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The Archaeology of Political Organization

Urbanism in Classic Period Veracruz, Mexico

Barbara L. Stark

The Archaeology of Political Organization

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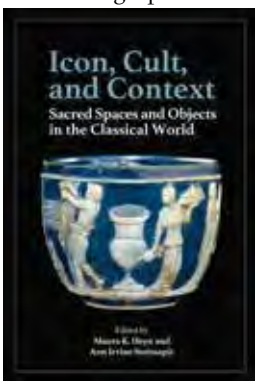

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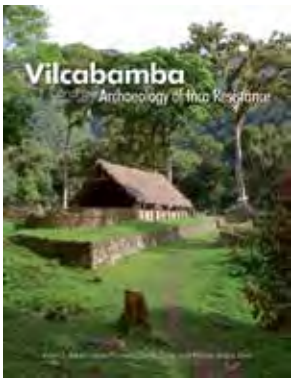

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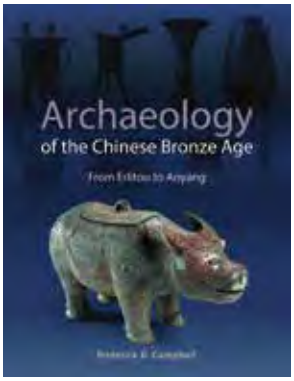

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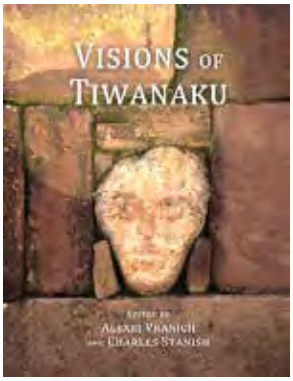

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The Archaeology of Political Organization

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Barbara L. Stark

Monograph 72

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Preface

When I began work in the Veracruz lowlands near the Papaloapan River, I was motivated by the possibility that very early settlements might be found, as had been discovered on the Pacific coastal lowlands. I failed to realize how profoundly an emergent coastline had assisted such discoveries on the Pacific side. In the Gulf area, I rapidly settled into Classic period investigations of mangrove swamp archaeology for my dissertation, partly motivated by curiosity about the largely unknown nature of societies in that region.

Influenced by the impact of the Basin of Mexico regional surveys (Sanders et al. 1979) on our understanding of Mesoamerican societies, I determined that a regionally oriented survey would be my next step, but redesigned to be more intensive to accommodate the dispersion of households that created a seemingly continuous spread of archaeological features. The survey design also responded to the growing recognition of nested scales of evidence in settlement patterns, from artifact clusters, to residences, to settlements and regions, a perspective emphasized in Oaxacan research (Flannery 1982; Flannery and Marcus 1983). Monumental complexes are the obvious settlement nodes for these lowland societies with dispersed residences, and a focus of this volume.

Two cycles of regionally oriented survey in riverine farmlands in the western lower Papaloapan basin followed my dissertation work in the mangrove swamps near the mouth of the Papaloapan. The first round asked how the area related to wider Classic period processes, particularly effects of Teotihuacan, which proved to have more elite stylistic impact, likely through emulation and trade contacts, than any reshaping of south-central Veracruz. The second round was more squarely focused on the puzzles of regional settlement, a perplexing example of low-density urbanism that made settlements and settlement hierarchy problematic to interpret. Stuart Speaker (2001b) conducted a spin-off survey oriented to some of the low-lying terrain and its agricultural implications.

The two survey projects owe their existence to agency support. A modest start was made with seed money from the National Geographic Society (2827-84; $1,510.00) combined with travel funds from Arizona State University. I and a volunteer, Lynette Heller, completed most of the mapping and surface collecting of Cerro de las Mesas (the remainder accomplished with the initiation of systematic regional survey). This seed money led to a National Science Foundation grant (BNS-8519167 and BNS-8741867) for the first three years of survey and residential excavation during 1986–1988 ($57,706.00), along with support from the Wenner-Gren Foundation for Anthropological Research ($6,000.00).

As noted, the first survey project, Proyecto Arqueológico La Mixtequilla (PALM 1), addressed long-term changes in the region with special attention to episodes of interaction with major highland states, especially Teotihuacan. The first round of survey, covering a 36 sq km "Central Block" in the Blanco River delta, ended with the proverbial "tiger by the tail"—an unexpected density of monumental centers and residential remains that made settlement pattern interpretation puzzling, especially for relationships among monumental complexes and the scale of ancient polities.

A second cycle of survey 1998–2004 (PALM 2) was supported by the National Science Foundation (SBR-9804738, $149,492.00) and addressed problems of scale and hierarchy in regional settlement raised by the first survey by expanding the coverage to additional landforms and adding to the Blanco delta survey. Concurrent funding from the National Geographic Society 1999–2002 ($13,355.00) helped further expand coverage to include areas of the mangrove swamp to the east where my dissertation excavations had previously been conducted on a settlement crossing Patarata Island. As far as known to this point, we included all top-tier centers in the region and many secondary centers, with the most complete information along the course of the Blanco River. The Classic period proved to be an apogee of settlement construction, followed by a collapse.

The sequence of funding and research efforts had a humble beginning, a case in which persistence and strategy led to later advances. First, a grant application to the NSF was turned down for survey along the Papaloapan River. Reviewers were not convinced the work would be sufficiently useful and found the scope overly broad. This setback led me to change my strategy to begin with a relatively famous site, Cerro de las Mesas, known for its stone monuments. The site, through its recognition for monumental art, lent some appeal to the effort to obtain funds, which nevertheless met with meager success. Initial funding was barely enough for two determined people to map and surface collect the monumental core.

The later survey grants were successful in part because each step was a springboard for the next, and they underwrote a wellspring of economic, political, architectural, and artifactual interpretations. The survey approach proved crucial in establishing regional-scale information for a long archaeological sequence. As is usually the case, the projects were valuable not only for the results obtained, but also for the questions they raised. This volume addresses the composition of settlements, settlement hierarchy, and political organization, but does not shy from emphasizing the limits of knowledge and the interpretive issues that remain.

The research was conducted with permission and oversight by the Instituto Nacional de Antropología e Historia (INAH), Consejo de Arqueología. We benefited from the cordial hospitality of a succession of directors and the advice and encouragement of archaeological colleagues at the Centro INAH Veracruz. Colleagues at the Instituto de Arqueología in Xalapa, at the Facultad de Antropología of the Universidad Veracruzana, and at the Museo de Antropología in Xalapa made the research a feasible and encouraging process. Much of the project primary data already are archived with public access in tDAR, under the auspices of Digital Antiquity (Western Lower Papaloapan Archaeology [Veracruz, Mexico] collection 13583). Wes Stoner provided essential help with the ArcGis program. Valuable comments that improved the monograph were provided by Arthur Joyce, an anonymous reviewer, and the Editorial Board of the Cotsen Press, but they are not responsible for the content.

The information derived from the series of PALM projects proved valuable due to the quality of participants and their hard work: mainly undergraduate or graduate students and local inhabitants formed the field and laboratory crews. I thank them all again for their contributions. They are listed below by seasons and principal activities. Some names may have been inadvertently omitted due to incomplete records.

Season 1984–1985. Field and laboratory work: Lynette Heller.

Season 1986. Assistant Director: Lynette Heller. Field crew members: Barbara Ann Hall, Antonio Curet, Patricia Geddes, Thelma Landon, Dawn (Haverstock) Massie, Stuart Speaker, Sergio Vásquez, Marc Watkins, and Clare Yarborough.

Laboratory work: Antonio Curet, Thelma Landon, Dawn (Haverstock) Massie, Stuart Speaker, Sergio Vásquez, and Clare Yarborough.

Local assistants: Ciro Barragán, Hugo Bautista, Felipe Martínez, Felipe Ramírez, Rosendo Rita, Virginia Rita, and Eugenio Santiago.

Season 1987. Assistant Director: Lynette Heller. Field crew members: Sherman Banker, Javier Castro, Antonio Curet, Bradley Ensor, Barbara Ann Hall, Juan Jorge Lopez, Dawn (Haverstock) Massie, Joyce Hitchcock, Todd Howell, Angélica Oviedo, Stuart Speaker, Nina Swidler, Sergio Vásquez, and Clare Yarborough.

Field Laboratory Director: Thelma Landon.

Laboratory work: Javier Castro, Antonio Curet, Barbara Ann Hall, Dawn (Massie) Haverstock, Lynette Heller, Joyce Hitchcock, Suzanne Lewenstein, Stuart Speaker, Sergio Vásquez, and Clare Yarborough.

Local field assistants: Rubén Alvarado, Ciro Barragán, Hugo Bautista, Pablo Colina, Manuel Cruz, Daniel Gutiérrez, Francisco Gutiérrez, Andrés Jiménez, Felipe Martínez, Maribel Murillo, Juan Ochoa, Felipe Ramírez, Alvino Reyes, Jesús Ríos, Virginia Rita, Rosendo Rita, Eugenio Santiago, Rolando Torres, Carlos Urtuzuástequi, Juan Carlos Urtuzuástequi, Claudio Uscanga, and Élia Vásquez.

Season 1988. Assistant Director: Lynette Heller. Field crew members: Barbara Ann Hall, Stuart Speaker, and Clare Yarborough.

Laboratory work: Barbara Ann Hall, Stuart Speaker, and Clare Yarborough.

Local field assistant: Ciro Barragán.

Season 1989. Speaker (2001b) dissertation project, Project Director: Stuart Speaker, Tulane University. Field crew members: Mark Brodbeck, Bradley Ensor, Lynette Heller, and Robert Kruger.

Laboratory work (PALM 1): Mark Brodbeck, Lynette Heller, and Juan Carlos Urtuzuástequi.

Season 1990. Laboratory work (PALM 1): Lynette Heller and Michael Ohnersorgen.

Season 1998, *PALM 2*, Co-Director: Sergio Vásquez Zárate. Field crew members: Oralia Cabrera, Lynette Heller, Kevin Johns, and Thanet Skoglund.

Laboratory work: Lynette Heller, Kevin Johns, and Thanet Skoglund.

Season 1999. Co-Director: Sergio Vásquez Zárate. Field crew members: Elizabeth Bridges, Lynette Heller, Elizabeth Hoag, Kevin Johns, María Eugenia Maldonado Vite, James McCrorey Lawton, Thanet Skoglund, Samantha Thornton, and Charlotte Uzu.

Laboratory work: María Antonia Aguilar-Pérez, William Graves, Elizabeth Hoag, Kevin Johns, María Eugenia Maldonado Vite, Thanet Skoglund, Salomé de la Paz Torres Pérez.

Local field assistants: Aida Mendoza and Matilda Pelchor Díaz.

Season 2000. Assistant Director: Lynette Heller. Field crew members: Xochitl Bautista, Verenice Y. Heredía Espinoza, Hugo Huerta Vicente, Mitsuru Kurosaki, Aline Patricia Lara Galicia, Alanna Ossa, and Jennifer Smit.

Laboratory work: Oralia Cabrera, Verenice Heredía, Lynette Heller, Mitsuru Kurosaki, Alanna Ossa.

Local field assistant: Ciro Barragán.

Season 2001. Assistant Director: Lynette Heller. Field crew members: Christopher Garraty, Elizabeth Hoag, Alanna Ossa, Matthew Penta, Alex Symcox, and Amy Jo Vonarx.

Laboratory work: Lynette Heller, Christopher Garraty, Alanna Ossa, Alex Symcox, and Amy Jo Vonarx.

Season 2002. Assistant Director: Lynette Heller. Field crew members: R. Neil Miller, Alanna Ossa, and Amy Jo Vonarx.

Laboratory work: Lynette Heller, R. Neil Miller, Alanna Ossa, and Amy Jo Vonarx.

Illustration Assistance. Various years: Mary Jo Baldwin, Cyndi Bates, Dawn Frost, Matthew Pridemore, Stuart Speaker, and Geoffrey Clark.

Digital Archiving, *2008–2009*. Lara Lloyd, Angela Ruggles, and Meagan Rubel.

Digital Archiving for tDAR, *2010–2011*. Associate Director: Alanna Ossa. Interns: Anne Beyens, Courtney Bruce, Shantele Johnston, and Meghan Morris.

This volume is dedicated to Lynette Heller, whose participation was essential across the numerous field seasons and whose skills with people and archaeology were vital in getting things to happen and happen right.

Chapter 1

Setting the Scene

To borrow a phrase from Richard Diehl (2000:189), the Gulf lowlands of Mesoamerica were the "Land of Wealth." This chapter briefly introduces the Land of Wealth as the context of my study. The broad coastal plain with its fertile alluvial soils, seasonally abundant rainfall, and valued tropical products, such as colorful feathers, cotton textiles, cacao beans, and tropical fauna, made the Gulf lowlands rich according to Mesoamerican values. Jaguars prowled the lowlands, their pelts a widespread symbol of royalty. The greater width of the Gulf coastal plain compared to the Pacific side made the Gulf area particularly important economically and politically. The Gulf lowlands are a Quaternary alluvial plain, with rivers depositing new sediments through annual flooding during the rainy season, primarily June through September. Despite its resource advantages that benefited the ancient inhabitants, the Gulf lowlands have not received as much archaeological attention as the central highlands, where the capitals of Teotihuacan, Tula, and Tenochtitlan were located, nor the state of Oaxaca in the southern highlands, where Monte Albán is located—and certainly not as much investigation as the Maya lowlands, where a myriad of sites have been studied.

The elongate state of Veracruz bends around a large portion of the Gulf of Mexico in Mesoamerica. Traditionally, Veracruz is divided into three main sections for archaeological purposes: north, central, and south (Figure 1.1). Central Veracruz is further subdivided into north-central and south-central by the Sierra de Chiconquiaco, jutting down to the coast as the dividing point. From the Sierra de Chiconquiaco, south-central Veracruz extends to the Papaloapan River in the cultural divisions employed by Medellín Zenil (1960:8–9), with southern Veracruz continuing to the eastern border of the state at the Tonalá River. Most investigators continue the tradition of separating south-central and southern Veracruz at the Papaloapan drainage (e.g., Daneels 2012b). The Tuxtla Mountains, a low volcanic formation, are part of southern Veracruz, but their western side drains into the Papaloapan, constituting the eastern lower Papaloapan basin (ELPB).[1] Treating the lower Papaloapan basin integrally is often useful. My study concerns settlement patterns and political interpretations in an area of south-central Veracruz in the western lower Papaloapan basin (WLPB), using data from the Proyecto Arqueológico La Mixtequilla (PALM) and related projects.

Background for the Archaeology of South-Central Veracruz

South-central Veracruz archaeology has a long history of investigation, but many early studies do not supply sufficient information for the demands of modern

Figure 1.1. Map of Mesoamerica showing the state of Veracruz in the Gulf lowlands, and the south-central region. Key to site localities: 1, El Tajín; 2, Cempoala; 3, Remojadas; 4, Cotaxtla; 5, Quauhtochco; 6, Cerro de las Mesas, Zapotal, and La Mojarra; 7, Tres Zapotes; 8, Matacapan; 9, San Lorenzo and Manatí; 10, La Venta. *All illustrations prepared by Barbara Stark.*

archaeology. Brief early reports offer little leverage against broader archaeological questions, and chronologies remain shaky. See Table 1.1 for calendric period designations and corresponding cultural phases. To a considerable extent, chronologies rely on stratigraphy, cross-dating, and seriation—all relative dating methods. Chronometric dates at present are few but provide support. Even when we enlarge the frame to include north-central and southern Veracruz, the same challenges remain because modern studies are not abundant. For the most part, the Gulf lowlands have not been in the forefront for many "big questions" about Mesoamerica. One exception is the Preclassic period Gulf Olmecs.

Gulf Olmec studies focus on early centers in southern Veracruz that have major stone carvings and elaborate architectural efforts. In Michael Coe's (1968) title, the Gulf Olmecs were "America's First Civilization," a connotative phrase that captures the rather spectacular Olmec activities and social changes starting around 1200 BC. The Olmecs place the Gulf lowlands squarely in the limelight for arguments about the origins of complex society in Mesoamerica. A series of recent projects has provided a growing body of knowledge about Gulf Olmec society and economy (see overview by Pool 2007).

For the rest of the Gulf lowlands, projects (often at large, key sites) have yielded information about changing material culture (architecture, sculpture, pottery, figurines, stone tools, etc.), but many do not directly address broader questions about complex societies. Increasing numbers of salvage and mitigation projects under the auspices of the Instituto Nacional de Antropología e Historia have successfully investigated imperiled sites but without the wider dissemination of information that builds toward new syntheses. We are left with a myriad of questions for which answers are alarmingly fragmentary. What are urban expressions in the lowlands, how were societies with "middle-range" complexity and those with state governments organized and how and why did they change, how did the economy develop (subsistence, crafts, and exchange),

Table 1.1. Periods and approximate positions of phases or complexes in south-central Veracruz and the eastern lower Papaloapan basin

Period Name	Calendric Span	WLPB (Drucker 1943; Stark 1989, 2001)	Long-count Dates	ELPB, Tres Zapotes (Pool & Ohnersorgen 2003)	Central Veracruz (Medellín Zenil 1960)	South-Central Veracruz (Daneels 2016)
	AD 1521					
Late Postclassic		Upper II			Horizonte Histórico	Posclásico Tardío
	AD 1350					
Middle Postclassic		Upper I			Horizonte Tolteca	Posclásico Medio
	AD 1200					
Early Postclassic				Soncautla complex		Posclásico Temprano
	AD 900					
Late Classic		Late Limón phase		Quemado phase	Horizonte Clásico/ Remojadas Superior 2	Clásico Tardío
		Early Limón phase				Clásico Medio II
	AD 600					
Early Classic		Camarón 3 phase	AD 533, CM St. 8;	Ranchito phase	Horizonte Clásico/ Remojadas Superior 1	Clásico Medio I
		Camarón 2 phase	AD 468, CM St. 6			Clásico Temprano
		Camarón 1 phase				
	AD 300					
Terminal Preclassic (Formative)		Guerén complex (mound 354)		Nextepetl phase		Protoclásico
			AD 162, Tux. Stat.; AD 156 and 143, Mojarra St. 1;			
			31 BC, Tres Zap. St. C	Hueyapan phase	Horizonte Preclásico/ Remojadas Inferior	
	100 BC					
Late Preclassic (Formative)		Pozas phase				Preclásico Tardío
	600 BC					
Middle Preclassic (Formative)		Pozuelos complex		Tres Zapotes phase		Preclásico Medio
	900 BC					
Early Preclassic (Formative)						Preclásico Inferior
	1200 BC					

Notes
Only periods after the Archaic and Initial Period are included
Some authors use period names for cultural phases
WLPB = western lower Papaloapan basin; ELPB = eastern lower Papaloapan basin

how extensive were polity territories, what relationships were forged among polities, were areas subject to expansionist states—either arising locally or emanating from the adjacent highlands? And more.

Given this situation, how have the Gulf lowlands been evaluated and integrated into accounts of Mesoamerica? To sidestep a question too complex for this brief introduction yet provide a snapshot, I tabulated information from books introducing Mesoamerica which I had to hand (many designed as textbooks or as hybrids for the general public, and some designed as library and scholarly references).[2] The sources are highly varied, address different audiences, and include authored books and edited ones with sections about Gulf archaeology; they range in date from 1959 to 2013. I assessed the most recent edition I had, as texts tend to be updated but not heavily reorganized. There are other publications that synthesize Gulf archaeology specifically, as mentioned in a later subsection. In this tabulation I focused on south-central and southern Veracruz, but included one site in north-central Veracruz, El Tajín. Over time the sites and topics show a growing knowledge of Gulf archaeology but also reveal many limitations, especially for some of the comparative topics that drive current research, such as political and economic organization.

From 16 sources (tabulated 19 ways, due to the organization of an encyclopedia), the Gulf Olmecs emerged as champions for site mentions, with the triad sites of San Lorenzo, La Venta, and Tres Zapotes having the highest coverage (13–15 mentions). El Tajín tied them (13 mentions); El Tajín is a large Late Classic site with masonry architecture, partly restored through national and state projects. After El Tajín were three more sites (10–11 mentions): Cempoala, a Postclassic site also with masonry architecture and government-sponsored restoration; Cerro de las Mesas (many stone sculptures, some with writing and Long-count dates); and Matacapan, discussed in the context of Teotihuacan contacts or expansion. Other sites occasionally mentioned include: (1) Classic period Zapotal, where a buried, unfired, painted earthen sculpture of the death god in his temple and numerous interments with grave goods provide a unique discovery, (2) Preclassic Laguna Manatí, a spring where Olmec offerings were made, including greenstone celts and remarkably preserved wooden busts; (3) Remojadas, a relatively small site that provided a sequence for the diverse and lively south-central Veracruz figurine tradition; and (4) La Mojarra, a modest center where a Terminal Preclassic stela was recovered, with a long inscription and Long-count dates.

In other words, masonry architecture and carved monuments or other "artistic" products play a disproportionate role in the "archaeological gaze" toward the Gulf lowlands. This predilection has restricted appreciation of most south-central and southern Veracruz architecture because earthen mounds predominate, not masonry. For alluvial regions without stone, monumental sculpture and masonry buildings required massive transport efforts. Instead, the elaboration of wood busts at Laguna Manatí, unfired earthen sculpture at Zapotal, or large figural ceramic sculptures at various sites in south-central Veracruz capitalize on locally available resources for ritually important imagery.

Among the topics I tallied, coverage of material culture styles and artifacts was the most common (13), as expected. For other topics of wide theoretical relevance (migration, political organization, economic organization, and collapse of polities), the Gulf Olmecs continued their prominent role. Political and economic organization were discussed seven and five times, respectively, for the Olmecs, but only four and three times respectively for all developments after the Olmecs. Migration was mentioned nine times, particularly for later periods. Multiple language groups are recognized in contact period documents, suggestive of population movements. The economic value of the Gulf lowlands surely contributed to attracting different groups. Collapse (often mentioned as abandonment of centers) was noted for the Gulf Olmecs once, and twice for Classic period centers. Recent survey results about settlement patterns have scarcely percolated into Gulf lowland syntheses (Daneels [2012b] is an exception), but change is on the horizon.

Settlement Pattern Studies

Beginning during the 1970s, new Gulf projects introduced a settlement pattern perspective that amplified research beyond Olmec questions (Pool 2006). A regional perspective on settlement in Mesoamerica was initiated by Gordon Willey (1953; Willey et al. 1965) in the Maya lowlands, on the heels of his Peruvian work. The importance of this perspective was dramatically underscored by the highland Basin of Mexico regional surveys (Sanders et al. 1979). More complete mapping and analysis of urban settlements to include not only monumental constructions but also residences was highlighted in the Teotihuacan Mapping Project (Millon 1973; Millon et al. 1973). Both regional and urban systematic survey in these examples inspired research in the Gulf lowlands.

As one consequence, for the central and southern Gulf areas, we now are relatively survey-rich but excavation-poor (with the exception of the Gulf Olmecs). There is no extensive history of architectural excavations and restorations common for other well-known Mesoamerican regions, in part because the architecture is predominantly earthen, substantially handicapping restorations. Excavations and technical studies at La Joya by Daneels (2008c, 2010; Daneels and Guerrero 2013; Daneels et al. 2013; Kita et al. 2013) are an exception to the neglect of earthen architecture. Preservation and continued study of this architecture is a crisis situation because the structures easily can be demolished by road-building equipment or brick makers. I hope that maps of monumental construction in this volume will spur a better appreciation of the cultural and scientific value of WLPB earthen architecture and energize investigation and preservation.

Recent projects in south-central and southern Veracruz have produced a considerable body of settlement data (for example, Borstein 2001; Daneels 2016; Heredía Barrera 2007; Killion and Urcid 2001; Loughlin 2012; Pool and Ohnersorgen 2003; Santley and Arnold 1996; Stark 2016; Stoner 2011; Symonds et al. 2002). New discoveries abound. For example, systematic survey projects provided the basis for Stark and Eschbach (2017, 2018) to argue that south-central and southern Veracruz societies experienced a collapse comparable in several respects to that in the southern Maya lowlands during the interval AD 700–1000. The "Maya collapse" is no longer just Maya, and we must begin to think in terms of areas of lowland collapse. Overall, the range of research questions in Gulf archaeology has undergone dramatic change, as has the repertoire of methods of field investigation and analysis.

Culture History: A Sketch

A few signposts of culture history for south-central and southern Veracruz contextualize the Classic period developments addressed in this monograph, and Chapter 2 provides more details for south-central Veracruz. Several publications have synthesized the panorama of Gulf cultures after the Olmecs (for example, Bernal and Dávalos Hurtado 1953; Coe 1965; Daneels 2012a, 2012b; Diehl 2000; García Payón 1971; Ladrón de Guevara 2012; Medellín Zenil 1960; Pool 2006; Stark and Arnold 1997). Just as with the Mesoamerican text and reference books discussed previously, few Gulf studies have focused attention on political and social organization, apart from the Gulf Olmecs. Nevertheless, these subjects are an increasing preoccupation (for example, Brüggemann 1991; Daneels 2002a, 2005a, 2008a, 2012a, 2012b, 2012c, 2016; Pool 2006:195; 2008; Stark 1999b, 2016).

As noted, the Preclassic Gulf Olmecs constituted a key development. The temporal sequence of their major centers, impressive sculpture, long-distance exchanges, and the use of Olmec symbols and styles at many distant Mesoamerican locations provide one of the most intriguing aspects of Gulf archaeology. Gulf Olmec labor mobilization and centers are not matched by other parts of Mesoamerica where early societies also were undergoing elaboration of leadership and rituals as social hierarchies developed. Why the coastal plain of southern Veracruz became so pivotal early in Mesoamerica but was more marginalized later remains a perplexing subject. Distant nodes of political power changed as major centers developed elsewhere, disrupting Gulf Olmec external relationships (Grove 1987:440–441). Also, most of southern Veracruz was less well suited environmentally for cotton growing than south-central Veracruz (Stark 2000:44; Stark et al. 1998). Cotton textiles assumed growing social roles in the Classic period, and south-central Veracruz correspondingly gained economic importance.

As discussed in Chapter 4, scant evidence for Early and Middle Preclassic WLPB populations that overlapped the Gulf Olmecs gives way to later Preclassic occupation. Late and Terminal Preclassic people in the WLPB were concentrated at three nodes, with additional scattered light occupation in the countryside. The largest node was Cerro de las Mesas. An elaborate Terminal Preclassic burial there testifies to social differentiation and presages the site's preeminence in the region during the Early Classic period (Daneels 2008a; Stirling 1941). A stone yoke included among the funerary items points to the institution of the ball game that would become a fixture of Classic centers (Daneels 2008a). Population expanded greatly both in the lower Cotaxtla (Daneels 2016) and WLPB drainages by the onset of the Classic period, with all the WLPB survey areas showing Early Classic occupation. In the Papaloapan Basin a writing system and Long-count dates during the Terminal Preclassic and Early Classic periods were possibly partly derived from Olmec roots, but they also reflected investments in elite distinctions and ritual activities that accompanied a proliferation of hierarchical centers (see Chapter 2).

By the Classic period a particular layout of buildings at centers, termed the Standard Plan, included

ballcourts as a mainstay, along with temple platforms and one or two elongate lateral mounds around a nearly square plaza (Daneels 2016); a monumental palatial platform was nearby. Some of the ingredients of this layout can be seen at the Late Preclassic center of Tres Zapotes at the edge of the western Tuxtla Mountains and perhaps earlier at La Venta (Stark 2007b:58–59), but the Standard Plan was a new formulation. Cognate patterns are evident in southern Veracruz, especially during the Late Classic period. The multiplicity of centers, each with some subsidiary settlements, created a mass of "peer polities," competing, emulating, and cooperating. These peer polities thrived, not at the inception of complex societies for which Renfrew (1986) proposed the concept, but during a lengthy heyday through the Classic period.

In some areas, such as the WLPB, there are only a few primary centers, but in other cases, such as the lower Cotaxtla-Jamapa drainage, there are many, usually somewhat smaller in amount of formal architecture. During the Classic period, the Maya lowlands afford the closest parallel to the array of centers in the south-central Gulf area. Nevertheless, organizationally south-central Veracruz centers differ in the lesser emphasis on dynastic rule and in the persistent adherence to a particular design for centers. I have attributed this phenomenon to a degree of corporate emphasis in governance with multiple interest groups having a stake in the kinds of buildings and their presentation at centers (Stark 2016).

Interaction with Early Classic Teotihuacan, the powerful capital of a central highland state in the Basin of Mexico (Cowgill 2015), is mainly evident for Gulf elites. The interaction demonstrates Teotihuacan's prestige and extensive contacts and trade. Teotihuacanos developed a settlement at Matacapan in the Tuxtla Mountains on the east side of the Papaloapan Basin in an area left unoccupied after an earlier volcanic eruption (Santley 2007). Most south-central and southern Gulf polities remained independent, however (Daneels 2002b; Stark and Johns 2004; Stoner 2011, 2012; Stoner and Pool 2015). New survey reveals settlements along the north coast of the Tuxtlas, with docks and other indications of participation in coastwise trade (Budar 2016, 2017), but without any indication of Teotihuacan control, adding a new element to the picture of economic diversity in the Gulf lowlands.

Despite over 600 years of Classic period Standard Plan architecture and accompanying cultural traditions in pottery and ceramic figures, ultimately the prosperity and density of Classic Gulf centers were not sustained. Centers in south-central Veracruz were abandoned, with new settlements founded later by immigrant groups from the central highlands. In the western Tuxtlas, reduced local populations reorganized (Stark and Eschbach 2017, 2018; Venter 2016). The causes of these drastic transformations remain unknown, in good part because the extent of the changes was revealed only recently through regionally oriented surveys. Unlike the Maya lowlands, the Gulf lowland collapse has not yet been a focus of study.

In south-central Veracruz, Late Postclassic centers such as Cuetlaxtlan (Cotaxtla; Ohnersorgen 2001, 2006) and Quauhtochco (Huatusco; Medellín Zenil 1952) were positioned along the Cotaxtla River drainage. Smaller settlements in the WLPB were probably subjects of Cuetlaxtlan. The towns in the Cotaxtla drainage are recorded as part of the Aztec Triple Alliance empire. Along the Papaloapan River at Tlacotalpan and in the Tuxtlas, some settlements likewise were tributary to the Aztecs, but Aztec control is not documented farther east in southern Veracruz (Venter 2012). Cempoala, a city along the Actopan River at the northwestern edge of south-central Veracruz, also was subject to the Aztecs (Brüggemann et al. 1991; García Márquez 2014). Thus, different riverine connections to the highlands were prominent in the Postclassic period, compared to the Classic period, when the WLPB hosted major seats of power. The expansion of the Aztec empire came on the heels of intensified Postclassic market systems in Mesoamerica (Smith and Berdan 2003), and much of the Gulf lowlands was tied into this larger economic and political world. Gulf products, especially cotton textiles (Stark et al. 1998), were critical elements in Postclassic economic and social life.

Who Were They?

Because the languages spoken in south-central Veracruz are in dispute for the Classic and Preclassic periods (Daneels 2012a, 2012b; Stark and Eschbach 2018), there is no convenient name for the peoples and cultures there comparable to the term "Classic Maya." Gulf archaeological nomenclature for the ancient inhabitants has a checkered history. Preclassic Gulf Olmecs were named from Aztec statements about who lived in southern Veracruz, a name that had nothing to do with the much earlier Preclassic centers, but the name stuck. The neutral phrase "Classic Veracruz cultures" includes enough regional diversity that the problem of how to refer to the people who lived in south-central Veracruz is not solved.

Research by Torres Guzmán (1970:6–26) in the lower Blanco River area led him to define "La Mixtequilla" as a cultural subarea, using a local colloquial name for the *municipio* of Ignacio de la Llave. The term harkens to the historic sugar cane laborers imported from the Mixteca (Stark and Showalter 1990:69–70). Mixtequilla has the advantage of being a current locality term, even if the linguistic meaning is no longer appropriate. The first round of the PALM survey fell within the area of the Mixtequilla as Torres Guzmán defined it, and I used the term to indicate the locality. Eventually, the Mixtequilla area as he defined it did not encompass all the PALM survey[3], and I do not redefine his term. I refer to the area as the western lower Papaloapan basin (WLPB). Archaeological phases that represent associations of material culture and related practices have been defined from excavations and seriations (Table 1.1). The names of monumental centers recorded in survey were applied from previous archaeological designations, local informants, nearby settlements, or landscape features.

Wider Significance

What is the significance of a part of Mesoamerica that has not been widely viewed as crucial, except for the Gulf Olmecs? Calls for reorienting research concerning the origins and functioning of complex societies argue for understanding political and economic variability that is not accommodated in traditional stage and neoevolutionary perspectives that emphasize top-down authority (e.g., Blanton et al. 1996; Blanton and Fargher 2008; Feinman 2018). Regions of Mesoamerica that differ play a vital role. They are the "experiments" that show us what varies in complex societies, what is more constant, and where our suppositions are unfounded. Of equal importance, these "experiments" help determine the geographic and social scales we need to consider for Mesoamerica. Such regions contributed to interregional economic relationships for Mesoamerica. South-central Veracruz is an example with respect to exports from the cotton textile industry. I put "experiments" in quotes because the societies involved the lives of people, not experiments in a traditional sense. They are experiments only in an analytical and comparative perspective.

As noted, throughout the Classic period, south-central Veracruz displays a distinct variant in the layout of centers, one that is highly repetitive (Daneels 2016). The region exhibits political organization that varies between a profusion of small polities (statelets) and larger ones with many subsidiary centers under them. I will argue in later chapters that architecture and settlement pattern in the WLPB point to a mix of governance principles, including both corporate-collective principles and autocratic ones, with some erosion of the former toward the end of the Classic period. Both operated along with a segmentary principle.

WLPB economy has proven more diversified than expected in early models of tropical lowland economy (e.g., Sanders 1971). Blade production from imported preformed obsidian cores and pottery production are crafts identified through surface concentrations in survey (e.g., Heller 2000; Heller and Stark 1998; Stark 2007a, 2007c; Stark and Garraty 2004). Spindle whorls appropriate for cotton are widespread in the Early Classic period (Stark 2020), likely accelerating interregional exchange for cotton textiles that was to characterize later Mesoamerica. Craft specialization is one hallmark of a complex society. Stoner (2017) recently identified WLPB areas of raised/drained fields at a scale larger than previously recognized, further testifying to a complex regional economy. Nevertheless, we are in the "early days" of documenting economic and political organization. For example, the symbolic and economic significance of ponds at centers and their roles in a complex agricultural regime have scarcely been explored in comparison to the accumulation of environmental, hydraulic, and agricultural evidence at Maya sites (e.g., for Tikal, Lentz et al. 2018).

WLPB economic specialization occurred even though south-central Veracruz exhibits agrarian low-density urbanism (Fletcher 2012), with households spread out on the landscape rather than nucleated at centers (the latter is a pattern characteristic in the Mexican highlands). Low-density urbanism has mainly been studied for the Classic Maya and the Khmer in southeast Asia. Concentrated population shortens distances from producers to consumers and lessens administrative costs of reaching the population with rituals or other events in which key information is disseminated or experiences are formed. None of these transportation and communication considerations related to low-density urbanism kept south-central Veracruz polities from thriving and developing crafts and markets. Lack of population concentrations may have made state expansionist efforts costly, however, either in martial mobilization or in subduing neighbors.

Regional history controverts expectations of instability when there are "mixed" political principles (Blanton et al. 1996). The unusual Classic period

cultural and social traditions in south-central Veracruz lasted for at least 600 years. The array of centers was relatively stable, yet faltered during the lowland collapse. Nevertheless, Postclassic towns eventually were established, and the cotton industry continued to thrive. The complex economy of the Postclassic Mesoamerican world (e.g., Smith and Berdan 2003) has deep roots in the interregional contacts established during Olmec times and in the prosperity and cotton trade of Classic period Gulf polities.

Major Results

Low-density urbanism characterizes the region during the Classic period with exceptions, such as the contiguous string of residential mounds in the mangrove swamp settlement of Nacastle-Patarata (Chapter 6). Low-density urbanism makes identifying settlements problematic, as does the extensive scatter of monumental complexes throughout the PALM survey blocks. I use several lines of evidence to propose settlement boundaries for two major centers in the Blanco delta, Cerro de las Mesas and Azuzules (Chapter 6). The intensity of the PALM survey proved vital in the evidence of settlement boundaries, but the distances to the proposed perimeters (2–3 km) makes this effort feasible only for the Blanco delta where I have the greatest area of contiguous coverage. Elsewhere, I define partial settlement areas (extents) using multiple lines of evidence. These extents include some outlying monumental construction as part of a center—that is, segment complexes. Thus, a process of analysis converts the array of monumental complexes into an array of centers viewed as settlements. The descriptive chapters provide detailed architectural maps and show the surrounding residential scatters.

The distribution and sizes of monumental complexes-as-settlements allows me to propose settlement hierarchies (Chapters 6, 12). The associated ceramics are a basis for discriminating change over time. The settlement characteristics and hierarchies are the sources of information that I relate to governance (Chapter 13). I assess corporate versus network principles, collective versus autocratic principles, and segmentary versus non-segmentary ones. I argue for mixed principles and for variation in predominant principles according to the settlement hierarchy. The WLPB as a case study shows an "on-the-ground" society with respect to political organization. This actual society is more complicated than polarizing theoretical principles might imply. Many case studies employed in theoretical work are based on historical documents, rather than archaeology and thus biased toward the central authority, or they are based on assessment of a particular archaeological site, not regional hierarchies. The WLPB mix of principles is not a blend, but an orchestration of principles which have implications for one another in the society. I refer to the principles as distinct but entangled in their social contexts.

The WLPB lends strong support to the importance of corporate and collective principles in Mesoamerica's history, but without these principles playing an exclusive or predominant role. A series of separate publications addressing crafts and economy in the region established a corresponding record of a complex economy and supported the idea that households did not form powerless undifferentiated commoners. This economic picture is consonant with the mixed political principles for which I argue. Unanswerable as yet is the question of whether the WLPB results concerning governance and the economy are the manifestations of a particular Mesoamerican "experiment," or, instead, are present more widely but not yet disclosed due to the types of investigations conducted.

Subsequent Chapters

Chapter 2 establishes vital background with (1) an introduction to the concept of low-density urbanism in relation to settlement patterns in the WLPB, which affected the survey design, (2) reviews of previous research about environment and land use and of political organization in the WLPB, which are entwinned subjects essential for later discussion of results from the PALM research, and (3) the history of archaeological work in the WLPB that laid the groundwork for PALM. Chapter 3 provides an overview of the survey methods and feature categories in the PALM project. Chapter 4 summarizes the history of occupation in the WLPB, primarily drawing upon survey results and previous chronological seriations. Chapter 5 identifies feature categories in monumental complexes along with their arrangements. Chapter 6 offers trial boundaries for some sites and partial areas (extents) for others, thus determining how individual monumental complexes will be organized and classified into a site hierarchy. Chapters 7 to 11 present maps and discussion of individual monumental complexes, providing the basic data. Chapter 12 examines settlement hierarchies over time. Principles in political organization are the focus of Chapter 13.

Notes

1 Wilkerson (1974, 1988) included the western Tuxtlas as part of south-central Veracruz. Coe (1965) treated the western lower Papaloapan basin as part of southern Veracruz.

2 In chronological order: Wolf 1959; Coe 1965; Sanders and Price 1968; García Payón 1971; Sanders 1971; Tolstoy 1974; Adams 1991 [1977]; Weaver 1993 [1972]; Blanton et al. 1993 [1981]; Ortíz Ceballos and Rodriguez 1999; Diehl 2000; Wilkerson 2001; Stark 2001c; Clark 2001; individual site entries in the encyclopedia *Archaeology of Ancient Mesoamerica and Central America* (Evans and Webster 2001); Lathrop 2004 [1984]; Coe and Koontz 2008; Daneels 2012b; Evans 2013 [2004]. Note that a few titles have later editions than those I consulted.

3 The geographic extent of his subarea includes parts of the *municipios* (townships) of Tlalixcoyan and Ignacio de la Llave. Torres Guzmán's cultural subarea encompasses the lower Blanco River and parts of the lower Tlalixcoyan. Current archaeological information shows a more extensive distribution of key traits in the WLPB than he realized, making his spatial definition inconvenient. The term is also problematic because there was a long trajectory of occupation with considerable cultural change. Although there is a case for gradual change from the Preclassic through Classic periods, the Postclassic presents a striking cultural break. In comparison, Medellín Zenil (1960:Plano 2) shows a Preclassic cultural subarea for the western lower Papaloapan basin but he does not comment on its extent in later periods nor use the Mixtequilla term.

Chapter 2

The Proyecto Arqueológico La Mixtequilla in Context

Dispersed settlement in the western lower Papaloapan basin (WLPB) and other parts of the Mesoamerican tropical lowlands challenges us to avoid imposition of concepts about settlements and settlement hierarchies derived from more nucleated settlements without examining data in their own terms. Particularly during the Classic period (AD 300–900), the Gulf lowlands exhibit low-density urbanism, a term that accommodates settlement phenomena seen in the Khmer region in Southeast Asia and in the Maya lowlands (Evans et al. 2007; Fletcher 2009, 2012). The concept of low-density urbanism highlighted by Fletcher (2009, 2012) is a valuable response to this challenge of assessing tropical lowland patterns. The PALM survey design was geared to dispersed occupation as described in Chapter 3, which focuses on survey methods.

Low-density urbanism is compatible with a definition of urbanism that focuses on the functions of centers in a region (Blanton 1976) rather than on high population size and density (Wirth 1938). Fletcher (2012:286) distinguishes agrarian from industrial low-density urbanism, the latter seen in the sprawl of modern conurbations. Throughout, I use "low-density urbanism" as a shorthand for the agrarian context, which is the one relevant to ancient civilizations.

One issue is whether low-density urbanism is a category (type) that contrasts with more nucleated, high-density urbanism. Two important points have emerged from examination of settlement densities (Feinman and Nicholas 2012; Smith 2005; Stark 2014a:385–389; Stark and Heller 1991b:55–57).[1] First, low-density urbanism is one pole of a continuum. Agrarian low-density urbanism is not categorical but scalar. Feinman and Nicholas (2012:135–136) compiled 49 densities for Mesoamerican settlements ranging nearly continuously from 2 to 130 persons per hectare. Lowland Maya cases occupy most of the low end, below about 25 persons per hectare. Although I have argued that densities can be examined more directly and with fewer assumptions by calculating open space instead of invisible people (Stark 2014a:374–375), the point is that low-density settlements are at the low end of a spectrum and have considerable green space interwoven that allows for gardens and groves. Second, low-density urbanism is not solely a by-product of particular environments and subsistence practices but is also dependent on integrative mechanisms (Feinman and Nicholas 2012), one reason the settlement hierarchy and principles in political organization are addressed in this volume. Surveys in the Proyecto Arqueológico La Mixtequilla (PALM) and by Speaker

(2001b) generated regional data to address settlement patterns and political principles.

For the WLPB, population estimates are fraught with uncertainties, but fall within the low end of the spectrum of densities. Settlement densities are not the only relevant datum because densities in the surrounding landscape also figure in the notion of low-density urbanism (Stark and Heller 1991b:55). Lucero et al. (2015:1140–1141) define tropical low-density urbanism as involving both settlement and surrounding landscape density: agricultural and open land are interwoven with massive urban infrastructure and a dispersed farming population—"the urban-rural population was simultaneously agriculturally based and civically integrated." In Fletcher's (2012:285) phrase, the "hinterland is incorporated in the urban fabric." A gradual decline in density, or differentiated density zones of core, periphery, and hinterland, are examples of degrees of contrast that can be relevant (Stark 2014a:385–389).

We are only beginning to compile the detailed surveys and mapping of residential remains to permit such distinctions. Cerro de las Mesas has the greatest amount of surrounding residential survey and offers the best data for evaluating densities. It was a capital for the region during the Early Classic period (AD 300 to 600). Here I consider occupational densities from the heavily settled Blanco River delta, but in Chapter 6 I propose settlement boundaries within the delta for Cerro de las Mesas and Azuzules, both primary centers. In any case, people in most of the Central Block survey could reach Cerro de las Mesas with a 5 to 10 km walk.

An initial estimate for the Central Block survey (49.4 sq km) was 4,415 people, during the Early Classic period (Stark 2003a:401). Speaker's survey blocks were excluded because of the earlier, less precise chronology applied in his ceramic analysis. The estimate assumed five people per household for residential mounds that yielded ceramics from the Early Classic or Early Classic Tendency diagnostics (discussed in Appendix 1; 825 mounds or surface concentrations were outside of monumental complexes and 292, within monumental complexes; for the latter, arbitrarily 20% are assumed to be residential, yielding 58 residential features, or 883 residential features in total). Correcting for multiple homes around a patio on the residential mounds and using an average of two homes yields approximately 8,000 to 10,000 people. Since 42% of the recorded total of 2,360 features could not be surface collected, this estimate would have to be increased by 42%, 11,360–14,200. Stark and Garraty (2008:193) estimate that approximately 30% more low residential features (i.e., <2 m high) were not detected on the basis of comparison of densities for excellent surface visibility versus other visibilities. Because 75% of features are below 2 m, another 185 residential features may have existed outside of monumental complexes, with 1,850 people, but an unknown proportion would be Early Classic. If we assume about 1,000 people pertained to the Early Classic, the estimate range in round numbers would be approximately 12,000–15,000 Central Block inhabitants.

The range of 12,000 to 15,000 would have to be adjusted downward for non-simultaneous occupation during the Early Classic period, but it can be viewed as a maximum for that period. It is unlikely that many locations remained unoccupied for very long in the valuable delta lands. The resultant densities are 243 to 304 people per square kilometer, which converts to 2.43 to 3.04 per hectare, on the low end of the densities compiled by Feinman and Nicholas (2012:135–136) and within the values associated with low-density urbanism.

Other posited aspects of low-density urbanism require case-by-case evaluation. Fletcher 2012:304, 306) notes "extensive modification of the landscape for agriculture" that leads to forest clearing and greater vulnerability to climate change. Regions with low-density urbanism are not the only ones with dramatic landscape effects from agriculture, however. The WLPB does have an extensive area of raised/drained fields between the Blanco delta and the paleodunes to the north (Stoner 2017). Drained/raised fields are a landscape modification in wetlands that increases agricultural production. Fletcher (2012:302) also notes "homogeneous spatial patterns over vast areas." In south-central Veracruz, homogeneous spatial patterns are attested by the extensive use of a particular layout of buildings at centers, the Standard Plan, as discussed in Chapter 5. Both agricultural modifications (raised fields) and spatial layout replications will be addressed in this and later chapters.

The WLPB surveys contribute to the study of low-density urbanism three ways. (1) I consider what constitutes a settlement. In some cases I propose settlement boundaries, but in other cases there is not enough information to address boundaries because of the limits of survey, and I define settlement extents (the extent to which other major structures or features are incorporated within a settlement). A boundary may lie well beyond the documented extent. (2) After identifying settlements from the information about

monumental complexes, I analyze settlement hierarchies over time. (3) The sizes and composition of settlements and their hierarchical relationships allow me to consider the political principles that organized WLPB societies (Chapter 13). I examine collective, corporate, autocratic, client network, and segmentary principles. As Feinman and Nicholas (2012) argue, we need information about how societies are integrated. This challenge extends beyond political principles to include economic and religious activities. Although I mention published studies pertinent to these topics, the focus here is political.

