247-265.
- Sugiyama, S.
 1998 Cronología de Sucesos Ocurridos en el Templo de Quetzalcoatl, Teotihuacán. In *Los Ritmos de Cambio en Teotihuacán: Reflexiones y Discusiones de su Cronología*, edited by R. Brambila P. and R. Cabrera C, pp. 167-184. Instituto Nacional de Antropología e Historia, Mexico City.
- Tamayo, J., and R. West
 1964 The Hydrography of Middle America. In *Handbook of Middle American Indians*, edited by R. Waucope, pp. 84-121. University of Texas Press, Austin.

- Tellman, B., J.C. Bausch, H. Eakin, J.M. Anderies, M. Mazari-Hiriart, D. Manuel-Navarrete, and C.L. Redman
2018 Adaptive Pathways and Coupled Infrastructure: Seven Centuries of Adaptation to Water Risk and the Production of Vulnerability in Mexico City. *Ecology and Society* 23(1):1. <https://doi.org/10.5751/ES-09712-230101>.
- Tolstoy, P.
1975 Settlement and Population Trends in the Basin of Mexico (Ixtapaluca and Zacatenco phases). *Journal of Field Archaeology* 2: 332-349.
- Tolstoy, P., and S.K. Fish
1973 Excavations at Coapexco, 1973. Report submitted to the National Science Foundation, Washington, DC.
- 1975 Surface and Subsurface Evidence for Community Size at Coapexco, Mexico. *Journal of Field Archaeology* 2:97-104.
- Tourtellot, G.
1973 Review of *Prehistoric Settlement Patterns in the Texcoco Region, Mexico*, by J.R. Parsons. *American Anthropologist* 75:524-525.
- Vaillant, G.C.
1930 *Excavations at Zacatenco*. Volume XXXII, Part 1, Anthropological Papers. American Museum of Natural History, New York.
- 1931 *Excavations at Ticoman*. Volume XXXII, Part 2, Anthropological Papers. American Museum of Natural History, New York.
- 1935 *Excavations at El Arbolillo*. Volume XXXV, Part 1, Anthropological Papers. American Museum of Natural History, New York.
- 1938 A Correlation of Archaeological and Historical Sequences in the Valley of Mexico. *American Anthropologist* 40:535-573.
- Vescelius, G.S.
1960 Archaeological Sampling: A Problem of Statistical Inference. In *Essays in the Science of Culture in Honor of Leslie A. White*, edited by G. Dole and R. Carniero, pp. 457-470. Thomas Crowell, New York.
- Wright, H.T.
1977 Recent Research on the Origin of the State. *Annual Review of Anthropology* 6:379-397.
- Zambardino, Rudolph A.
1980 Mexico's Population in the Sixteenth Century: Demographic Anomaly or Mathematical Illusion? *Journal of Interdisciplinary History* 11:1-27.
- Zipf, G.K.
1949 *Human Behavior and the Principle of Least Effort: An Introduction to Human Ecology*. Addison-Wesley, Cambridge, Massachusetts.
- Zambardino, Rudolph A.
1980 Mexico's Population in the Sixteenth Century: Demographic Anomaly or Mathematical Illusion? *Journal of Interdisciplinary History* 11:1-27.
- Zipf, G.K.
1949 *Human Behavior and the Principle of Least Effort: An Introduction to Human Ecology*. Addison-Wesley, Cambridge, Massachusetts.