I present results of two cycles of archaeological survey, surface collection, and mapping in the WLPB in south-central Veracruz in the Proyecto Arqueológico La Mixtequilla (PALM 1 and 2), and I integrate a related dissertation survey by Stuart Speaker (2001b; Figure 2.1). This volume follows a series of publications that address PALM data. A previous volume presented the 1987 residential excavations, which were part of the first cycle of survey (Stark, ed. 2001). Now I focus particularly on the monumental architecture in relation to settlement pattern interpretation. Later sections of this chapter provide historical and theoretical background about the study locality.

The project used a variant of "non-site" or distributional methods to record artifact concentrations and mounds (Ebert 1992). In the PALM surveys, most features were residential units, mainly mounds but also surface ceramic concentrations with no mound evident. Each residential feature requires its own chronological or other assessment because, with continued occupation of the region over time, adjacent residential features might display different histories or activities. Systematic data have the potential for statistical analyses to improve our understanding of regional chronology and to answer economic and social questions; the project used systematic collections from each feature encountered (if a collection could be made). By systematic collection I mean methods that obtain materials consistently over a measured area or set of units, or, if collections were opportunistic, collecting all of certain categories of artifacts rather than chronological diagnostics. (Of course, "all" artifacts is a concept relative to the time spent and personnel movements across the collection area.) The survey and collection methods were relatively intensive, as described in Chapter 3. The result of the field methods is a particularly fine-grained dataset for analysis of settlement patterns.

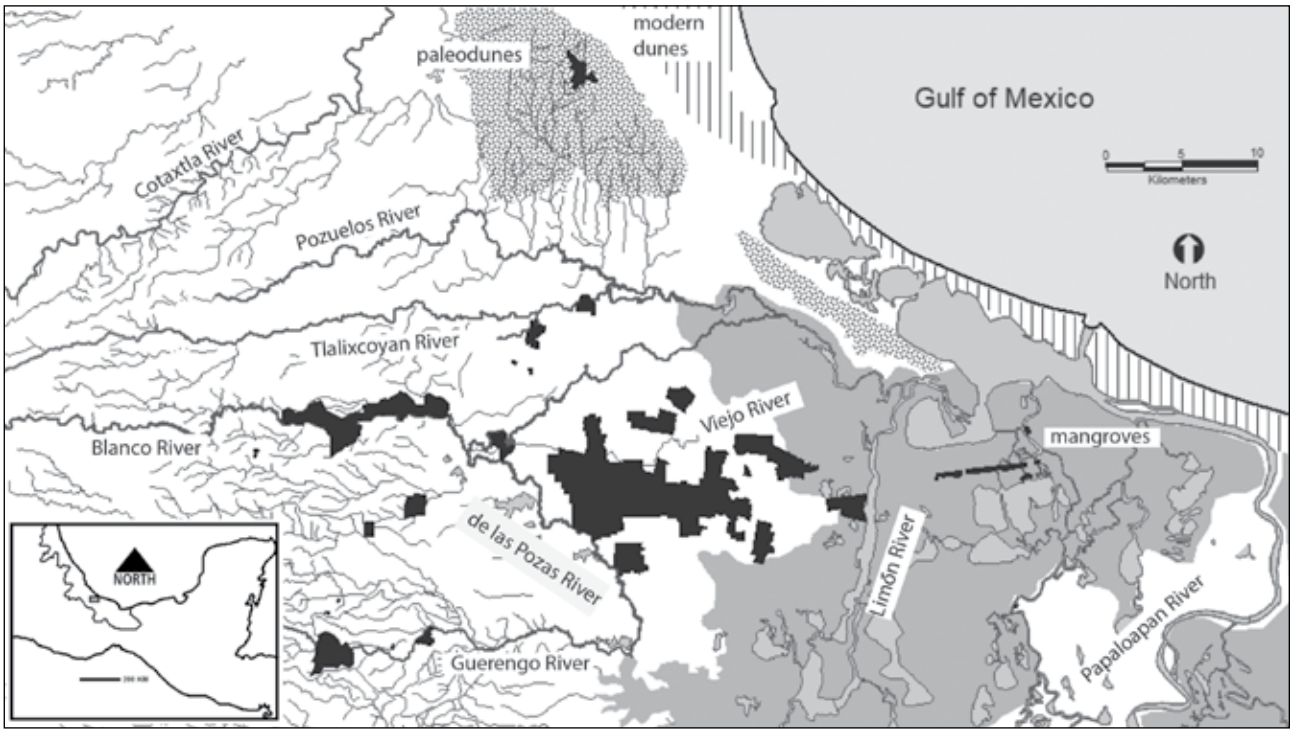

Figure 2.1. Western lower Papaloapan basin showing major physiographic characteristics and survey blocks (black).

The challenge to understand Gulf urbanism and settlement is analogous to that confronted by Schachner (2012: e.g., 20, 27–28, 30–31, 198–200), who noted that communities have been assumed or "discovered" in the archaeological US Southwest, but that ethnographic models and traditional assumptions do not address the processes that affect communities and their material expression, such as mobility and population circulation. In some instances, traditional community concepts may not be applicable. In my study, I do not solely search for a "theoretical object" in the data (e.g., settlement hierarchy, urban centers). Instead, I ask what structure is evident among the data. If there is a settlement hierarchy or urban centers, how are they expressed?

Three processes are important for my interpretations: (1) cumulative occupation or reoccupation of mounds, (2) replication of institutions, seen especially in a particular arrangement of principal structures in monumental complexes, and (3) consolidation of landholdings and power. Many residential mounds were reoccupied or continuously occupied due to the advantages of somewhat higher ground for better drainage during the rainy season. Many structures at centers were rebuilt and enlarged over centuries of use, as is common in Mesoamerica. A prominent aspect of the settlement record is the replication of layouts and institutions associated with particular types of buildings at many sites, including sites of different ranks in the region, and at multiple Gulf polities. In the analysis of the settlements over time, I will show that shifts in organizational emphases led to a greater consolidation of power in the hands of aristocratic families, and that collective action in governance became more muted.

My interpretive approach is enabled by the relatively detailed body of information about individual archaeological features and the contour mapping of 67 monumental complexes. Because of the challenges posed by low-density urbanism, in which settlements and their hinterlands seem nearly indistinguishable, urban settlements and settlement hierarchies are taken as subjects of investigation. For example, I began with monumental complexes, not centers, which were defined at a later stage. The intensive survey offers a chance to take a fresh look at a settlement record from the Gulf lowlands and construct higher-level classifications, starting with archaeological features as a basic observation.

The flexible approach is not thoroughly inductive, as many concepts are applied to the settlement record, such as "residential mound" "or "monumental complex," without discussion. For higher-level concepts, urbanism and hierarchy are accepted as valuable topics, but their manifestations are under scrutiny. Later, for example, I discuss collective, corporate, autocratic, exclusionary-network, and segmentary governance principles, but I do not set out to decide if definitions of one or the other are applicable in the region in a yes-no fashion. One outcome is evidence of a complex web of principles. Likewise, I do not establish urban criteria and decide if the settlement record matches them. Rather, I ask what the information indicates about settlement organization and society. This effort can be only partially successful at present because we have few excavations and a relatively coarse chronology for the region (see Daneels 2006).

I emphasize study of the residues of activity that the ancient inhabitants left us—clues to their perceptions and actions, to the social structures they imposed and elaborated, and to their uses of their environment. Were the survey extensive rather than intensive, defining a settlement hierarchy might not be so troublesome, as we would not see all the smaller complexes nor the widespread scatter of residences that make settlement boundaries and relationships problematic. Ideally, the intensive survey will prove complementary to more extensive methods that figure in several other Gulf surveys. Crucially, the WLPB investigation will contribute new questions and issues for investigation. I subscribe to the principle that good research both answers and creates questions. This chapter continues with background for the chapters that follow by examining the natural setting and land use, debates about how societies in south-central Veracruz were organized, and the history of archaeological research that contributed to the PALM investigation.

Paradise Found: Environment and Land Use

The agricultural potential of the WLPB, based in rich soils, no frost, and regular, seasonal rain, along with other resources, made the region resource-rich. There were challenges: stone was lacking; rainy-season flooding affected low areas; tropical storms could bring occasional excessive flooding; and northerly winter storms brought colder temperatures. Characteristics of the environment and land use are integral to all models for political organization and settlement patterns in the Gulf lowlands. For the WLPB, twin considerations are the variety of landforms and their effects on agriculture or other pursuits, especially the riverbanks and alluvial lands that are the most productive for agriculture, and the regularity and amount of seasonal rain in a hot climate.

Physiography

Several sources detail information about the south-central Veracruz environment in relation to archaeology. Stark (1977:12–21), Bruder (1977:22–28), and Large (1977:225—229) describe characteristics of the estuarine wetlands dominated by mangroves near the mouth of the Papaloapan River. Daneels (2016:89–126) provides a comprehensive discussion of the central Veracruz environment, including hazards such as volcanic eruptions and storms, and she addresses land use west of the WLPB in the lower Cotaxtla-Jamapa basin.

The Papaloapan is one of the largest rivers in Mexico in volume of flow, with major tributaries, such as the San Juan and Tesechoacan from the east and the Blanco, Guerengo,[2] and Tlalixcoyan from the west. These tributaries drain considerable portions of the coastal plain and only join the Papaloapan near its mouth. A convergence of drainages toward the lower Papaloapan is caused by the coastal Tuxtla Mountains and a high modern dune ridge that fronts the Gulf of Mexico (20–80 m high, Coll de Hurtado 1969:7). The modern dunes effectively bottle up drainages except for those most forceful. Undoubtedly the lower Papaloapan basin has been affected by rising Holocene sea levels that have drowned the lower courses of the rivers, leading to an extensive system of shallow estuarine lagoons behind the river mouth. Paleodunes parallel the modern dune ridge on the western side of the lower Papaloapan, and a linear east–west orientation of some lagoon shores and archaeological sites suggests possible buried or decapitated dune ridges.

The PALM survey in the western lower Papaloapan watershed includes parts of the Tlalixcoyan, Blanco, and Guerengo drainages. It includes part of the paleodunes and mangrove swamp. The Blanco is the largest of the western tributaries to the Papaloapan, with headwaters in the Sierra Madre Oriental near Córdoba. The Guerengo reaches the Sierra Madre foothills, and the Tlalixcoyan drains part of the coastal plain, drawing also from the south side of the paleodunes via its Pozuelos tributary. This trio of rivers crosses the coastal plain in an eastward direction, but they do not reach the Papaloapan, instead intersecting the system of estuarine lagoons and mangrove swamps that lies west of the modern Papaloapan channel. Papaloapan distributaries, the Limón and Acula Rivers, link lagoons and wetlands (mainly mangrove swamps) behind the modern dune ridge.

For the Blanco, a distributary network forms where the main channel divides east of the modern town of Piedras Negras. Two distributary channels are active today, the de las Pozas to the south and the continuation of the Blanco to the north of the bifurcation. One abandoned distributary runs between these two, the Viejo River, now carrying water only seasonally from rainfall. The configuration of modern land and drainages in the distributary zone suggests progradation of a small "bird's-foot" delta. The delta is underlain by an area of Miocene conglomerate according to the Instituto Nacional de Estadística, Geografía, e Información (INEGI) geology maps, scale 1:250,000, Carta Geología series, Coatzacoalcos E15-1-4 and Orizaba E14-6. This underlying conglomerate may account for the bifurcation of the Blanco.

The surrounding areas are Quaternary alluvial sediments on the coastal plain and in the wetlands plus aeolian sediments on the dunes and paleodunes. For the INEGI sheets in the edaphic series, gley soils are indicated for the Papaloapan wetlands, but *castanozem* soils on the Blanco delta as well as at the confluence of the Tlalixcoyan and Pozuelos rivers with the Blanco distributary. The surrounding areas have *cambisols*. Consequently, two locales are particularly noteworthy for their agricultural potential, the Blanco delta and the confluence of the Blanco distributary with the Pozuelos and Tlalixcoyan Rivers.

The delta of the Blanco is low-lying, extending from sea level at the east end where the Limón estuary terminates the delta and rising to a maximum of 18 m above sea level (asl) at the west end where the two active distributaries divide. Most of the delta falls under 10 m asl (Stark and Ossa 2007:393). Upriver from the delta the Blanco rapidly becomes entrenched 20–40 m below the coastal plain (Stark and Ossa 2007:393). Outcroppings of higher, more resistant formations of gravel, sand, and white clayey sediments occur sporadically. Some of these low hills or rises were selected for occupation in ancient times, for example, the Nopiloa monumental complex.

The WLPB is a dynamic geological environment, with sediment accumulation and compaction of sediments under increasing weight, leading to subsidence. Rising sea levels during the Holocene likely have partially "drowned" the mouth of the Papaloapan River, contributing to the numerous wetlands. The WLPB during the Holocene was the eventual beneficiary of prehispanic (and modern) agricultural practices and erosion upstream, especially along the Blanco River. Sediments that washed out of fields in valley bottoms and on slopes upriver renewed soil fertility in the

WLPB, contributing to the growth of the delta eastward and creating additional lands. Progradation of the delta is suggested by the expansion of Classic period settlement to the east compared to Preclassic settlement, as shown in Chapters 7 and 8.

Land Use and Resources

Seasonal rain-fed agriculture is a relatively reliable and productive enterprise in the WLPB, apart from the estuarine swamps where brackish water restricts plantings to elevated levees or archaeological mounds. Rainfall ranges between 1,200 and 2,000 mm annually, falling in the summer months and early fall (Daneels 2016:89–100). Farther west in the Cotaxtla-Jamapa drainage, rainfall is lower, about 1,000 mm or less annually in parts of the "semi-arid" zone of central Veracruz. Northerly storms during winter months occasionally bring rain to south-central Veracruz, but, more commonly, only colder air and wind without any substantial precipitation. Annual flooding brings soil renewal to some locations, soils are generally fertile, and rainfall is relatively predictable.

In the lower-lying areas such as the Blanco delta, with a high fresh-water table and sluggish drainage, seasonal *bajos* (low flood-prone areas) afford an opportunity for recessional agriculture during the dry season (Speaker 2001b). Recessional agriculture involves planting in low-lying moist soils as the water recedes during the progression of the dry season. It allows two or more harvests a year because *bajos* are typically inter-fingered with slightly higher areas that can be planted in the rainy season; archaeological earthen mounds also provide opportunities for rainy-season planting. Recessional agriculture is practiced today in the eastern part of the Blanco delta. It is not feasible farther upriver along the Blanco because the water table is much deeper and much of the runoff follows seasonal arroyos to the entrenched river channel.

Stark and Ossa (2007) elaborate on Speaker's (2001b) proposition that a combination of rainy-season and dry-season recessional farming techniques was used in the Blanco delta. They show a concentration of settlement favoring the low-lying areas, likely because of the reliable two-crop regime. Outside the delta, minor streams or rivers provide accessible surface water and fertile alluvium along riverbanks until rivers become entrenched.

In the Blanco delta, the high water table is accessible by hand-dug wells. A scattering of *ejido* farmers dig such wells today, renting small pumps to raise water for the surrounding field. A delta equivalent of "pot irrigation" may have been practiced in the past (Flannery 1983:325–326), with water raised by hand in containers. Increasingly today, *ejido* plots are rented for pasture, and traditional farming techniques are less in evidence. Similar to Daneels' (2016:105) information that alluvial terraces provided some of the most productive land in the Cotaxtla-Jamapa drainage, the Blanco delta likewise benefits from soil renewal as well as multiple farming techniques that minimally can support two crops a year without rotating fields.

The low gradient and modest flow of the Tlalixcoyan and Pozuelos Rivers, situated between the Blanco and the paleodunes, create a potential for raised/drained field cultivation in lower-lying areas, especially near the confluence of the north branch of the Blanco and the Tlalixcoyan and Pozuelos. Aerial photographic and lidar traces of such fields are visible in the Tlalixcoyan area (Stark and Ossa 2007:400; Stoner 2017), but I have not located any evidence to date of terracing (e.g., on the paleodunes) or ancient canal irrigation. Terracing is unlikely because the region lacks stone for facing terraces. Modern canal irrigation was developed in the 1930s and 1940s using water from the Blanco and Guerengo. The main canals exit the Blanco and Guerengo relatively far up their courses. Comparable constructions archaeologically would represent a major labor investment because of river entrenchment. No evidence of early canal systems on this scale has been found, although some canals are part of the raised/drained fields Stoner (2017) identified.

The presence of major monumental complexes in the Blanco delta (Cerro de las Mesas, Azuzules, Zapotal) is understandable given the high water table and rich alluvium. The Guerengo drainage (with the Otapa northern tributary) forms a lower valley compared to the higher interfluve between the Blanco and Guerengo-Otapa. This better-watered riverine land and its contrast with the interfluve is evident on satellite imagery (Figure 2.2). The Guerengo is the location of a major monumental complex, Nopiloa.

The green areas of the confluence of the Blanco (its northern distributary arm) and the Tlalixcoyan and Pozuelos Rivers show well-watered alluvium as well (Figure 2.2). Using remote sensing, Stoner et al. (2021) report one major center in the confluence area, and this is the locale of extensive raised/drained fields (Stoner 2017). Also, the proximity of the confluence areas to the Blanco delta raises the possibility that these lands fell within the realms of Blanco delta centers.

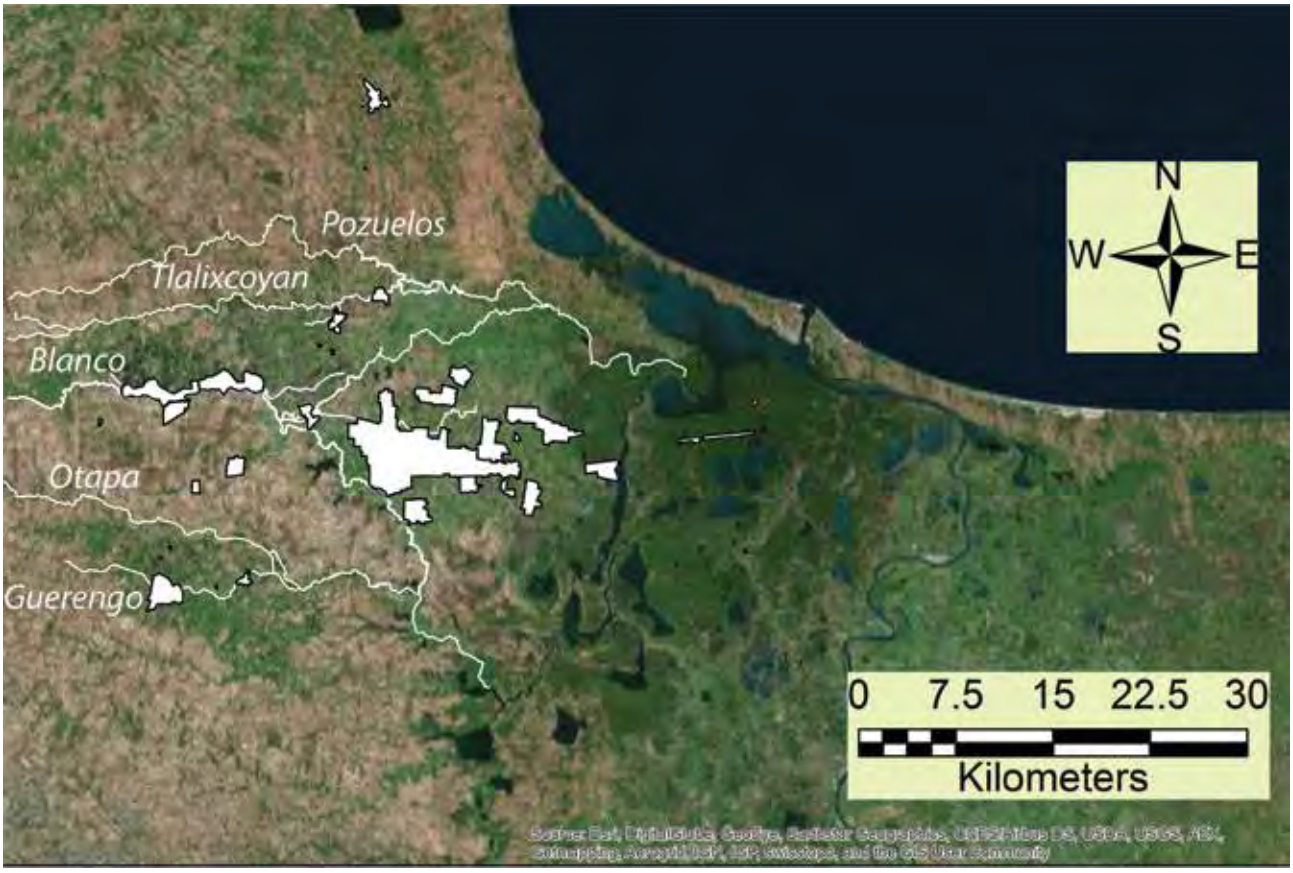

Figure 2.2. Satellite imagery shows the green alluvium of the Guerengo-Otapa Rivers compared to the interfluve between them and the Blanco. The confluence of the Pozuelos, Tlalixcoyan, and northern distributary of the Blanco includes high water table alluvium similar to the Blanco delta. PALM survey blocks are shown in white.

Upriver in the Blanco and Guerengo drainages, much lighter modern and ancient settlement is evident away from rivers (see Chapter 10), and interfluves may have constituted a reserve of lands for rainy-season farming, although pasture predominates today. Rotation of fields with slash and burn could have followed a short schedule. Daneels (2016:105, 109) argues that annual planting without field rotation was feasible in much of the Cotaxtla-Jamapa area, using crop alternation (beans planted to fix nitrogen after maize and other cultigens were harvested). The drier conditions in those drainages could have reduced the propensity for weed invasion and regrowth. Sanders (1971:545) suggests that Gulf lowland field rotation with slash and burn was not so much a response to nutrient depletion as a technique to reduce weed competition while gaining ash fertilization.

Daneels (2016:112) notes that southern Gulf studies report relatively short fallow intervals, and I will assume short fallow to be likely for the interfluves. If the interfluves were a zone for rainfall-based rotational cultivation, a comparatively lighter density of permanent residents might have been augmented by seasonal encampments or dual residence by people in more productive locations using interfluve land as outfields and delta lands as infields. Neither PALM nor other surveys have been geared to look for seasonal occupation in interfluves, however.

The paleodunes to the north of the Tlalixcoyan River present sandy soils with (1) a scant development of A horizon sediments, (2) occasionally clayey surficial layers, and (3) a marked susceptibility to erosion from seasonal rains after vegetation is cleared for farming using modern techniques, such as tractors. For example, we detected progression headward by a deep arroyo by comparing images from 1969 Compañía Mexicana de Aerofoto overflights and our mapping results at the Ajitos monumental complex during 2000. Part of the paleodunes has been placed in pineapple cultivation in recent years. Grasslands for modern cattle ranching are also extensive on this landform.

Daneels (2016:105) reports that the paleodunes are productive for rainy-season farming without field rotation, although not yielding equivalent harvests to the alluvial terraces along the Cotaxtla River. Daneels (2016:104) notes the water table is deep from the top of the paleodunes, where some monumental complexes are located; springs may have issued in some of the arroyos draining the paleodunes, however. Monumental complexes in some instances display water impoundments (now dry) adjacent to the construction. It is evident the depressions are not simply borrow pits because they are dammed across the downhill slope. Consequently, access to surface water was a problem in the paleodunes, with remediating technology employed.

The estuarine zone is inundated or seasonally muddy except along levees or on archaeological sites; scant levees provide purchase for modern houses to stay out of most floods (people often build earthen platforms for more elevation). Mangroves contribute to sediment accumulation by trapping fine particles in their root system, particularly the stilt roots of *Rhizophora mangle*. In the mangrove zone, archaeological mounds are strikingly abundant on aerial photographs (Bruder et al. 1975; Large 1977), and the buildup of earthen residential and public architecture on mounds provides elevations in many instances sufficient to escape seasonal flooding. Such elevations, as well as the higher levees, support different plant species and permit small-scale cultivation (although modern use is increasingly for cattle pasture). Estuarine waters are particularly rich in aquatic species and support modern fishing, as they did in the past (Wing 1977).

Faunal resources are relatively plentiful, even outside the estuarine zone. In antiquity, after the WLPB landscape became highly modified through cultivation, and wild animals became scarcer, inhabitants could still practice fishing and shellfishing. Permanent streams or rivers were not far from any of the survey areas. Polaco (2001), Polaco and Bahena (2001), and Stark (2001a) note that Blanco delta residential excavations document a decrease over time in the diversity of terrestrial species, with more consumption of species that could be acquired near homes or kept by the household (including domesticates such as dog or turkey). Fishing was not prominent in the faunal diets, but it was present. More aquatic resources would be available at the end of the rainy season after water levels rose and receding floodwaters trapped fish and shellfish in backwaters.

Food production was a mainstay of WLPB occupations, and typically residential locations yielded fragments of manos or metates used to grind corn into flour (Hall 2001). A fiber crop was important in the WLPB: cotton. Stark et al. (1998; Stark 2020) review the documentary and archaeological evidence supporting the idea of considerable cotton production at least by the Classic period and lasting into colonial times (see also Hall 1997). Consequently, one issue for past land use is whether some portion of the land was devoted to annual or perennial cotton. Perennial cotton was adapted to the coastal plain, but annual cotton eventually was developed in Mesoamerica, more suited to other environments with a limited growing season or to multi-cropping.

Other environmental resources in the region besides land and water are noteworthy. Tropical birds with colorful feathers used in regalia likely were plentiful, with populations maintained by the presence of forested or fallow areas. Deer and other animals were likely available in the less heavily settled areas upriver.

Hard stone is not a local resource, but basalts for manos and metates and obsidian for cutting implements are available in the Mexican highlands; basalts also are present eastward in the Tuxtla Mountains. Analysis of raw materials for grinding stones at Patarata 52 in the mangrove swamp did not suggest exchange with the Tuxtlas for grinding tools, however (Fernandez 1977). Some cobbles procured in the foothills of the Sierra Madres may have been used at times for grinding tools (Hall 2001), but manos and metates and other ground stone tools appear to have been imported. Obsidian was imported mainly as preformed cores for prismatic blade production, but as nodules during the earliest periods when flake technology predominated (Heller 2000, 2001; Heller and Stark 1998; Stark et al. 1992).

I expect that future research will continue to document a complex mix of food production and land use in the WLPB, with kitchen gardens, palatial gardens, recessional plots, raised/drained fields, pot irrigation, slash and burn plots, and a geographic complementarity between the two seasons of delta crops and the upriver and interfluve areas with rotated rainy-season plots. Stark and Stoner (2020) proposed a complementarity model for the WLPB in which population was concentrated in the Blanco delta where double cropping was possible and near raised fields in the lower Tlalixcoyan-Pozuelos drainages. Lighter population and fewer or smaller centers were present upriver, and even fewer were detected in interfluve areas reliant on rainfall agriculture. The interfluve areas could have functioned well in perennial cotton production;

crop rotation would not be required; cotton demands a marked dry season for boll maturation, matching the seasonal regime. The best alluvial terrain had great value in its potential for multiple crops based on recessional plots, pot irrigation, or raised/drained fields; intensification also could have involved shortening the fallow cycle where slash and burn was practiced.

The complex environmental characteristics and land use potentials provide for a "paradise found." Daneels (2016:121–124) notes historic and modern evidence of reliable subsistence farming in south-central Veracruz, with rural households able to produce their own food supply and some surplus for purchases. In prehispanic times, this relatively stable agricultural base supported a prosperous society able to produce organic products highly desirable in interregional exchanges, such as cotton, cacao, or feathers. A steady supply of imported obsidian from the highlands for cutting tools and manos and metates for food processing suggests a counter-flow of valuable perishables from south-central Veracruz.

Numerous rivers provided canoe routes and trade avenues linking the coast and the Sierra Madre. Settlement appears to have favored channel margins, likely for a mix of subsistence and trade and communication purposes. To an unknown extent coastline canoe trade may also have encouraged occupation near waterways. Somewhat ironically, the positive characteristics of the region for subsistence and for high-value organic products provoke questions about the limits of political authority in the region. I examine these issues next.

Political Organization in Ancient South-Central Veracruz

An initial (and continuing) concern has been whether state organization developed and when. The issue of urban forms is intertwined because some definitions of urbanism focus on size, density, and diversity of population in centers (Wirth 1938:8) and posit a link to social complexity. Large, dense population concentrations are not characteristic in the ancient Gulf lowlands. In many respects the underlying issues that were to be developed for the Gulf lowlands were previewed by Coe's (1961) discussion of tropical lowland civilizations (Maya and Khmer), which he suggested conformed more to Durkheim's (1960 [1933]) concept of mechanical solidarity (shared culture values) than organic solidarity (division of labor).

Sanders (1953) inaugurated the subject of Gulf lowland political organization with a consideration of ecology. Initially he doubted that large centers would be feasible in most Gulf areas because of slash-and-burn agriculture and field rotation that spread people out, but later he posited state organization in the Tabasco lowlands (mainly small states) by the Classic period (Sanders 1971:555–556). Nevertheless, he argued settlement hierarchies were topped by *congregaciónes* or ceremonial centers with political and religious functions rather than multiple economic functions seen in "true" urban centers (Sanders 1971:551). Still later, Sanders and Webster (1988) drew upon Richard Fox's (1977) urban typology to argue that lowland Maya (and by implication Gulf) centers generally conformed to a regal-ritual category rather than incorporating an administrative or mercantile emphasis.

Throughout, a contrast was implied with the greater economic interdependencies proposed for the "Central Mexican Symbiotic Region" (Sanders 1956). Although currently scholars recognize a wider variety of urban forms than Sanders discussed, such as low-density urbanism (Fletcher 2009), the relationship of the economy and governance continues to be debated.

Doubts about the degree of central power in Gulf polities were not confined to Sanders. Wilkerson (1974:89) saw no evidence of Gulf states until the Late Classic period, only chiefdoms. Wilkerson (1974:91) pointed out that "the lack of cohesive widespread institutions is illustrated by the diversity of cult artifacts, particularly figurines." A different interpretation of the diversity and amount of central Gulf figurines will be noted shortly, and the ball game has been proposed as an integrative mechanism (Daneels 2008a).

The governance debate has been most prominent for the Gulf Olmecs, who have had the lion's share of research attention. Gulf Olmec proto-state or state organization has proponents, while others consider the Gulf Olmec centers to be the seats of complex chiefdoms (succinctly summarized in Pool 2007:18–31) In a shift from a focus on classificatory stages of political organization, researchers increasingly examine strategies or principles of governance, such as corporate versus exclusionary (Blanton et al. 1996) or collective versus autocratic (Blanton and Fargher 2008), and pay attention to factionalism (Brumfiel and Fox 1994; Daneels and Gutiérrez Mendoza 2012) and to differences in the scale at which governance principles operate or in their timing (Pool 2008). For example, Pool (2008) and Pool and Loughlin (2015) argue for a shift in late Olmec society at Tres Zapotes from a focus on powerful leaders to a more corporate form of governance.

My study does not focus on "Were WLPB polities states?," but a few remarks are appropriate. State organizations exhibit considerable variety. They typically appear in a matrix of similar societies and vary in size and spatial extent. Small states appear in a variety of circumstances: two common contexts are breakup products of larger states (e.g., Marcus 1993) or initial peer-polity competitors (Renfrew 1986). In fact, most of the time Mesoamerica exhibited a range of larger, more powerful states and smaller ones. Small states lack much of the internal specialization that characterizes large states because of scalar differences, but governance and privilege partake of the wider set of ideas and practices concerning central authority and statecraft. During the Classic period, indications of WLPB hierarchical social differentiation and economic specialization support the idea of state government as generally understood, but Classic period Gulf polities were not as large as some highland states, such as Teotihuacan or Monte Albán.

In the WLPB Classic period, labor control in monumental construction (Stark 1999b), differentiation in residential forms suggesting social stratification (Stark and Hall 1993), specialized facilities in higher-order centers, such as temples or ballcourts (Stark and Stoner 2017b), settlement hierarchies with four levels (Stark 2016), the presence of stone monuments, some featuring rulers, that imply labor mobilization and craftpersons serving elites (e.g., Stirling 1943), the presence of palatial monumental platforms (Daneels 2008c, 2010; Stark 1999b), and indications of markets and specialized craft activities (Stark 2007a; Stark and Ossa 2010) all contribute to the conclusion that states were present in the WLPB during the Classic period. In contrast, the sizes of Classic polities and exactly how they were organized remain delicate questions.

Because no expansive regional state comparable to Monte Albán, Teotihuacan, or Tula is known to have originated in the Gulf lowlands, Gulf polities could have been weaker or differently organized. In north-central Veracruz, El Tajín, around AD 700–1000, has some architectural satellites and perhaps acquired a relatively large realm that included at least one site in Puebla (Molina Feal 1986; Wilkerson 1999:135–136); it may be an exception for the Gulf area. The replication of a particular layout of centers, the Standard Plan, which is especially characteristic in south-central Veracruz (Daneels 2002a, 2016), has not been proposed as a sign of political unification, but, rather, an indication of cultural and social interaction among multiple polities (Daneels 2016; Stark 2016).

Apparently, polities in the Gulf area seldom expanded militarily, but there are indications that prestigious Gulf products and practices gained currency elsewhere. Daneels (2012a) treats the Classic period spread of ball game rites and paraphernalia of yokes, palmas, and *hachas* as an indication of the prestige of Gulf societies as well as the functional importance of ballcourts. The prevalence of diverse scroll styles during the Classic period (Stark 1998a, 1999a), sometimes emulating those in the Gulf lowlands, is a further signal of the prestige of Gulf lowland societies. Wilkerson (1999:135–139) notes a wide distribution of architectural traits found at El Tajín. These observations remind us that the Gulf area was intimately connected to other regions of Mesoamerica and recognized as a land of privilege, even if Gulf polities did not subjugate a large area.

The brunt of the past four decades of archaeological research points to the existence of networks of Gulf states with some shared characteristics in material culture and architecture—in other words, a regional context comparable to that seen in the Maya lowlands, but with Gulf cultural characteristics. An argument developed by Daneels (2002a, 2008a, 2012b, 2016) for the special character of central Veracruz polities focuses on ecological conditions, agriculture, and the role of the ball game. Hers is the most fully developed model for Classic period Gulf societies, one which relies on her systematic survey of the lower Cotaxtla-Jamapa drainage. Her model starts with a foundation in environment and food production and coincides on some points with one developed by Sanders (1971); he noted the widespread possibility of two crops a year and relatively short rotation of plots, which formed a basis for reliable agriculture that reduced the dependency of farmers on central authorities to coordinate intensification practices or to facilitate craft specializations and trade. He posited that elite-patronized luxury crafts and products would predominate in the economy rather than specializations serving a broader population. Daneels (2016) agrees with Sanders (1971) that reliable agriculture meant commoner families could be relatively self-sufficient. Clearly no household is likely to be completely self-sufficient, and the issue is the degree to which dependencies prevailed.

Daneels (2008a, 2012a, 2012b, 2016) argues for a network of small Classic period states in the lower Cotaxtla-Jamapa drainage, with two organizational forms, centralized and segmentary. Centralized capitals concentrated power and urban functions, like ballcourts, at the primary center, but segmentary organization

included secondary centers with ballcourts. Daneels posits that the ball game and associated rituals of decapitation in central Veracruz functioned to integrate populations. In south-central Veracruz, the courts usually were centrally located at the main plaza, and Daneels argues that the game provided a key attractor that maintained the authority of rulers over relatively self-sufficient farmers. She notes that greater agricultural risks characterized surrounding regions where courts were present in centers but not as prominently positioned (Daneels 2012a:19), so that central authorities did not have to rely on the ball game institution to the same extent because commoners were less self-sufficient.

Daneels (2008b, 2012a) also argues that ritual use of figurines at various scales from households to centers indicates a degree of collective action consonant with the degree of economic independence of regular households and that it points to a more corporate emphasis in society. Inclusion of ceramic figurines in offerings brought items of popular ritual into contexts associated with ruling elites. Another of her insights about divided power concerns proposed dual rule at the center of La Joya (Daneels 2012c). There, two contemporary monumental palatial platforms during most of the Classic period possibly indicate dual rule, perhaps reflecting poles of civil and religious authority. A degree of collective action and divided power further underscores restrictions on a single governing authority.

My interpretation of the elongated lateral mounds (Stark 2016) in the much-repeated Standard Plan Plaza (Daneels 2002a, 2016) proposes corporate groups associated with the laterals as elements in governance, in addition to strong rulership indicated by carved monuments at Cerro de las Mesas and by palatial monumental platforms at many centers. In comparison, at Tres Zapotes, at the edge of the Tuxtla Mountains, the replication of a particular plaza plan within the center points to replication of authority (perhaps aligned dualistically into two sets of plaza groups) and to factionalism (Pool 2008). Thus, a variety of lines of evidence from the WLPB and flanking regions points to governance with complex strategies. Chapter 13 identifies multiple principles for the WLPB on the basis of settlement pattern data and distinguishes their roles at different levels of the settlement hierarchy.

In confronting the density of occupation and multiple monumental complexes recorded in the Blanco delta, I proposed the concept of a capital zone (Stark 1999b), an area of repeated construction and use of monumental centers, without necessarily involving complete abandonment of prior complexes. In a historical dimension, these various complexes could be connected or disconnected, but I saw more indications the complexes were connected historically. Although not in itself an argument about the nature of political organization, the implication is that people in a particular locality retained a strong hold on political power over centuries. The delta situation underscored that the interpretation of centers and settlement hierarchies is not straightforward in the WLPB. Reexamination of the problem of site concepts and settlement hierarchies is central to this volume (Chapters 5, 6, 12).

This short overview of ideas about Gulf societies began with early notions of the limiting effects of tropical lowland geography and ended with the use of regional settlement pattern data to argue for emphases in governance. Gulf societies still are poorly understood, and the history of archaeological research shows one reason: less systematic field research compared to many other parts of Mesoamerica. In the next section a review of WLPB archaeology contextualizes PALM research. I caution that I do not have access to the many technical reports in the Instituto Nacional de Antropología e Historia (INAH) archives, nor to all relevant theses and dissertations in Mexico. For better coverage of these sources, see Daneels (2016).

Archaeological Research in the Western Lower Papaloapan Basin

The first major archaeological effort in the WLPB was the investigation of Cerro de las Mesas by Matthew Stirling and Philip Drucker (Stirling 1941, 1943; Drucker 1943, 1955). Stirling's and Drucker's Smithsonian project included (1) stratigraphic testing at several locations, (2) excavations at a mound adjacent to most of the carved monuments, (3) development of an archaeological sequence, (4) a brief report on skeletal materials (Comas 1978), and (5) a return to the site with a magnetometer, which led to trenching of an additional mound (Stirling et al. 1960). Although finds at Cerro de las Mesas were spectacular, lack of an adequate map masked the size and importance of the center.

Investigations at a variety of sites by Alfonso Medellín Zenil (1960, 1987) followed the Smithsonian project, as did those by his student, Manual Torres Guzmán, at multiple sites, but most prominently Zapotal, located in the Blanco delta (Torres Guzmán 1970, 1972, 2004; Torres Guzmán et al. 1975).

Medellín Zenil (1960) wrote the only book to address the entire cultural sequence of south-central Veracruz. In addition to Nopiloa (Medellín Zenil 1987), he excavated at Alvarado (at the mouth of the Papaloapan), Cerro Grande (in the Mixtequilla, possibly the site of Sauce), Cosamaloapan (upriver along the Papaloapan), and at Los Cerros and Dicha Tuerta (along the Guerengo drainage east of Nopiloa; Medellín Zenil 1960:1). Although these investigations all contributed to his synthesis of the cultural sequence, apart from Nopiloa they lack adequate publication. A report about a figurine deposit at Los Cerros (Medellín Zenil 1954) concentrates on general chronological-cultural affiliations, rather than details of the contexts, similar to brief appendix sections in his 1960 volume that address Cerro de las Conchas at the modern town of Alvarado, Los Cerros, and Dicha Tuerta. Figurines and ceramic types predominate in the discussions, with no maps or site descriptions, and usually no stratigraphy.

Nopiloa and other sites yielded numerous "*sonriente*" figurines, the laughing-face figurines that form one of the cultural traits often mentioned in archaeological syntheses. Intriguingly, trash dumps with concentrations of figurines are reported for Nopiloa, Los Cerros, and Dicha Tuerta, perhaps indicating disposal of ritual materials; possibly they were ritual caches rather than dumps. Reports do not indicate the spatially arranged offerings of figurines characteristic in the lower Cotaxtla-Jamapa (Daneels 2008b, 2012a), and the few residential excavations in the Mixtequilla and on Patarata Island have not revealed household figurine offerings. Therefore, the participation of commoners in prominent rituals in centers is not clear in the WLPB and constitutes a point of difference with the Cotaxtla-Jamapa area, as do figurine styles (predominantly "*dioses narigudos*" in the Cotaxtla-Jamapa drainage, a type not present in the WLPB).

A few other sites have been cursorily published. Torres Guzmán (Torres Guzmán et al. 1962) wrote a few paragraphs about excavations in a site near Piedras Negras, probably the Postclassic center of Callejón del Horno because of the Postclassic pottery types mentioned (excavations also yielded large ceramic figures). Callejón del Horno, when we mapped it, was heavily looted (and possibly some excavations were not backfilled), with only remnants of mounds remaining. The following year, most of the central structures were leveled by the owner to plant beans.

Torres Guzmán (1970) wrote his *licenciatura* thesis about Mixtequilla archaeology, describing results of fieldwork in 1961, 1962, and 1964. He went on to excavate at Zapotal (Gutiérrez Solana and Hamilton 1977; Martínez de León Mármol 2009; Ortega Guevara 2003, 2009; Pirazzini 1982; Romano-Pacheco 1975; Tiesler et al. 2013; Torres Guzmán 1972, 2004; Torres Guzmán et al. 1975; Wyllie 2011), where he uncovered numerous burials and offerings, including the extraordinary buried, unfired, painted clay temple and sculpture of the Lord of the Underworld seated on a throne. Numerous richly furnished burials were later interred and a procession of near life-sized ceramic sculptures was placed nearby. Lack of adequate information about the stratigraphy and contexts of the excavations has hampered attempts by others to understand the discoveries, although important progress has been made. For example, Tiesler et al. (2013) interpret some of the skeletal material as part of an ossuary sacrificial deposit. Other multiple burials also are possibly sacrificial victims (Ortega Guevara 2009; Montiel Mendoza 2018). Funerary and underworld themes are prominent in the Zapotal discoveries. A contour map of Zapotal remains unpublished.

Because the Zapotal project remained open during my survey projects, the Central Block survey reached the south edge of the eponymous *ejido* and archaeological core of Zapotal but did not include it. Zapotal was designated an archaeological zone under INAH auspices, but no other center in the region has received this protection.

In 1968–1969 I conducted dissertation fieldwork in the mangrove swamp near the mouth of the Papaloapan River, excavating residential mounds on Patarata Island in the Nacastle-Patarata settlement (Stark 1975a, 1975b, 1976, 1977, 1989), with related studies concerning a scroll style identified there (Stark 1998a). Only subsequently did aerial photographs become available that demonstrated their efficacy for site identification in the Papaloapan mangroves (Bruder et al. 1975). The Nacastle-Patarata settlement was mapped and surface collected during the second cycle of the PALM survey.

Mapping of Cerro de las Mesas in 1984–1985 (Stark, ed. 1991; Stark and Heller 1991a) provided the springboard for the 1986–1988 survey project covering 36 sq km in the Blanco delta (PALM 1; Figure 2.3). PALM 1, in turn, provided the platform for the 1998–2002 survey (PALM 2) that expanded the localities surveyed. Resultant publications (1) examined the ceramic sequence (Curet et al. 1994; Stark 1995; Stark and Curet 1994; Stark et al. 2001), (2) analyzed specialized craft production and distribution (Stark

Figure 2.3. The Cerro de las Mesas mound (Feature 93) that lends its local name to the site, with two people silhouetted on top to provide scale for a view taken from Feature 91, facing west. PALM Image Archive 98.

2007a), including obsidian (Heller 2000, 2001; Heller and Stark 1998; Stark and Ossa 2010; Stark et al. 1992), cotton (Stark et al. 1998; Stark 2020), and pottery (Curet 1993; Garraty 2009; Skoglund et al. 2006; Stark 1992, 2007c; Stark et al. 2007; Stark and Garraty 2004), (3) addressed settlement patterns, urbanism, and site hierarchy (Ossa 2014; Ossa et al. 2017; Stark 1997a, 1999b, 2003a, 2003b, 2005, 2008b, 2016; Stark and Ossa 2005), (4) considered pottery and social differentiation (Stark 1998b, 1999a; Stark and Hall 1993), (5) evaluated survey methods (Stark 2006; Stark and Garraty 2008; Stark and Showalter 1990), and (6) considered "international" relations with Teotihuacan and Tenochtitlan (Garraty and Ohnersorgen 2009; Garraty and Stark 2002; Stark 2014a, 2017; Stark and Johns 2004; Yarborough 1992).

Stuart Speaker (2001b) directed a dissertation survey project in 1989 following his participation in PALM 1. He surveyed 22 sq km in seven delta blocks separated from the initial area of survey and designed his study to sample different soil and elevation conditions. His analysis addressed soils, agriculture, including recessional farming, and the implications for population in the delta. He has kindly made his original field notes and data available for PALM researchers and summaries are provided in this volume. Alanna Ossa (2011, 2013) conducted a dissertation survey to address social and economic relations in the Middle Postclassic center of Sauce and its hinterland in the Blanco delta. Ossa revisited Middle Postclassic residential mounds to make more intensive systematic surface collections so that she could evaluate distributions of material remains in terms of markets versus social prestations.

One season in PALM 1 was devoted mainly to residential excavations. Late to Terminal Preclassic (600 BC to AD 300), Early Classic (AD 300–600), and Late Classic (AD 600–900) residential mounds were tested to improve understanding of the cultural sequence and the depositional characteristics of residential mounds (Hall 1991, 1994; Stark, ed. 2001). More intensive surface collections, phosphate analysis, and auguring were part of the suite of residential investigations (Howell 1993, 2001a, 2001b, 2001c; Howell and Stark 2001; Howell et al. 2001; Stark and Howell 2001a, 2001b).

The regional center for the INAH was founded in Veracruz City during the early 1980s. Previously, the INAH was represented by a Jalapa office. With the growth of the INAH center, Veracruz rescue and mitigation projects proliferated, some touching on the WLPB, including a gas duct project, a superhighway project, and Pemex gas exploration projects. These projects generated agency reports and theses but generally have not yielded publications.

Rescue of a stela at Mojarra, located upriver from the mangroves along the Acula distributary of the Papaloapan, provided a startling discovery (Winfield Capitaine 1988). The stela has a long written passage suggested to be in pre-proto-Zoquean, with Long-count dates (Justeson and Kaufman 1993, 1997; Méluzin 1987, 1992). Writing in this Isthmian script also appears on a sherd from Chiapa de Corzo, the Tuxtla Statuette, on a Teotihuacan-style mask lacking

provenience, and on stelae from Cerro de las Mesas (Houston and Coe 2003; Justeson and Kaufman 2008; Stirling 1943). Scholars have not yet agreed about decipherment. Richard Diehl and Sergio Vásquez (Diehl 1997; Diehl et al. 1997) conducted excavations and testing to determine if other stelae were present at Mojarra, but none were located; they discovered evidence of Classic period pottery manufacture (Diehl et al. 1997; Vargas González 1998). The few examples of the script impede understanding of its distribution and uses as well as decipherment. There is hope that future discoveries will yield breakthroughs.

Other studies that have made substantial contributions to our understanding of the archaeology of the WLPB include Coe's (1965) synthesis of the archaeological record for southern Veracruz, in which he included the WLPB. Hasso von Winning (1965, 1971, 1980, 1983; von Winning and Gutiérrez Solana 1996) analyzed scenes on "Río Blanco style" bowls, which are Late Classic relief-molded vessels with elaborate ritual and other scenes. PALM surface collections and excavations indicate that, although not exclusively, such vessels had a spatial association with the Blanco River area (Stark 2008c). These vessel scenes provide iconographic information seldom preserved as sculpture or murals in the WLPB.

In view of the striking findings from the various published investigations, it is remarkable that the WLPB has received so little archaeological investigation. One can speculate on the underlying reasons, and I offer three. One likely factor is the limitation of scholarly imagination that over-interprets Mesoamerica in terms of the histories of a few striking centers, such as Monte Albán, Teotihuacan, and Tenochtitlan. Major archaeological projects at each have propelled them into the spotlight, and they were capitals of expansionist states or empires. In the Maya lowlands the sheer abundance of substantially-sized centers with elegant stone architecture, writing, and art provoked the other major focus of Mesoamerican work.

A second reason is the classical bent in Mesoamerican archaeology that favors great monuments, best preserved in stone. Regions with extant masonry architecture have received more attention because of the possibilities for restoration and tourism. In contrast, the earthen architecture of the WLPB and much of the Gulf lowlands has deflected archaeological studies. Finally, we can recall the biblical admonition that the flesh is weak. The heat, humidity, biting insects, stinging vines, snakes, and underdeveloped infrastructure of the WLPB have not made it a magnet for archaeological work or tourism, despite the clear indications of a magnificent tradition of art, architecture, and complex society in the region.

Ignoring these factors and inspired by the potential of settlement pattern data to document society in a poorly understood area of tropical lowland Mesoamerica and provide a basis for interpretation, I and the project teams began a series of surveys and residential excavations. Survey methods and feature categories are outlined next.

Notes

1 A pivotal study by Drennan (1988) asked why settlement densities in Mesoamerica varied from compact to dispersed. He posited a difference in the intensity of cultivation in smallholder farming, but this explanation is not without problems (Feinman and Nicholas 2012; Stark and Heller 1991b:55–57). In their examination of the lowland Maya, Southeast Asia (Angkor), and Sri Lanka (Anuradhapura), Lucero et al. (2015:1141) develop a hydraulic argument: farmers across the landscape are beholden to elites in central cores for water access during the dry season. This is unlikely to form a crucial issue in the riverine environment of the WLPB.

2 This river is inconsistently labeled, called the Guerén or Guerengo locally, but the Guerenguito on Instituto Nacional de Estadística, Geografía, e Información maps.

Chapter 3

Survey Methods and Feature Categories in the Proyecto Arqueológico La Mixtequilla

The prior chapter addressed environment and research debates for south-central Veracruz and introduced findings and projects in the WLPB. This chapter describes the design of the PALM fieldwork. The original design of the PALM survey and its later redesign in the second funding cycle sought systematic information about settlement from the level of residential units up to the largest monumental complexes. My initial decision to consistently record residential units took into account that lowland settlement tends to be dispersed, not highly nucleated. Consequently, an adequate gauge of the organization of settlement could not concentrate solely on monumental complexes to understand the relationship of centers to people. Monumental complexes offer architectural venues for important social and governmental events and services essential for understanding settlement hierarchy, but it is through a balance with residential information that economic activities and social relationships can be addressed.

In conflict with the desire to record the basic building blocks of settlement, the residences, I sought a large enough geographic scale to appreciate regional organization. The effort to balance an intensive, time-consuming survey with broader coverage led to PALM 2 revisions in the survey procedures for improved speed. The balancing act between intensive and extensive efforts underwrites the information presented in later chapters as well as published PALM research.

Survey design has to be attuned to the local environment for success. The region is extensively but lightly populated today, with many active processes that affect the archaeological record. Agriculture and pasturage dominate the landscape. Roads have been constructed (paved and gravel), and dirt roads crisscross farmlands accessed by carts, horses, tractors, and trucks. Canals have been dug along the north part of the Blanco west of the delta and along the Guerengo River. Towns, *ejido* villages, and rural houses dot the landscape. Pemex and its subcontractors have leveled mounds to obtain dirt fill to build roads. Municipalities have taken mound fill for roads and site preparation for schools. Because construction equipment is available in the region, landowners may level fields to improve drainage or cultivability, or they may sell "dirt" to construction companies for road building—destroying archaeological mounds. Brick-making, especially around Tuzales, has leveled mounds, although frequently a remnant remains. Some ancient structures may be entirely missing as a result of modern land use, and survey teams may not be aware of changes despite attempts to talk with local farmers when opportunities arose. Sometimes the original

layout of a damaged complex can be discerned from an aerial photograph taken at an earlier time.

Despite the various factors that affect the completeness and quality of our information about surface remains in the region, the PALM surveys afford the most complete regional data of its kind in the lowlands because they recorded artifact concentrations, not just mounds, along with visibility and vegetation conditions. The survey detected even very faint mounds, visibility permitting. Visibility information allows an informed estimate of what we are missing as well as what we have recorded (Stark and Garraty 2008; see also Stark 2006). Stark and Garraty (2008:193) estimate up to 36% more archaeological features may have been present, but obscured by vegetation and visibility conditions. This estimate is based on a projection comparing the density of features when ground visibility is excellent versus the densities for decreased visibilities.

Overview of the Surveys

Survey localities are used to organize the data in later chapters, and they are labeled in Figure 3.1. Figure 3.1 is a compressed map in which the archaeological features can be shown at a more favorable scale, with survey blocks arranged closer to each other than their true positions shown in Figure 2.1. Each block preserves internally the spatial relations of archaeological features. The labeled blocks are used in organizing the presentation of monumental complexes in Chapters 7–11. Arrows show east–west arbitrary divisions of the Upper Blanco and the Blanco delta Central Block that are used for organizational convenience. Monumental complexes are labeled in Figure 3.2. I use "monumental complex" in initial descriptions because identification of some complexes as centers represents an interpretive step after assessment of relative sizes of complexes, their spacing, and their architectural content and layout.

The PALM 1 survey began at Cerro de las Mesas with a pilot study (Stark, ed. 1991) and expanded outward to provide full coverage of a large block (36.4 sq km). It was extended farther east than in other directions to reach the large complex of Azuzules. The sheer density of features in the delta was a challenge. In PALM 2, initial reconnaissance selected additional localities for survey in order to obtain a wider spatial array of settlement. Because large complexes are apexes of investment and power at a regional scale, I particularly wanted to include them in the second survey.

Selection of PALM 2 localities involved study of aerial mosaics and initial visits, supplemented by information from publications or local inhabitants. A network of farm roads in the WLPB allowed us to "ground truth" air photograph signatures or other information and determine an initial inventory of large complexes to address in the survey. This initial reconnaissance to select locales for survey is distinct from the ground reconnaissance discussed below, which involved a very low-intensity survey of a block of terrain to determine if any substantial monumental construction was present that we had not detected. Initial reconnaissance and ground reconnaissance continued intermittently throughout the project—the former especially on weekends by Lynette Heller and me when survey crews were off work.

During the survey, satellite imagery of the region was not particularly useful because the WLPB was generally shown with cloud cover. Subsequently, Google Earth satellite imagery has become highly useful and was consulted by Ossa (2011) during survey. Recent examination of an INEGI Digital Elevation Module (DEM) by Wesley Stoner showed that, for the surveyed blocks, we were successful in detecting monumental complexes (Stark and Stoner 2017a). The inventory of monumental complexes is complete in the areas surveyed. Archaeological mounds of all sizes are particularly recognizable in the mangrove swamp from aerial photography (Bruder et al. 1975). In the last seasons of survey, we mapped some large outlying platforms near centers, but we lacked time to add terrain around them. Figure 3.2 labels the 67 monumental complexes that were contour mapped, using the compressed format.

Once survey locales were selected, field procedures varied according to visibility. Survey methods were adjusted to vegetation conditions in individual farm fields (*parcelas*) and vegetation was categorized. At the time of survey, the region was largely apportioned to cooperative farm communities (*ejidos*), and a lattice of fenced fields provided landmarks for organizing survey because they were visible on aerial photographs. Ground visibility conditions determined whether transecting or fieldwalking took place, as discussed in sections below. Each of the field procedures is discussed in more detail in subsections, followed by the classifications of features during survey and their numbering.

Unless we ran out of time, full-coverage survey was applied to fields around each monumental complex out to a minimum distance of approximately 500 m. The full-coverage survey around monumental construction was necessary to record some of the associated

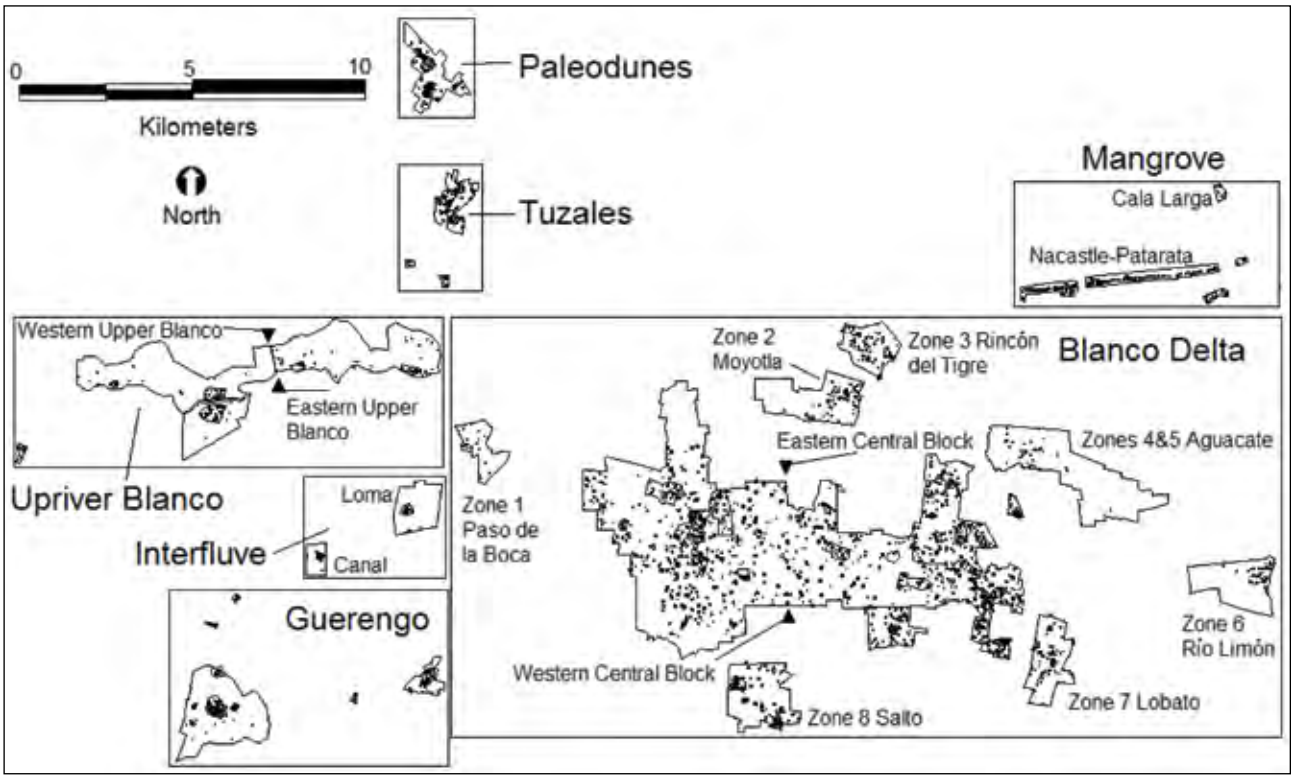

Figure 3.1. A compressed map shows the survey blocks seen in Figure 2.1 placed closer for labeling. Archaeological features recorded in survey are marked, and monumental complexes are surrounded by lines. Zone labels are from Speaker's (2001b) survey. PALM 2 expansions of the PALM 1 Central Block are separated with a line.

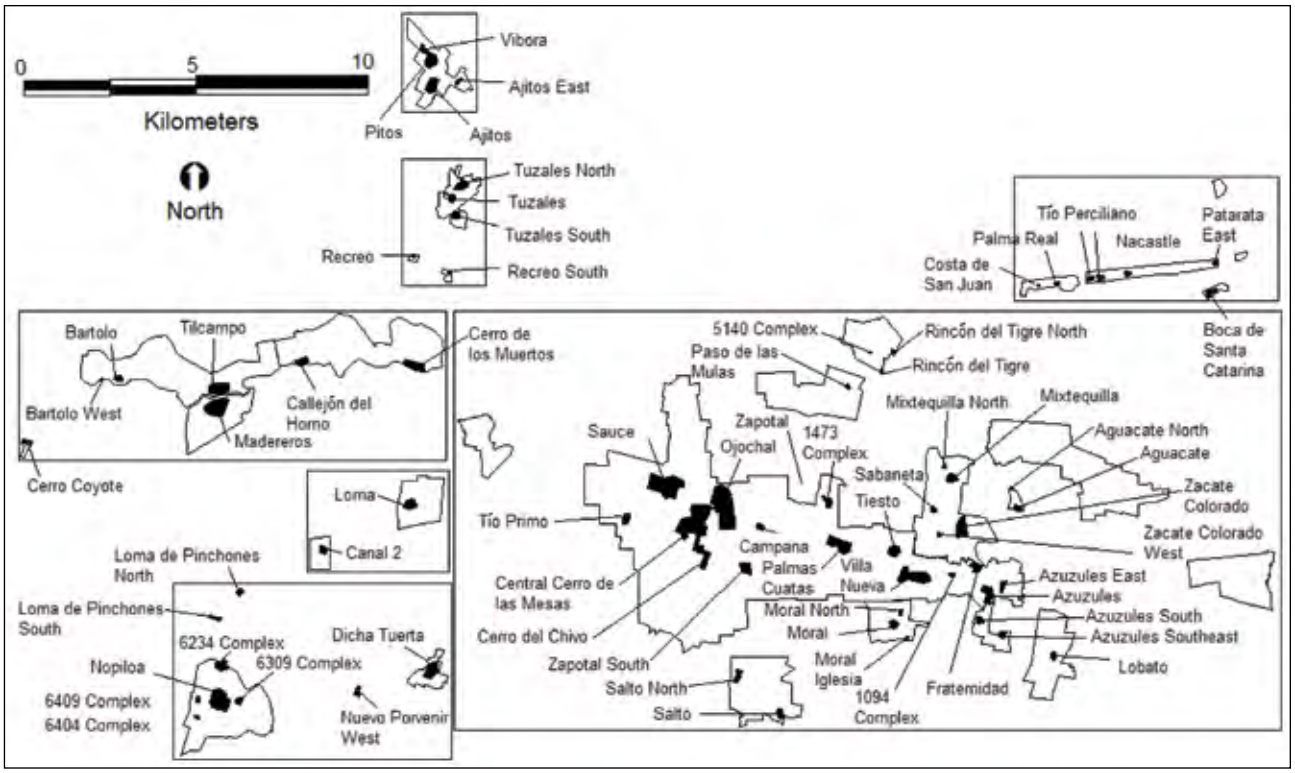

Figure 3.2. Compressed map shows monumental complexes that were contour mapped (black) with labels.

residential remains. Upriver along the Blanco, there were numerous complexes, with the result that survey of the surrounding terrain for each was merged into a continuous block along the north bank of the river. Likewise in the Blanco delta, a large contiguous block was covered during PALM 1 and 2. Table 3.1 indicates the area of each survey block.

The Tlalixcoyan channel received little coverage, but Alanna Ossa (personal communication 2005) conducted systematic examination of modern Tlalixcoyan on the south bank to see if Postclassic materials could be observed, possibly indicating the location of the eponymous settlement recorded in colonial documents (Stark 1974, 1978). No strong Postclassic indications were detected, and she concluded that the Postclassic settlement may have been relocated. Perhaps it occupied the north bank of the river, where town occupation also extends today, or it may have been located slightly up- or downriver from modern Tlalixcoyan. The town area examined is shown on Figure 2.1 at the juncture of the Tlalixcoyan and Pozuelos Rivers, but the block does not appear on other maps because no collections were made nor features recorded. Tlalixcoyan exhibited Classic and Preclassic sherds, and numerous major structures were located along the north bank. Unfortunately, a time-consuming "urban" survey would be required to evaluate these remnants, including interviewing local people, to record destroyed mounds or structural remnants and to reconstruct what may have existed.

We also conducted an initial reconnaissance survey along the Tlalixcoyan River to locate and visit several monumental complexes, but were not able to address them with systematic work. No complexes on the order of the largest ones along the Blanco or Guerengo or on the paleodunes were detected, but one of that magnitude was detected by Stoner from aerial coverage along the Tlalixcoyan (Stoner et al. 2021).

Mangrove survey was different from the regular pedestrian methods. We rented a boat at the Limón River estuary and later in the town of Alvarado. Even with a boat, reaching mounds visible on aerial photographs

Table 3.1. Summary of survey coverage, in sq km rounded to nearest tenth

	Sq. km.	Totals
Ground reconnaissance blocks along the Upper Blanco River	43.2	43.2
Intensive survey blocks		
Upriver Río Blanco blocks (including Coyote)	13.8	
Interfluve Canal 2 block	0.6	
Interfluve Loma block	1.8	
Guerengo blocks (including Nopiloa, Pinchones, Nuevo Porvenir West, and Dicha Tuerta)	5.6	
Blanco delta Speaker (2001b) survey zones	22.4	
Blanco delta Central Block and extensions (including Azuzules South, Moral, Mixtequilla, and Aguacate)	49.4	
Tuzales blocks (including Recreo)	1.4	
Paleodunes block	2	
Intensive mangrove survey of areas with features	2.1	
Total intensive survey		99.1
Total intensive and ground reconnaissance survey		142.3

Note: Mangrove value refers only to the strips with features, although aerial imagery allowed a much larger assessment.

proved challenging. Attempts were made to complete survey of the Nacastle-Patarata settlement in three different years to vary the seasonal flooding conditions. We hoped each time for dryer conditions and better access, never with complete success. Some parts of the settlement were too overgrown for a GPS signal. Therefore, the easternmost and westernmost termini of Nacastle-Patarata and one segment in the middle could not be recorded because of hindrances.

Transecting

The spacing of transects was designed to insure that residences (including their outdoor patio areas) were detected reliably where visibility allowed, whether in the form of a residential mound or a surface artifact concentration. Transect spacing of 20 m between crew members was based on studies that indicated the radius of a house and outdoor work area is minimally 20 m (Winter 1976). Outdoor work areas include sheet trash and middens. Modern plowing of farm fields tends to disperse localized prehispanic artifacts over a more extensive area, also insuring that 20 m spacing could detect sherd concentrations.

Although I hoped this spacing might also reveal Archaic lithic concentrations, none were detected. Many of the locales surveyed had sufficient elevation that alluviation is unlikely to have deeply buried Archaic deposits, but in other localities alluviation is a factor. The same can be said for Early Preclassic occupation, but survey did find light traces of late Middle Preclassic occupants. The occupational history is addressed in Chapter 4. Unfortunately, we lack geomorphological studies to model the effects of alluviation on paleolandscapes.

Crew members walked parallel transects and counted artifacts in a two-meter-wide swath along their transect line (1 m to each side of the transect midline). Artifact counting used hand-held counters, and the crew member clicked a lever to count sherds. Artifact counts insured that we did not ignore residential locations lacking visible mounds. "Invisible housemounds" are a debated subject in lowland Maya archaeology (e.g., Johnston 2004; Tourtellot 1993). Mounds were evident from both their elevation on a relatively level landscape and their associated surface artifacts. The artifact counts along transects were recorded every 50 m, along with average ground and topographic visibility for that segment. Transect lines were scaled onto forms where modern fields were drawn to scale, with each field given a unique number. Field vegetation was noted.

Ground visibility and topographic visibility were recorded for each designated field or part of a field according to transect segments. Ground visibility refers to the degree to which the soil surface is evident to allow detecting sherds. Ground visibility was coded on an ordinal scale: excellent (soil surface visible or with minimal vegetation, such as young corn shoots), moderate (considerable open ground but with scattered vegetation, such as low weeds), poor (scattered patches of ground visible, or low patchy grass), and none. Topographic visibility refers to the ability to detect a mound 0.5 m high; topographic visibility likewise was recorded on an ordinal scale: excellent, moderate, poor, or none. Essentially ground visibility assesses the prospects for gazing down to look for artifacts, and topographic visibility assesses the prospects for gazing across terrain to look for mounds.

Fields were visible on controlled aerial photographic mosaics at 1:20,000, taken in 1969 by the now-defunct Compañía Mexicana de Aerofoto, 1976 series, and sold to the public. Edges of fields were usually evident from "living fences," lines of trees that set root from locally cut fence posts. Parts of the mosaics were photographed, enlarged, and printed at 1:5,000. Mounds or artifact concentrations were then paced in from field corners and scaled onto the mosaic enlargements. Later, when irrigation district maps with 1 m contours and field boundaries were obtained courtesy of the Distrito de Riego Río Blanco, 1:10,000, we transferred the PALM 1 and 1998 PALM 2 archaeological data to these more accurate base maps (the controlled aerial mosaics in fact had several distortions). Speaker's (2001b) survey used the irrigation district maps as the base maps for survey records, also pacing in features from field corners.

Survey mapping changed in 1999. From 1999 to the close of survey, PALM 2 used GPS equipment with sub-meter accuracy to record the positions of fields and features. Those records were transferred to the GIS program MAPINFO, along with earlier survey data. Because the controlled aerial mosaics used in PALM 1 and in 1999 had areas with considerable distortions, I recorded several GPS points at prior field corners to adjust computer maps from PALM 1.

The 1988 Revision of Transecting

The survey procedures were reevaluated in 1988 in order to obtain comparable information faster, taking into account the density of prehispanic features in the delta and the movement of artifacts out from feature

concentrations through modern plowing. Analysis of surface artifact concentrations that had been collected, as well as concentrations that were clear but not so dense that they had been collected, led to a different method of recording artifacts on transects (with the same 20 m transect spacing). Both the prior and new survey methods were applied on trial fields in 1988 and timed. The same feature detection was achieved more rapidly with the revised transecting, and the new method was applied from 1988 onward, including Speaker's (2001b) survey.

In walking transects with the revised method, transects were stopped within about 50 m of any evident mound (which would be recorded in any case) because any separate artifact concentration was likely to be undistinguishable from the artifacts spread out from mounds by plowing. In walking transects, crew members counted artifacts every 10 m and left a strip of plastic surveying tape at the end of any 10 m segment that reached a count of 20 artifacts (an average of one artifact per square meter over 10 m distance). Concentrations were indicated by a small constellation of flagging tape strips. The area around any strip(s) was then reexamined to verify a concentration and determine its limits, and a collection unit was placed within a verified concentration. All concentrations were collected. We no longer recorded the total sherd counts every 50 m on field forms.

Occasionally, a single interval of 10 m along a transect might reach 20 artifacts due to stochastic variation unrelated to any verifiable concentration, but usually these counts indicated a concentration. There is a background "noise" of artifacts over the landscape because of its continual occupation by farmers over millennia and possibly also the movement of household trash to fields to fertilize them. Farming activity today, especially during harvest, may involve construction and use (and reuse) of temporary insubstantial structures, sometimes involving cooking or reheating foods and eventually with abandonment of some debris. Any such field shelters are another source, over the millennia, of background sherd or other artifact scatters.

In revised transecting, records summarized the typical counts and visibility reported by crew members according to quarters or thirds of their transect lines as well as any counts and locations that reached the concentration threshold. Thus, some detail was lost in overall precision because crew members summarized and simplified the report of their typical transect counts and visibilities, but greater precision was gained in detecting concentrations through use of the 20-sherd threshold for each 10 m. Field forms still provided an overall indication of typical artifact densities and recorded the type of vegetation.

Fieldwalking

Some fields, such as pastures, lack ground visibility for detecting artifacts. Such fields were "fieldwalked" rather than transected. Fieldwalking involved personnel spacing of 20–50 m, depending on topographic visibility (see definition under "Transecting"). With poor or no topographic visibility (e.g., mature corn or a field densely overgrown by high weeds), fieldwalkers used the 20 m spacing. With moderate topographic visibility, crew members used 30–40 m depending on crop or weed height, and with excellent visibility (e.g., low cropped grass pasture), they used 50 m. Experience showed that even though one can see 300–400 m across a field that has excellent topographic visibility, extremely low mounds cannot be adequately seen from such a distance. PALM 1 had recorded mounds with a scant 10 cm elevation over the surrounding terrain. One has to walk close enough to faint features to be sure to detect them, even in flat terrain with close-cropped grass.

Except for parts of the mangrove swamp as well as rare woodlots kept overgrown (in *monte*), we always were able to fieldwalk, if called for, to record any mounds. Where possible, crew members walked paths through woodlots, but since topographic visibility ranges from poor to none, only large structures had much chance to be detected. The other exception to pedestrian coverage was wet rice fields upriver in the irrigated part of the Blanco drainage. Because wet rice fields are leveled and graded, we knew that any mounds were flattened, but we could not enter flooded fields to look for artifacts. Even when the rice is harvested and the field is temporarily dry, downed stalks cover the surface and prevent transecting.

Ground Reconnaissance Survey

Because of time limitations, we could not intensively survey as much of the banks of the Blanco above the delta as we would have liked. Instead, we examined aerial mosaics for any indications of monumental construction and used farm roads and the north bank highway and applied ground reconnaissance to check for additional areas with monumental complexes (Figure 3.3). We detected residential mounds but no monumental structures with one exception. One small complex (a Conical Mound Group) was identified at

the east end of the south bank of the Blanco, comparable in size to the Canal 2 complex in the interfluve area. It had a conical mound, approximately 7 m high, badly looted, with large holes occupied by beehives. The mound could not be approached closely due to the risk of Africanized bees. A few low residential mounds were in the immediate vicinity. We opted not to map the complex, as it would represent another example like Canal 2, and it was too dangerous. Analysis of an INEGI DEM by Wesley Stoner accords with our results and did not reveal any missed complexes in the ground reconnaissance blocks, although the small complex with bees just mentioned was not distinct on the DEM, which is most effective with larger complexes (Stark and Stoner 2017a).

Surface Collection

If possible, every feature was surface collected, whether a mound or artifact concentration, but a few differences in procedures were made in PALM 2, as will be explained. All rims were collected, along with any decorated or special form sherds, and all of other artifact categories, such as obsidian, spindle whorls, beads, figurines, or other unusual items such as celts or bark beaters. Ground stone manos, metates, and unidentifiable ground stone fragments were counted in the field and recorded on forms, but not collected, due to their weight. Crews carried collection bags with them cumulatively through the day, and weight prohibited carrying the more routine ground stone fragments. Vegetation clearing was not employed in any of the survey seasons. Consequently, if features lacked ground visibility, no surface collection was made.

During PALM 1, surface collections were made in all cases with promise of a sufficient sample of rims for statistical evaluation, but for PALM 2 this criterion was relaxed and all features were collected. Initially (1986), surface collections were made only if the prospect was good of obtaining a collection of 70–100 rims in order to obtain a statistically useful sample to assess the collection chronologically (or for other purposes). The subsequent year (1987), the 70–100 rim criterion was modified and crews were instructed to achieve collections of a minimum of 100 rims because laboratory work showed that not all sherds thought to be rims in the field were correctly identified or met the

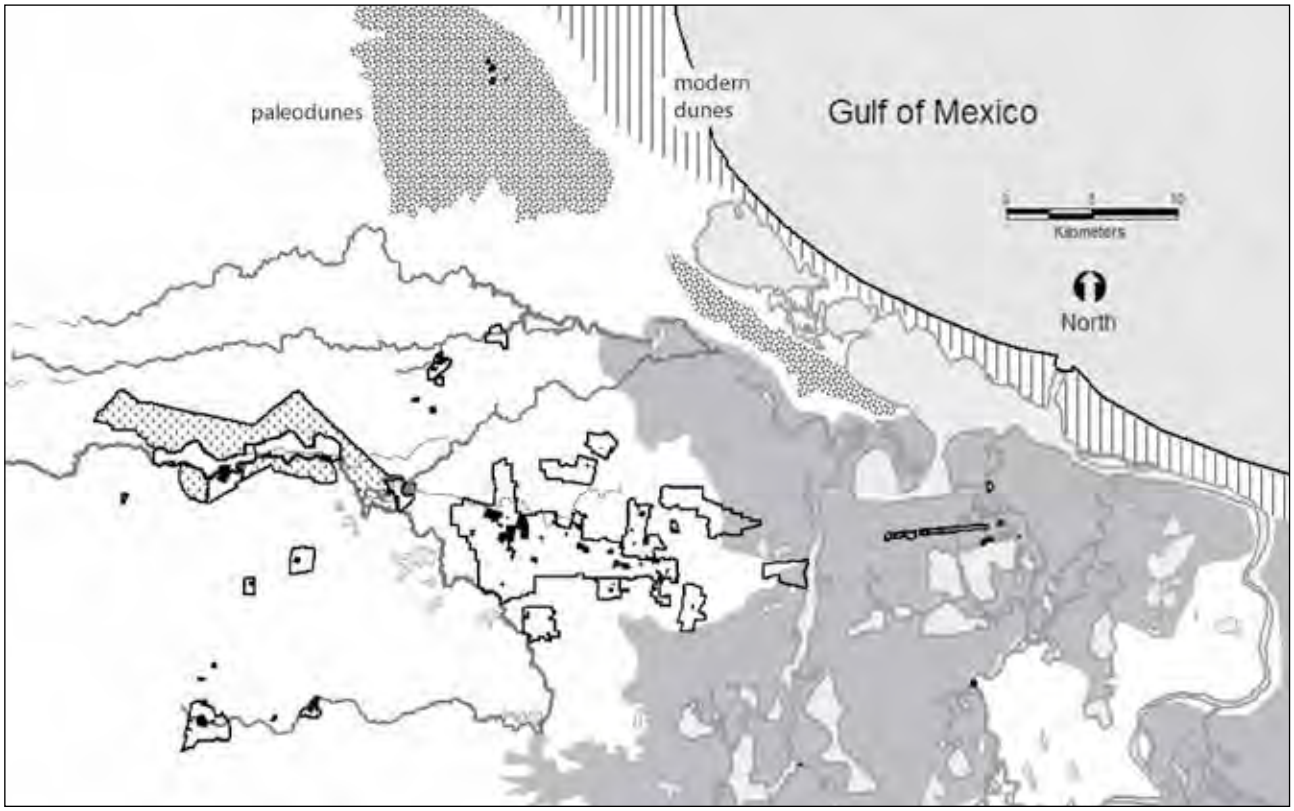

Figure 3.3. Ground reconnaissance blocks along the Blanco River above the delta (dotted areas).

minimum size requirement (about the size of a thumbnail). Thus, a collection that ostensibly had 70 rims might have fewer.

If feasible, we used a measured collection area. If an initial collection unit was laid out that did not achieve 100 rims, usually a 10 by 20 or 20 by 20 m area, the collection unit was enlarged if possible. A slightly different organization of surface collections and analysis procedures was used by Speaker (2001b), who distributed his collection areas as smaller squares on a mound, not a single measured area. His smaller dispersed collection squares have been combined for each feature for my analyses. In cases of spotty, limited ground visibility that prohibited collection over a measured area, sherds and other artifacts were collected from exposed ground, burrow disturbances, or eroded sides of mounds. These collections cannot be used for density comparisons, although they are systematic in respect to what was collected.

For surface concentrations, a PALM 1 transect count that would provide a suitable collection size proved to require around 70 sherds in two adjacent, parallel transect segments (segments of 50 m length). Later this criterion for when to make surface collections on non-mound concentrations was changed. In PALM 2, all surface concentrations were collected (even if they were not likely to yield 100 rims) in order to have systematic information about what may have been shorter occupations or poorer households or for pooling of collections to represent a locality. Analysis of PALM 1 information had shown a bias against poorer households (Stark and Hall 1993).

For PALM 1, low-density surface concentrations were identified retroactively after examination of transect counts on field forms (feature types 9 and 10, discussed later in this chapter). In some cases, the concentration was at the edge of a plowed field and not enough of it had been evident to provoke a collection, but others were considered too low in density to meet the 100 rim collection criterion. Such concentrations were given feature numbers in the 9000 series. They constitute more ephemeral patterning that probably represents an ancient feature, perhaps a residential area that is more deeply buried, that was occupied for a shorter time, or a seasonally occupied field house for agricultural activities. During PALM 1 the 9000-series features were not surface collected. Even fainter sherd concentrations are evident on field forms that were not given 9000 series numbers because the patterns were too subject to sample error due to low counts. I suspect they, too, often represent patterning in ancient activities. The definition of the 9000 series features shows that our initial survey was able to detect signs of patterning in the archaeological record at the "edge" of what our regular techniques captured. Future studies may find this information useful for different questions than those we addressed. As noted, during PALM 2 *all* artifact concentrations were collected, so the 9000 series features derive only from PALM 1.

Surface visibility for a collection was recorded on the same ordinal scale used to record transect surface visibility: none, poor, moderate, or excellent. To perform a collection, personnel walked systematically over a collection area in swaths side by side to collect all artifacts to insure all the collection area was evenly covered. Sherds were sorted in the field to retain all rims and any decorated or unusual forms in the collection, as well as all of most other artifact categories, as described before.

A combined total of 3,759 features was recorded (PALM 1, 2, and Speaker's survey), and 2,285 surface collections were made (approximately 61%), of which 295 were collections in Speaker's survey (about 13%). The 1986–1988 ceramics were reanalyzed before PALM 2 to establish a revised typology for PALM 2, which was refined from the earlier work. Therefore, data from PALM 1 and 2 can be unified to constitute a reasonably consistent set for analysis. Speaker's data must be analyzed separately because pottery was classified with the initial ceramic typology and not reanalyzed.

During PALM 2, a few new pottery categories were recognized, but we were not able to reexamine all the earlier collections to detect any additional examples that may have been overlooked. This situation affects mainly utilitarian pottery from the Late Postclassic period because the only Late Postclassic monumental complex encountered was discovered during PALM 2.

The bulk of artifact collections from PALM 1 were stored in the repository at San Juan de Ulúa under the auspices of the Centro Veracruz, Instituto Nacional de Antropología e Historia (INAH), and likely have all been reburied. Selected parts of the PALM 1 collections are temporarily stored in the Arizona State University Gulf Archaeology Research Facility in Xalapa, Veracruz. PALM 2 collections are stored at the Gulf facility for continuing analyses. Eventually all will be transferred to the Centro INAH Veracruz repository.

Isolated Finds

In addition to systematic collection of artifacts, project members recorded "Isolated Finds (IFs)." Usually these were single items but occasionally several things were found together. Isolated finds consisted of any spindle whorl or sherd disk; figurine parts likely to be identifiable, such as heads; any artifacts that might reflect production activities, such as obsidian cores or ceramic wasters; unusual artifacts of any kind, such as bark beaters or yoke fragments; and any bifacial or finished chipped stone tool. Sometimes IFs were encountered on mounds that were not collected or were found on mounds outside the collection area. At other times they were spotted in the course of transecting fields. Locations of IFs away from mounds were paced and marked on field forms in PALM 1, and were recorded with GPS equipment during PALM 2. Isolated Finds are particularly strategic for analysis of relatively scarce artifacts, such as spindle whorls or figurines because they augment the sample. IFs can be associated with the nearest mound for analytic purposes. IFs are not addressed in this study, however.

Contour Mapping of Monumental Complexes

Monumental construction was contour mapped to provide accurate information about architecture and layout. This investment was important for a region in which only one monumental complex had previously been contour mapped (Zapotal: Torres Guzmán 1972; Torres Guzmán et al. 1975), and that map has not been published. Now, contour maps of monumental complexes are available for the lower Cotaxtla-Jamapa drainage (Daneels 2016). Accurate maps of monumental construction are essential to compare the labor investment and planning of different complexes. During all field seasons, one crew was devoted to contour mapping monumental architecture. Contour maps were made with a total station in the 1986–1988 survey. The maps were drawn at a scale of 1:1,000, inked, and photographically reduced. The reduced PMT (photomechanical transfer) was then scanned so that further labeling could be done electronically. Speaker's (2001b) contour maps were produced with a forestry surveying instrument manufactured by Ushikata; they have been redrafted for this volume.

Beginning in 1999 when GPS equipment was available, we combined total station and GPS methods, using the GPS to record the back bases of structures, which reduced the number of reset points for the theodolite. GPS maps were printed to the same scale as the theodolite-based maps for transfer to the pencil map and then the inked map. This combination of instruments was invaluable because otherwise the contour-mapping team would not have been able to keep up with the number of monumental complexes encountered in survey. As it was, contour mapping often lagged.

A few small complexes were only GPS footprinted, with Abney level elevations to allow interpolation of contours. This was an effective strategy for separated monumental platforms, for example. The strategy of using Abney level and GPS on small complexes foundered in the paleodunes, where construction was typically set atop a sloping dune ridge, in part linked to water control. It proved impossible to make an adequate contour map of Ajitos East using GPS, Abney level, and tape measurements, although individual structures could be contoured. Unfortunately, our attempt to return and contour map with a total station was defeated by Johnson grass so high that mappers disappeared from view. One complex (1473) in the Blanco delta was rendered with only Abney level and pace information, as no mapping crew could be assigned during PALM 1.

During PALM 1, 15 monumental complexes were recorded (one, Tío Primo, was mapped during PALM 2). Eight complexes were located and mapped during 1989 by Stuart Speaker (2001b). During the 1998–2002 seasons (PALM 2), 44 monumental complexes were contour mapped. In total, 67 monumental complexes were contour mapped.[1]

One category of monumental construction was not contour mapped. In the course of survey, ten high structures were encountered that were not in formal plaza arrangements; they are 7 m high or higher (one is 6.9 m high, within the range of variation of Abney level calculations). These are mainly separated high conical mounds, which sometimes had a small number of low residential mounds nearby. Surveyors took the elevations with tape and Abney level and paced basal dimensions and the field location. In the case of more complex structures, a sketch map was made by a project member who could produce a representative drawing to accompany the paced measurements. Figure 3.4 labels and shows the distribution of separated high structures. All fall within the Blanco delta.

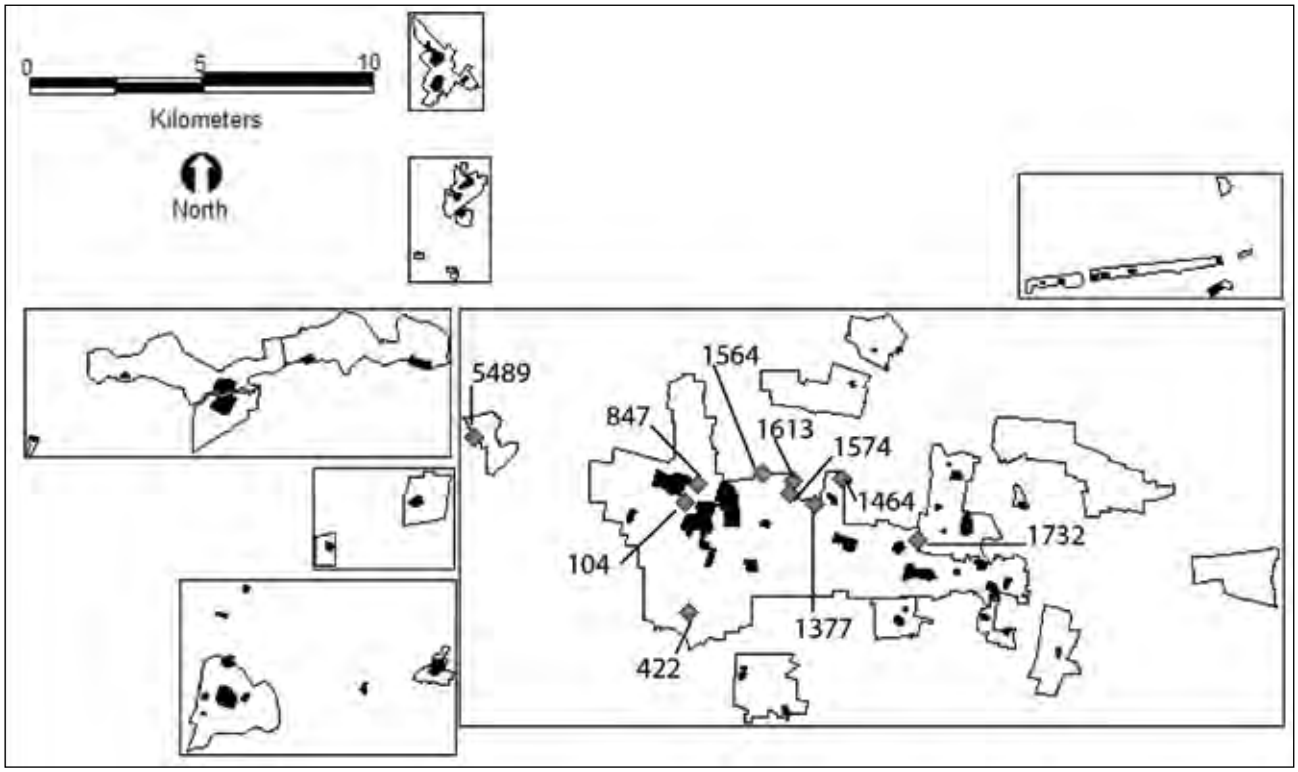

Figure 3.4. Structures and their feature numbers that lie outside monumental complexes and have a height of 7 m or more are shown with a gray diamond. Black polygons are mapped monumental complexes. The base survey map is compressed; see Figure 3.1.

Survey Feature Categories

Basic feature categories were applied to both pedestrian survey features and those that were contour mapped in monumental complexes. Basic survey feature categories are defined in Table 3.2. These categories are designated in computer files under the variable "mtype." An Excel file with feature records is publically available in tDAR.org (doi:10.6067/XCV87D2TKR and doi:10.6067/XCV8ZW1KB2). For monumental complexes, a separate terminology is needed in addition to address their morphology and likely functions, discussed in Chapter 5. The most common features were individual mounds (mtype 1), the majority of them low residential mounds. As discussed next, some mounds (mtype 2) have a lower lobe or projection, a terrace (mtype 3). Surface artifact concentrations with no discernible mound are a separate feature category (mtype 6). The category "other" (mtype 7) was used for a variety of other situations. Figure 3.5 draws from portions of contour mapped complexes to provide examples of the main feature categories used in survey, and it includes some of the additional structure vocabulary applied to features in monumental complexes, as discussed in Chapter 5.

Mound-terraces warrant additional discussion. These are mounds with an attached lower terrace area or projection. They likely represent either more occupants or occupants who had additional extended family members or servants living on the terrace, or who conducted more activities in their immediate patio or yard area, which might include both production activities and social hosting. They are candidates for higher-ranking residences. Setting aside structures that fall within monumental cores, mound-terraces are heavily concentrated in the Blanco delta (Figure 3.6). None occur in the paleodunes survey, upriver along the Blanco, in the interfluve, or in the mangrove area. One occurs outside of monumental complexes in the Tuzales area, and two occur in the Nopiloa area.

On the basis of the delta cases, mound-terraces in combination have greater volume than individual residential mounds (median volume of 2,374 cu m versus 502.5 cu m, respectively), and the mounds tend to be higher (median of 2.3 m versus 0.8 m, respectively). Whether the mound was constructed atop the terrace platform or the terrace abuts the mound cannot be

Table 3.2. Categories of features in PALM survey

Feature category number (mtype variable)	Name	Description	Count	Percent
1	Individual mound	Reasonably symmetrical (if not see code 7). Note: each mound for a ballcourt is given its own number	2644	0.70
2	Mound with terrace or ramp	The mound has a contiguous projecting, lower, flat, area, often a protruding half-moon shape or a projecting "tongue". If the mound and terrace are on a platform, then the mound will be code 5, not code 2. Note: ramps (probable stairs) are not given separate feature numbers if they are only a slight bulge in the mound contour. They are given a separate feature number if they protrude with a separate footprint.	170	0.05
3	Terrace	Projecting attachment to a mound or platform, see above. A terrace may be attached to a mound on a platform.	206	0.05
4	Platform (with another structure atop)	A platform may have a ramp (probable stairs). If a platform is dubious in regard to whether it is artificially constructed or simply the effect of an ambient field level "cut out" by *bajos*, it will be designated as a "platform" only if it has a distinctly regular formal arrangement. Not included here are any platforms which do not have a structure on top; instead see code 7.	103	0.03
5	Mound on a platform	Includes circular or oval mounds and L-shaped mounds on platforms. Also applies to mounds on causeway platforms.	174	0.05
6	Modern surface area with artifact concentration	Artifact concentrations lacking any indication of a mound	182	0.05
7	Other	Ramps/stairs, various "odd" shapes such as "L" arrangements (for these, each arm will likely have a separate feature number), "linked double mounds", causeway, round or oval soil color changes designated as possible plowed-down mounds, irregular "amoeba"-shaped mounds with lobes (generally do not have separate numbers for each lobe). Included here are any platforms which do not have a structure on them. Also used for collections that span several structures and have 900 series feature numbers.	144	0.04
8	Additional collection	Made on a single structure or artifact concentration (may have been made in separate area of that entity for some reason or made in another season and not meant to be pooled with the prior collection). Also used for an additional 900 series number assigned to pooled collections from two or more separate structures. Also used for "general collections" for entire monumental complexes or other groupings, i.e., for any scattered sherds collected from any of the component features.	48	0.01
9	Uncollected well-defined surface concentration	A well-defined surface sherd concentration (nicknamed "warm spot") lacking a high enough density to collect in PALM 1 procedures (i.e., not likely to yield a minimum of 100 rims). During 1988 these were Z series features. All Z series were given 9000 numbers in 1989. Some cases were added from inspection of transect sherd counts on PALM 1 field forms. Some may also be possible mounds. Note that in PALM 2 survey, procedures were changed so that all concentrations were given feature numbers regardless of the density and size (therefore code 6 applies). Code 9 applies only to PALM 1 concentrations that were not collected.	43	0.01
10	Uncollected surface concentration, not well defined	Less definitive concentration, e.g., one that falls at edge of transected area. Defined in 1989 on basis of transect sherd counts on prior PALM 1 field forms and given a 9000 series feature number. Note that in PALM 2 survey, procedures were changed so that all concentrations were given feature numbers regardless of their density and size and would fall in the code 6 category.	24	0.01
11	Possible low prehispanic mound	These cases were low and difficult to discern. Supplementary information did not help, as they either lacked surface visibility or the sherd count was not particularly higher than the surrounding area. Excludes mounds thought to be the result of modern activity. If the locale was also code 9 or 10, those codes take precedence.	21	0.01
TOTAL			**3759**	

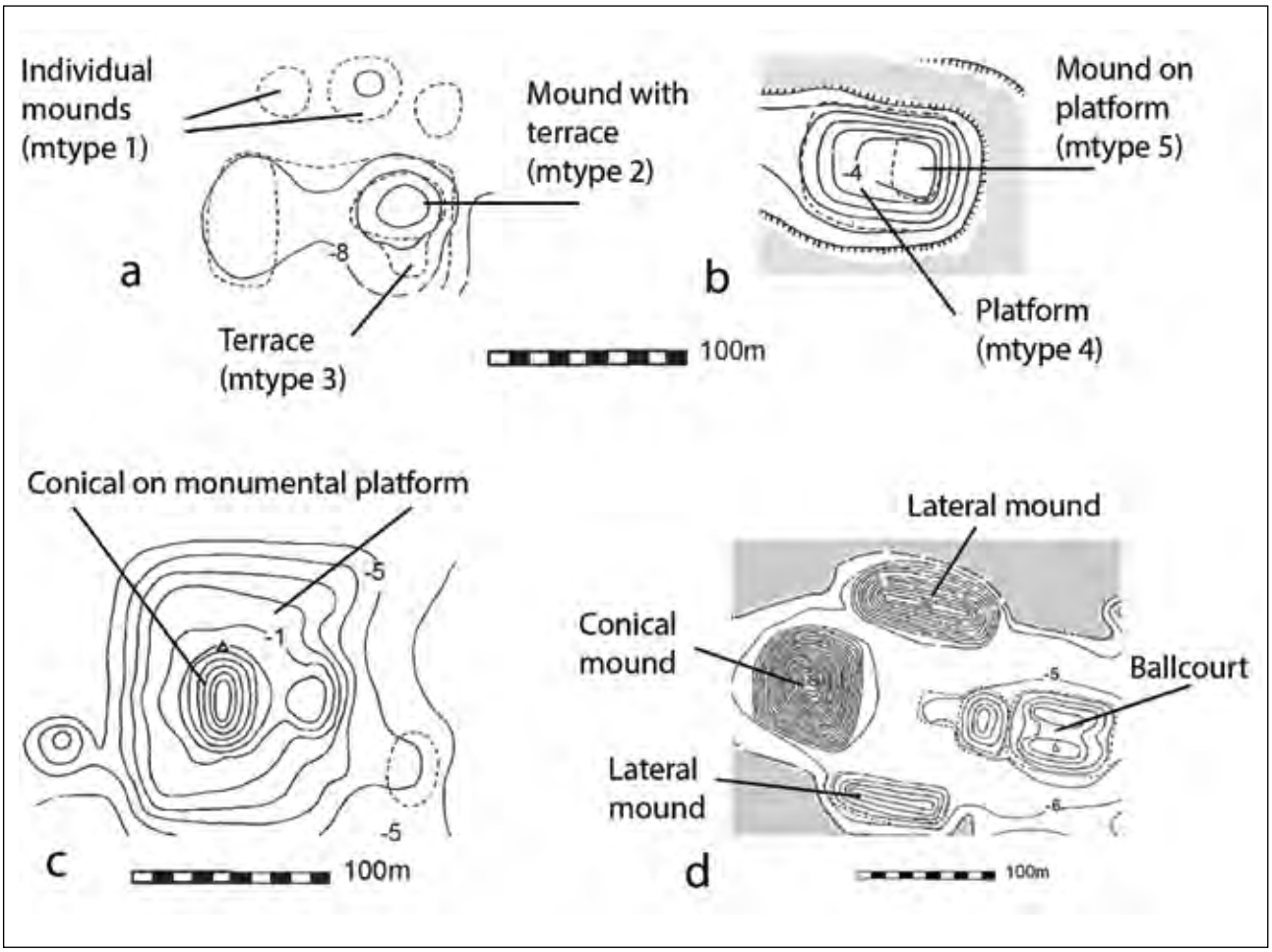

Figure 3.5. Survey feature categories are shown in (a) and (b); (c) and (d) indicate additional terms applied to monumental complexes. (a) and (b) are part of the Villa Nueva complex (see Figure 8.16); (c) is part of the Ojochal area of Cerro de las Mesas (see Figure 7.15); (d) is part of Azuzules (see Figure 8.20). Gray shading indicates ponds.

determined from surface data. Given their greater labor investment, the concentration of mound-terraces in the Blanco delta suggests a concentration of political and economic power in a particularly productive agricultural location, but also the incentive to elevate residences and their outdoor work areas in the low-lying delta terrain. Arguing against a solely environmental factor is the abundance of individual mounds in the delta that did not have terraces.

The mound-terraces contrast morphologically with mounds on a platform two ways. The mound-terraces do not show a platform extending around all sides of the mound, in contrast to many mounds on a platform, or, if the back of a mound on a platform was coterminous with the edge of the platform, the platform is rectangular in form, unlike terraces, which are more lenticular or lobe-like.

Feature Numbering

Every archaeological feature was given a unique number in a continuous series. Also in the series were numbers assigned to excavation lots during the 1987 residential excavations (Stark, ed. 2001). For investigators comparing PALM features with numbered provenience from other projects, the collection number can be preceded by "PALM."

Particularly in the mangrove swamp survey, mounds tend to exhibit somewhat "rolling" or lumpy surfaces, making it difficult to determine if an additional distinct mound(s) was present on top. In those cases, a higher area might be indicated by a dashed line on field drawings, but no feature number was assigned. They likely reflect the accumulation of sediment from wattle-and-daub structures, perhaps in addition to a low earthen platform placed atop the underlying mound.

Rarely, a single number was assigned to two related features; for example, there is one instance from 1986 in which two ballcourt mounds share a number, before field practices were fine-tuned. These exceptions are rare, and normally every recognizable feature was given a unique number. The 900 series numbers were reserved (1) for additional collection(s) from a feature already collected, (2) to straighten out ambiguities, or (3) to assign a number to a feature that had been recorded but not numbered originally; occasionally a 900 number was assigned to a "general collection" from a monumental complex. The general collection numbers were inaugurated when some monumental complexes had earthen fill scant in artifacts (relatively "clean fill") and/or were thickly overgrown with grass or other vegetation. Collected sherds were found usually as isolates during mapping or other movement around the complex. Because systematic collections were scarce in these circumstances, we needed to augment the ceramic information with a general collection. Nopiloa is one example of a complex for which collections were difficult due to a combination of vegetation and structural fill in which sherds were scarce.

The next chapter provides an overview of the occupational history of the WLPB on the basis of PALM surface collections. Chapter 5 gives a more detailed consideration of the concepts applied to monumental construction and describes layouts in site cores. Later chapters address each complex.

Note

1 Contour maps are printed at different scales as necessitated by page layouts, but keeping them similar in scale if possible. Some of the largest complexes are at scales determined by the page margins, and they range from 0.75 to 1 cm per 50 m. Intermediate-sized complexes range from 1 to 1.6 cm per 50 m (with most 1.3 to 1.5 cm per 50 m). Another group of smaller complexes ranges from 1.2 to 1.6 cm per 50 m (with most 1.3 to 1.5 cm per 50 m). Thus, visually most of the contour maps are at similar scales except for the largest ones constrained by page margins.

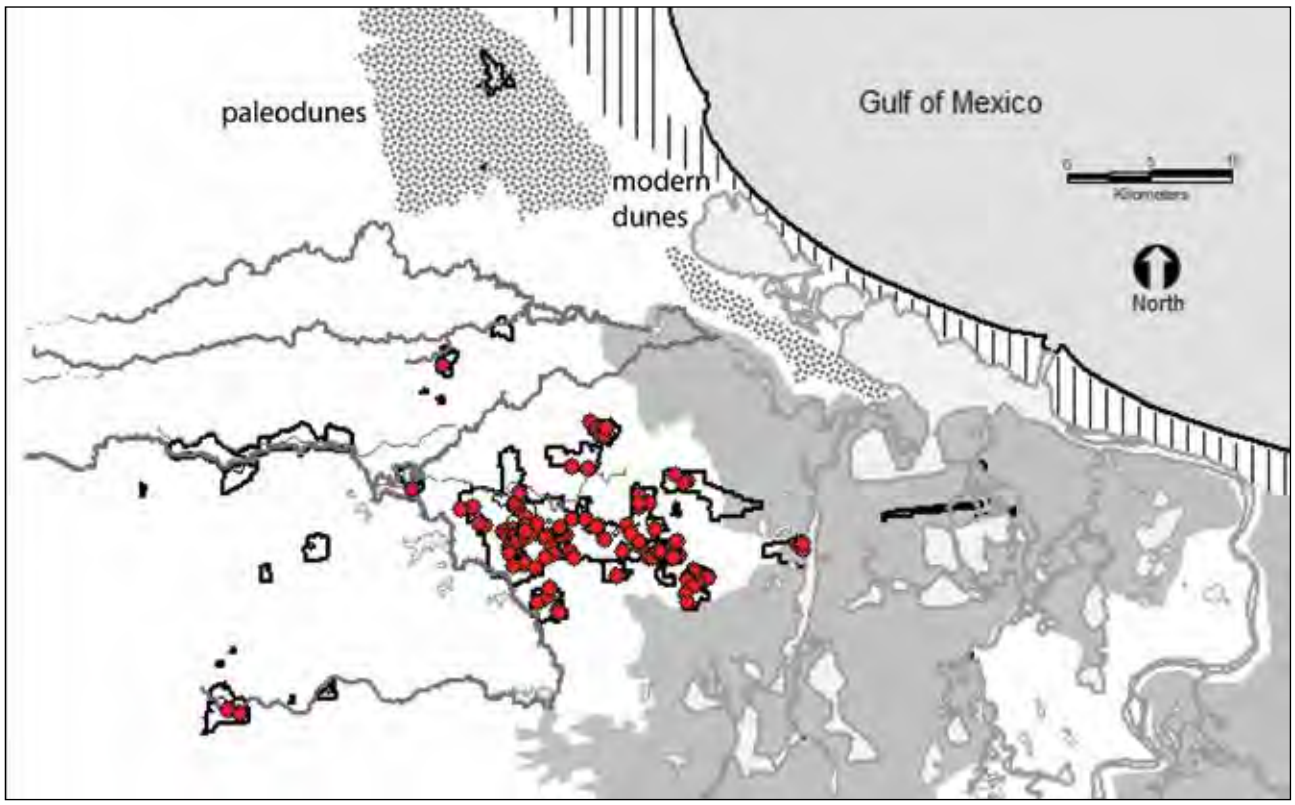

Figure 3.6. Mounds with terraces that are outside of monumental complexes are shown with a red circle.

Chapter 4

Occupational History of the Western Lower Papaloapan Basin

This overview of occupation is based on the distributions of artifacts from systematic surface collections. Occupation can be examined in terms of major periods (Preclassic, Classic, and Postclassic) and at a finer scale (Early Classic, Late Classic, Middle Postclassic, and Late Postclassic). I utilize a scheme of traditional period names to indicate blocks of time, without implying necessary links to cultural and social change (despite their names). Table 1.1 indicates the major periods and WLPB phase names or material culture complex names derived from Drucker's (1943) research at Cerro de las Mesas, PALM research in the WLPB (Stark, ed. 2001), and my work at Patarata 52 (Stark 1989). Subphases of the Camarón and Limón phases cannot be reliably determined from surface collections. Table 1.1 also situates WLPB phases in approximate relationship to other published sequences in south-central Veracruz and the eastern lower Papaloapan basin (ELPB).

Current temporal resolution is not effective in further subdividing major periods for several reasons. Many diagnostics are more elaborately decorated vessels that are less frequent than utilitarian pots and are not likely to be evenly distributed in ancient societies. More challenging is the considerable continuity in the ceramic sequence, with few episodes of radical change. Surface collections from individual features, mainly residential locations, are not ideal for chronological refinement because there is considerable continuity of occupation and reuse of residential mounds. Surface sherds are often smaller than those excavated from subsurface contexts. Monumental constructions may combine fill from different periods. Evaluation of chronology is complicated by evidence of craft production that skews inventories (Curet 1993; Curet et al. 1994; Garraty 2009; Skoglund et al. 2006; Stark 1992, 1995, 2007b; Stark and Curet 1994; Stark and Garraty 2004). The stratigraphic excavations did not yield numerous radiometric dates, and we lack sufficient excavations to make finer discriminations reliably, especially because reoccupation of residential mounds leads to activities that mix sediments, such as postholes and trash pits. Despite these caveats, a regional picture of settlement change is possible.

The pottery categories associated with each period are listed in Appendix 1, which also summarizes the development of the classification system and chronology. Appendix 1 lists the names and acronyms of pottery categories and their period association, although I caution that ceramic change is relatively gradual and smooth until the Postclassic period (see Daneels 2006). Many of the pottery categories have been briefly described in

publications (Stark 1989, 1995, 1997b, 1998b, 1999a, 2001, 2008c), but the detailed presentation will form a ceramic monograph published separately.

Maps in this chapter use the compressed format presented in Chapter 3 to show the distribution of counts of diagnostic pottery. Later chapters have maps at a larger scale that use percentages of diagnostics to show relative chronological emphases for features in and surrounding monumental complexes. In all of the distributional maps, for PALM 1 and 2, I use all sherds, but for Speaker's (2001b) survey only rims were classified. Appendix 1 provides descriptive statistics for the period diagnostics.

I name two additional complexes here to facilitate examination of temporal change (see Stark, ed. 2001): (1) the Pozuelos complex in the Middle Preclassic period, perhaps overlapping into the early part of the Late Preclassic, and (2) the Guerén complex in the Terminal Preclassic, perhaps overlapping into the Early Classic period. Although they are helpful for examining transitional patterns, neither is sufficiently well defined to be used to provide percentage chronological information about settlement surrounding monumental centers in later chapters.

Chronology of Settlement According to Major Periods

As noted, to examine occupation patterns over time, I employ counts of diagnostic sherds in maps with the compressed format. To simplify the maps, I show only the outline of the monumental complexes; complexes are labeled in Figure 3.1. In most cases, I plot collections with a count of sherds at or above the median of counts for that period based on all collections. Use of the median criterion highlights locations of more reliable representation of the period. In a few cases, I examine all occurrences of diagnostics from a period if there are few diagnostics and they are not abundant. The distribution maps are sensitive to the numbers of diagnostic categories, but each one provides a direct guide to quantities of occupational traces for the entire survey. Maps in later chapters that address the monumental complexes individually rely on percentages of diagnostics of each period as a relative measure to gauge the prominence of different periods of occupation at and in the vicinity of the monumental complexes.

Population estimates for the WLPB and the survey areas are not provided to accompany the settlement history. There are multiple reasons that demographic estimates would be premature or misleading. A primary one is lack of homogeneity in occupational density. Because of the scale of the maps with diagnostic counts in this chapter, one aspect of settlement pattern is obscured, but later maps illustrate the point. Survey revealed some areas with scant or no evidence of occupation despite the focus on monumental complexes and their surroundings (Figure 3.1). One example is the interfluve. Others are the northwest part of the western Central Block and the west end of Speaker's (2001b) Zone 2. In the Tuzales block, the area to the north of the stream also has little occupational evidence. Without geomorphological studies, I cannot evaluate possible environmental factors that may account for these declines in occupation, but it appears likely that areas removed from proximity to water sources were less attractive for residences. Examination of the upriver blocks along the Blanco illustrates this point because the number of features decreases away from the river.

The important point is that occupation varies not only chronologically, but also spatially. Occupation is inhomogeneous in ways that we can only partially specify because of the distribution of survey blocks. We can examine patterns in areas surveyed, but the survey occurs in patchy blocks, and, even within those blocks, inhomogeneity is evident. Therefore, a solid basis for estimating regional population over time is lacking. Extrapolation from the areas surveyed to the WLPB is not yet warranted. The best population calculations at present are those for the Central Block, addressed in Chapter 2 in connection with the discussion of low-density urbanism.

Every sampling design has its strengths and weaknesses. The intensive design of PALM does not cover a large contiguous chunk of the WLPB, even though that would be desirable. A less intensive survey would not have successfully recorded all the residential remains along with individual surface concentrations, however. This constitutes a "catch-22" because residential traces are essential for population estimates. As has been pointed out (Fish and Kowalewski 1990), full-coverage regional survey is an excellent basis for understanding settlement variation over time. Nevertheless, it has liabilities for areas of low-density urbanism if complete coverage comes at the cost of registering all of the residential information. New survey tools such as high-resolution lidar (e.g., Chase et al. 2012; for the ELPB, Loughlin et al. 2016) hold promise for both broad contiguous coverage and a substantial registry of occupational mounds for sampling in ground survey and surface collecting that can allow extrapolation to estimate regional demography over time.

Preclassic Period

In comparison with the sprawl of occupation during the Classic period, Preclassic occupation is more localized. A plot of diagnostic sherds or rims (depending on the survey project) at or above the median count shows a strong concentration at and near Cerro de las Mesas. Madereros and Tuzales have smaller but noteworthy concentrations (Figure 4.1). Other areas of monumental construction with collections meeting these criteria include Cerro de los Muertos and Palmas Cuatas. Survey and test excavations at mounds 693 and 985 showed that a small village was located southeast of Cerro de las Mesas (Stark, ed. 2001).

Occupation near Cerro de las Mesas extends southward toward the de las Pozas River distributary with a gap eastward, raising the possibility of a paleochannel directly east of Cerro de las Mesas that forked southward from the Viejo River channel. The paleodunes and mangrove areas do not show Preclassic occupation, and the interfluve and Guerengo areas are extremely lightly represented, along with some of Speaker's (2001b) survey zones. The eastern half of the Blanco delta is lightly occupied.

Figure 4.1 principally represents the Late Preclassic to Terminal Preclassic periods, but a finer breakdown is desirable. A chief question for the Preclassic period concerns the inception of occupation in the WLPB—what is the earliest documented occupation? Stark (ed. 2001) defined the Pozas phase for the Late Preclassic period. Two complexes provide possible insights into additional subdivisions before and after the Pozas phase: Pozuelos and Guerén.

Pozuelos Complex

I define this complex to distinguish Middle Preclassic occupation on the basis of a combination of temporally sensitive pottery and figurines. Figurines have not yet been brought to bear in chronological analyses in most cases, but the shaky pottery basis for distinguishing the Pozuelos Complex leads me to add figurine information. Only a few pottery categories are likely to be helpful to distinguish the Middle Preclassic period and the transition to the Late Preclassic. Incised white-ware (37b WHTS, 66 sherds) is the most numerous, but it is found fairly consistently in the Pozas phase materials

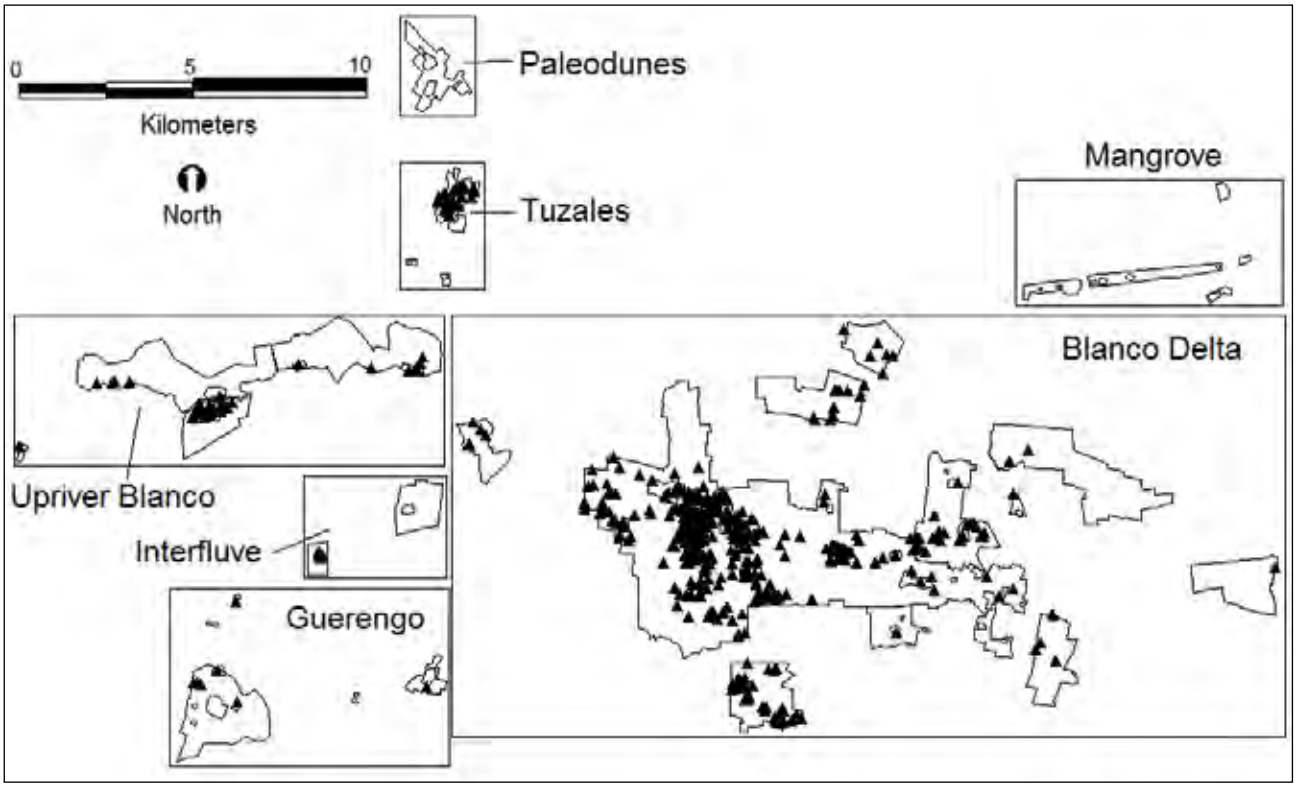

Figure 4.1. Late to Terminal Preclassic diagnostics at or above the median count of three diagnostic sherds for PALM 1 and 2 and two rims for Speaker's (2001b) zones.

in the lower levels excavated at mounds 693 and 985 (Stark, ed. 2001). Rocker-stamped sherds (X2 ROCK, three sherds) are extremely scarce (Figure 4.2), as are zoned cord-marked sherds (X1 CORD, two sherds). Both the rocker-stamped and zoned cord-marked sherds are either a trace of Early Preclassic occupation or a few late continuations of traits characteristic earlier. The lack of other definitive Early Preclassic materials makes the latter interpretation more tenable. The three categories combined replicate the same concentrations evident for the Late Preclassic period Pozas phase except for the scarcity of evidence from Tuzales (Figure 4.1). The indication of settlement continuity is consonant with ceramic continuity throughout the Preclassic record in the WLPB. For example, differentially-fired pottery, undoubtedly present during the Middle Preclassic, characterizes the Late Preclassic and is diminished but present during the Terminal Preclassic in this region.

Although figurines are problematic as temporal diagnostics using survey materials because people may pick up recognizable parts (especially heads) and transport them, four categories from the preliminary figurine classification may be associated with the Middle Preclassic period, as well as occurring with excavated Pozas phase materials (Figurine 1a, b, head with central punched eye, 11 examples; Figurine 1e, solid modeled body, 30 examples; Figurine 1f, solid modeled legs/feet, 8 examples; and Figurine 1g, head with trough eye, 4 examples). The figurine categories plot similarly to the three Pozuelos pottery categories with regard to the most abundant occurrences, with a slightly more variable spatial array (Figure 4.3).

On the basis of these possible elements of a Pozuelos complex, Cerro de las Mesas displays the greatest concentration, with Madereros upriver and Palmas Cuatas to the east as smaller concentrations. The village that includes the excavated mounds of 983 and 985 (Speaker 2001a) yielded Pozuelos pottery mixed with Late Preclassic Pozas pottery. Other locations that produced a ceramic signature from the Late Preclassic Pozas phase, such as Tuzales and Cerro de los Muertos, do not show much evidence of earlier occupation on the basis of the possible Pozuelos traits. If future research validates these apparent patterns, the Late and Terminal Preclassic occupations were outgrowths of an earlier, scarcer set of population nodes, with Cerro de las Mesas already the dominant focus of occupation.

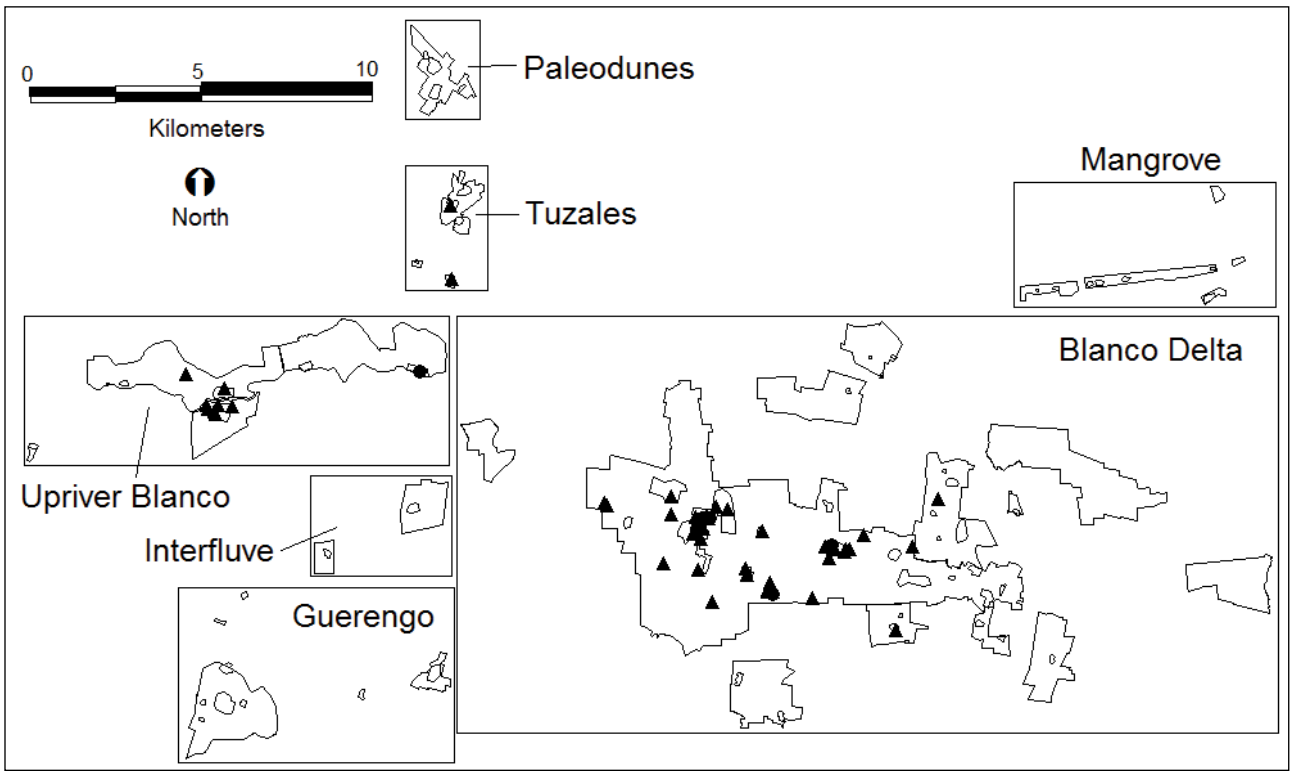

Figure 4.2. The spatial distribution of Pozuelos complex pottery diagnostics, any occurrences.

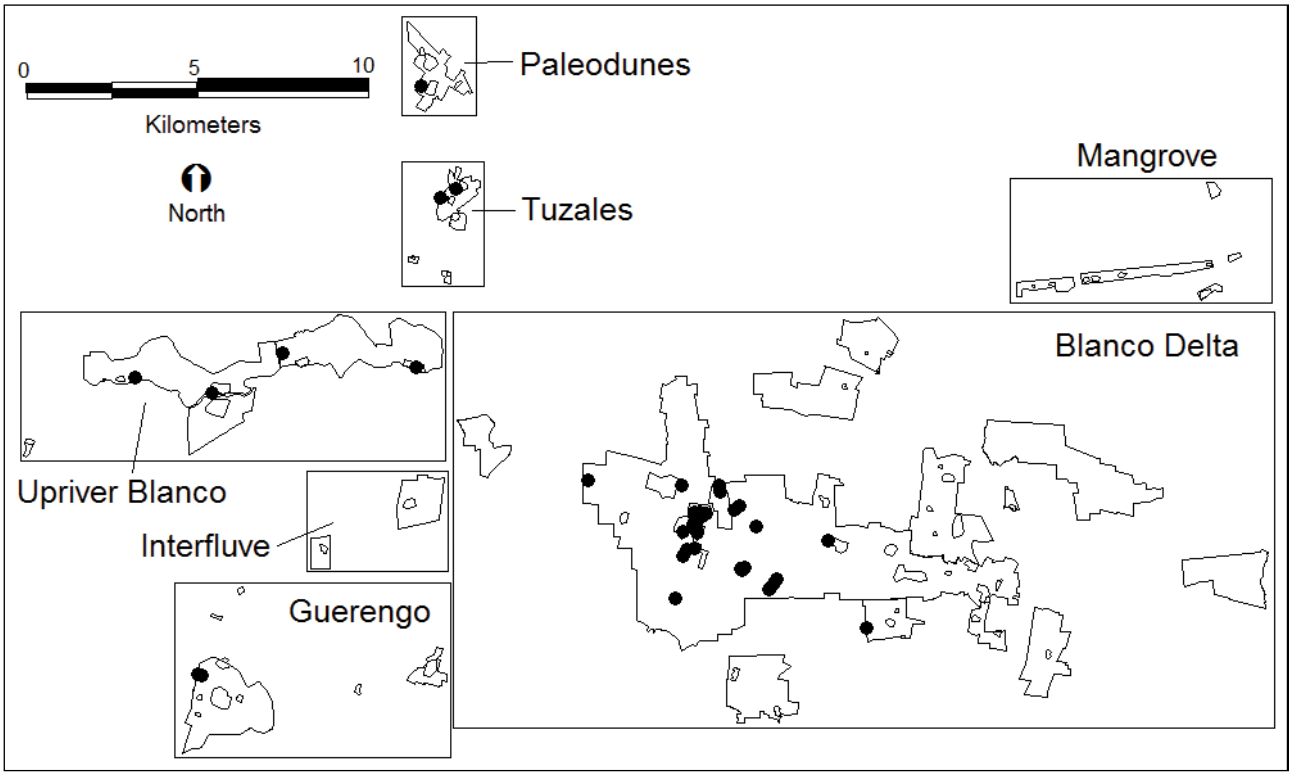

Figure 4.3. The spatial distribution of Pozuelos complex figurines, any occurrences.

Guerén Complex

Terminal Preclassic occupation is not well documented in PALM research, but Stark et al. (2001) suggest that some of the pottery from mound 354 was Terminal Preclassic in date. Unfortunately, admixture with Classic period ceramics did not provide a crisp separation. I provisionally name a Terminal Preclassic complex 'Guerén', updating the reference to a Terminal Preclassic mound 354 complex in the chronological chart in Stark et al. (2001:139). Significant changes were underway in pottery during this interval and transitioning into the Early Classic period, with finer-textured pastes coming into use in both black-fired bowls and orange-slipped bowls. Unfortunately, traits that characterize the Terminal Preclassic are almost entirely based on changing percentages of associated types, not exclusive diagnostics, as discussed in Stark et al. (2001). See Daneels (2005b, 2006) for a review of Gulf pottery sequences in Veracruz. Change in pottery seems to have been gradual for the most part, leading into two subphases of the Early Classic period, Camarón 1 and 2.

Only one trait is likely to have been nearly exclusive to the Terminal Preclassic period: double or treble narrow horizontal polished grooves on the exterior under direct lips of vertical to slightly convex-walled bowls (X11 PAIR, 731 sherds). The X11 category can only be examined with PALM 1 and 2 data, as it was not recorded by Speaker (2001b). The median count of this uncommon category is one, and I have plotted only occurrences greater than one in Figure 4.4. Compared to the Late to Terminal Preclassic plot in Figure 4.1, occurrences are more concentrated at and near the monumental complexes of Madereros, Tuzales, and Cerro de las Mesas, possibly reflecting a status distinction, with higher-status families at or near major monumental complexes.

Locations with higher concentrations (arbitrarily selected as five or more sherds) are shown in Figure 4.5. This distribution shows the hazards of chronological analysis. The sherds are most abundant upriver along the Blanco, at Madereros. On the one hand, the plot of more numerous occurrences in Figure 4.5 shows the active role of Madereros during the transition to the Classic period, but, on the other hand, it suggests the possibility that inhabitants at Madereros were producing these bowls, with a distribution to Tuzales and especially to the western Blanco delta and Cerro de las Mesas, locations likely to have higher-status families.

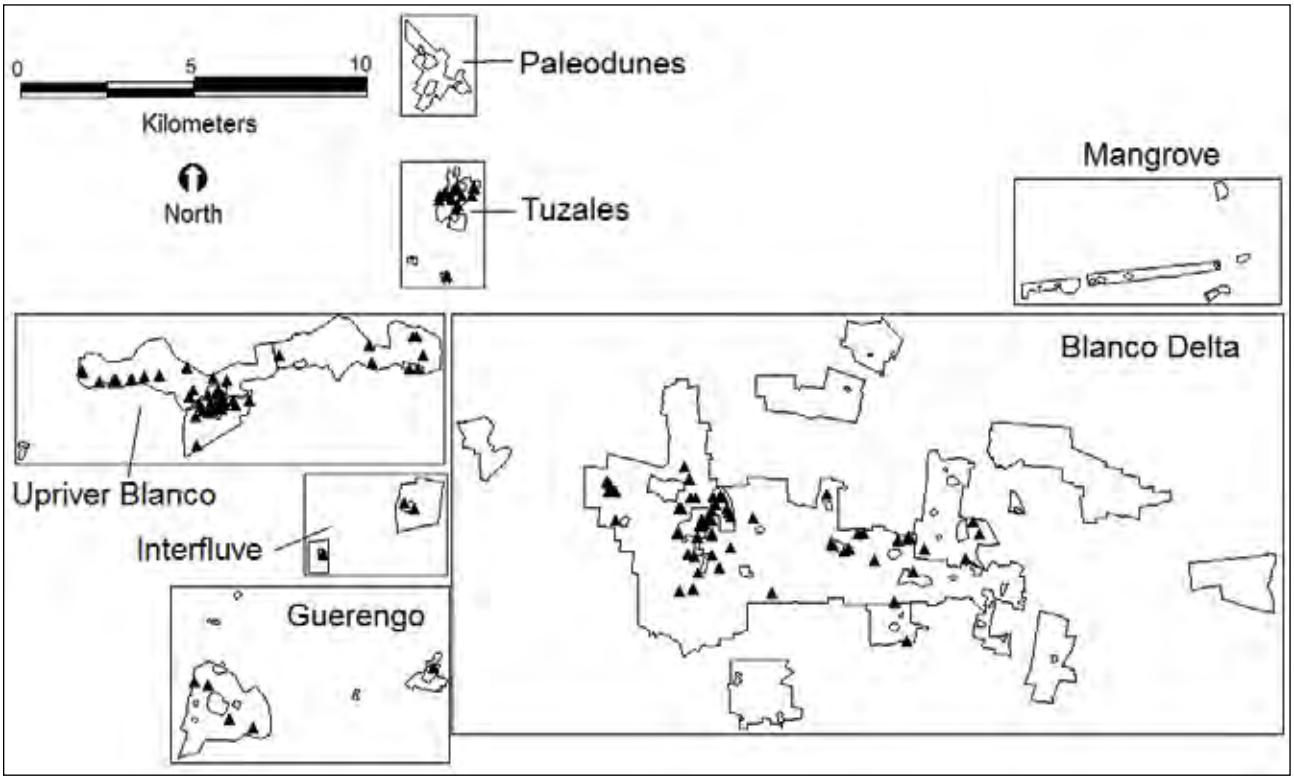

Figure 4.4. Collections with occurrences with a count above one of X11 double and treble exterior grooves.

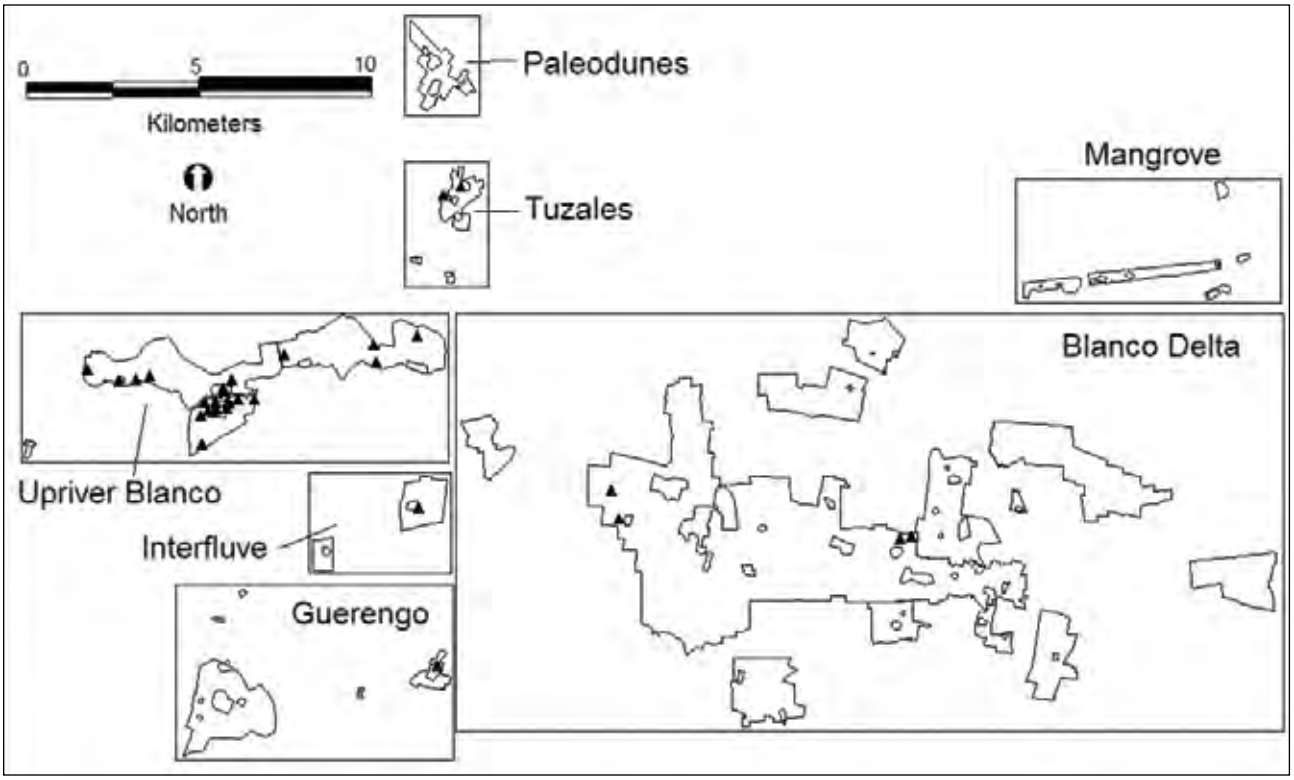

Figure 4.5. Collections with a count of five or more occurrences of X11 double or treble exterior grooves.

Johns' (2003) seriations of Palm 1 and 2 and Speaker's (2001b) pottery data places some pottery types, particularly differential black-orange and differential black-red, in the Terminal Preclassic period. Johns' seriations bring several refinements to bear in correspondence analysis (such as elimination of extensively eroded collections). Excavations at 693 and 985 show that these differentially fired categories are not exclusive to the Terminal Preclassic period (Stark et al. 2001), however. Their placement in the seriation likely reflects their continuation in the Terminal Preclassic period while other Pozas phase types decline and disappear. Consequently, until diagnostic percentages can be established, we are not in a position to create a Terminal Preclassic ceramic distribution using these two differentially fired types. Excavations at mound 354 do not resolve the problem due to mixture with Classic period pottery.

Classic Period

Occupation peaks during the Classic period in the WLPB (Figure 4.6). All survey locations had Classic occupation, and the Blanco delta shows heavier settlement farther eastward than previously.

In a breakdown of the Early versus Late Classic, for Speaker's (2001b) data, only the Late Classic can be separated because too many of the Early Classic diagnostics depend on the PALM 2 reclassification. For PALM 1 and 2, I combine diagnostics for the Early Classic period with a group termed "Early Classic Tendency" that are less thoroughly associated with the Early Classic period and may reflect a slightly later facet.

Early Classic Period

The Early Classic displays a dispersed occupation that tends to "fill up" the landscape (Figure 4.7). All survey localities have evidence of occupation. Greater Cerro de las Mesas is especially well represented and unparalleled as an occupation concentration among monumental complexes recorded in the region. Expansion eastward from the Cerro de las Mesas area is evident and may be tied to geomorphological changes as well as population growth. The delta may have been prograding, allowing new settlement in lands that previously were less attractive because of flooding. With the expansion of Classic occupation, we no longer detect a focus on particular nuclei; no village akin to the 693 and 985 location stands

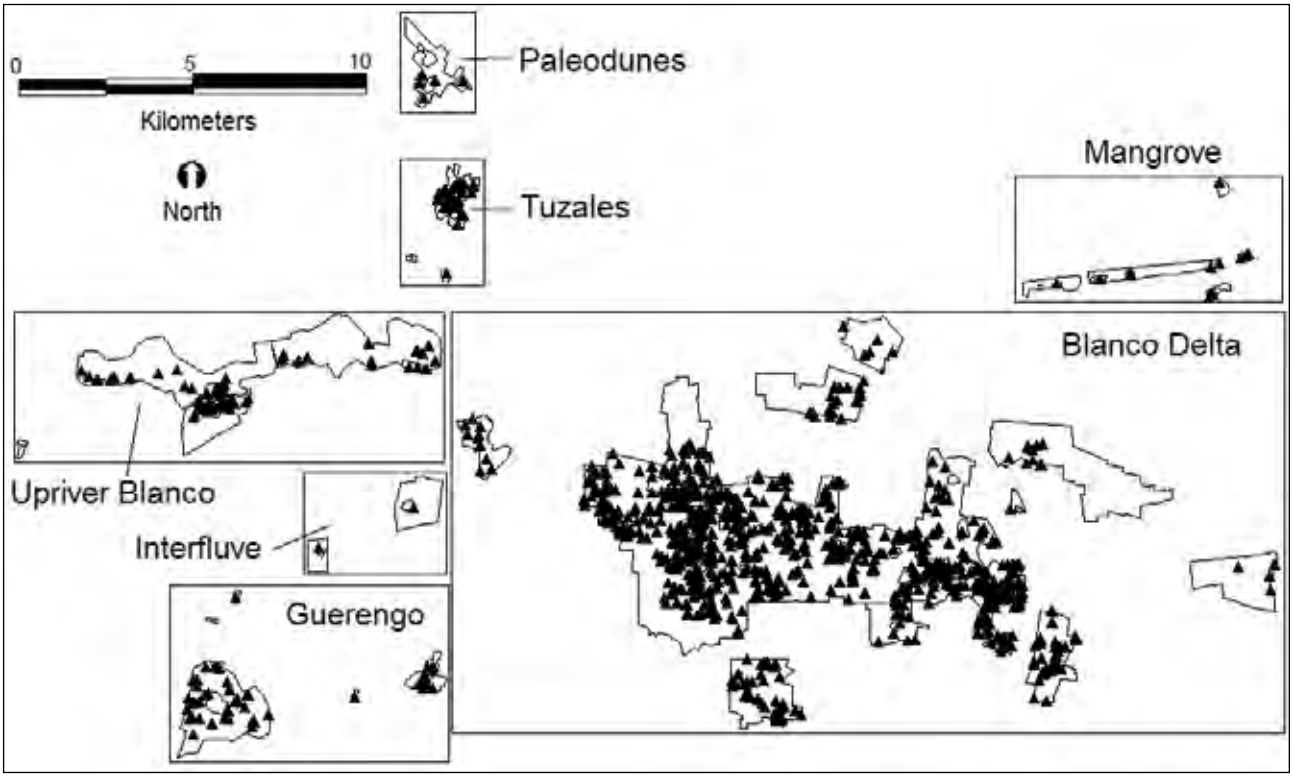

Figure 4.6. Collections with Classic period diagnostics at or above the median (16 sherds for PALM 1 and 2 and 15.5 rims for Speaker's [2001b] data).

out. Monumental complexes do not form discrete clusters of occupation to the same extent as during the Preclassic. Some areas remain vacant, likely because they are too low-lying, but others remain lightly occupied despite adequate elevation for farming, such as the interfluve.

This region, along with many others, provides an indication of substantial or complete political independence from Teotihuacan (Stark and Johns 2004), indicating a Classic period Mesoamerica that was more multi-centric than once thought, even though anchored by considerable stability through very powerful, long-lived capitals at Monte Albán and Teotihuacan, as well as numerous long-lived centers in the Maya lowlands, or, for that matter, Cerro de las Mesas.

Late Classic Period

The region continues to exhibit dense occupation as indicated by Late Classic diagnostics (Figure 4.8). Clusters of collections at or above the median count for sherds or rims indicate changes in the roles of monumental complexes. Cerro de las Mesas has diminished representation compared to the Early Classic period. What were secondary nodes appear to have continued as independent primary nodes—Azuzules and Nopiloa. The secondary centers of Tuzales and Madereros, however, are greatly diminished in ceramic indicators of occupation. Ajitos and Pitos in the paleodunes continued their roles and likely formed another independent primary node. Occupation in the Nacastle-Patarata mangrove settlement suggests a local primary node centered at the Tío Perciliano complex. The history of the WLPB after the decline of Cerro de las Mesas further underscores the widely acknowledged instability of Late Classic times, with smaller, likely competing, successor states, such as Azuzules and Nopiloa. The region does not express any major disruption with the decline of Teotihuacan, but Cerro de las Mesas was possibly a casualty, either because of ties to Teotihuacan, or, more likely, disruptions in exchange patterns.

Despite the long record of considerable cultural continuity and the presence of a succession of important local centers, the WLPB cultural tradition vanishes and associated centers are abandoned around the close of the Classic period (Stark and Eschbach 2017, 2018). The timing of this collapse is poorly understood; these events succeeded sometime between AD 800 and 1000.

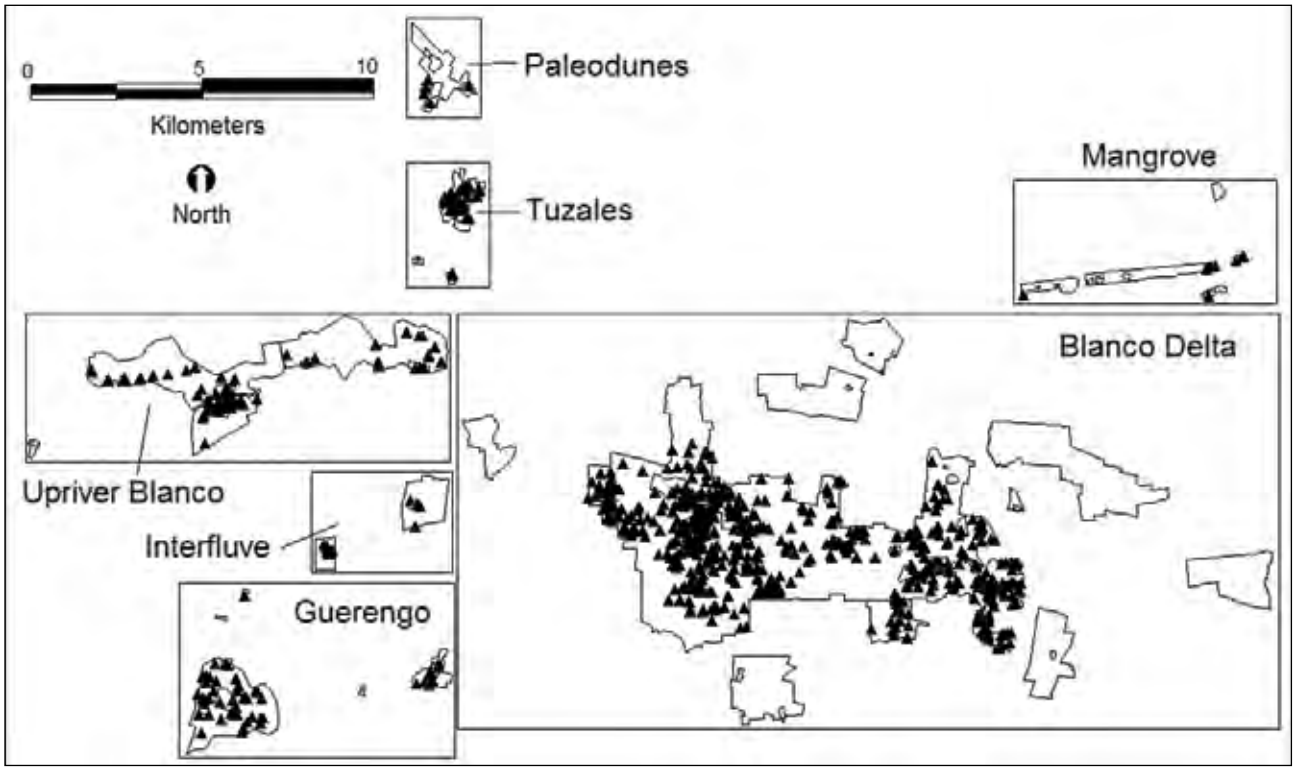

Figure 4.7. Collections with Early Classic and Early Classic Tendency diagnostics at or above the median count of two sherds in each case (Speaker's [2001b] survey zones excluded).

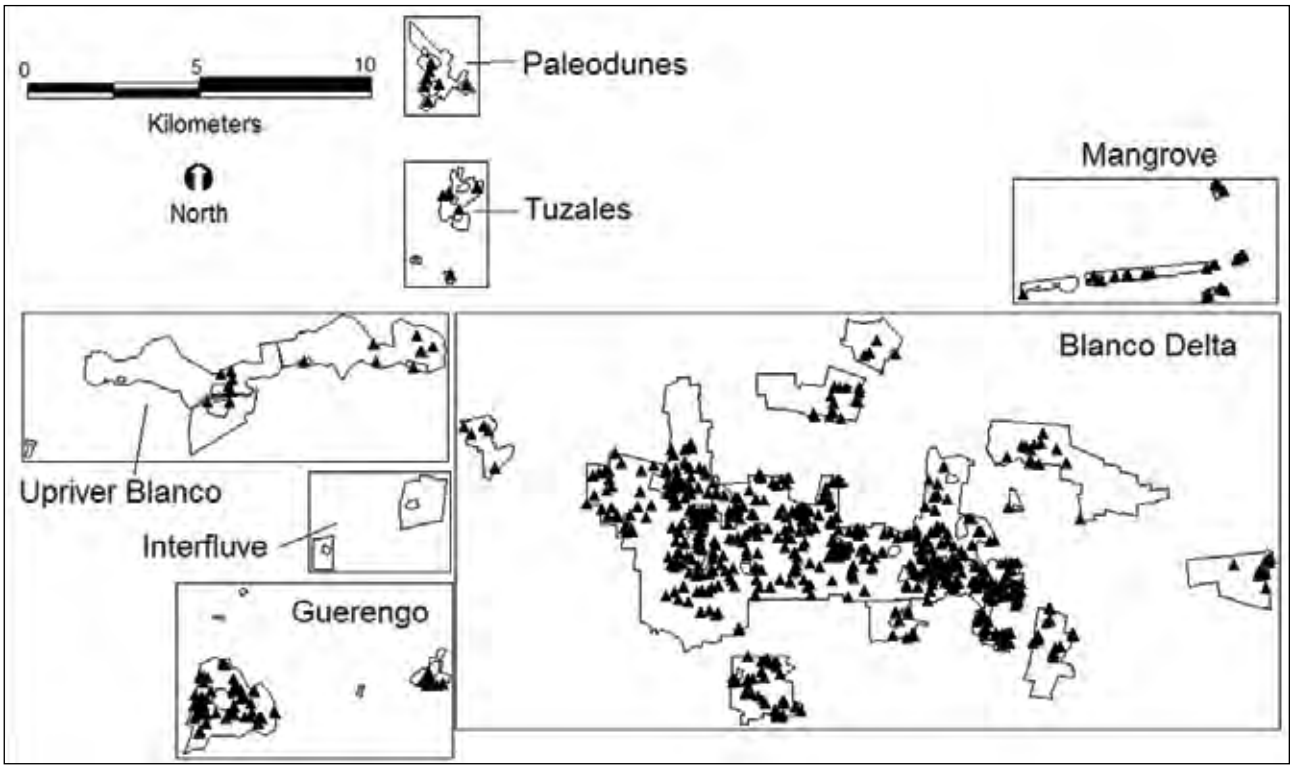

Figure 4.8. Collections with Late Classic diagnostics at or above the median of sherds or rims (2.5 sherds for PALM 1 and 2, two rims for Speaker's [2001b] data).

Postclassic Period

Eventually, a quite different cultural complex with numerous ceramic stylistic affinities to Puebla, Tlaxcala, and the Basin of Mexico suggests an intrusion of a different ethnic group during the Middle Postclassic period (Stark 2008a). A general plot of Postclassic diagnostics shows a considerable reduction in the extent of occupation (Figure 4.9). The paleodunes, mangrove, Tuzales, and Interfluve areas lack indications of counts at or above the median.

The two Postclassic complexes identified by Drucker (1943) contrast in their settlement characteristics and dates. Upper I pertains to the Middle Postclassic, and Upper II, to the Late Postclassic. Sauce in the Blanco delta was the Middle Postclassic head town, with most of the scattered hinterland households located in the delta (Figure 4.10), especially in the western half.

During the Late Postclassic period, the earlier Blanco delta settlement at Sauce ceases to function, and Callejón del Horno, upriver on the Blanco, displays some ceramics similar to the Basin of Mexico under Aztec rule (Figure 4.11). Callejón del Horno may have been a dependency of Cuetlaxtlan, a head town that was conquered by the Aztec Triple Alliance (Ohnersorgen 2001, 2006). There are few pottery diagnostics for the Late Postclassic because many of the Middle Postclassic categories continued in use. Callejón del Horno on the north bank of the Blanco represents the only monumental complex for the Late Postclassic, with outlying occupation scattered along the north bank. The Blanco delta continues to be occupied, with Sauce no longer standing out as a concentration.

Crafts and Chronology

During the Late Preclassic period, a considerable use of flake technology predominates in the obsidian collections. A mix of sources is characteristic, but Guadalupe Victoria, Puebla, provides much of the nodular material imported for flake and bipolar reduction.

Obsidian importation transitioned to prismatic blades with importation of preformed blade cores during the Terminal Preclassic period, a process that likely began during the Late Preclassic. Prismatic blades dominate the obsidian assemblage through the Classic and Postclassic periods. The principal source during the Classic period is Zaragoza-Oyameles. Local blade production and distribution likely were focused on a secondary node to Cerro de las Mesas, Nopiloa,

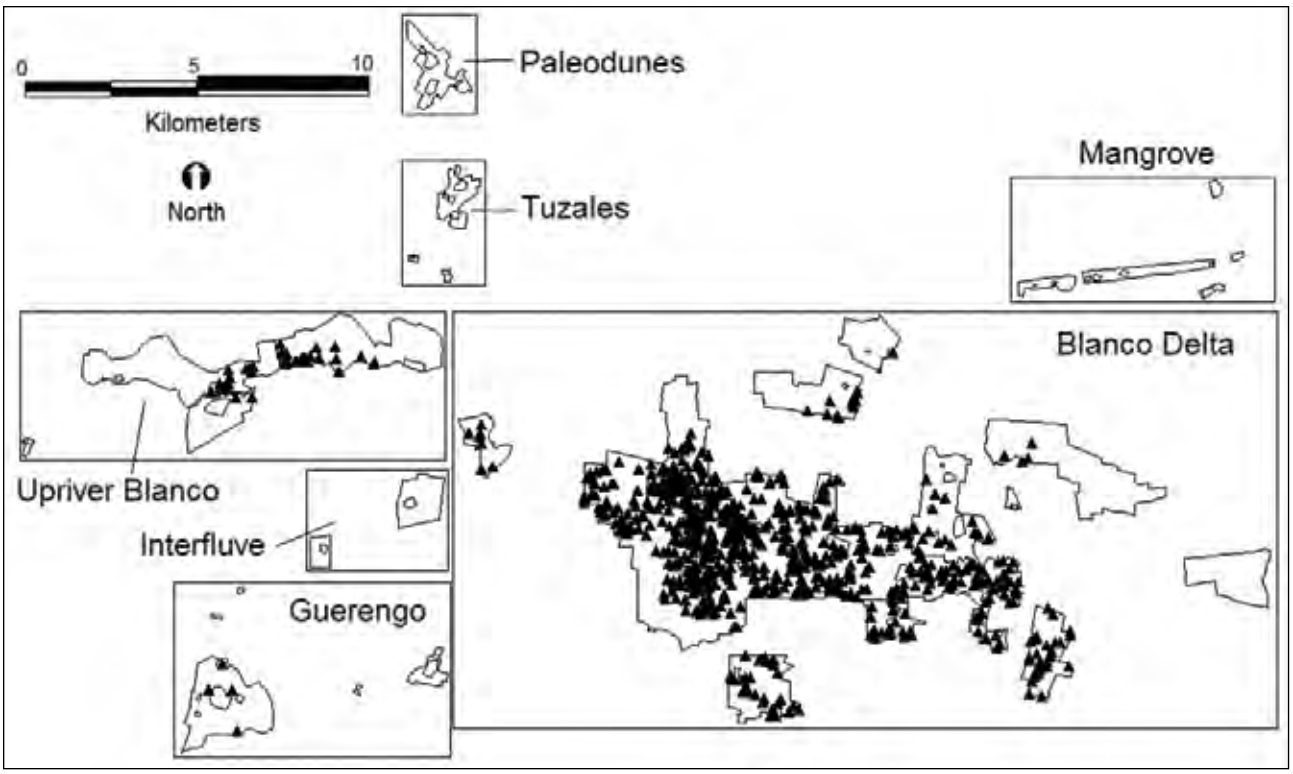

Figure 4.9. Collections with Postclassic diagnostics at or above the medians (nine sherds for PALM 1 and 2, and five rims for Speaker's [2001b] data).

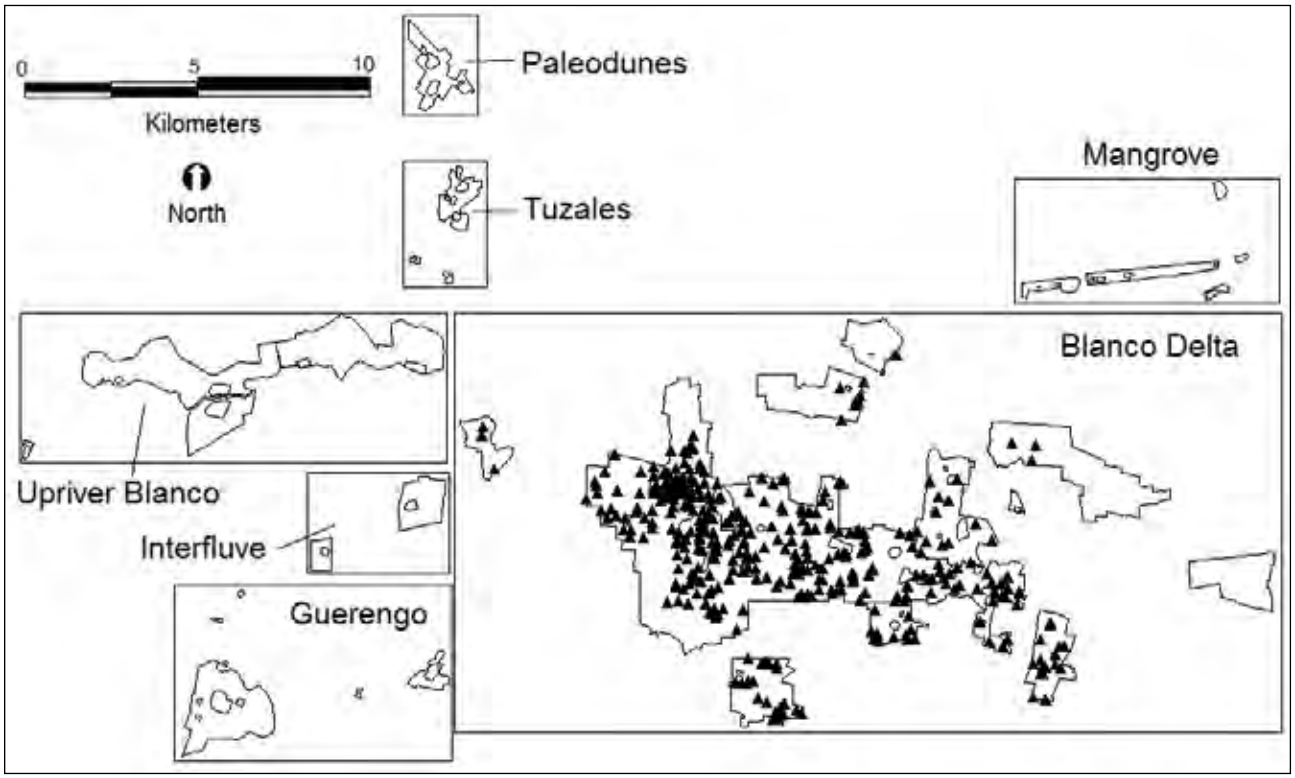

Figure 4.10. Collections with Middle Postclassic sherd or rim counts at or above the median (two sherds for PALM 1 and 2, one rim for Speaker's [2001b] data).

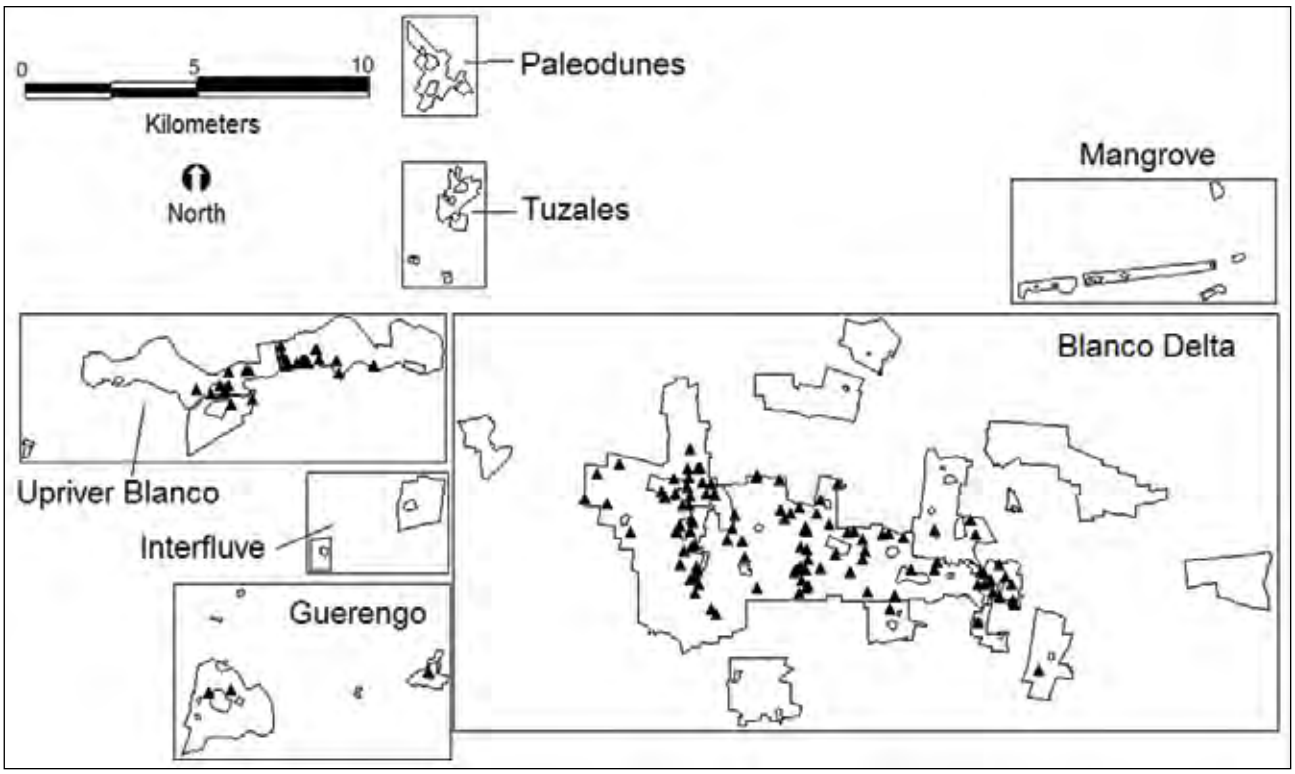

Figure 4.11. Collections with Late Postclassic sherds or rims at or above the median (one sherd for PALM 1 and 2, and 1.5 rims for Speaker's [2001b] data).

rather than at Cerro de las Mesas itself during the Early Classic period (Stark 2007a). Nopiloa continued blade production during the Late Classic.

Cotton-related whorls are relatively abundant in the Classic period assemblages and suggest cotton was an important local product, with spinning thread a common household activity (Stark 2020; Stark et al. 1998). Cotton was a valuable product that likely allowed export of both raw material and finished textiles.

A variety of indications of pottery production testify to more than chronology as an influence on spatial patterns. During the Late Classic period, orange-slipped bowls may have been produced in the Azuzules vicinity (Stark 2007a). Pottery production evidence from the Nacastle-Patarata settlement involves fine paste orange and possibly fine gray ceramics (Stark 1989, 1992, 2007a). Molds for Texcoco Molded, a Postclassic censer category, were found in the Sauce area and at Callejón del Horno (Skoglund et al. 2006). Three mounds near Sauce were implicated in *comal* (tortilla griddle) manufacture (Curet 1993). Stark and Ossa (2010) argue from distributional evidence that obsidian fall-off patterns from some monumental complexes during the Classic period are consonant with a market system. Ossa (2011, 2013) detected distributions compatible with a market system for Postclassic Sauce and its hinterland.

In sum, by the Classic period the WLPB had a diversified economy with respect to crafts and their distribution system. The occupational heyday of Cerro de las Mesas during the Early Classic period corresponds to the period of the Long-count dates on stelae there, and to most of the sculptural corpus. Carved stone monuments became scarce at later centers, with one recorded at Nopiloa and a plain stela (possibly two) at Azuzules, probably all from the Late Classic period.

In the next chapter, categories of mounds and characteristic layouts of monumental complexes provide a basis for the discussion of individual monumental complexes. The complexes are grouped geographically in Chapters 7–11, and within chapters smaller localities are first addressed with distribution maps based on diagnostic ceramic percentages, rather than the counts used in this chapter.

Chapter 5

Concepts and Procedures for Analysis of Monumental Complexes

Because of my intention to examine the data closely before reaching decisions about how to interpret the settlement hierarchy, I initially refer to all monumental groups as complexes. "Center" is applied interpretively to indicate how the complex may have related to others and to a settlement hierarchy. For example, some separately mapped monumental complexes may be part of a single settlement. In this chapter I describe structure categories within monumental complexes and the layouts of complexes. These categories are far-reaching, as they determine some of the results of analysis. In particular, concepts about component structures and their likely functions partly determine how I subsequently view settlement hierarchies and political changes.

Although features in monumental complexes initially were assigned numbers and classified in the same categories as survey mounds, the complexes were subjected to separate mapping procedures, as described in Chapter 3. For analytic purposes, additional descriptive categories are tailored to features in monumental complexes. Dimensional measurements allow exploration of the variability in structure width, length, and height. Graphs for these variables explore whether particular dimensions varied freely from each other or were tightly controlled by cultural canons and, perhaps, engineering concerns.

The lack of local durable stone resulted in construction with earth, either as earthen fill, dried bricks, bricks fired as adobes, or rammed earth. Very rarely, cuts by looters or roads revealed buried plaster floors or what appeared to be sand or clay floors. Because earthen construction prevailed, mounds visible today have rounded contours and usually appear as oval or circular forms. It seems likely that originally mounds had some combination of vertical or sloping sides, but erosion and agriculture have softened their outlines. Crisply angled surfaces proved characteristic at La Joya, where Daneels conducted excavations (Daneels and Guerrero 2013; Daneels et al. 2013). Because of the lack of masonry construction in the WLPB, details about façades of surveyed and mapped buildings are meager, and the structure typology necessarily is relatively simple.

Categories of Features in Contour-Mapped Monumental Complexes

I define monumental architecture as remnant buildings (earthen mounds) that generally far exceed the volume of residential mounds. These earthen mounds may have been the substructures of perishable buildings, but without excavation we cannot be sure that they always were surmounted by roofed structures. The degree to which the volume of these structures differs

from typical residential platforms varies because smaller versions of the same formal arrangements that occur at large, impressive complexes may include mounds that are scarcely different in volume from some of the more sizable residential mounds, some of which were occupied by elites, with grander dwellings. Placement of smaller versions of structures in a formal plaza layout, however, sets them apart from residential mounds. The monumental structures are likely to have engaged labor investments beyond the household, or minimum residential unit, because of their volume and public functions.

Both residential and monumental mounds may have grown incrementally. In the case of residential mounds, some of the accretion likely was detritus from the decay of wattle-and-daub structures (Hall 1994). Monumental mounds, however, would have had façades maintained to combat erosion. Many were constructed in stages that enlarged the structure. I observed sequences of floors in some profiles of structures that had been cut for road fill. All of the visible archaeological mounds have been subject to erosion to varying degrees, so none likely has its original height; consequently, the "footprint" is likely increased through erosion and slumping of material.

The formal space itself is the underlying criterion for distinguishing some types of buildings, for example, altars. Altar mounds are typically small (or in one case a soil discoloration that probably signaled a plowed-down altar), but they are positioned symmetrically within plazas. In formal complexes, some mounds may have supported elite residences, but confirmation of this function requires excavation.

I define six categories of mounds for formal complexes and translate any corresponding classification employed by Daneels (2002a, 2016) for the neighboring Cotaxtla-Jamapa drainage. Figure 3.5c, d provides examples of most of the categories I employ, taken from mapped complexes. I adopt a largely descriptive set of terms here, but some more functional terms appeared in Stark (1999b): (1) conical mounds (temple platforms in Stark [1999b] and pyramids in Daneels [2002a:165; 2016:198]), (2) elongated lateral mounds (not discussed separately in Stark [1999b]), (3) ballcourts (same in Stark [1999b] and Daneels [2002a:169]), (4) monumental platforms (palaces in Stark [1999b], monumental platforms in Daneels [2016:202]), (5) conical-on-monumental platform combinations (not discussed in Stark [1999b], low or medium platform with a pyramid in the center or at the edge in Daneels [2016:201]), (6) altars, small, low mounds in plazas in monumental complexes (adoratories in Stark [1999b]), and (7) ponds. Some of the structures can occur apart from formal complexes, for example, an elongated mound or an isolated conical mound.[1]

Monumental constructions frequently frame plazas and are accompanied by artificial ponds. WLPB plazas have been analyzed by Ossa (2014) in relation to immediately surrounding population. As yet we do not have information on the extent to which plazas also were constructions with fill and leveling, so I do not include them as a structure category.

Mound-terraces are a category from survey (see Chapter 3). They are present at several monumental complexes, constructed with considerable volume and often found near formal plaza groups. Often, given their size, they are good candidates for elite residences.

Conical Mound

High conical mounds probably supported special-purpose ritual buildings (temples). There is considerable variation in the height of these structures. Small complexes typically have small conical mounds. Nevertheless, their steep, conical form (originally likely a tapered, truncated, quadrilateral polyhedron) makes such mounds readily distinguishable despite variation in sizes. Normally, they are 5 m or more in height, but four instances fall between 3 and 5 m (two from a Late Postclassic center, Callejón del Horno, one from a secondary center, Salto Norte, and one from a tertiary center, Coyote). The exceptions are identifiable because of their position in a complex and its layout characteristics. Generally, the two Postclassic centers (Callejón del Horno and Sauce) exhibit much less investment in monumental construction compared to centers from the Classic period, so it is not surprising that Callejón del Horno has conical mounds at the small end of the range. The other Postclassic center, Sauce, lacks conical mounds. The height of conical mounds tends to be proportionate to their basal area (Figure 5.1), which suggests engineering considerations. The highest, at Nopiloa, is possibly boosted by underlying conglomerate.

Lateral(s)

Elongated mounds placed to frame part of a plaza are termed laterals. Examples can be seen in many of the maps of monumental complexes in Chapters 7 to 11. Laterals are a typical element of Standard Plan arrangements, as discussed in a later section. Elongated

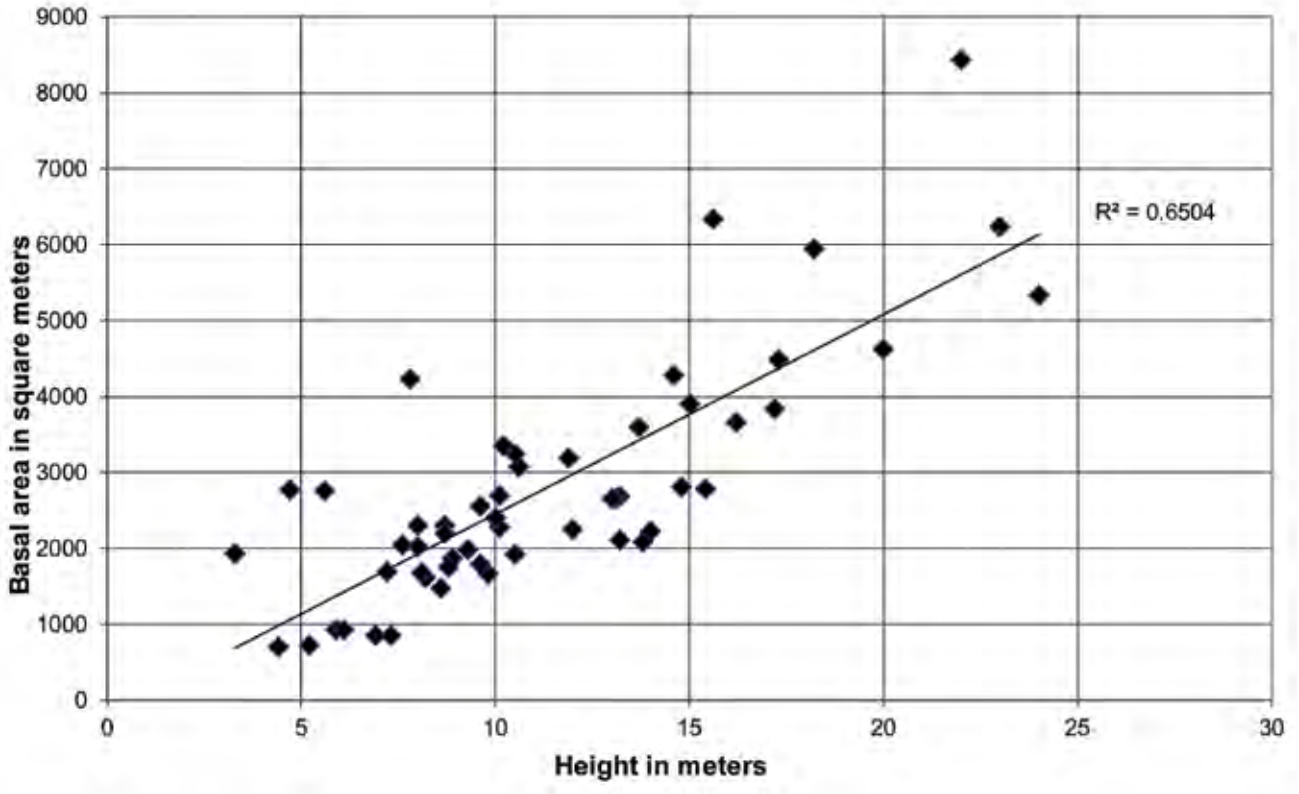

Figure 5.1. Basal area versus height for conical mounds in monumental complexes.

mounds suggest the possibility of multi-room buildings, either assembly and supply rooms or palace rooms. Lateral mounds are not the only elongated mounds. As discussed below, low elongate mounds can occur atop massive rectangular platforms where they likely represented multi-room residential and administrative space.

Often the laterals are of unequal heights, and they may have unequal lengths. Lengths of paired lateral mounds tend to vary in tandem even though lengths are usually slightly unequal (Figure 5.2). Thus, some proportionality is conserved. For the longest mounds of the pairs, lengths typically fall between 50 and 120 m and heights fall between 1 and 10 m. In contrast, heights of paired laterals do not vary in tandem and appear to be unrelated to each other (Figure 5.3).

Each lateral had somewhat independent decisions and efforts in construction with respect to height, but the pairs were sized proportionately in length, which relates to the framing of the plaza and the canon of plaza proportions. Graphs of the length versus the height of the longer laterals and of the shorter laterals are plotted separately to examine the extent to which each maintained a consistent proportionality.

The long laterals are considerably more proportionate in length versus height than are the short laterals (Figures 5.4, 5.5). As the length of long laterals increases, the height tends to increase as well. In contrast, short laterals have little tendency to gain height as length increases. Although we do not know the functions of the lateral mounds, the discrepancies in their final forms leads me to conclude that they responded to different decisions and investments rather than a single planning process (e.g., centrally governed). Previously I analyzed comparative data in Mesoamerica about highly repetitive arrangements in monumental complexes, which are associated with governance involving corporate groups, and I concluded that the lateral mounds likely represented corporate groups and a degree of collectivity in governance (Stark 2016). The graphs support the idea that different decisions were made about each lateral in a pair, consonant with their representation of two corporate groups.

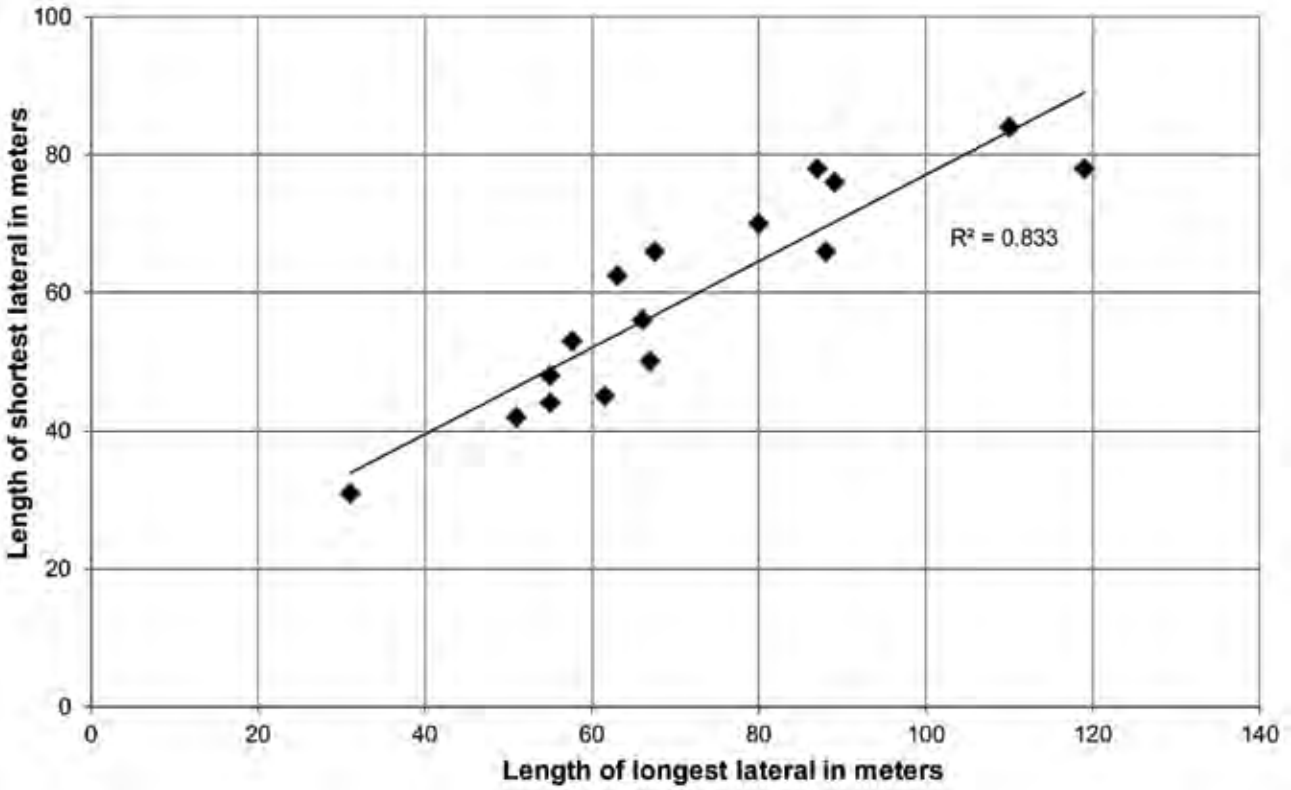

Figure 5.2. Lengths of paired lateral mounds.

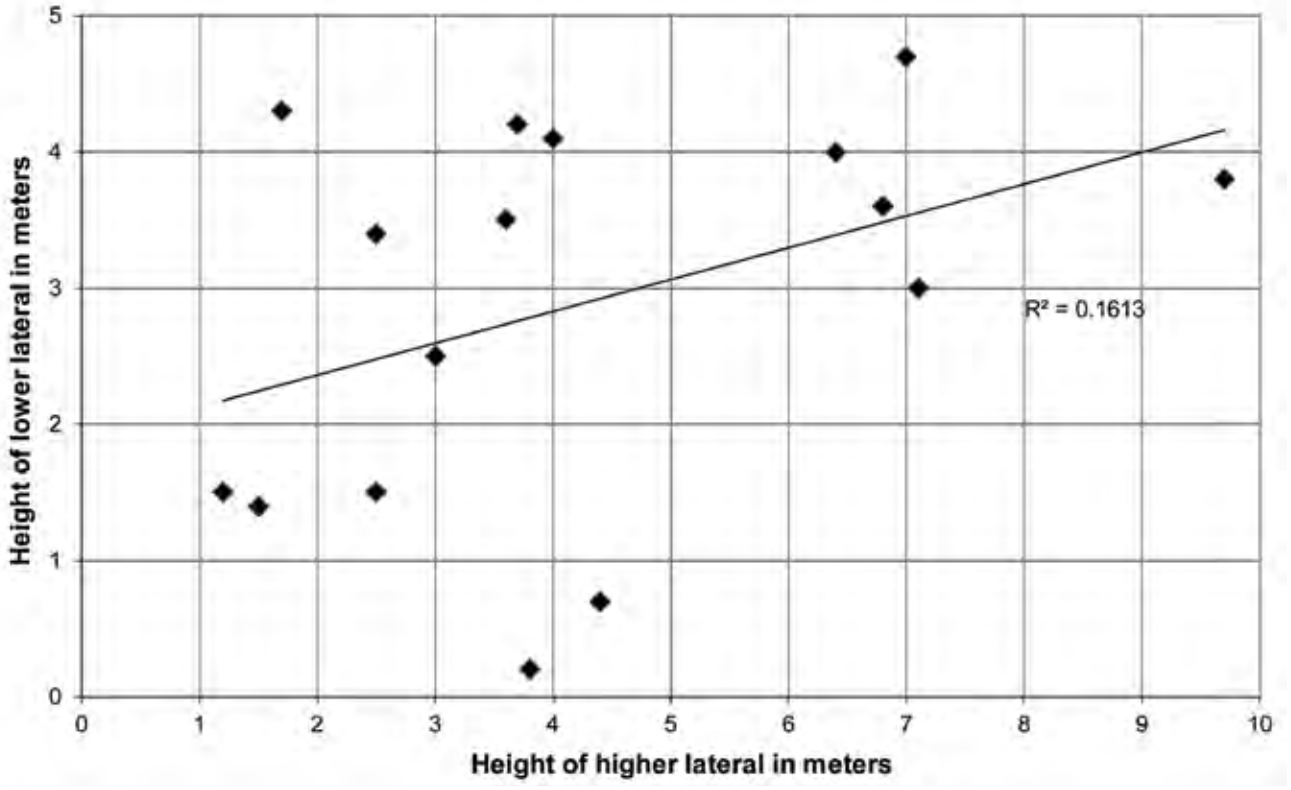

Figure 5.3. Comparison of heights of paired lateral mounds.

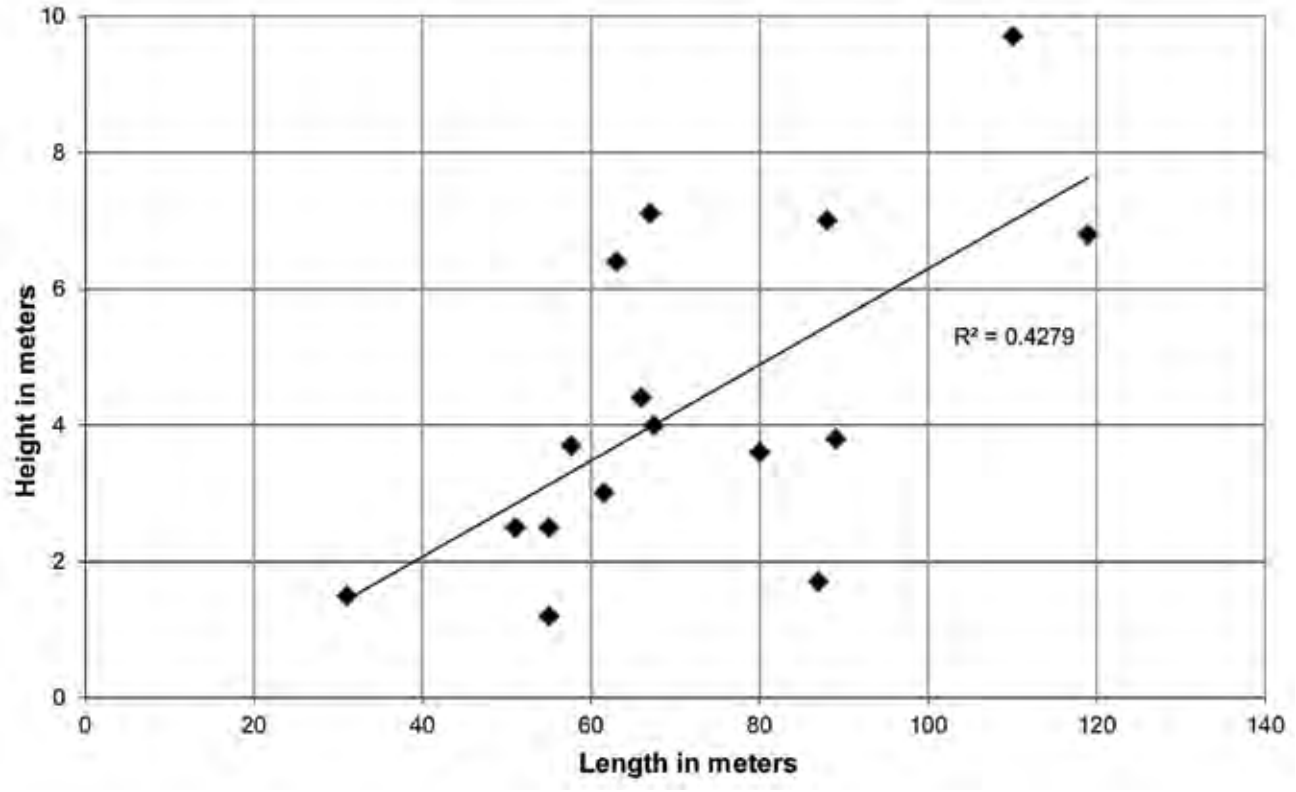

Figure 5.4. Length versus height of the longer laterals.

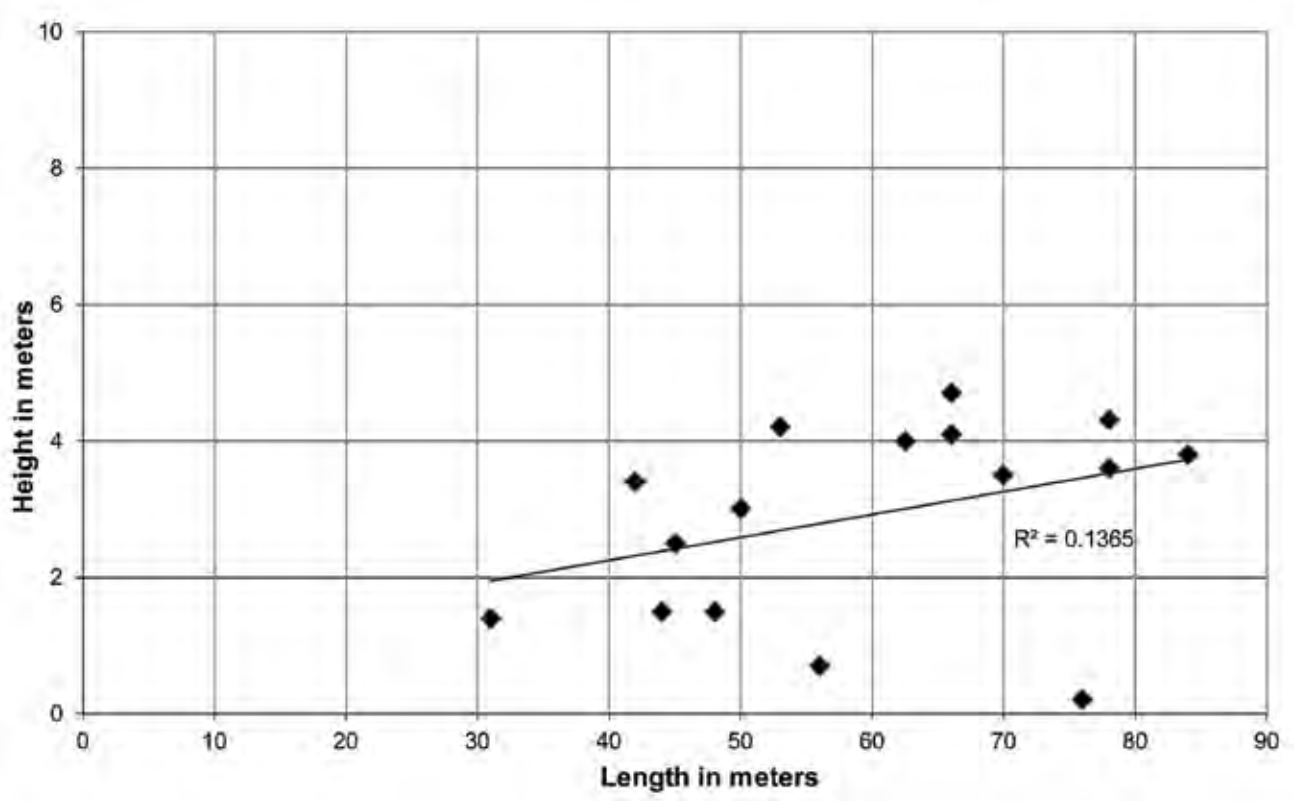

Figure 5.5. Length versus height of the shorter laterals.

Ballcourt Mounds

Ballcourt mounds are a distinctive pair of closely spaced, elongated, parallel mounds that form the sides of a playing field for the ball game. Although rarely a third mound occurs at the end of the playing field, it is not always clear if this mound formed a closing structure for the court or constituted an additional aligned construction in the vicinity. When closely positioned at the end of the court and on its axis, such third mounds likely are part of the court construction and either closed the end of the playing field or at least restricted access to it and provided additional elevated viewing space. Figure 3.5d shows a ballcourt from Azuzules with a closing structure.

Unlike the size differentials of the pairs of laterals, pairs of ballcourt mounds are closely correlated in length (Figure 5.6). Functional requirements of the ball game flanking mounds as rebounding surfaces and frames of a court space are responsible for their close correspondence in length. Similarly, widths of paired ballcourt mounds are correlated (Figure 5.7), but not as strongly. Possibly the flanking mounds varied in the presence of stairs or other construction on their outer sides, contributing to more variation in widths. Paired heights, like widths, are not as closely matched as lengths, and one- to two-meter discrepancies occur (Figure 5.8). In view of the possible differential effects of erosion and judgments about where to define the edges of structures during mapping, it is likely that ballcourt mounds were originally identical or nearly identical in length and often in width and height.

The height of a ballcourt mound is not closely correlated with either its length or its width, even though heights of the pairs do not greatly diverge from each other (Figures 5.9, 5.10). Thus, at times these structures were made higher without proportionate increases in length or width. Again, functional limits affecting the length of the court provided a constraint, but the heights of the flanking mounds, which provided a vantage on the game, could respond more variably to design considerations such as the degree of seclusion of game viewing (Stark and Stoner 2017). Variation in widths could affect viewing space on top of the flanking mounds, or possibly stairs or other access on the back side.

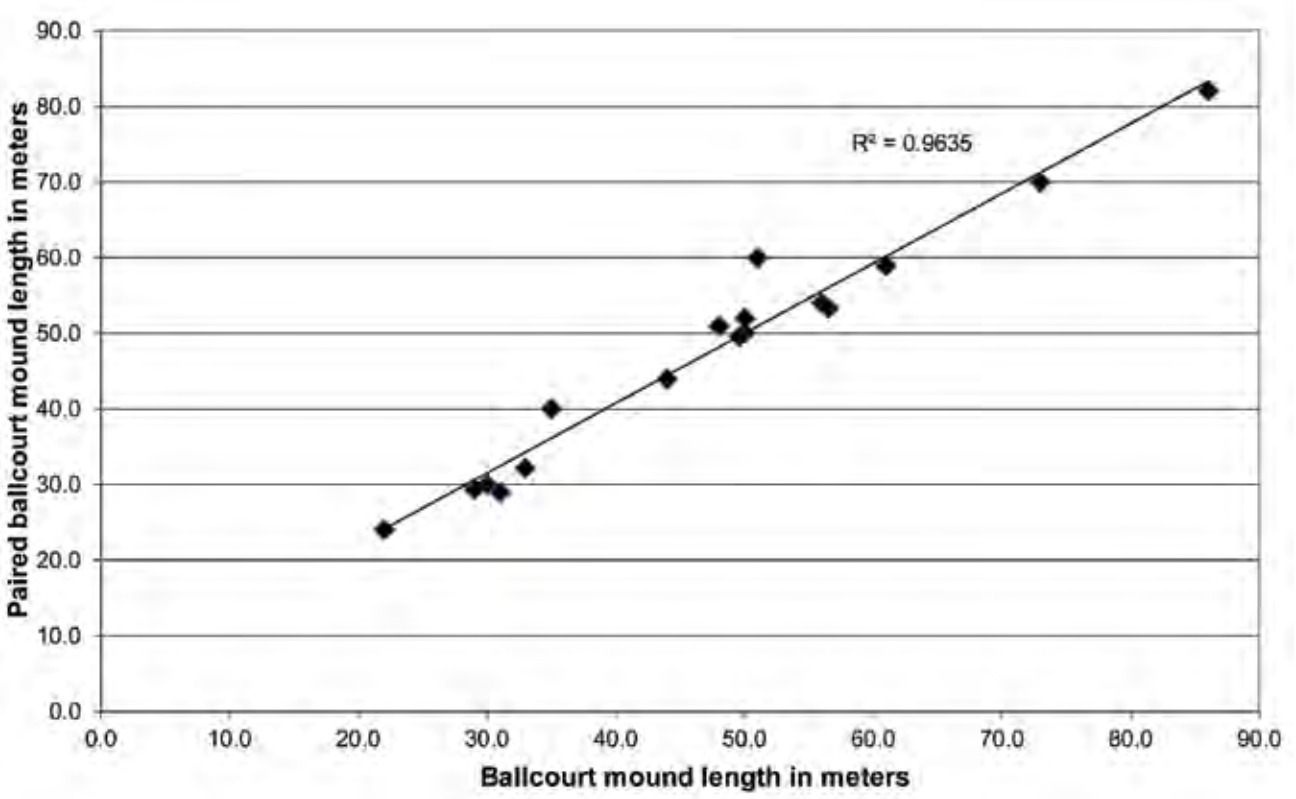

Figure 5.6. Lengths of pairs of ballcourt mounds.

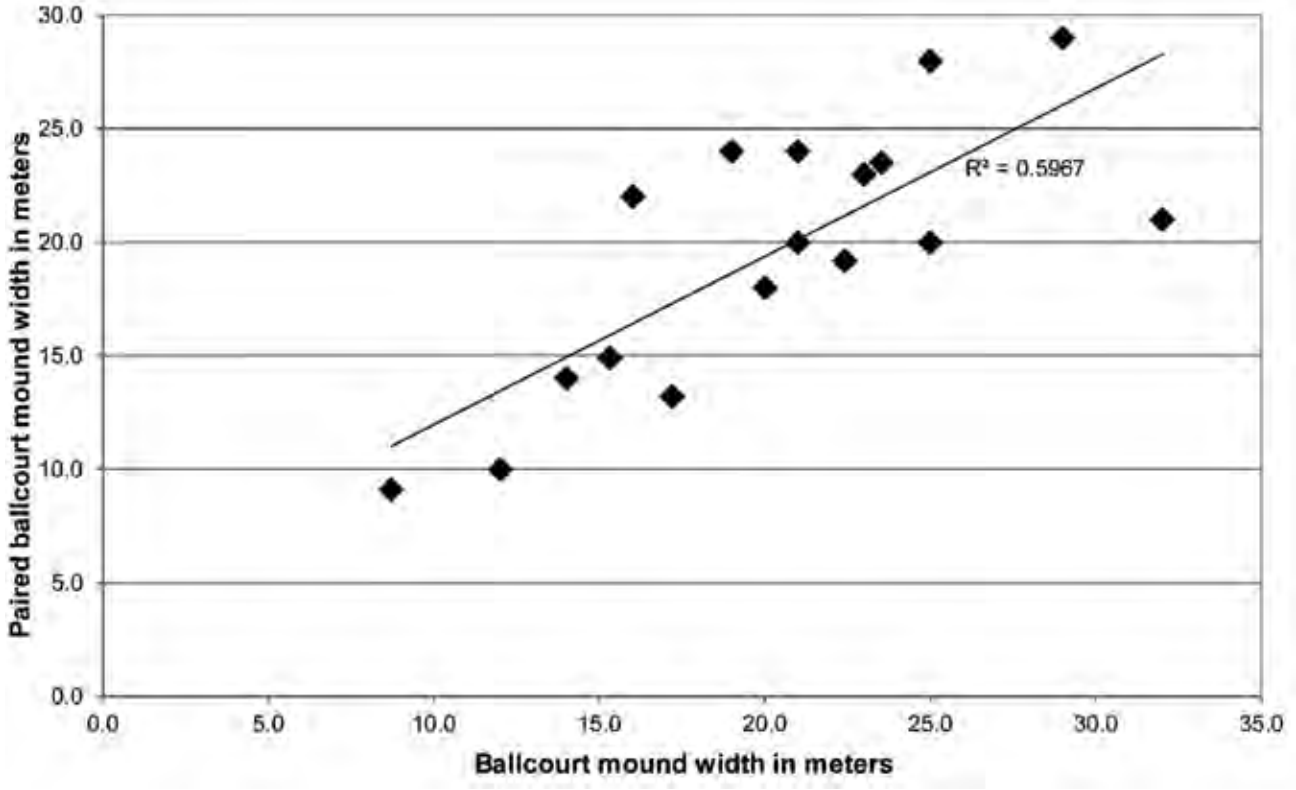

Figure 5.7. Widths of pairs of ballcourt mounds.

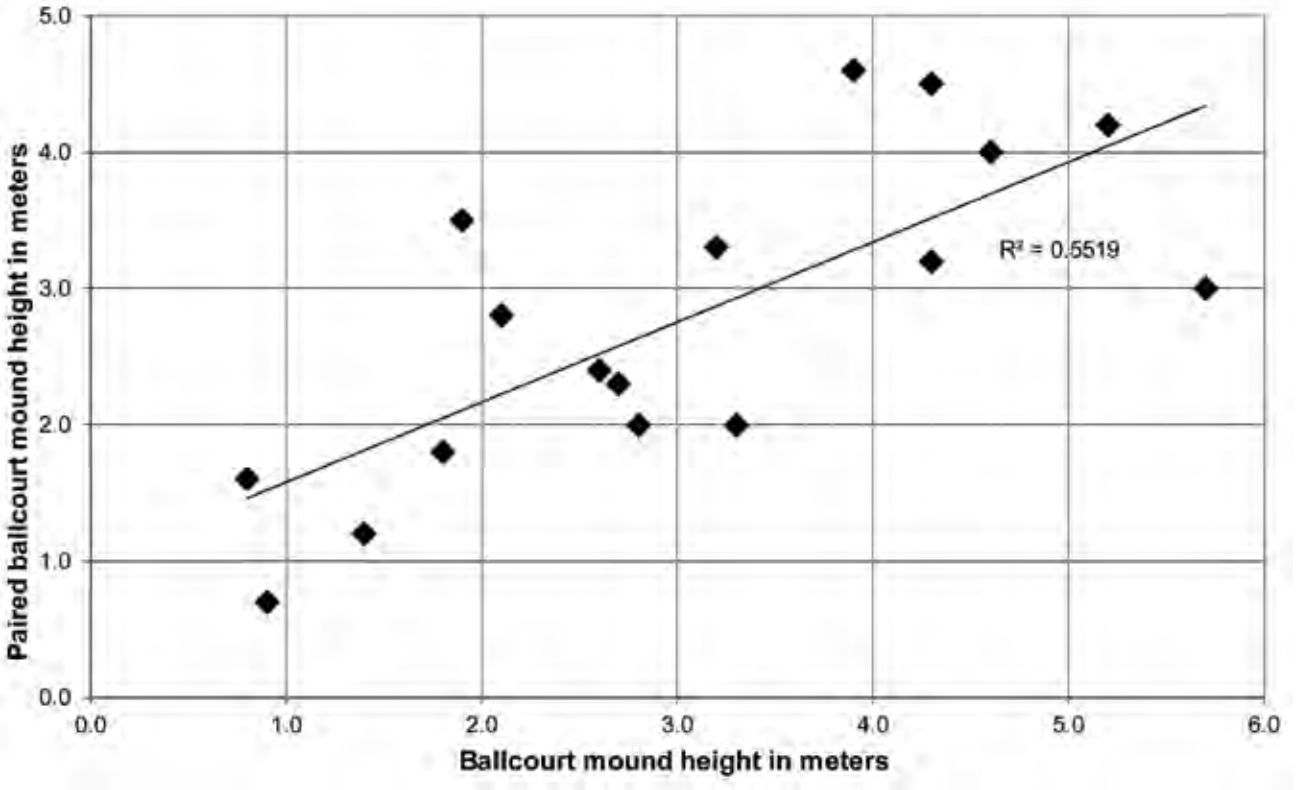

Figure 5.8. Heights of pairs of ballcourt mounds.

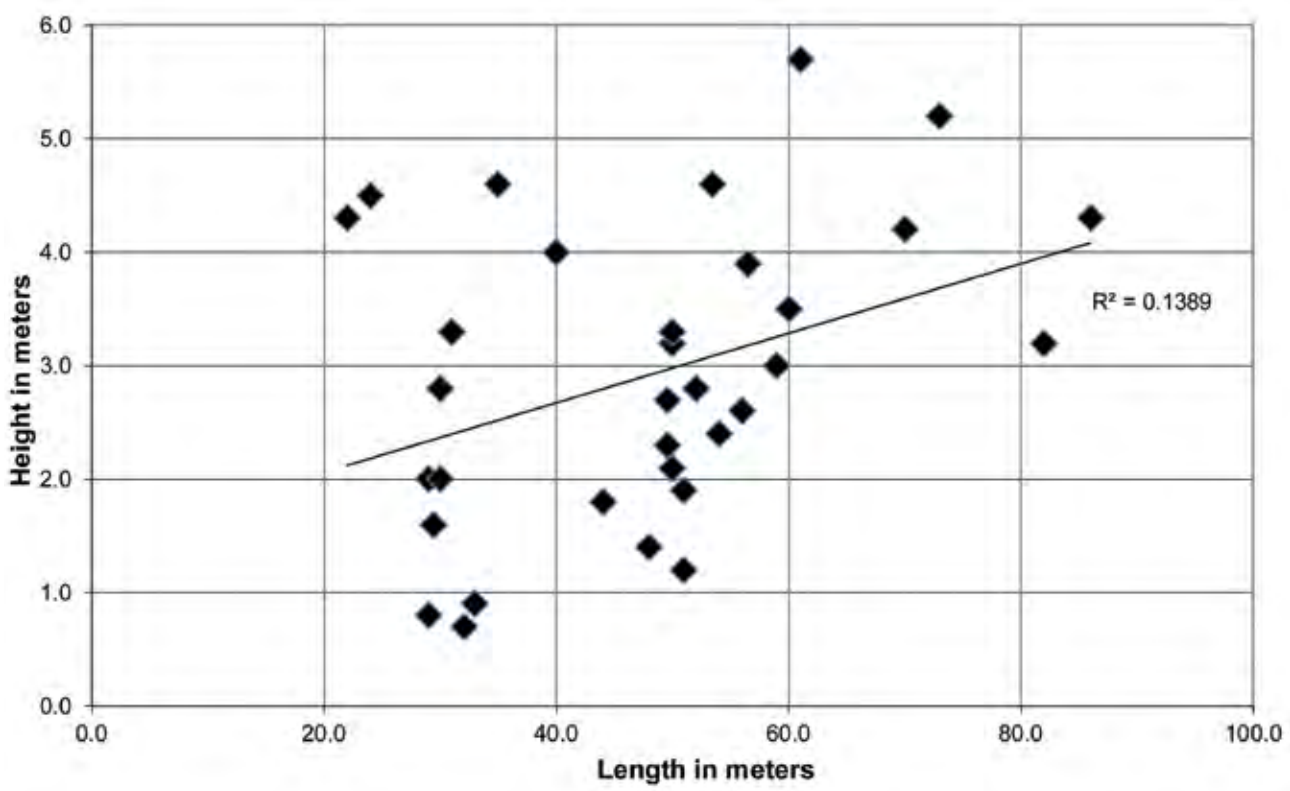

Figure 5.9. Length versus height for mounds in ballcourt pairs.

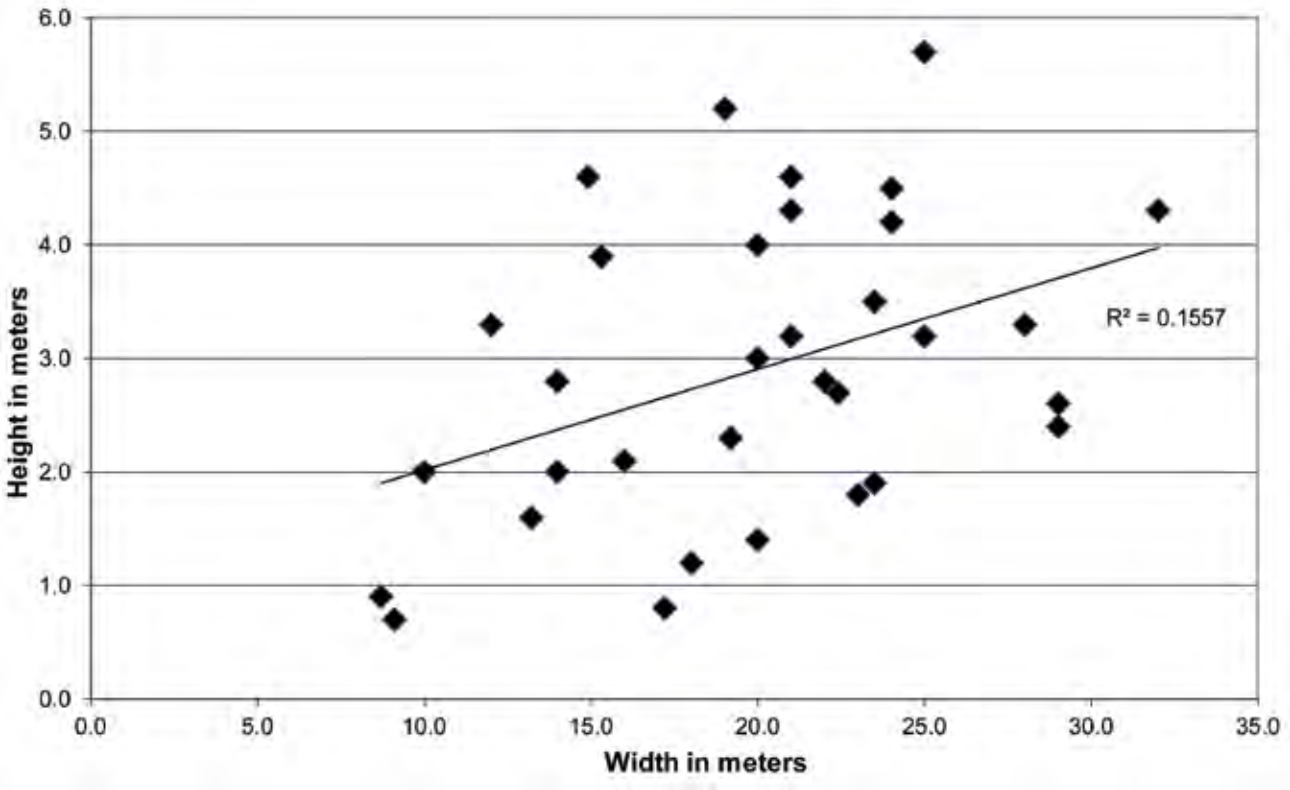

Figure 5.10. Width versus height for mounds in ballcourt pairs.

Ballcourts may occur on a basal platform, usually a low one, but such a placement is uncommon. Daneels (2002a:169) notes that ballcourt platforms in her survey may have a low extension, but no examples of an extension were encountered in the PALM survey.

Ballcourts usually are associated with Standard Plan plaza arrangements, as discussed below. Because ballcourts have a typical position in layouts, it is possible to recognize likely plowed-down cases, that is, a mound in the same position that originally may have consisted of paired ballcourt mounds. These instances are designated possible ballcourts on the basis of their position and their general dimensions that fall within the array of sizes of definite ballcourts (Figures 5.11, 5.12). Several

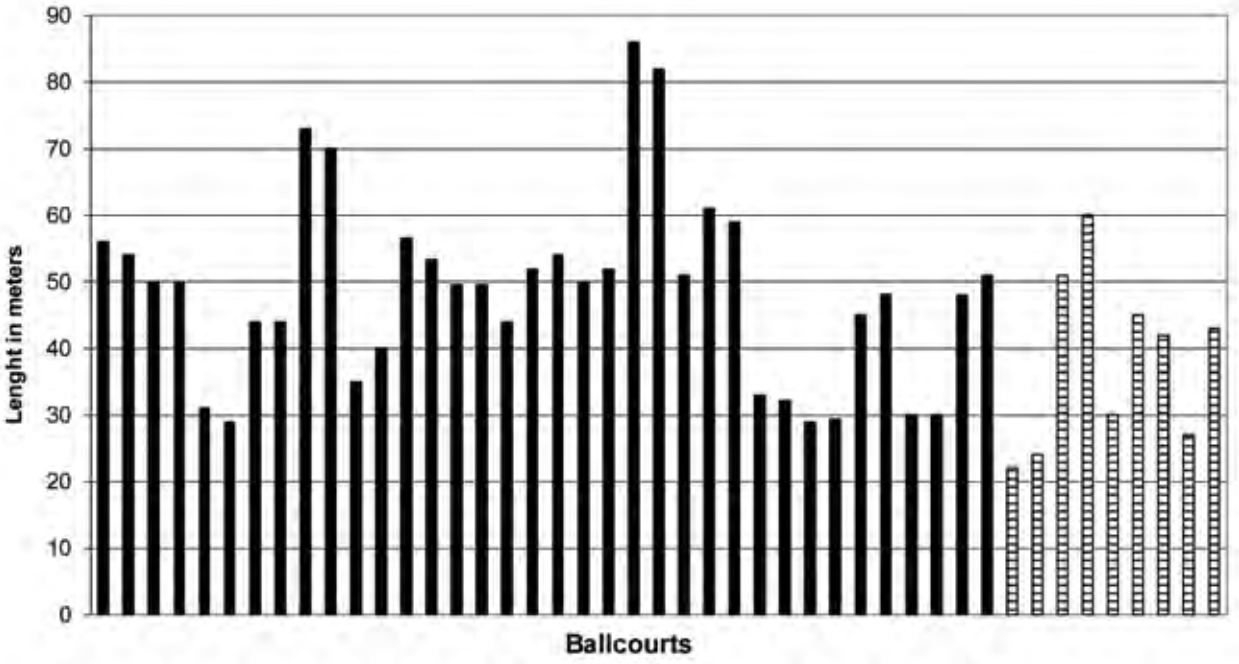

Figure 5.11. Lengths of ballcourts (solid black) and possible ballcourts (striped).

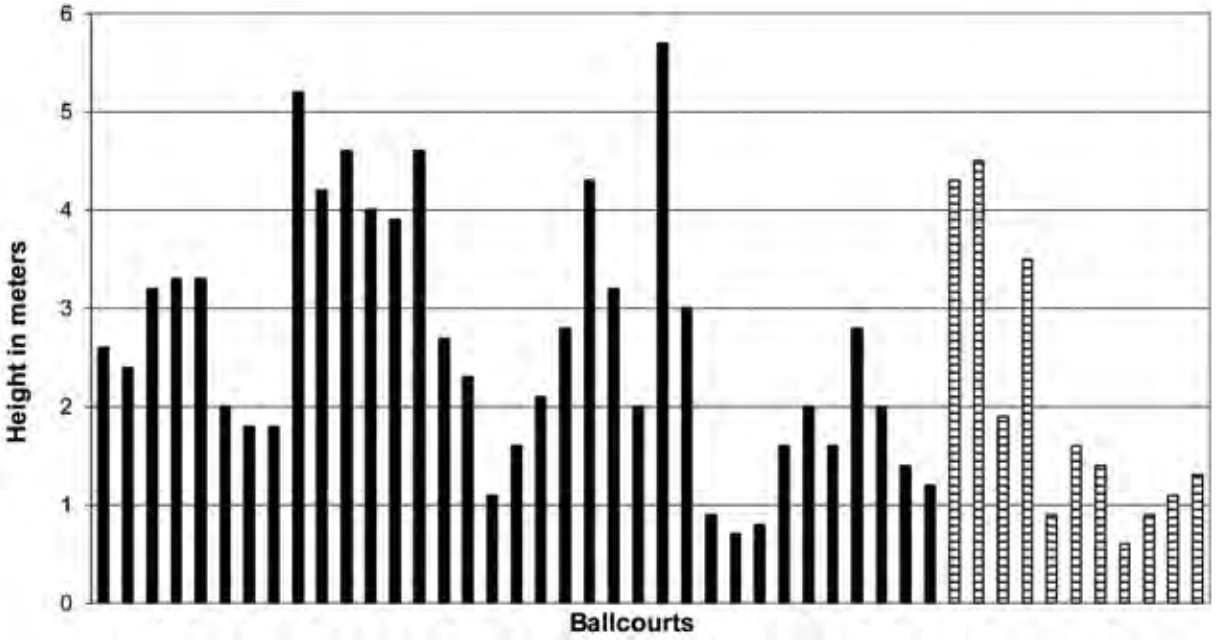

Figure 5.12. Heights of ballcourts (solid black) and possible ballcourts (striped).

(but not all) heights of possible ballcourt mounds are among the lower ones for definite ballcourt mounds, perhaps an indication that they were especially susceptible to erosion and were plowed more heavily. For example, among possible ballcourt mounds, 27% fall under 1 m height, versus 8% of the definite ballcourt mounds; among possible ballcourt mounds, 45% fall within 1–2 m height, versus 17% of the definite ballcourt mounds. Although these differences may reflect differential degradation, they are so striking that I conclude the possible ballcourt mounds tended to be low originally and thus more susceptible to farming damage.

Monumental Platform

These massive constructions are rectangular, often nearly square, with an extensive, relatively flat top; they are among the largest mounds in volume of construction, with dimensions that typically vary from around 40 to 150 m on a side and 2.5 to 9 m in height. Many monumental platforms are near a Standard Plan plaza, but some occur more distant from monumental complexes. Although occasionally the platforms are relatively elongated, the length and width proportions form a continuous distribution, with only a couple of more markedly elongated platforms (Figure 5.13). The median difference in length and width is 18 m.

I proposed that these platforms likely supported palatial quarters due to the presence in over half the cases of elongated mounds on top that suggest multiroom construction (Stark 1999b). Appendix 1, Table A1.6 summarizes the additional structures for 62 monumental platforms along with the next category, conical-on-monumental platform. Conical mounds occur on approximately 19% of the platforms. At times additional small mounds are arranged on top of the platform, sometimes framing a small plaza. Rarely, elongated mounds extend from the base of the platform, but a low terrace is present in nearly 18% of the cases. Almost a quarter of the cases have no structures on top (at least, none are evident now). Overall, the monumental platforms exhibit considerable variety in their associated features.

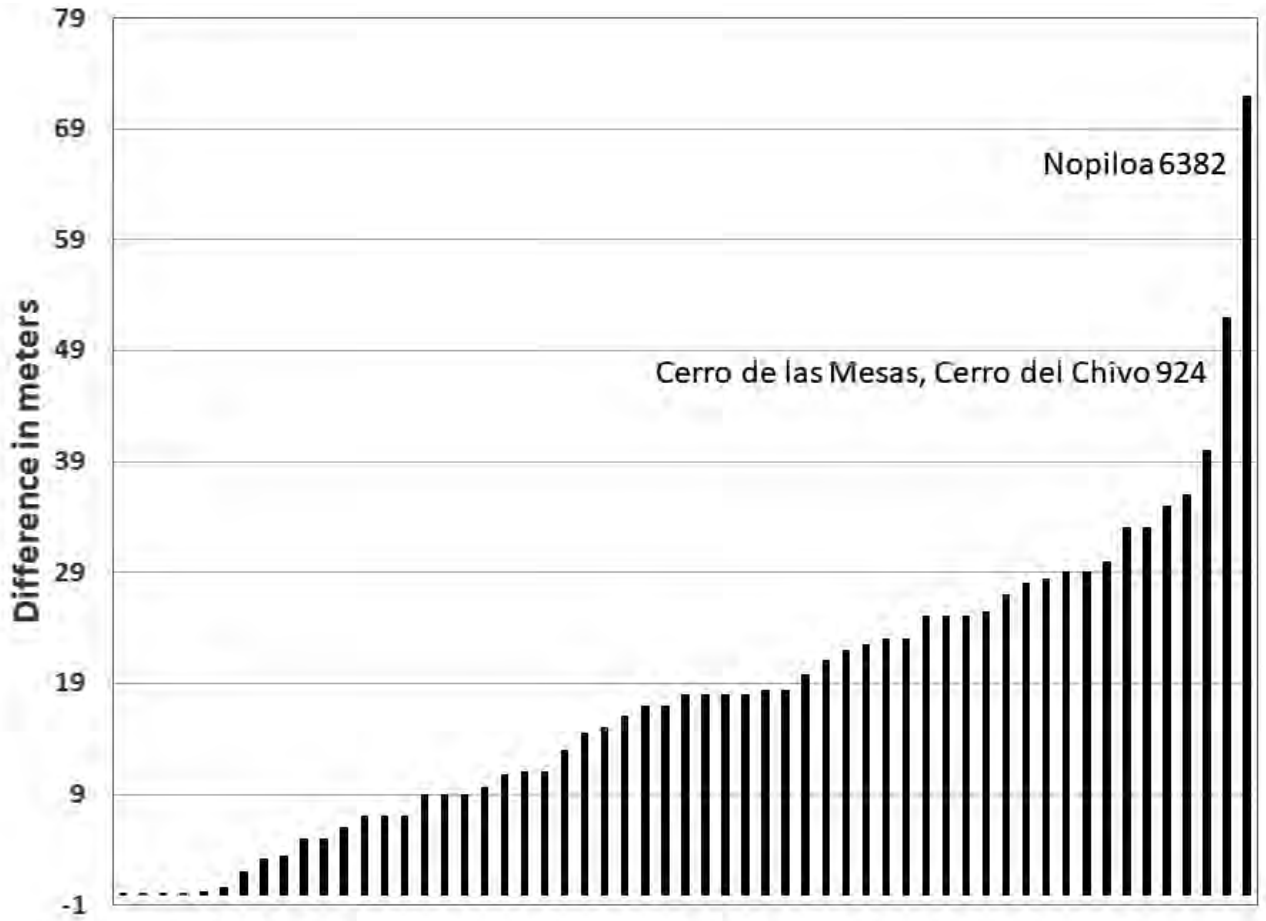

Figure 5.13. Differences between the length and width of the bases of monumental platforms.

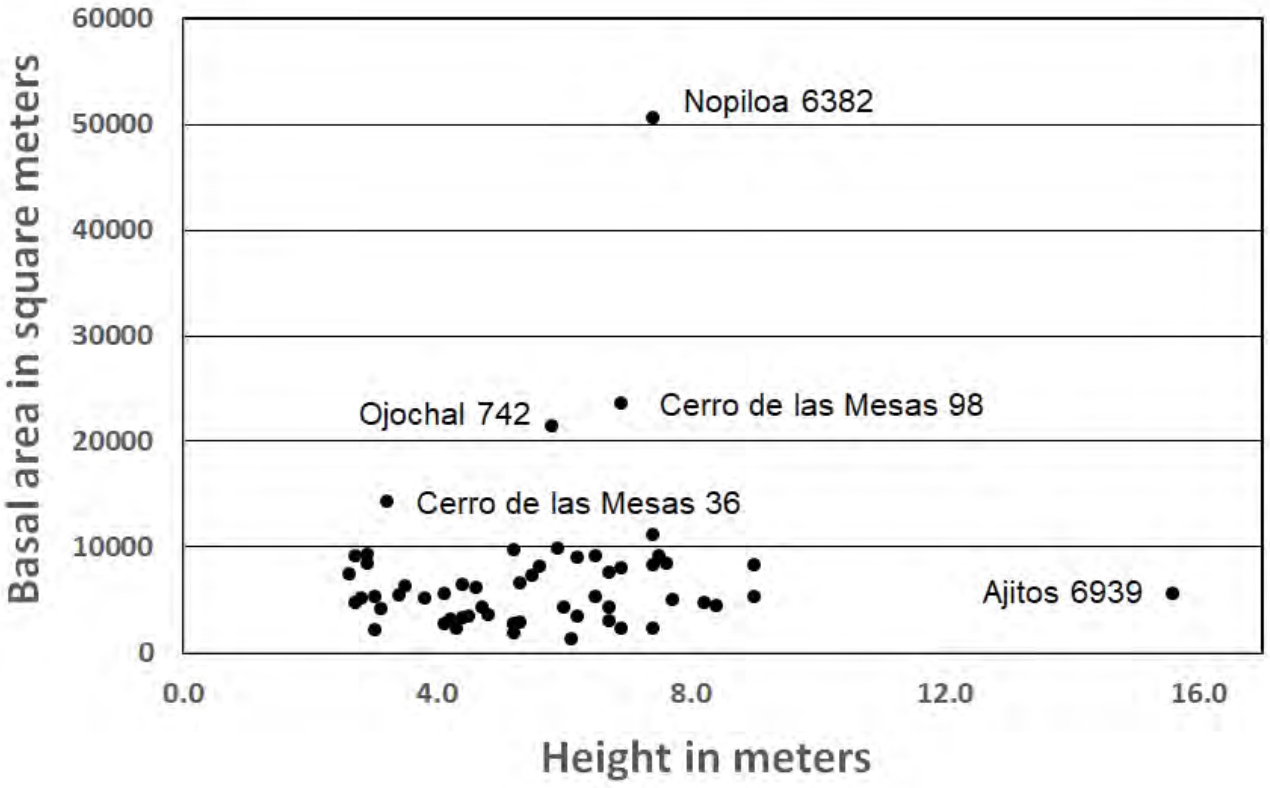

Figure 5.14. Monumental platform and conical-on-platform (platforms only), basal area versus height.

Excavations of a monumental platform at La Joya by Daneels (2008c, 2010; Daneels and Guerrero 2013; Daneels et al. 2013) have established that monumental platforms there had a palatial residential and administrative role. Not all monumental platforms have solely a residential and administrative function, however. At Zapotal, the north part of the Mictlantecuhtli platform operated as a shrine to the Lord of the Underworld. To date, the Mictlantecuhtli earthen temple and statue are unique discoveries in the WLPB, but the next category of conical-on-monumental-platform supports the idea of ritual functions.

Although the function of monumental platforms requires further investigation, for simplicity of reference I refer to them variously as palatial platforms or monumental platforms to distinguish them from other types of platforms that supported a structure. The height of rectangular platforms (and those with conical mounds) varies, but basal area varies much less, with a few exceptions (Figure 5.14). Nopiloa has a platform atypically large in basal area, but this platform likely takes advantage of a natural prominence. The Gallo monumental platform at Zapotal is anomalous for its large size, and there are no indications that it could be partially natural (outside the survey and not plotted in Figure 5.13). A few monumental platforms are amorphous in shape, not flattened as much as the others. One example is Moral North. I leave these few anomalies in the monumental platform category because of uncertainty whether they were being remodeled for another purpose, affected by modern damage, or a less steep conical mound instead of a platform.

Conical-on-Monumental Platform

In a few instances, a monumental platform with similar dimensions to those just discussed either abuts a conical mound or has a conical mound on top of the platform (probably the latter). Without excavation, we cannot unravel the history of such structures to determine if initial construction and use involved a palatial platform, with subsequent conversion to a ritual focus with addition of a conical mound on top that likely supported a temple. If such conical mounds were analogous to Maya funerary temples (Coe 1956), then the death of a ruler or other important individual might occasion conversion of a palace platform through addition of a

conical funerary mound. One such occurrence is documented for La Joya in the lower Cotaxtla drainage to the west (Daneels and Ruvalcaba Sil 2012:86). In one instance (at Cerro del Chivo) a palatial platform supports elongated mounds, and one end of the platform is attached to or underlies a conical mound.

Altar

Some plazas framed by monumental construction have a small low mound in the middle, suggesting some type of altar or other ritual use. Altars are not monumental; they are defined by a combination of small size and a position in association with formal plazas. One instance, at Zapotal South, was identified as a lighter soil color, and I assume it was a plowed-down altar. Often mound fill is a lighter, yellower color than the surrounding soil, perhaps reflecting decay and leaching of organic components in fill.

Pond

Ponds occur in conjunction with many formal complexes, particularly the largest ones. Their arrangement in close proximity to the complex, at times placed axially in relation to structures, indicates that they were not simply borrow pits, but entered into the planning of the center. These ponds likely held water for all or part of the dry season in locales with a high water table, providing water access, possibly aquatic foods, and, if they eventually dried out seasonally, a low moist area for dry-season planting. Some ponds on the paleodunes may have been lined, perhaps with clay, to conserve water into the dry season because the water table is deep. Infiltration of carbonates may have contributed to a reduction in permeability as well. In some cases, ponds, in conjunction with streams or rivers, constrain access into a formal complex, perhaps providing a cosmologically significant arrangement as well as a defensive placement. The maps of central Cerro de las Mesas and Azuzules provide examples. Previously I discussed comparative data on ponds and drains in monumental complexes, noting other examples, such as Izapa on the Pacific coast of Chiapas (Stark 2007b:57–58).

Archaeological Layouts

Most of the layout categories represent variations on a particular design, with only a few other arrangements (Figure 5.15). Daneels (2002a) recognized and defined a layout that is a monotonously popular element of monumental complexes both in the lower Cotaxtla-Jamapa drainage and in the WLPB, with related forms

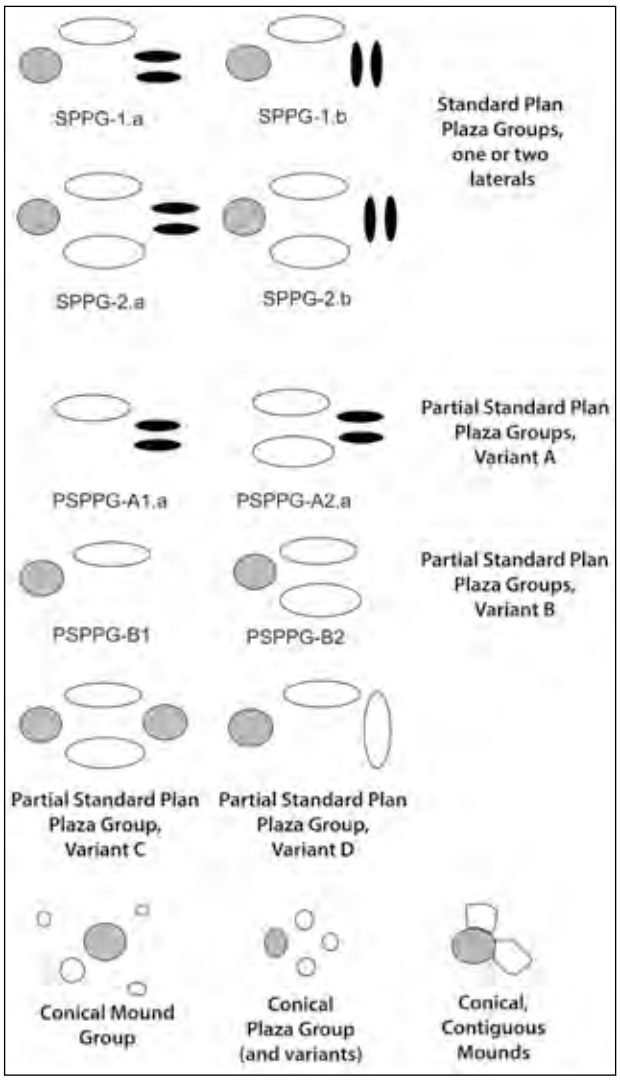

Figure 5.15. Idealized formal and semi-formal layouts for WLPB monumental complexes, with conical mounds gray, ballcourts black, and laterals white. Standard Plan Plaza Groups (SPPGs) and Partial SPPGs predominate.

in southern Veracruz. She aptly designated this layout the Standard Plan. Daneels (2002a:173–194; 2016:206–232) provides a typology of layouts in connection with her lower Cotaxtla-Jamapa survey that serves as a foundation for some of my designations, and I discuss her categories in conjunction with mine.

Standard Plan Plaza Group

The Standard Plan Plaza Group (SPPG) involves a formal arrangement, normally with a conical mound at one end facing a ballcourt across the plaza and two (or one) elongated lateral mounds delimiting the other plaza sides. Plazas are square to rectangular, but not

markedly elongated. The SPPG is the core of what Daneels (2002a:175–178; 2016:207–215) defines as the Standard Plan, reviewed shortly. The ballcourt axis may be aligned with the plaza or transverse to it, but the former is much more common. If two laterals are present, they normally differ in height and often in length, as noted. Variants (Partial Standard Plan Plaza Groups) involve omission of one of the ingredients—but at least one lateral is always present. Other accompanying structures are discussed individually in the later presentation of the monumental complexes, Chapters 7–11. In several instances, SPPGs include closely associated mound-terraces. The azimuth of the axis (bisecting the conical mound and the plaza) of Standard Plan Plaza Groups varies, with some arrangements aligned east–west and others north–south.

In Daneels' (2002a:175–178; 2016:207–215) Standard Plan definition, a nearly square plaza is dominated at one end by a large pyramid, with one or two sides delimited by elongated mounds (laterals), and a ballcourt occupying the fourth side opposite the conical mound, with its axis aligned with the pyramid. In her examples, the ballcourt has an underlying platform that has an extension, but this platform and extension are not characteristic in the WLPB. Cotaxtla-Jamapa lateral mounds are of similar proportions to each other but never identical. The size of the plaza is in proportion to the size of the conical mound.

Her examples of Standard Plans are aligned with cardinal points, with a 20-degree variation. An orientation to the north predominates, and the conical mound typically is at the north end. Her suggested dating for Standard Plans is the Middle or Late Classic periods (Daneels 2002a:181). The definition she provides admits some minor variation (one or two laterals). In one instance, Daneels notes that a lateral is not elongated but relatively symmetrical and square.

Standard Plans are defined by Daneels as always accompanied by other components: (1) a plaza group adjacent to the Standard Plan Plaza, and/or (2) at a distance of 200 m, a monumental platform or a conical mound on a platform. The Standard Plan often is accompanied by ponds. The positions of accompanying structures and ponds are highly variable. The accompanying plaza group she views as possibly an assembly and administrative space, with the Standard Plan plaza playing more of a ritual role. The monumental platforms are suggested to have supported palaces. Because I am focusing on how different groups can be "assembled" as parts of centers, I use a typology for SPPG, not entire Standard Plan complexes as defined by Daneels (Figure 5.15). Despite the prevalence of the SPPG layout, variations occur and can reveal chronological or spatial patterns.

Daneels (2002a:181–182; 2016:216) defines a Variant Standard Plan which involves layouts in which the conical mound is replaced by a large platform. The five instances of this arrangement have smaller plazas than regular Standard Plans, and the laterals are attached to the platform. One or two adjacent plaza groups usually accompany the Variant Plan, and they involve larger plazas than the Variant itself. In four of the five cases, the Variant is only a short distance from a Standard Plan Plaza Group (Daneels 2002a:182), and I suggest these are likely outlying monumental buildings associated with the nearby Standard Plan Plaza Group. In comparison to the Cotaxtla-Jamapa survey, the PALM survey recorded numerous separate examples of monumental platforms, many relatively close to SPPGs, but some more removed. Only one near Nopiloa was associated with a ballcourt. Daneels (2002a:183) suggests her Variant Standard Plan groups are Middle or Late Classic in date.

The number of single laterals is higher in the PALM survey than in the Lower Cotaxtla-Jamapa drainage (49% versus 19%, Stark 2016:121). Additionally, the WLPB layouts are not always accompanied by adjacent plaza groups. In many instances, the presence of a ballcourt remains uncertain because of disturbance or visibility limitations, although likely.

In the WLPB the most basic, recurrent part of a SPPG is a conical mound accompanied by one or two laterals. Rarely, the plaza group includes an atypical position of the ballcourt, for example, off to one side rather than closing the plaza opposite the conical mound. Nopiloa and Tuzales are the main examples. One complex, Coyote, has SPPG ingredients, but "out of order." I treat all three as variant SPPG, but, because each is unique among my data, I have not established separate categories. Only omissions of elements (and sometimes substitution of a different structure) are the basis for defined variants. I recognize four variations of the Standard Plan Plaza Group, termed Partial Standard Plan Plaza Groups (Partial SPPG; Figure 5.15).

Partial Standard Plan Plaza Groups, Variants A–D. Variant A lacks the conical mound, but has one or two laterals and a ballcourt. Two of these groups occur at Cerro de las Mesas, but generally they are uncommon. Where they occur, conical mounds often are nearby.

Variant B has a conical mound and one or two laterals, but no ballcourt. These groups occur within the Nacastle-Patarata settlement at intervals suggestive of neighborhood civic-ceremonial segments of a settlement. Others occur elsewhere without forming such obvious segments.

Variant C involves a SPPG with an additional conical mound in place of the ballcourt. This version is represented by a single case at Palmas Cuatas.

Variant D presents a conical mound, one lateral, and another elongate mound opposite the conical mound in the position usually occupied by a ballcourt. This version lacks a court. Madereros has an example, and one occurs outside of the PALM survey at Zapotal (Gallo group).

Paired Complexes

In three instances two monumental complexes of similar sizes are positioned very close to each other and have overlapping chronological profiles. The idea of paired complexes is compatible with the observation that monumental groups can occur in separated locations within a settlement, as mentioned above for Nacastle-Patarata.

Each pair of complexes presents a different basis for proposing that the two complexes should be viewed as linked. One pair is Tilcampo and Madereros, situated on opposite banks of the Blanco River. After observing a variety of locally made wooden bridges in the region and a pulley-based transfer basket across the Blanco (which I did not care to test, but which was eagerly embraced by student crew members), I conclude that connections could be maintained across the Blanco even during rainy-season torrents. Madereros has a variety of dispersed structures, and Tilcampo continues this pattern on the north side of the river and overlaps chronologically. Madereros has a Partial SPPG, variant D, while Tilcampo has a Conical Plaza Group. Both have monumental platforms, and Madereros has a ballcourt positioned away from the Partial SPPG.

Tuzales and Tuzales North both have SPPGs and monumental platforms. The groups are separated by a short distance mostly lacking mounds and, for that reason, were contour mapped separately.

Another instance of pairing involves Ajitos and Pitos on the paleodunes. Each is a large complex, and they are positioned with a short distance between them. A pond impoundment lies adjacent to Pitos, between the two complexes. They exhibit complementary architecture, with multiple ballcourts and quadrangular patio groups at Pitos, but a concentration of conical mounds at Ajitos. Although dating for Pitos is meager because of heavy vegetation that impeded surface collection, it appears to overlap Ajitos temporally.

For perspective on the paired complexes, the agglomerative nature of Cerro de las Mesas is relevant; it has multiple SPPGs and Partial SPPGs. On a much smaller scale, Palmas Cuatas, located east of Cerro de las Mesas, has a SPPG on the east side and a somewhat smaller SPPG on the west side. Paired complexes extend the agglomerative principle to a slightly greater distance.

Other Formal or Informal Arrangements with High Structures

Ten high structures (ca. 7–15 m) were recorded during pedestrian survey, mainly during 1986, when crews initiated work in the delta Central Block (Figure 3.4). Because of their relatively simple arrangements, these structures were not treated as monumental complexes for contour mapping, as they could be adequately mapped with pedestrian survey, and mapping crews were occupied with substantial monumental complexes. Nevertheless, they represent part of the continuum of building sizes that likely were constructed with mobilized labor.

After completion of several more years of survey and a better idea of the variation in regional settlement, I treated all mounds 7 m or higher outside of the monumental complexes as high structures (one mound recorded as 6.9 m is included as well). The height or grand height (mound height plus height of underlying platform) of 7 m or more is an arbitrary device to isolate the most imposing of the pedestrian survey mounds. I now consider them among the smaller examples of formal complexes or of buildings with a possibly palatial, administrative, or ritual function. Some may constitute facilities connected with divisions within a settlement, perhaps a temple serving an outlying sector of a settlement. During pedestrian survey, one group with a high structure was identified in Speaker's (2001b) survey of Zone 1, three are located in the vicinity of Cerro de las Mesas, five are positioned close to Zapotal, and one is close to Azuzules. These high structures fall into four categories.

Conical Mound Group

These groups have a high conical mound with an informal arrangement of low residential mounds immediately associated. The Canal 2 group in the interfluve region is one example.

Conical Plaza Group

In these cases, the conical mound is part of a plaza group with low residential mounds situated on the other three sides of the plaza. These plaza groups do not exhibit elongated laterals and thus are not examples of the SPPG or its variants.

Conical and Contiguous Structures.

These cases of conical mounds have lower contiguous, projecting lobes attached to the conical mound, and this variant is the most common (five cases). The particular arrangements are variable, and the function of contiguous segments remains to be determined. in one case, a plaza group is elevated on a shared platform.

Isolated Conical Mounds

Some conical mounds lack an obvious cluster of residential mounds around them, although some residential mounds may be in the vicinity.

Daneels (2002a:183–186; 2016:217–222) defines a "Plaza Group" as delimited on three or four sides by mounds, one of which is higher than the others. The plaza proportions are square, there is no ballcourt, and mounds are generally smaller than in Standard Plans. They occur separately but also with Standard Plan groups. A north–south axis is common. These plaza groups often have elongated lateral mounds, however, and thus resemble the Standard Plan except in no case was a fourth mound identifiable as a ballcourt. Some of them would be included among my SPPG variants. Daneels suggests Plaza Groups usually had a mix of functions.

Non-Monumental Settlement Groups

Because of the dispersed nature of residential mounds, secure identification of a distinct cluster is a difficult enterprise, not addressed here. Nevertheless, it is important to note that the monumental or formal complexes are accompanied by a lower level of settlement represented in the organization of some residential mounds. Plaza groups with two to four residential mounds delimiting the plaza area (or bordering a shared pond) occasionally are readily recognizable (Stark and Ossa 2007:395); in other instances, with slightly more separation among the mounds, the definition of a plaza group becomes problematic. A small group of Preclassic mounds provides an example, discussed by Speaker (2001a:58) as a village comprising mounds that include 693 and 985, where he conducted residential test excavations.

Comment on Other Layout Categories in the Cotaxtla-Jamapa Drainage

Two of Daneels' layout designations, Pyramid on Platform and Monumental Platform, involve particular categories of structures in my discussion (conical-on-platform and monumental platform, respectively), not layouts. Her Pyramid on Platform group is a conical mound on a platform that forms the major structure in an informal cluster of residential mounds. Sometimes a second platform is associated, which helps delimit a space that could have functioned as a plaza. Sometimes the conical mound on top is somewhat flattened, but nevertheless does not assume the proportions of the platforms. Because pyramids on platforms may occur associated with Standard Plans, Daneels (2002a:188) suggests they may have been a version of the palatial monumental platforms and have served as a residential palace. She suggests predominantly a Late Classic date for such structures.

Daneels (2016) recorded many more pyramids on a platform than recorded in the WLPB data. However, some of this contrast likely is classificatory. She does not note any mounds with terraces. Although PALM crews treated lower areas as a terrace, we could not determine if a terrace continued under the mound, and the mound was therefore built on a platform. We classified lower areas as platforms if they projected also on the back side or on three sides of a mound and had a rectilinear form. Terraces stretch out on one side in a lenticular or lobe-like form and usually are curvilinear. Possibly mound-terraces overlap Daneels' pyramids on a platform. The mound-terraces in PALM are almost entirely localized in the Blanco delta, however, not widely distributed. This pattern could reflect higher-status households with larger residential space in the valuable delta lands, but it also could reflect the low-lying terrain and the tendency for reoccupation and rebuilding on earlier mounds.

Daneels' Monumental Platform group has a large rectangular structure, usually with one to four lower mounds on top. She notes an average of 5 m height for the rectangular platform, with an extensive, relatively flat top. Usually these platforms occur in combination with other structures (in Monumental Plazas, Standard Plans, as the main structure in a Standard Plan Variant, or associated with a Plaza Group). In only four cases was the monumental platform the only construction. In several cases, Daneels (2002a:190) sees them as peripheral structures associated with particular centers. In a few cases, natural consolidated

dune elevations or indurated rocky elevations were remodeled to assume the shape of these platforms. These platforms have a chronological extent from the Protoclassic (Terminal Preclassic) to the Late Classic period. Such platforms are subsumed in my monumental platform category.

A Monumental Plaza as defined by Daneels is sizable, 80 to 100 m on its sides and delimited on two or three sides by pyramids (conical mounds) or platforms of similar proportions, so that no one of them is clearly dominant. Although parts of some complexes in the PALM survey have some resemblance to this layout (for example, the northeast part of central Cerro de las Mesas, with its concentration of conical mounds), it is not a category represented in the PALM survey.

Categories of Monumental Complexes in Relation to Boundaries and Extents of Settlements

The scope of a settlement beyond the monumental complexes requires some additional terminology. Because of the dispersal of residential remains, settlement boundaries are not obvious. It is not difficult to detect the core complexes of major centers, as they are much larger than other complexes and have a commanding formal arrangement. The challenge lies with how to interpret smaller complexes, especially those in the vicinity of other complexes that appear to date to the same period(s). The close spacing of monumental complexes overlapping in time prompted the proposal of a capital zone for the Blanco delta (Stark 1999b), and it informs my suggestion of an approximately two to three km radius for the settlement associated with two major centers (Cerro de las Mesas and Azuzules in the Blanco delta), as discussed in Chapter 6. In some parts of the PALM survey, the limits of coverage curtail the information about outlying settlement. In some cases, I argue that outlying groups were part of the settlement, but because I cannot establish outer boundaries, I refer to settlement extents, not boundaries. The area within an extent is considered part of the settlement.

Settlement limits, or boundaries, may be more accurately viewed as transitions because residential settlement continues beyond the proposed limits, and the limits are not exact. The proposed transitions do not necessarily constitute limits of political or economic jurisdiction, and we remain uncertain of their implications to people who lived in the region. Nevertheless, I observe empirical patterns that suggest a difference in ancient practices.

We are familiar with many modern cities that have separately administered suburbs and instances in which growth has led them to merge physically even if not administratively. Something along these lines appears to be prevalent in at least the Blanco delta, and likely in several other areas, challenging our efforts to determine boundaries (or extents). A key element of both settlement boundaries and extents involves recognizing some small complexes as part of a settlement—as segments of it. Other small complexes that fall at the edges of a settlement may have had a function in maintaining the settlement boundary, or they may fall outside or inside the settlement.

Segment Complexes

Given a proposed boundary or extent, segment complexes are those monumental complexes that lie within the settlement apart from the core. The possibility of segment complexes was first indicated by the linear mangrove settlement of Nacastle-Patarata. There, four Partial SPPGs are positioned within the continuous settlement line, with the larger SPPG of Tío Perciliano approximately in the center. The presence of multiple groups of structures at Cerro de las Mesas is a related phenomenon. Multiple groups within a settlement may be nucleated or partly spread out as segment complexes amid residential features.

Boundary Complexes

As a result of the determination of possible fuzzy boundaries for some settlements, some complexes occur near the limits and may have had a role in the delimitation or maintenance of the boundary. Although they may exemplify other layout categories as well, it is useful to identify them as possible boundary groups for analytic purposes.

Summary and Perspective on Remaining Chapters

This chapter defined the types of structures in monumental complexes and some of the arrangements characteristic in the region. With this lexicon, I can better describe the monumental complexes in Chapters 7–11. Examination of the metrics of particular kinds of structures revealed two principles in planning. On the one hand, some buildings or pairs of buildings were closely controlled in some dimensions. For example, the heights of conical mounds in relation to their basal area shows a fairly regular progression likely related to the engineering of the mounds. The lengths of paired lateral mounds in SPPGs were matched rather closely, as were ballcourt lengths.

Other dimensions of plaza laterals were not closely related to mound length, however. Height in particular varied a great deal versus length for the lower laterals, but less so for the higher laterals. I concluded that the two laterals had construction histories constrained by their placement around the principal plaza, but in other respects, especially height for the shorter of the two laterals in a pair, independent decision-making affected construction investments. This finding points to multiple groups involved in key decisions about central construction, consonant with important corporate groups wielding power somewhat independently of central authority and each other. Another characteristic of the layouts for SPPGs is that palatial platforms are not typically positioned alongside the principal plaza. Thus rulers and other prominent elites did not spatially dominate the core public assembly area.

The next chapter addresses settlement boundaries and extents by proposing the incorporation of some monumental complexes as part of a single settlement. The information also informs the discussion of individual monumental complexes in Chapters 7–11. Settlement hierarchies discussed in Chapter 12 cannot be addressed without first deciding if additional monumental complexes are part of a settlement.

Notes

1 My typology is similar to that employed by Daneels (2016:198–206) for the nearby lower Cotaxtla-Jamapa River area (*pirámide*, *plataforma* [in three subcategories, *plataforma alargada baja*, *plataforma baja a media*, and *plataforma media a grande*], *plataforma monumental*, *juego de pelota* and *tribuna*, *altar*, *montículo*, and *aljibe*.

Chapter 6

Trial Settlement Boundaries, Extents, and a Provisional Settlement Hierarchy

Settlement extents or boundaries represent an interpretive step for WLPB settlement patterns that lays the basis for decisions about settlement hierarchy and political organization. Again, I use "extent" to refer to the area of a settlement that can be documented with current data, but possibly not reaching settlement boundaries. Settlement boundaries are the outer limits of a settlement, whether based on material markers or an arbitrary density threshold. Identification of settlement boundaries is often complex because there are different assumptions that can be brought to bear. I will use identifications of segment complexes, gaps in settlement, and settlement histories to establish "fuzzy" boundaries for two large delta centers, Cerro de las Mesas and Azuzules. Boundaries for mangrove swamp settlements are based on residential contiguity in linear arrays visible on aerial photographs and Google Earth imagery. For other settlements, extents are defined from a combination of settlement segments and residential proximity. Archaeological work in Mesoamerica shows a gamut of ways that settlement boundaries have been defined and the complexity of the subject.

Archaeological Approaches to Settlement Boundaries

One of the most obvious solutions to defining boundaries relies on ancient construction, especially walls surrounding a settlement. A wall may have a defensive purpose, but it can also be a jurisdictional or cultural expression. Importantly, its role(s) and meaning may change. The Postclassic Maya site of Mayapán is an example of a walled settlement for which archaeological survey revealed occupation outside the wall for another 500 m before tapering to a lower density (Hare et al. 2014; Russell 2008). Consequently, the presence of a wall is not a guarantee of an analytically satisfactory settlement boundary.

The Classic period Maya center of Tikal has settlement boundaries proposed on the basis of ancient construction (an intermittent ditch and embankment) and natural barriers (low, swampy areas; Puleston 1967; Webster et al. 2004). The role of the ditch and embankment remains ambiguous because the original defensive interpretation is undercut by the lack of construction to the south of the Tikal core. Surveys indicate a decline in residential density for the hinterland outside the ditch and embankment (Ford 1986; Puleston 1967, 1983), indicating that the construction was meaningful for ancient settlement.

Causeways or roadways in the Maya lowlands provide clues about settlement extents by linking construction groups, but do not necessarily define settlement limits (e.g., Chase and Chase 2017). As Shaw (2001) notes, some causeways link different groups of core

buildings. Others connect to outlying groups in the settlement, but such terminus groups are not necessarily on its boundaries. A third category of causeways connects separate settlements (Shaw 2001). The WLPB survey has not yet produced evidence of ancient surrounding walls or constructed roadways, so different evidence must be considered.

Despite the utility of ancient constructions in defining settlement boundaries, the most common signal of boundaries is declining occupational density, even though such a boundary often is fuzzy or arbitrary. At an extreme, declining density may involve looking for the limits of features or artifact scatters, with the idea that intersite areas lack any occupational traces (for example, Sanders et al. 1979:16). In other circumstances, discrete limits are not characteristic, and a density threshold is applied. The Maya site of Chunchucmil provides a good example (Hutson et al. 2008). Dispersed residential remains in the Maya lowlands have required attention to densities, but terrain is often uneven and occupation varies accordingly, creating challenges for examining density.

Introduction to WLPB Settlement Boundary Issues

WLPB density is sensitive to landforms, with the Blanco delta attracting denser settlement than upriver locations (Stark and Ossa 2007). Along the Blanco upriver, occupation is noticeably more abundant near the river (Stark and Ossa 2007:396), and some locations away from rivers yield little or no evidence of occupation. The north part of the Tuzales survey block and the northwestern arm of the Central Block in the Blanco delta are devoid of mounds (Figure 3.1). The interfluve blocks show low amounts of occupation, but are not empty. In the Blanco delta, the numerous rather closely spaced monumental complexes and nearby continuous scatter of residential mounds ensured that initially I did not see much evidence pointing to settlement limits. To some extent delta occupation may favor slight levees along ephemeral drainages (Stark and Ossa 2007:395), but this pattern is not consistent. The PALM 2 survey revealed upriver concentrations near the watercourse, but without consistent clustering around monumental complexes. The issue of settlement extents and boundaries appeared rather intractable, a common challenge for situations of low-density urbanism.

In this chapter my analysis of settlement extents and boundaries concentrates on the Classic period, for which we have the most data. I consider pottery distributional patterns and segment complexes (monumental complexes defined as within the settlement area associated with a central node of larger monumental construction) to address extents and boundaries.

Both the Preclassic and Postclassic periods are special cases with respect to settlement identifications. For the Preclassic period, ceramics at monumental complexes generally are mixed with later Classic period materials, so that I cannot assess the amount of Preclassic construction. Judgments about Preclassic settlements rely on the extent and amount of occupation in the immediate area. Cerro de las Mesas has such abundant Preclassic material in monumental fill and in surrounding residential collections that it clearly was the most important WLPB center at that time. Ceramics suggest secondary settlements at Palmas Cuatas, Madereros, and Tuzales (see Chapter 4). For the Middle and Late Postclassic periods, only one center has been identified for each period. These centers may have been subsidiary to head towns outside the survey coverage, a subject discussed elsewhere (Garraty and Stark 2002; Stark 2008a). Each Postclassic nucleus has dispersed rural residences in its vicinity. Thus, for the Preclassic and Postclassic periods, centers can be detected along with their associated penumbras of outlying residences. The Classic period poses problems, however.

For the Classic period, pivotal decisions concern whether some monumental construction constituted outlying buildings within a large settlement. In some cases survey limits prevent decisions about boundaries, but identification of some of the settlement extent is possible through decisions about settlement "content," that is, segment complexes that were part of the settlement, or by closely associated residential mounds. The outcome of my analyses of settlement boundaries and extents provides the building blocks of a settlement hierarchy in this region.

Mangrove settlements present a special case of boundaries because aerial photographs and satellite imagery readily disclose mounds (Bruder et al. 1975) and show how linear settlements are confined by landforms (levees). Three categories of information are the basis for my interpretation of settlement boundaries for Cerro de las Mesas and Azuzules, which are the two large complexes situated where I have the greatest amount of survey data in the Blanco delta. The information brought to bear does not yield exact limits, and I use "boundaries" as an approximation to what

may have existed in the past. I draw on three lines of evidence: settlement content, gaps in settlement, and historical patterns. Settlement extents of other complexes will be addressed following consideration of boundaries.

Boundaries for Cerro de las Mesas, Azuzules, and Mangrove Settlements

The relatively continuous scatter of residential mounds away from the monumental complexes of Cerro de las Mesas and Azuzules is an initial indication that we must entertain a wider extent for a settlement than simply the core of major construction. Two clues about settlement organization emerged from examination of all the monumental complexes and their surroundings: agglomeration of SPPG or Partial SPPG and the positioning of monumental palatial platforms.

Agglomeration

First, as noted in Chapter 5, some Partial SPPGs are parts of monumental complexes or settlements. The Nacastle-Patarata settlement and the core of Cerro de las Mesas provide examples (Stark 2003a). The linear, continuous settlement of Nacastle-Patarata in the mangrove swamp provides a clear indication of incorporation of Partial SPPGs at intervals, combined with a larger, centrally located core complex (Tío Perciliano). The central complex has a large conical mound and formal ballcourt. The smaller partial groups are fairly evenly spaced and may have been civic-ceremonial structures for neighborhoods; they have smaller conical mounds with a lateral, but lack ballcourts.

Cerro de las Mesas is unique in the WLPB in its strongly agglomerative character that incorporates many plaza groups, including several SPPGs and Partial SPPGs. Like Cerro de las Mesas, three complexes that I define as secondary centers were important loci of Preclassic occupation, and they have dual SPPGs or a SPPG plus a Conical Mound Group: Madereros-Tilcampo, Palmas Cuatas, and Tuzales-Tuzales North. Thus, they resemble Cerro de las Mesas in their agglomerative character, but are less compact and on a much smaller scale. Agglomeration of plaza groups is a striking characteristic of Preclassic construction that carries forward at these sites into the Classic period, but is not more widely typical of Classic period complexes. Agglomerative patterns are a clue to look for monumental components of settlements, that is, segment complexes.

Monumental Platforms as Segment Complexes

Another clue about linking complexes as parts of a settlement concerns monumental palatial platforms. Monumental platforms slightly removed from the SPPG were part of Daneels (2016:212) concept of the Standard Plan arrangement. She defines them as usually 0.2 km away, but I propose greater distances for some of the WLPB cases. Some monumental platforms are part of core construction and were contour mapped with the SPPG and other mounds, but others are non-coterminous with core complexes and instead are situated a modest distance away, for example, in the case of the major complex of Nopiloa monumental platforms are up to 1 km distant. Monumental platforms are not distributed around Cerro de las Mesas, but they occur around Azuzules at varying distances: the nearest is 0.6 km (Azuzules East), and the most distant is at 2.1 km (Zacate Colorado West), with Aguacate South a dubious case at 2.6 km because it might be a rural elite estate headquarters instead. Most separated monumental platforms are likely segment complexes because they do not have the normal range of public facilities; access to structures on top is restricted by virtue of the platform height.

Only four monumental platforms are so far removed that they are candidates for rural estates (Recreo, Recreo South, Aguacate North, and Aguacate South). Since residential remains are scattered widely in a countryside with valuable farmland, some outlying monumental palatial platforms may represent headquarters of country estates with associated landholdings and possibly client, tenant, or servant families nearby. Such monumental platforms were not themselves elements of a settlement hierarchy, although this does not rule out some service functions for the immediate client population.

Paired complexes fall within similar distance from each other as monumental platforms have to core SPPG: Ajitos-Pitos, 0.8 km; Madereros-Tilcampo 0.7 km; Tuzales-Tuzales North 0.4 km. The two groups mapped at Palmas Cuatas are 0.3 km apart.

For a variety of reasons, then, it is reasonable to assume that some settlements incorporated monumental segment complexes, especially monumental platforms. Nacastle-Patarata has segments within the community, Cerro de las Mesas has segments in its core as well as in the surrounding settlement area, and Nopiloa has a "ring" of four monumental platforms within one km or less.

Another issue involves monumental platforms for which the nearest core complex likely was a secondary center. How far away are segment monumental platforms from secondary center cores? The likely secondary center of Tuzales provides an example of the problem. There are three monumental platforms southwest of Tuzales: Tuzales South, Recreo, and Recreo South, with respective distances of 0.6, 2.2, and 2.4 km. The closest, Tuzales South, likely is part of Tuzales on the basis of a lesser distance compared to those ringing Nopiloa, but the other two may be rural estate headquarters. They exceed all the Azuzules segment monumental platforms in distance. Similarly, Mixtequilla has a monumental segment complex, Mixtequilla North, 0.4 km distant, but another monumental platform at Aguacate North is 2.3 km away and more likely a rural elite estate headquarters.

Only four of what I propose as secondary centers have segment complexes, and eight do not, with one more possible secondary center that does not. Usually at secondary settlements the monumental platforms are close to the SPPG and part of the contour mapped complex. At secondary centers with monumental platforms *within* the contour map, distances all fall within approximately 0.6 km of the principal conical mound: Muertos 0.2 km, Madereros-Tilcampo with multiple platforms 0.6, 0.6, and 0.7 km, Dicha Tuerta 0.3 km, Moral with two platforms 0.2 and 0.1 km, Tuzales 0.1 km, Tuzales North 0.1 km, Tío Primo 0.2 km, and Palmas Cuatas 0.1 km. Note that several slightly exceed the typical distance indicated by Daneels (2016:212) for the lower Cotaxtla-Jamapa survey.

At farther distances, monumental platforms were normally defined as a separate complex during PALM contour mapping, usually because few intervening mounds connected them to the SPPG or because a stream intervened. The distances to such platforms on occasion overlap with the distances of those that were included in contour maps. Nopiloa's segment complex 6409 is only 0.4 km distant, for example. One platform near Azuzules is 0.6 km away (Azuzules East), but it was originally mapped separately only because it was across a road and drainage channel. It was later integrated with the Azuzules contour map. High structures recorded during pedestrian survey are located between 0.3 and 1.4 km away from Zapotal, itself outside the survey.

Consequently, it is reasonable to view the monumental platforms or other segment complexes as forming a continuum of distances, the nearest ones usually included on contour maps, and the more distant ones that were separately mapped ranging up to about 2 km. When segment complexes pertain to secondary centers, all secure examples fall within a kilometer distance. I have defined more distant possibilities beyond 2 km as rural estates or part of different centers.

Not all segment complexes are monumental palatial platforms. Primary centers include other types of segment complexes, but infrequently. Most segment complexes are monumental platforms except in the case of Cerro de las Mesas. Appendix 2, Table A2.1 shows that most segment complexes that are not monumental platforms fall within a kilometer and a half of the core, but for major centers, some are located around 2 km distant. One case located more than 2 km away is Tiesto, 3 km from Azuzules. It falls just beyond the revised boundary for that center that will be presented later in this chapter, and it may be a border complex or a tertiary center. The farthest distance of a segment complex is 3.5 km for Patarata East, a Partial SPPG in the Nacastle-Patarata settlement, but this is an unusual situation involving a linear settlement where elongation of distances is a response to occupation on a linear landform in a swamp. Complex 422 within the Cerro de las Mesas settlement is 3.2 km distant. Consequently, monumental platform segment complexes tend to be closer to site cores than other categories of segment complexes, which can range up to 3.5 km distant. In other words, elite palatial platforms usually gravitate closer to settlement cores than other segment complexes.

For proposed tertiary/quaternary settlements, segment complexes are unlikely because of the diminished economic and political power at smaller settlements. Only one complex that I designate as a tertiary center has an outlying monumental platform, the Bartolo complex and its platform at Bartolo North. Conceivably Bartolo North is independent of Bartolo, but they are close, 0.4 km. Seven tertiary centers lack segment complexes, with possibly four more that also do not have them.

In sum, the data suggest that primary centers have segment complexes ranging out to about 2 km with occasional exceptions to 3.5 km, but secondary centers only occasionally have segment complexes, and they fall well within a kilometer of the core. Tertiary centers almost never have segment complexes. These analyses of the kinds of complexes and distances for segment complexes provide a first indication of patterning in provisional settlement hierarchies as well as clues about settlement extents and boundaries.

Gaps in Settlement

A second datum for bounding centers is gaps in residential remains (Figure 6.1). "Gaps" refer to areas more extensive than the usual spaces between residential features, and they are at least partially bounded by a resumption of the residential scatter on the other side (using both survey and aerial photographs). Gaps were initially defined and numbered to assist in description of the chronology and distribution of residential remains around monumental complexes because I needed to refer unambiguously to areas lacking settlement. Once defined, they formed a partial semicircle around Cerro de las Mesas. This discovery led to consideration of their possible role in delimiting the settlement. Two gaps appear to the west of Azuzules in an analogous fashion, but we do not have enough survey around Azuzules to be sure if the pattern is as consistent as for Cerro de las Mesas.

The gaps cannot be ascribed to unfavorable terrain for settlement because the terrain does not differ from occupied areas. All the area is under modern cultivation or pasture, for example. Because of a separate line of research regarding gardens, especially palatial gardens and hunting preserves, I became aware of the importance of detecting areas where residential building has been discouraged by powerful proprietors (Stark 2014a, 2014b). Apart from elite garden spaces, the regional organization of agricultural and other subsistence pursuits may have involved reserved areas for fields, perhaps infields located on settlement perimeters. All the gaps detected in the survey area were defined where we have the greatest amount of continuous coverage, along the Blanco River and in the Blanco delta. These gaps were persistent because they lack residential remains (that we could detect) for all of the periods recorded.

This continuity over time does not imply a cultural or political continuity in land use, however. Later occupation may have favored reuse of existing residential mounds to obtain the advantages of better drainage for the domestic area, leaving the gaps (once established) persistently unoccupied, even if encroachments occurred. The peak of settlement seems to have occurred during the Classic period, and therefore the gaps must have been defined and actively maintained during some of that period, but we cannot conclude that they were actively maintained during the Postclassic, which had lighter settlement. What today are evident as gaps may have been more extensive in the past, with some reduction from later occupation that partly filled in and obscured them, perhaps even creating the intermittent appearance seen in Figure 6.1.

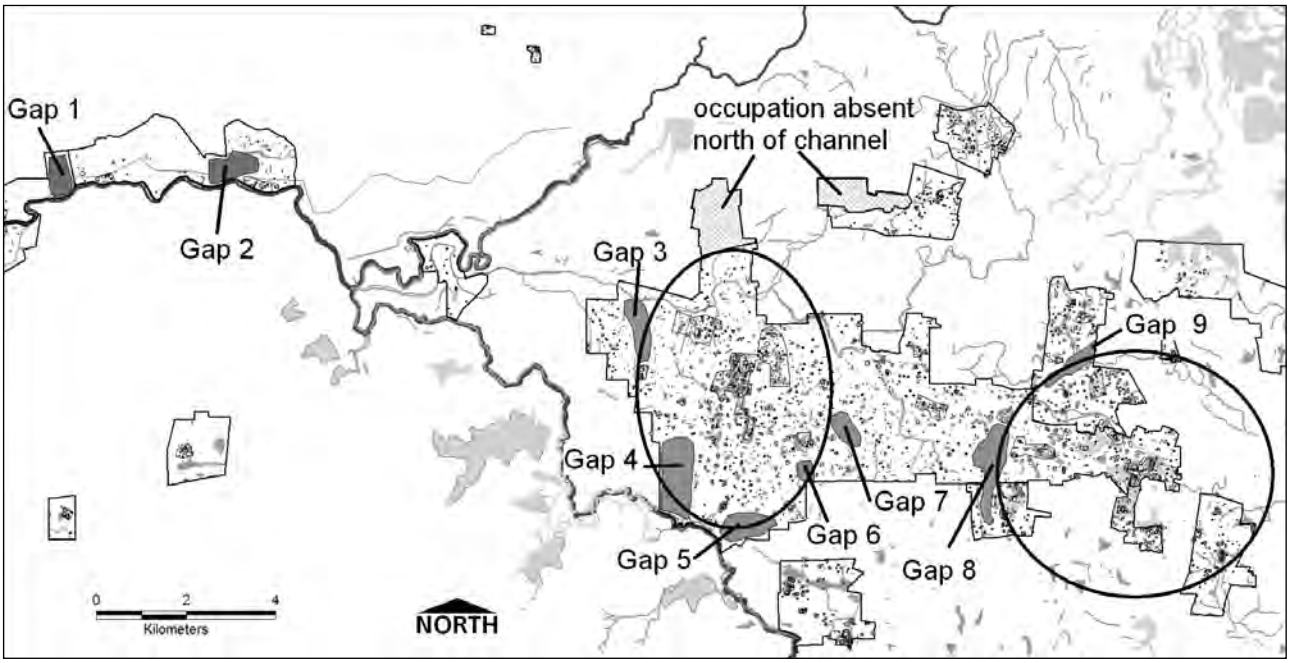

Figure 6.1. The map of the Blanco delta and eastern upriver Blanco areas shows archaeological features, waterways, and wetlands mapped from various sources. Arbitrarily numbered dark gray areas represent gaps in archaeological settlement. The oval or circular lines around Cerro de las Mesas (left) and Azuzules (right) indicate approximate settlement limits or transitions defined on the basis of gaps.

The positioning of gaps suggests a boundary in the use of space approximately 2–3 km from two primary centers, Cerro de las Mesas and Azuzules. Five gaps occur intermittently at about 2.5–3 km from Cerro de las Mesas (to the south, Gap 5 is 3.6 km), and two occur approximately 2.6–3 km from Azuzules.

Two delta areas on the north bank of the Viejo River channel (Figure 6.1) also lack residential traces, but these are not gaps because they are not framed by continuing residential scatters on the other side of the gap. They are striking, however, because the north bank of an arm of the Viejo River is not today substantially different from the south bank, where occupation is evident. The westernmost of these empty northern bank areas may indicate an extension of the pattern of gaps around Cerro de las Mesas. These two areas without occupation traces may be related to geomorphology in a manner that is not obvious today from elevation contours. As points of comparison, the INEGI Carta Geológica Orizaba E14-6 shows wetlands alongside the north branch of the Blanco after it bifurcates from the de las Pozas, as well as wetlands along the south side of the de las Pozas. The area along the north side of the Viejo may signal an area more prone to inundations prior to modern irrigation systems affecting the Blanco. If so, the absence of residential mounds could reflect a preference to occupy terrain less susceptible to flooding.

Figure 6.1 shows an oval around Cerro de las Mesas and a circle around Azuzules to indicate the general location where we might expect a boundary or transition in land use to occur on the basis of gaps in settlement. These lines attempt to include some of the gap terrain, with the idea that the apparently unoccupied space is part of the perimeter of the settlement. These lines are drawn arbitrarily to intersect the gaps, and they are drawn symmetrically, which is unlikely to represent past boundaries. Other information tends to both support and modify these initial boundaries.

The area enclosed by the proposed Cerro de las Mesas limits is approximately 21 sq km versus approximately 1.5 sq km for the monumental core. The area included with the proposed Azuzules settlement is over 26 sq km, versus 0.16 sq km for the core of Azuzules plus Azuzules East. These figures highlight the impact of shifting our attention from monumental complexes to settlements. Within the area delimited by the gaps for Cerro de las Mesas and Azuzules, each has segment complexes, such as monumental palatial platforms or Partial SPPGs. Monumental complexes within the proposed settlement area can be interpreted as part of the settlement, representing districts, elite residences, or nodes of internal political administration or ritual activity. In a few cases complexes are situated on or near the boundary; boundary complexes perhaps additionally contributed to control of the perimeter.

There are indications that gaps may be associated with the peripheries of other centers. One (Gap 2) occurs immediately west of Cerro de los Muertos, a Classic period secondary center upriver along the Blanco, but we lack enough survey coverage to detect other boundary evidence. Gap 1 occurs to the west of Callejón del Horno, a Late Postclassic center, also upriver. That gap is relatively close to Callejón. If these gaps offer a clue about those settlement boundaries, they indicate much less spatial extent than the primary Classic centers of Cerro de las Mesas and Azuzules.

In sum, recognition of gaps in settlement is an important contribution to understanding ancient landscape, land use, and tenancy. Possibly some of these gaps were more flood-prone in the past if they were traversed by ephemeral drainages and offered opportunities for recessional agriculture. Gaps may contribute information about infield-outfield cultivation. In comparison, plazas in areas of monumental construction constitute defined open space with significant cultural symbolism and provided an arena for public assembly (Inomata 2006; Moore 1996; Ossa 2014; Ossa et al. 2017). Eventually, we may discover that settlement gaps represented culturally defined space with multiple functions also. Nevertheless, their use to create a trial boundary for two of the largest settlements is provisional. Next I offer an alternate approach based on historical patterns of occupation that is responsive to the gaps only indirectly. It indicates a similar but more restrictive boundary.

Historical Patterns

Although the definition of settlement boundaries from the scattered peripheral gaps in occupation seems promising, in two cases what would otherwise be likely secondary centers are located on the edge of the provisional boundaries (Moral for Azuzules and Tío Primo for Cerro de las Mesas). Both are SPPG complexes. Possibly they served as boundary complexes controlling aspects of access to the settlement, but they resemble other secondary centers in the amount of construction and their kinds and arrangements of structures. Perhaps initially they were smaller but grew after the demise of their core capital; nevertheless, they are disquieting for the provisional boundaries based on gaps.

An examination of historical patterns provides a separate perspective to revise the provisional limits, and it places both of these complexes outside of revised boundaries. Historical patterns may be clues to land tenure that was persistent, even as occupation expanded. A historical approach is especially valuable in view of the arbitrary symmetry of boundaries based on gaps. For comparison, at the Maya site of Chunchucmil, two occupational "pseudopods" extend out of a symmetrical circular area (Hutson et al. 2008), and at Mayapán, occupation outside the wall occurs in somewhat irregular clusters (Hare et al. 2014; Russell 2008). Historical patterns may reveal asymmetrical boundaries.

In Chapter 4, chronological plots of diagnostic artifacts according to count revealed possible limits of Cerro de las Mesas. The presence of Preclassic diagnostics for collections at or above the median collection size shows a concentration at Cerro de las Mesas and extending southward toward the de las Pozas River. This distribution has a gap to the west before occupational traces recur (Figure 4.1). In Figure 6.2 the strength of the concentration at Cerro de las Mesas and the gaps to the west and east are tested by plotting *all* cases of Preclassic diagnostics, not just those above the median count. The gap to the west is still evident, and the one to the east, not as wide, is recognizable as well. One result of the recognition of an antecedent Preclassic pattern is that the complex of Tío Primo is on the *other* side of the decrease in sherds and therefore would not be placed within the Cerro de las Mesas settlement boundary if Preclassic land tenure or settlement limits carried forward into the Early Classic period. Otherwise, the segment complexes included in Cerro de las Mesas remain unchanged.

The historical approach is not as useful for the monumental complex of Azuzules because the eastern end of the delta was lightly occupied during the Preclassic period, and we did not achieve as much surrounding coverage. Nevertheless, there is a small gap between the Moral Preclassic collections and collections farther northeast (Figure 6.2). I conclude, on the basis of the clearer Cerro de las Mesas historical map, that the Moral and Tío Primo complexes, which seemed anomalous as boundary complexes on the basis

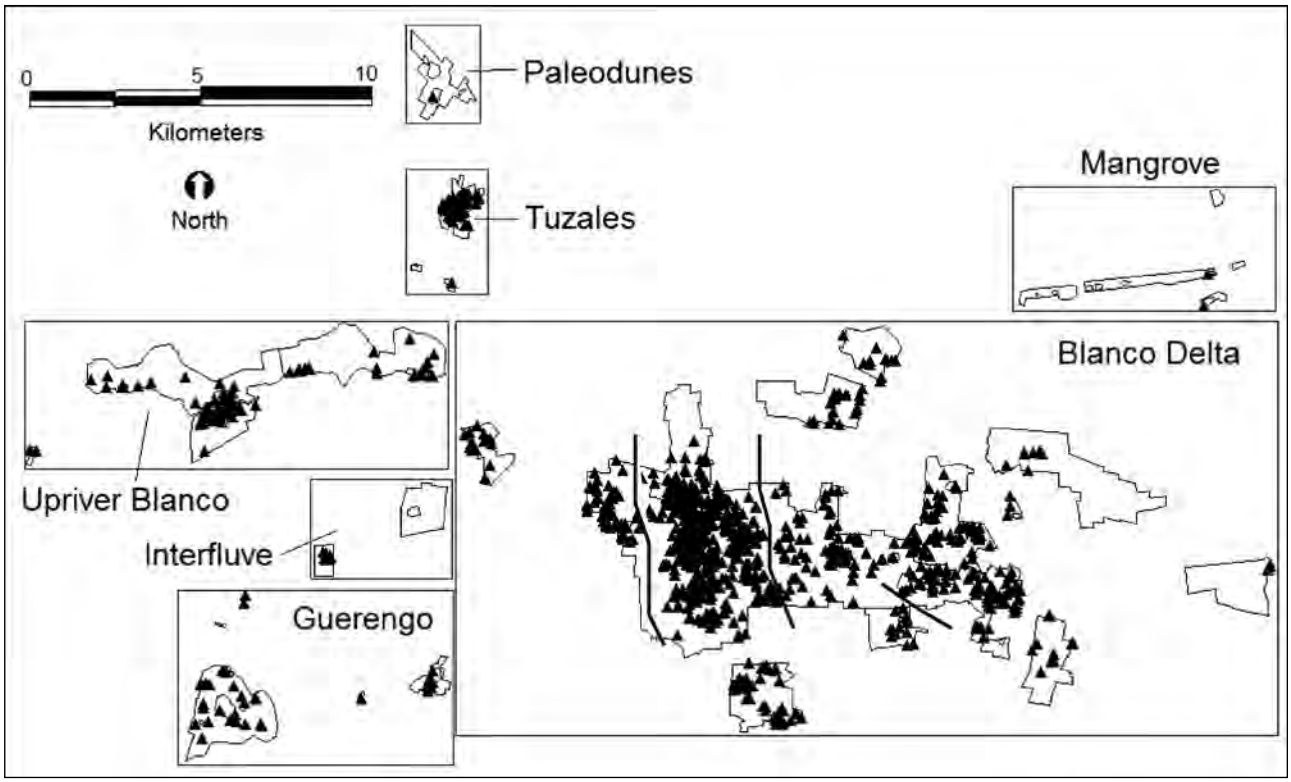

Figure 6.2. Any collection with Preclassic diagnostics is plotted with a triangle. Lines across the delta Central Block indicate boundary areas with little or no settlement: two on the east and west sides of Cerro de las Mesas, and one between Azuzules and Moral.

of settlement gaps, likely were outside the settlement boundaries of Azuzules and Cerro de las Mesas, respectively. A revised boundary for each center is shown in Figure 6.3. The revised boundaries are somewhat more irregular and somewhat smaller, adjusted to the historical pattern of Preclassic occupation while also attentive to the gaps in settlement that first raised the issue of settlement boundaries. In the revision, Tío Primo falls outside of Cerro de las Mesas. For Azuzules, Lobato, Moral, Moral North, and Moral-Iglesia fall outside the revised boundary. Moral North and Moral-Iglesia are both segment complexes (monumental platforms) pertaining to Moral. Lobato is possibly a nascent SPPG 1a, a small community center.

Because of cultural and settlement continuity, the initial Preclassic limits of Cerro de las Mesas (and perhaps Azuzules) may have carried forward and affected each settlement during the Early Classic period. If so, the Cerro de las Mesas settlement limits should remain elongate in form, north to south, which still is the case in Figure 6.4, which shows the distribution of Early Classic and Early Classic Tendency diagnostics (any occurrences). The western swath of diminished Preclassic occupation delimiting Cerro de las Mesas is now partially populated with residential occupation but portions remain. On the east side a decline in occupation is also less clear but arguably still present.

For the Azuzules area, collections with Early Classic and Early Classic Tendency sherds do not contradict the boundaries based on Preclassic sherds, but the gap between Azuzules and Moral is no longer evident (Figure 6.4). A small area without occupation lies between Moral and Villa Nueva, partly supporting the possibility that Moral lay outside the Early Classic Azuzules settlement boundary. Unfortunately, the survey limits do not provide extensive coverage of the terrain between the Moral and Azuzules complexes. Overall, the revised boundaries reflecting occupation patterns remain reasonably effective in delimiting the main concentration of Early Classic and Early Classic Tendency sherds around each center.

The remaining step is to examine these boundaries with Late Classic collections (Figure 6.5). In both cases, the revised boundaries are further blurred by occupation so that they are no longer compelling as settlement limits. By the Late Classic period, Cerro de las Mesas had likely lost much of its control of surrounding lands; perhaps, instead, there were patchier controls exercised by elites. For Azuzules, we do not have a strong case for boundaries based on residential

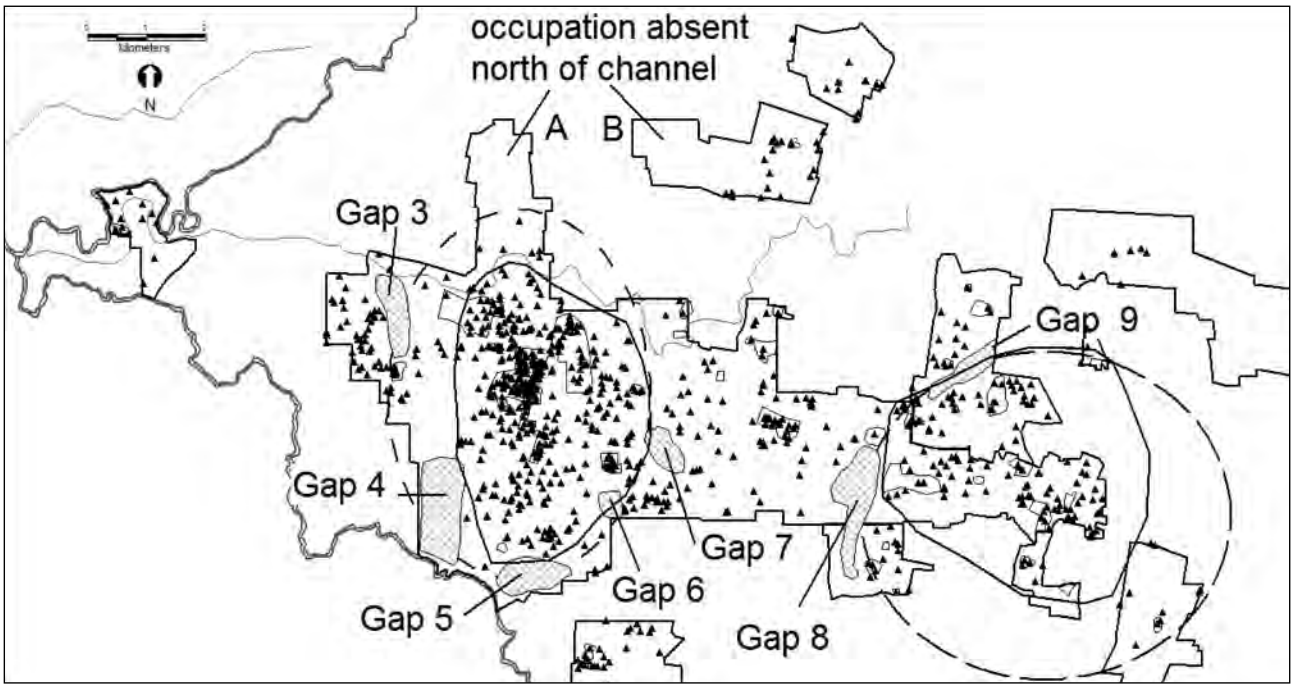

Figure 6.3. Collections with Preclassic sherds (triangles), with dashed lines to indicate the center boundaries based on gaps, and a solid line to indicate boundaries based on gaps but revised to reflect the denser concentrations of Preclassic sherds.

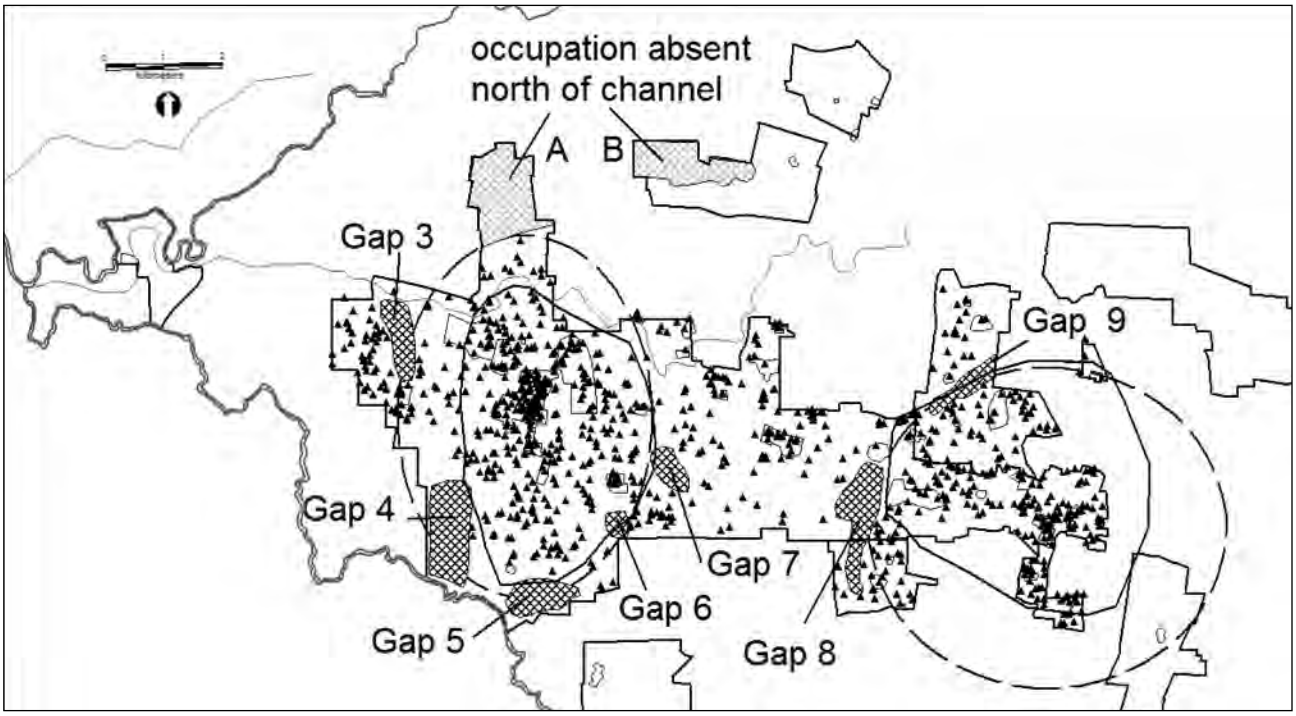

Figure 6.4. All collections with sherds from the Early Classic and Early Classic Tendency diagnostics are indicated with a triangle. The dashed line represents boundaries inferred from gaps, and the solid line represents boundaries formed around Preclassic concentrations.

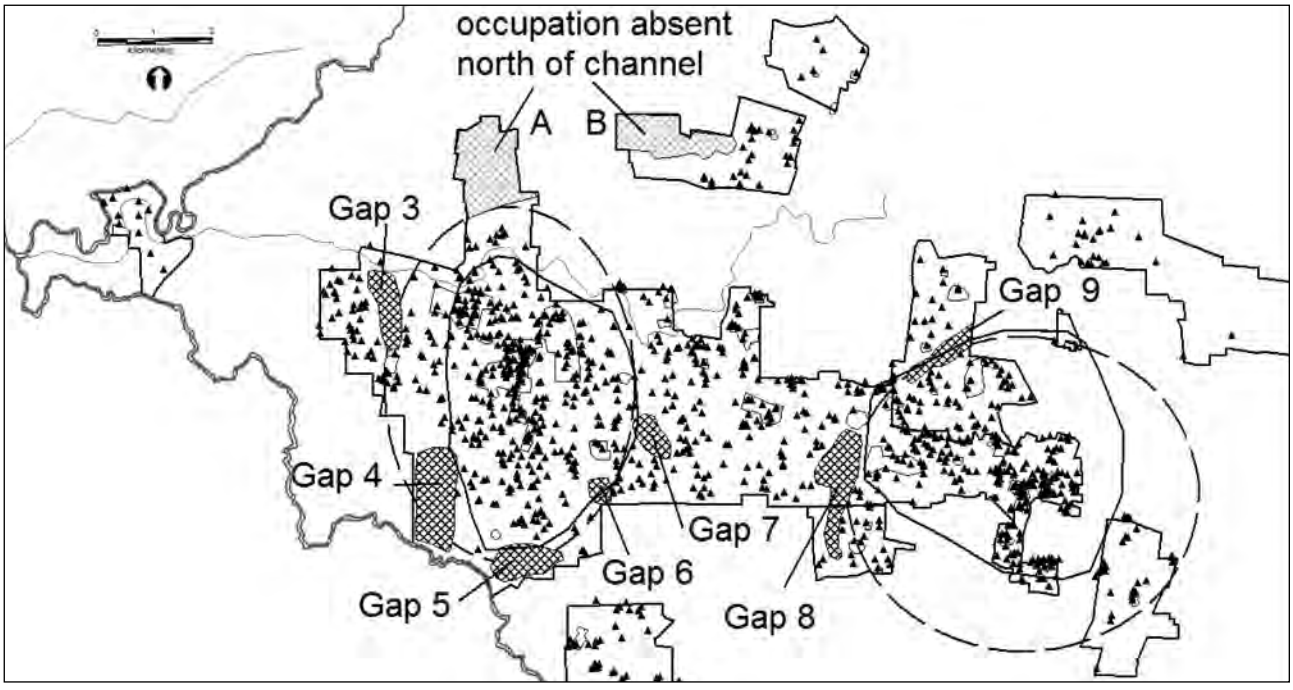

Figure 6.5. Collections with Late Classic diagnostics (black triangles) for comparison to boundaries designed from gaps (dashed line) and those designed around Preclassic sherd concentrations (solid irregular line).

patterns, and, as noted, the limited extent of survey coverage makes the roles of the two gaps identified in the vicinity (Gaps 8 and 9) uncertain. Generally, the proliferation of settlement (which may have been both within and outside of any boundaries) makes it moot whether any boundaries existed or, if they did, that they were a strong factor affecting settlement. Overall, the delta survey area is more filled in with occupation in the Late Classic period.

Consideration of historical patterns of occupation strengthens the likelihood that I have approximated boundaries for Preclassic and Early Classic Cerro de las Mesas with the two methods. Historical patterns place Tío Primo and Moral outside the settlement boundaries of Cerro de las Mesas and Azuzules, respectively. On the one hand, this solves the problem of having secondary-sized settlements as boundary complexes, but, on the other hand, it creates the new problem of secondary centers close to the boundary of each primary center. The distances out to these two complexes from the settlement cores, if we regard them as secondary centers, are not greatly different from other secondary centers in the vicinity, but they do pose a challenge.

I cannot readily resolve this problem, but future geomorphological and chronological information might explain it. Taken as a whole, survey suggests that drainages were important in structuring settlement. If an ancient branch channel (perhaps seasonal) flowed between Tío Primo and Cerro de las Mesas and between Moral and Azuzules, then the proximity of the secondary centers to their primary center boundaries would not be as anomalous. Another future issue is additional chronological precision. Perhaps in final form Tío Primo and Moral did not correspond to the political peaks of Cerro de las Mesas and Azuzules, respectively. Nevertheless, for the purposes of this volume, I will assume each is a secondary center because this seems a better decision given current information.

In sum, settlement boundaries have been defined for two major settlements, Cerro de las Mesas and Azuzules, on the basis of (1) likely segment complexes, (2) gaps in settlement, and (3) historical patterns

Figure 6.6. Settlement boundaries for linear mangrove settlements shown as black forms (PALM survey blocks have yellow outlines and yellow labels).

that showed diminished peripheral occupation in the Preclassic period. In the case of Cerro de las Mesas, declines to the west and east occurred at distances of approximately 1.3–1.9 km, but settlement is elongated southward to 3.5 km. The area encompassed by the revised boundaries is approximately 13 sq km. In the case of Azuzules revised boundaries are approximately 2 to 2.8 km distant, with an area of 15 sq km, except that much of the terrain to the east remains unsurveyed, and therefore boundaries are arbitrarily extended somewhat symmetrically.

Mangrove Settlement Boundaries

Linear mangrove settlements visible on Compañía Mexicana de Aerofoto mosaics are an example of compactly aligned residential mounds which are readily visible with aerial photography (Bruder et al. 1975), allowing a determination of settlement boundaries. One settlement, Nacastle-Patarata, was likely a primary center during the Late Classic period. Based on aerial signatures, the Nacastle-Patarata settlement extends beyond the surveyed area and has a total of 8.8 km. A nearby alignment at Boca de Santa Catarina stretches 4.1 km. Others not surveyed are indicated in Figure 6.6. These compactly arrayed linear settlements contrast with myriad individual mounds or groups of them (e.g., Large 1977), many dotted along levees. Some Cala Larga mounds were surveyed in PALM, but also investigated earlier (Bruder et al. 1975). A monumental complex south of Cala Larga and part of the settlement was too overgrown for GPS recording during the PALM survey. Residential occupation continues down both levees of the Arroyo Cabeza de la Vaca, and many of these mounds were verified by Bruder et al. (1975). Providencia and Tlacotalpan Northwest have not been visited.

Settlement Extents

Settlement extents are defined mainly for any settlement with segment complexes (mostly monumental platforms). In Figure 6.7 extents are shown, along with the revised boundaries for Cerro de las Mesas and Azuzules. Extents based on segment complexes have been supplemented by examining residential features in the vicinity. Nearby residential mounds allow fleshing out the settlement extents with attention to any gaps or dwindling density. In some cases, closely positioned residences can provide some basis for an extent even without segment complexes. In cases with a small survey block for a center, if a settlement extent is indicated, it simply reflects the limits of the survey block. Some centers, such as Loma in the interfluve area, lack any clustering of residences nearby, and no settlement extent is marked on Figure 6.7. Loma is a secondary center that may have been located in the interfluve partly as a political control point. Its civic and ritual activities may have drawn from a much more widely and lightly distributed population in the interfluve.

Discussion of Settlement Extents for Proposed Secondary Centers

The extent of secondary centers is difficult to establish. In one instance, diminished residential occupation midway between the secondary centers of Salto and Salto Norte, separated by 1.6 km, provides an indication of the settlement extent for each. The separation between the secondary centers of Paso de las Mulas and Rincón del Tigre Norte is comparable, 1.8 km, but a gap in survey prevents seeing any decline in density between them. Outside the Blanco delta, other secondary center separations, such as between (1) Madereros-Tilcampo and Loma or (2) Cerro de los Muertos and Loma, and (3) Cerro de los Muertos and Madereros-Tilcampo are larger, 6.2 to 6.4 km, but it is not necessarily the case that settlement extents are greater. These data suggest that the spacing of centers is sensitive to the density of occupation, with closer spacing in the delta than elsewhere. Many secondary centers occur in survey blocks that are sufficiently separated from other blocks that distances to similarly ranked neighboring centers are not useful because of a lack of intervening information. Remote sensing imagery offers a way to glimpse some of the missing information among the survey blocks, and I address those results in Chapter 12. Discussed next are tertiary/quaternary centers, which are few and diverse in their content and layouts. Their settlement extents are unclear.

Tertiary/Quaternary Centers

Here I do not include "legacy" tertiary/quaternary centers, that is, higher-level centers that declined but still may have performed some public functions; these legacy centers retain their prior form. Instead, I discuss centers that remained at the lower two hierarchical levels. Tertiary/quaternary centers are scarce in relation to their expected abundance. I discuss these two settlement levels together for reasons I explain in this section. During the Early Classic period, the few tertiary/quaternary centers are not distributed interstitially among secondary centers, as might be expected, but, rather, tend to occur in upriver Blanco locations

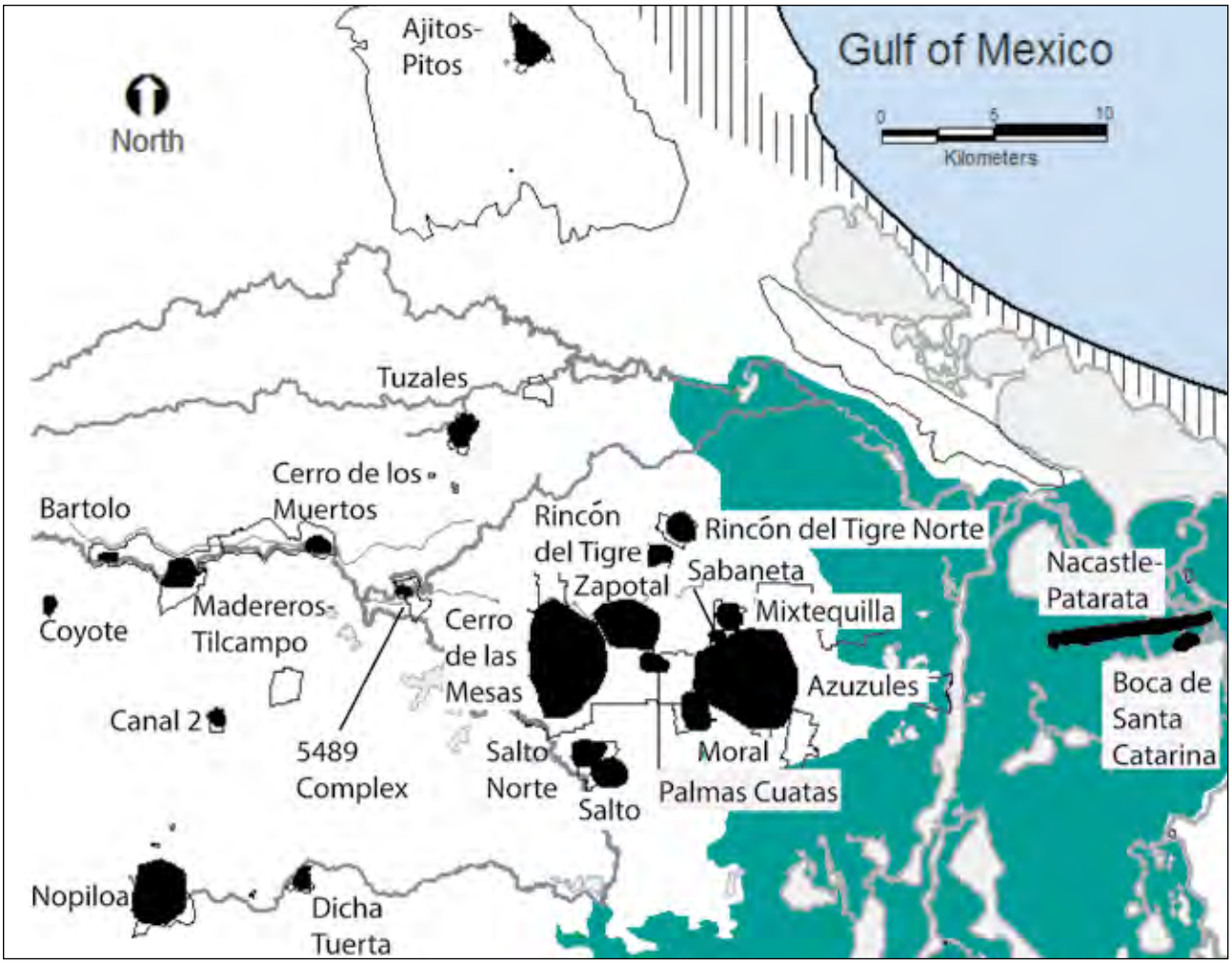

Figure 6.7. Settlement boundaries for Cerro de las Mesas and Azuzules and settlement extents for other centers shown as black areas (centers for which no extent could be defined are not indicated).

or in the interfluve. Only three are located in the delta, two with peripheral locations. The Late Classic sees a decline in activity at upriver secondary centers, which may still have had some central functions in a tertiary role, or perhaps ceased to be important altogether. In Chapter 12 they are shown as tertiary locations for the Late Classic period, which, if under the control of Azuzules in the delta, would indicate they, too, had a marginal geographic position.

Several factors may contribute to the skewed inventory. More survey near the margins of the delta rather than in its central area might reveal more tertiary/quaternary centers. If so, they also would conform to the peripheral pattern. For many localities, we did not survey enough area to reveal anything about tertiary/quaternary centers. The functions of SPPGs help account for tertiary/quaternary peripheral positions and scarcity. I argued that laterals may represent corporate groups within WLPB society. If so, the abundance of secondary centers provided venues for segments of the populace to participate in civic activities. Given the density of secondary centers, particularly in the delta, much of the populace lived in easy walking distance of a secondary center offering public services. A tertiary/quaternary center would not have been needed to provide an interstitial node for civic or other services. The density of secondary centers is likely related to the valuable multi-cropping farmlands, especially in the delta, which sustained a relatively continuous scatter of occupation.

If the distribution of tertiary/quaternary centers is understandable in view of land use and the abundance of secondary centers, these lowest-level centers

nevertheless are puzzling because they are diverse in layout. There are 12 possible tertiary/quaternary centers, not counting secondary centers that appear to have declined in the Late Classic period. Among them are two Conical Mound Groups (Canal 2, Loma de Pinchones South), two Conical Plaza Groups (Tiesto, Complex 5489), four Partial SPPG-B1 (that is, no ballcourt: Bartolo, Loma de Pinchones North, Paso de las Mulas, Nuevo Porvenir West), one SPPG-1b (Cerro Coyote), and three SPPG-1a (Lobato [on a very small scale], Rincón del Tigre, Sabaneta; see Figure 5.15 for the typology). In these counts, I assume that possible ballcourts have the common axis, which is toward the conical mound.

In view of the regional importance of Standard Plan principles, we might suppose that the tertiary/quaternary complexes with partial or regular SPPGs might be more important than the Conical Mound Groups, which are promising as a quaternary level. There is no distinction in spatial distributions that suggests a fourth settlement hierarchical level occupied by conical groups (four cases), however. The complexes that exhibit Standard Plan principles are themselves diverse, with four different arrangements among the eight cases. The four SPPGs with ballcourts could be viewed as more important hierarchically than the four Partial SPPGs that lack them, but sample size prevents detecting any regularity in spatial patterning.

Consequently, I judge the tertiary/quaternary settlement tier to be problematic. At present this set of complexes offers a continuum of possible hierarchical importance, depending on the roles assigned to ballcourts and to enactment of Standard Plan principles. Trying to conceptualize the variety in terms of settlement hierarchy alone may be misleading. The variety could also reflect the diversity of community efforts in establishing local facilities. "Grass-roots" actions undertaken relatively independently of authorities at higher-order settlements could yield considerable variety in third- and fourth-tier settlements. The issues surrounding tertiary/quaternary settlements cannot be further resolved without a larger sample, so I leave these settlement ranks combined. Study of the smaller community centers is an extremely promising line of research for understanding society in the WLPB, however.

Settlement Hierarchy Implications

The cores of primary centers are defined by their strikingly greater monumental construction compared to other complexes as well as by the orchestration of structures in a coherent focus. Primary centers have considerable additional construction to that surrounding the principal plaza(s). Secondary centers do not. I have defined primary centers impressionistically by taking into account the amount and size of construction and its organization into a central layout, as well as spacing to other centers. Cerro de las Mesas, Azuzules, Nopiloa, Ajitos-Pitos, and Tío Perciliano are primary centers. None had a primary role in all periods. The history of the settlement hierarchy is addressed in Chapter 12.

An additional characteristic of all but one primary center is their constraints on access. A combination of rivers and ponds greatly reduces perimeter access to Nopiloa and Azuzules. Parts of Cerro de las Mesas have markedly constrained access (ponds, an embankment, and closely positioned structures reduce access to the monument plaza and clustered conical mounds for Central Cerro de las Mesas, and a pond surrounds most of the Chivo group). Ajitos on the paleodunes perches atop a steep dune salient. Tío Perciliano in the mangrove swamp is the exception; the swamp terrain applies to all the mangrove settlements, not solely this primary center.

Other criteria than overall amount, size, and organization of construction were examined but did not provide an ordering of primary versus lower-order centers that was convincing. Stark and Stoner (2020) considered the height of the principal conical mound and the area of the monumental core. The use of the height of the primary conical mound proved useful in the Cotaxtla-Jamapa drainage, where Daneels (2016:233–236, 241–245) obtained a lattice of primary centers spaced 11 km apart in the period 0 to AD 500 on the basis of the presence of conical mounds 15 m high or higher. Daneels (2016:242) reports that several other criteria were examined for the Cotaxtla-Jamapa drainage but did not yield interpretable results.

For the primary centers and surroundings for which there was more complete information, her volumetric calculations show that six primary centers have a far greater volume of construction than lower-order settlements (Daneels 2016:280–281). The primary centers in all but one case (Colonia Ejidal) include outlying groups, which I refer to as segment complexes in the WLPB. Setting aside one center (Catalan), several of the outlying complexes are monumental platforms or a Standard Plan Variant with a monumental platform in lieu of the conical mound.[1]

The extent to which the Cotaxtla-Jamapa designations of primary centers are consonant with the designations in the WLPB is a complicated subject that I do not address in detail here. Daneels (2016:298) notes that the volume of construction at the largest centers in the WLPB is higher than recorded in her surveys to the west. In numerous other respects, the settlement records in the lower Cotaxtla-Jamapa and WLPB areas are concordant (Daneels 2016:297).

With WLPB data, incongruities arose with the criterion of the height of the principal mound of 15 m or more as a way to define primary centers (Table A2.1).[2] Also, the criterion does not function well in the mangrove swamp, where smaller communities and more limited fill material did not yield conical mounds that reached 15 m. Aside from the incongruities with the conical mound height criterion, some primary centers have multiple conical mounds. Table A2.1 lists conical mounds for informational purposes, along with conical mounds positioned on platforms, which in several cases exceed the 15 m height criterion. In considering commanding structures at centers, some of the conicals-on-platforms are relevant.

Secondary centers might be expected to have a smaller core area and amount of construction than primary centers and likely a more modest settlement extent, and this is the case. Centers designed as secondary in the WLPB all include a SPPG or variants. In some cases secondary centers have a variety of structures spread out, without a dominant central focus (Madereros-Tilcampo), or, in one case (Tuzales and Tuzales North), two SPPGs are separated by a short distance. In a few cases secondary centers have segment complexes: ones located sufficiently near or with a specialized role (such as palatial platforms) that they do not appear likely as separate settlements.

Tertiary/quaternary centers are expected to be yet smaller, which is also the case in the PALM hierarchy. They are diverse, as noted previously; some are smaller or partial versions of the SPPG, but others are even more modest, with a conical mound and a scatter of closely associated residential mounds. It is likely that this portion of the settlement hierarchy will undergo the greatest revision with new data, since PALM data reflect the attempt to locate and map the larger complexes and their surroundings. Among the diverse PALM tertiary/quaternary centers, those with more modest construction and lacking Standard Plan principles are the best candidates for quaternary centers.

Distances between separate settlements are useful as part of the assessment of settlement hierarchy because the degree of regularity in the spacing of settlement tiers can suggest possible interactions. For example, in Central Place Theory, a regular lattice of market centers is an effect of retail competition, transport efficiency, or administrative effectiveness (e.g., Bradford and Kent 1977; Plattner 1975). In an agricultural economy, we may detect consistency in the distances separating different levels of the hierarchy as residences spread out and people take advantage of farmland, with demand for accessible public services. Nevertheless, this kind of information must be approached cautiously, as some of the survey covers the delta, while other coverage is along rivers, so that both linear and areal patterns are likely. The preference for the delta location seems to involve greater packing of settlement, including centers (Stark and Ossa 2007).

Table A2.1 provides the distances from settlement cores (from the most prominent feature) to settlement segments (to the most prominent feature). Only one segment complex potentially exceeds the maximum distance of a segment complex in the well-defined Nacastle-Patarata mangrove settlement (Patarata East at 3.5 km). Nuevo Porvenir West might be a segment complex of Nopiloa (at 4.4 km) or for Dicha Tuerta (2.3 km distant), or it may have been a tertiary center. The likelihood that Nopiloa's realm was elongated along the Guerengo River contributes to the ambiguity of the Nuevo Porvenir West case.

For the WLPB, distances among sites in a provisional hierarchy are recorded in Table A2.2. The linear elongation of settlement along drainages creates some distortions. For example, a secondary settlement along the same drainage may be farther from a primary center than a secondary settlement along another drainage separated by interfluve terrain.

As noted, two pairs of complexes recorded by Speaker (2001b) provide guidance concerning the spacing of secondary centers. The complexes of Salto and Salto Norte each have scattered residential mounds in the vicinity, but there is a decline in residential density between the two complexes, suggesting that each was a distinct settlement; they are separated by 1.6 km (Table A2.2). In the case of Paso de las Mulas and Rincón del Tigre Norte, a survey gap prevents assessment of any decline in residential density. Although Rincón del Tigre Norte has other segment complexes, the similarity in amount of construction and the separation of 1.8 km between it and Paso de las Mulas makes it somewhat more likely

that two separate settlements are involved. If so, secondary settlements can occur with a spacing between them of 1.6–1.8 km in the delta. Other secondary center spacing in the delta is greater, however, such as as between Mixtequilla and Rincón del Tigre Norte, 4.2 km.

In contrast, upriver along the Blanco River, to the north in the Tuzales area, and to the south in the interfluve area, greater distances prevail among likely secondary centers (Table A2.2). Most distances fall between 6 and 7 km. Conforming to the visual impression of less occupational density upriver along the Blanco than in the Blanco delta, these distances suggest that what we might reasonably consider separate settlements are more widely spaced in upriver areas, perhaps reflecting settlement elongation along watercourses.

The descriptions of monumental complexes that follow in Chapters 7–11 note distances from major centers and if they are candidates for a position in the settlement hierarchy or for a segment or boundary role within a center. Throughout I stress that interpretations of settlement are not as obvious and firm as archaeologists are prone to prefer. Too often regional maps of settlement hierarchies are presented without adequate exploration of interpretive alternatives due to spotty or little attention to settlement peripheries.

Although dispersed settlement in the WLPB highlights interpretive challenges compared to numerous other regions of Mesoamerica, I suspect that many problematic properties of other settlement records have been set aside through a combination of field and analytic methods that created a more definitive picture than is warranted. If very extensive regional surveys in Mesoamerica represent the pole of knowing less about a lot, then highly intensive, feature-focused surveys represent the opposite pole of knowing a lot about less. The PALM survey lies somewhere between these poles, and examination of these rich data to explore the nature of settlements and their hierarchical relationships can be pursued in novel ways, such as the use of settlement gaps.

The monumental complexes are grouped in the chapters that follow according to localities: Chapter 7 addresses the western Blanco delta for PALM 1 and 2; Chapter 8, the eastern delta for PALM 1 and 2; Chapter 9, other survey within the delta (Speaker 2001b); Chapter 10, PALM 2 survey upriver along the Blanco River, in the Guerengo drainage, and in the interfluve between them; and Chapter 11, PALM 2 survey in the Tlalixcoyan drainage, the paleodunes, and the mangroves.

Notes

1 Catalán (with volumes estimated from aerial photographs) includes one Protoclassic subsidiary (Martín Barradas) that was not significantly rebuilt later, and a much-destroyed site (Copital) that is not sufficiently intact for clear interpretation. Also, only one site falls within the territory, Tencualala. Consequently, Catalán is aberrant and not on par with the other primary center designations.

2 For example, a segment complex mound in the Cerro de las Mesas settlement, Feature 104, is a conical mound with a scatter of nearby residential mounds; the conical mound is 15.6 m high. Ojochal, part of Cerro de las Mesas, includes Feature 814, which is 15 m high. Campana, a possible boundary complex for Cerro de las Mesas, has a conical mound, Feature 638, 14.8 m high. Madereros-Tilcampo has Feature 6163, which reaches 15.4 m, but this monumental complex clearly is a secondary center because it lacks a strong central focus of construction. Another secondary center, Tío Primo, also has a conical mound exceeding 15 m. Tío Primo is just beyond the revised settlement boundary for Cerro de las Mesas and seems unlikely as a primary center.

Chapter 7

Monumental Complexes in the Western Central Block of the Blanco Delta

In Chapters 7–11, locality maps indicate monumental complexes and residential features in their vicinity. Next, a series of maps presents the chronology of features in the locality. The chronological maps rely on percentages of diagnostics to indicate relative prominence of the period, whereas, in Chapter 4, counts were used to document where materials from a particular period were concentrated. The chronological percent maps indicate the quartiles of percents, with quartile values established using collections at or above the median collection size (76 sherds). Table 7.1 summarizes the quartile values and the symbol key for chronological maps in Chapters 7–8 and 10–11. The chronological maps for Chapter 9, which addresses Speaker's (2001b) survey, differ because they are based on rims, not sherds, and the corresponding quartile information is presented in that chapter.

Chronological assessments rely on a suite of pottery diagnostics, outlined in Appendix 1. Table A1.4 presents the count and percentages of diagnostics for each collection in a monumental complex. The periodization has both a general level (Preclassic, Classic, Postclassic) and more specific designations within major periods. The general level is useful to include diagnostics that span a period and that are not specific to any one segment of it (such as *comales* in the Postclassic). A finer breakdown of the general periods relies on more temporally specific categories, mainly decorated bowls, which tend to be scarce in relation to utility cooking and storing vessels. There are inequities among the more specific periods in regard to the number of diagnostic categories. The Middle Postclassic, for example, has the greatest abundance of diagnostics. Whether counts or percentages are evaluated, the collections at or above the median count of 76 sherds are the most reliable. Smaller collections are more susceptible to sampling error but can sometimes be usefully combined with other collections. Totals for all collections pertinent to a monumental complex or sector create a larger sample.

For some purposes, the tabulated data may be more useful when counts are considered (Chapter 4), rather than percentages. There is a strong tendency for reoccupation and continued occupation of mounds. The annual rainy season and the amount of low-lying terrain in the survey areas encouraged such practices. Consequently, a particular percentage may be skewed in various ways: use of fill with earlier pottery included, reoccupation and use by Postclassic inhabitants, whose discards remain uppermost, or the period(s) of most intensive use. We cannot disentangle all these activities that affect percentages. For this reason, distributions of diagnostic counts are used in Chapter 4, but percentages in Chapters 7–11, so that both perspectives are represented.

Table 7.1. Quartile percents for diagnostic sherds

Quartile Symbols	Preclassic	Classic	Early Classic	Early Classic Tendency	Late Classic	Postclassic	Middle Postclassic	Late Postclassic
◆	>0 and <.01	>0 and <.161	>0 and <.009	>0 and <.01	>0 and <.013	>0 and <.048	>0 and <.009	>0 and <.006
■	>=.01 and <.022	>=.161 and <.238	>=.009 and <.014	>=.01 and <.018	>=.013 and <.025	>=.048 and <.115	>=.009 and <.016	>=.006 and <.008
■	>=.022 and <.064	>=.238 and <.316	>=.014 and <.026	>=.018 and <.029	>=.025 and <.049	>=.115 and <.246	>=.016 and <.035	>=.008 and <.011
■	>=.064	>=.316	>=.026	>=.029	>=.049	>=.246	>=.035	>=.011

Note: Established for collections at or above the median count of 76 sherds

Each monumental complex is given a major subhead and organized under the following subheadings: (1) description, (2) surroundings, (3) chronology, and (4) discussion. The name of each monumental complex has a letter code used in some tables for more compact presentation (see List of Monumental Complexes). A contour map is included for every complex, and either that map or a separate "footprint" map provides the feature numbers and collection numbers used at the complex. In several cases, contour maps show features recorded in pedestrian survey in the vicinity (not contour mapped); they are indicated with dotted lines. Contour lines are solid. Dashed lines indicate feature limits not captured by a contour line.

First, the complex is described, including any of the layout categories that apply. Discussions of buildings and layouts at monumental complexes are necessarily confined to their final forms when surface collections and maps are the sources of information. Table A1.3 provides the dimensions of all features in each monumental complex. In many cases, complexes are arbitrarily subdivided into sectors to better organize the description of the complex. Second, the surrounding survey information and geographic setting are discussed.

Third, the chronology of the complex is discussed, along with the that of surrounding residential mounds. Arbitrarily defined sectors are discussed separately to dissect possible differences in the timing of construction or activity. Since many of the locations of monumental construction were in use and rebuilt over centuries, there is ample opportunity for the addition of plaza groups and buildings, as well as remodeling and enlargement of structures. Surface collections are rarely clear about such changes because structural fills may incorporate earlier materials or structures may be reoccupied for distinct purposes. The chronology of immediately surrounding residential occupation in the locality is therefore an important source of additional information about the period(s) of major activity at monumental complexes, on the assumption that some of the attendant population was located nearby.

The last subsection for each monumental complex is a discussion of the complex, including how it likely related to others if applicable, for example, as a settlement segment. In the discussion, I take account of the results of analysis of settlement extents and boundaries in Chapter 6.

Introduction to the Western Central Block Locality

Because the Central Block and its additions in PALM 2 have the greatest extent of continuous coverage, it is useful to describe monumental complexes there first. It is the most complicated area because the Blanco delta attracted settlement preferentially (Stark and Ossa 2007). Two of the largest complexes are found there (Cerro de las Mesas and Azuzules), offering the best opportunity to consider settlement boundaries or peri-urban transitions for major centers.

For practical reasons, I divide the Central Block into western and eastern segments for ease of presentation (Figures 3.1, 7.1). The eastern segment (Chapter 8) was surveyed in PALM 1, but additions were surveyed during PALM 2 that increased coverage in locations

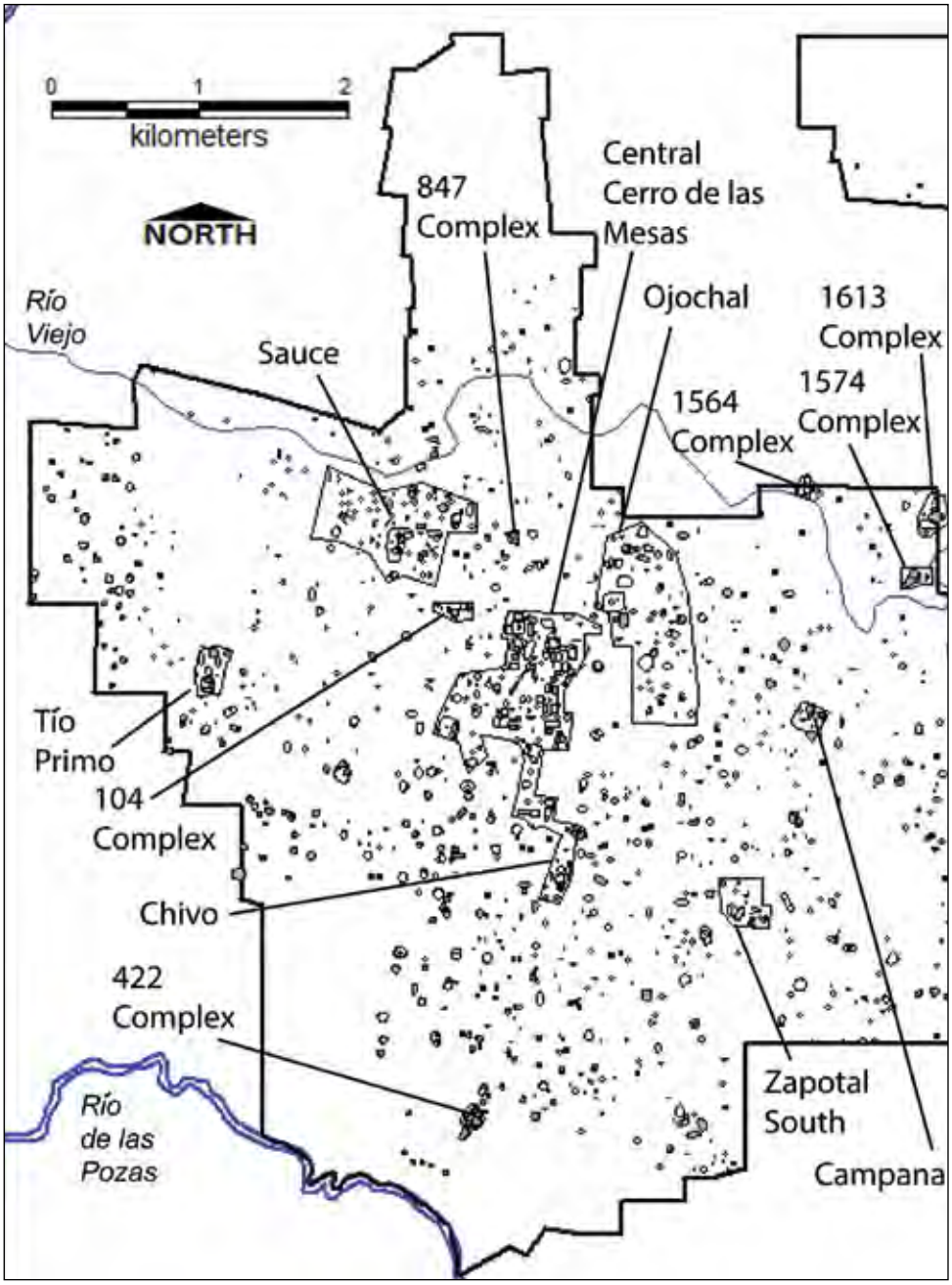

Figure 7.1. Western Central Block in the Blanco River delta, showing features, with areas of monumental complexes outlined and labeled. Features not collected are in gray.

where monumental complexes were indicated by aerial photographs or reconnaissance. Speaker's (2001b) delta survey is covered in Chapter 9.

The western portion of the Central Block includes the complexes of Cerro de las Mesas, Tío Primo, Zapotal South, Campana, and Sauce. Except for the Sauce complex, which is Middle Postclassic in date, most of the complexes are discussed as parts of the Early Classic Cerro de las Mesas settlement. Six structures were identified during pedestrian survey that fell between 7 and 15 m in total height (one is 6.9 m but I include it) and later were defined as small monumental complexes: 847, 104, 422, 1564, 1574, and 1613. Because complexes 1564, 1574, and 1613 are at the east edge of the arbitrarily defined western block and likely pertained to the settlement area of Zapotal, which falls within the eastern Central Block, these three complexes are deferred to Chapter 8.

Chronological maps of the western Central Block provide information about the surroundings of each of the complexes. These maps show quartiles of the percent of diagnostic sherds for collections over the median collection size of 76 sherds. For all three major periods (Preclassic, Classic, Postclassic) one map pertains to the entire period in order to include diagnostics not unique to subdivisions. For the Classic and Postclassic, subdivisions are shown using their respective diagnostics (Appendix 1). The chronological maps in Chapter 4 (Figures 4.1–4.11) also are useful, showing sherd counts, generally for counts at or above the median of counts for each period considered. Only in cases with very few diagnostic categories are all occurrences indicated (the Late Postclassic period). The focus is on the stronger, more reliable patterns by use of the median collection size threshold.

Preclassic diagnostics (Figure 7.2) strongly concentrate in all parts of the Cerro de las Mesas complex, with surrounding residential occupation tending to be distributed in a north–south swath. In the southeast corner of the survey a concentration is evident at the 693-985 village (southeast of Zapotal South) where test excavations were conducted (Speaker 2001a). Light or no occupation in bands to the east and west of Cerro de las Mesas suggest possible settlement limits, as discussed in Chapter 6. Preclassic remains resume beyond the bands to the west and to the east (for the latter, see Chapter 8).

In comparison to the Preclassic, Classic occupation expands, blurring the previous gaps in settlement to the west and east of Cerro de las Mesas (Figure 7.3). A focus on only the Early Classic shows the continuing concentration at Cerro de las Mesas, with Tío Primo, Zapotal South, and the 693-985 village as concentrations among others (Figure 7.4). The blurring of the Preclassic gaps is evident. The same patterning applies to the Early Classic Tendency group (Figure 7.5).

In the Late Classic period (Figure 7.6), the degree of concentration at Cerro de las Mesas is diminished, with Central Cerro de las Mesas the main area. Previous outlying groups are not strongly

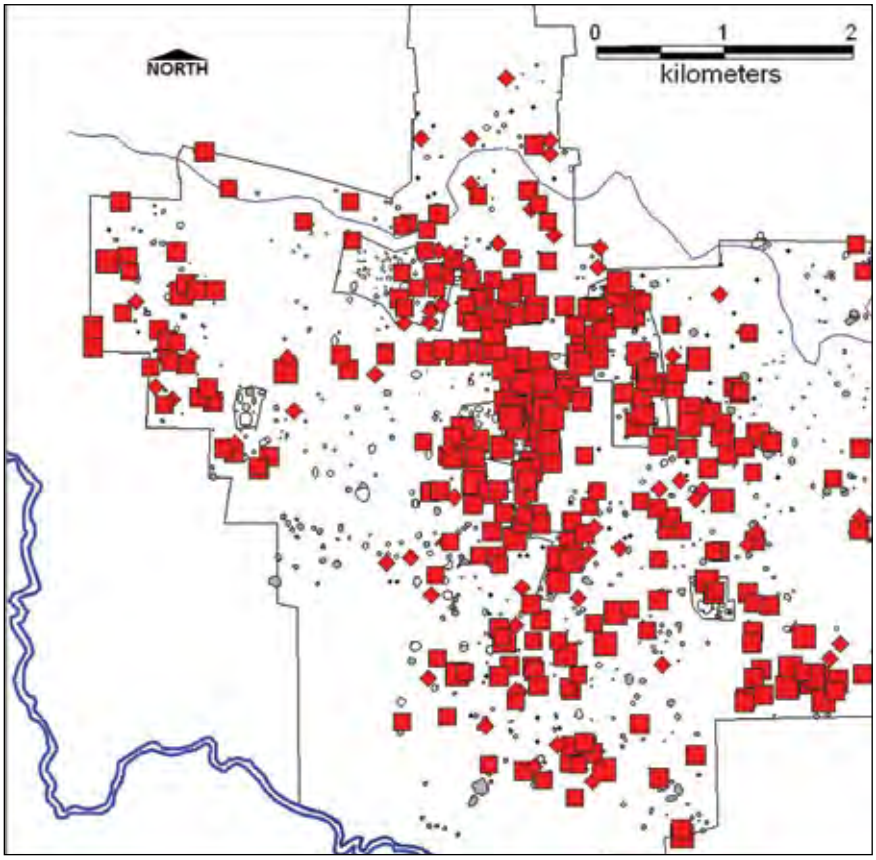

Figure 7.2. Western Central Block, Preclassic diagnostics, percent quartiles for collections of 76 or more sherds (Table 7.1). Features that yielded no surface collection are gray.

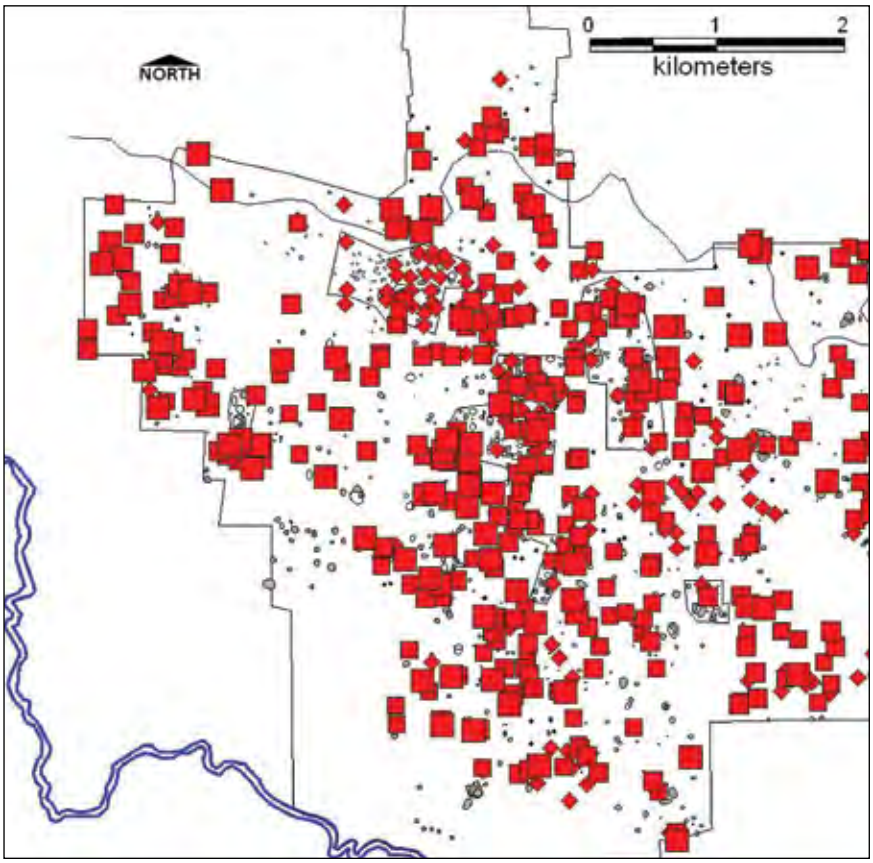

Figure 7.3. Western Central Block, Classic diagnostics, percent quartiles for collections of 76 or more sherds (Table 7.1). Features that yielded no surface collection are gray.

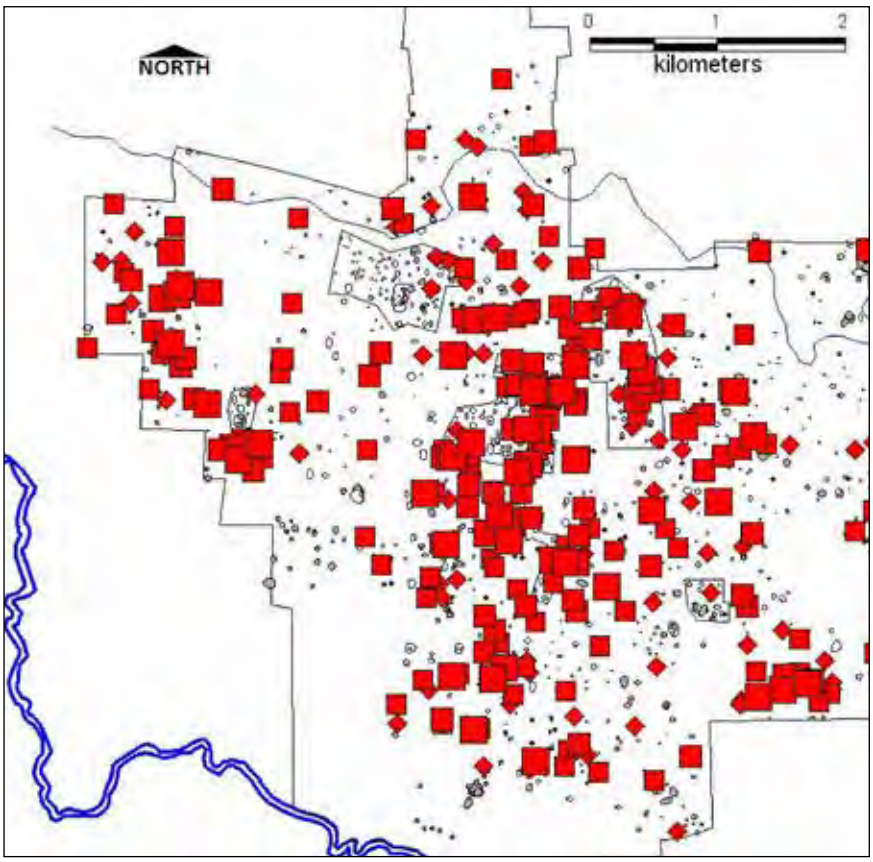

Figure 7.4. Western Central Block, Early Classic diagnostics, percent quartiles for collections of 76 or more sherds (Table 7.1). Features that yielded no surface collection are gray.

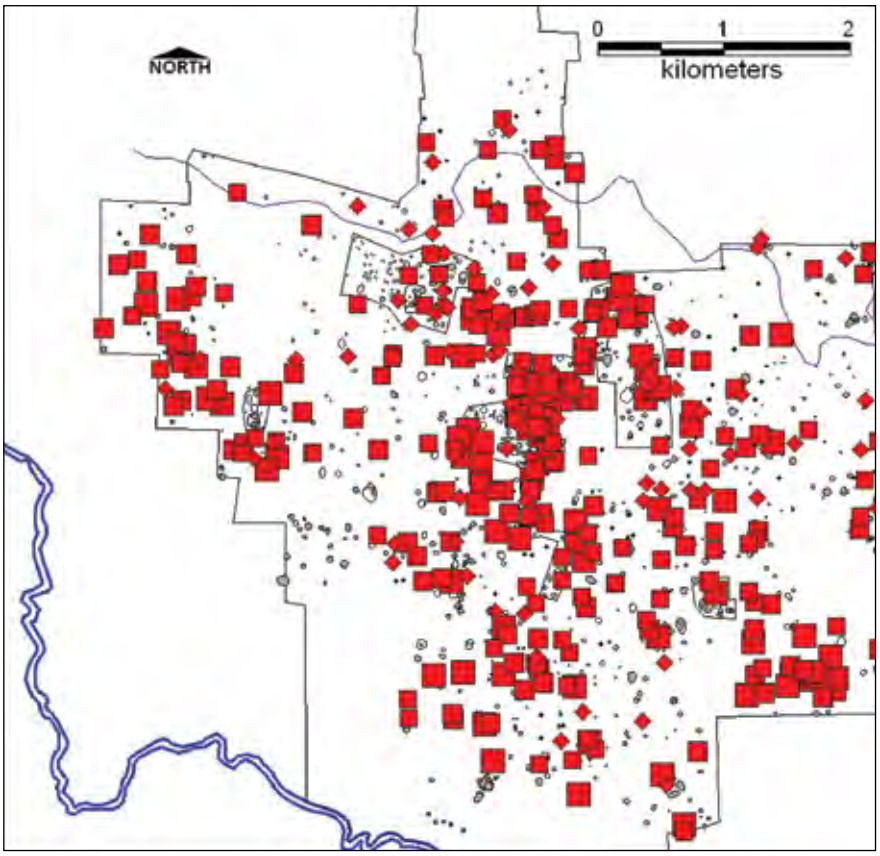

Figure 7.5. Western Central Block, Early Classic Tendency diagnostics, percent quartiles for collections of 76 or more sherds (Table 7.1). Features that yielded no surface collection are gray.

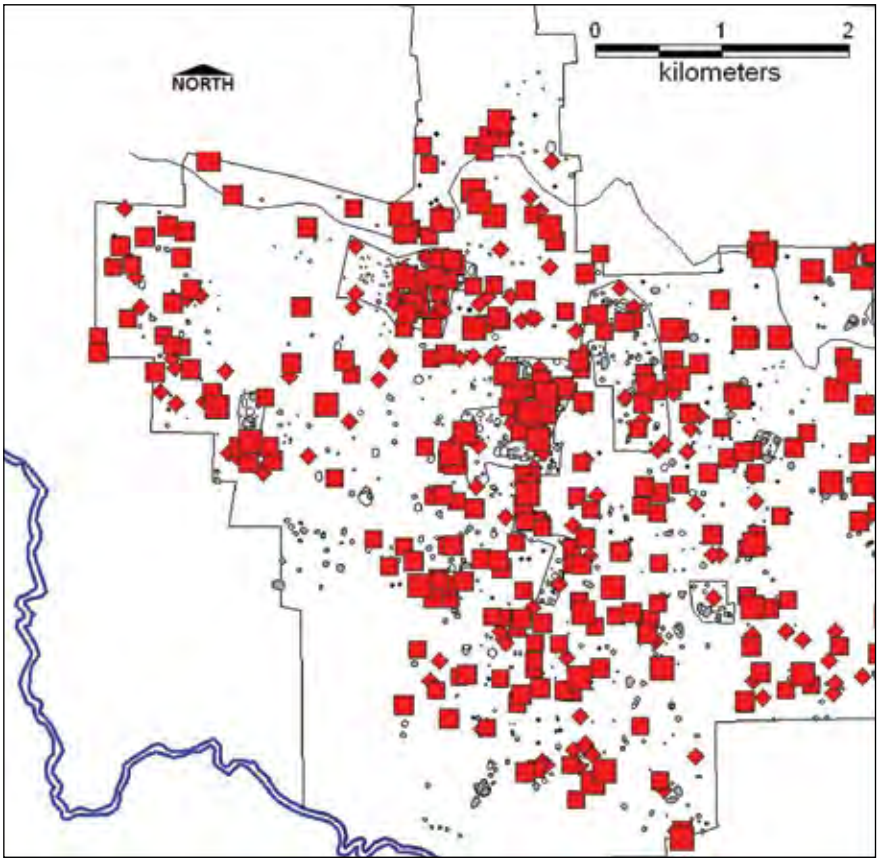

Figure 7.6. Western Central Block, Late Classic diagnostics, percent quartiles for collections of 76 or more sherds (Table 7.1). Features that yielded no surface collection are gray.

indicated except for occupation immediately south of Tío Primo. A concentration at Sauce (collections are only available for the eastern half outside the modern community) suggests it was developed as a population node prior to the Middle Postclassic occupation, which may have located at a previously thriving settlement.

Postclassic occupation is well distributed in the western Central Block, with a strong concentration at Sauce (Figure 7.7). Separation of Middle Postclassic diagnostics shows much the same pattern as all Postclassic sherds combined (Figure 7.8). The new Middle Postclassic ceramic complex is found on some of the prior monumental complexes, but in about the same amount as the surrounding countryside. Late Postclassic diagnostics are few, lightly scattered, and show a small concentration just south of the Chivo group (Figure 7.9).

Cerro de las Mesas Complex

Cerro de las Mesas is the largest complex recorded during the survey, both in number of structures and in areal extent. It has three main segments: Central Cerro de las Mesas, Ojochal, and Cerro del Chivo (each named according to local usage; Figure 7.10). Each segment will be discussed separately. All three can be further subdivided into groups for convenience. The entire complex will be referred to as Cerro de las Mesas (or greater Cerro de las Mesas). Mapping the entire complex required three field seasons and three map sheets to accommodate the three segments. Figure 7.10 shows the entire map, but to achieve a better scale for description, three partial maps are presented.

The maps for Ojochal and Central Cerro de las Mesas overlap slightly to show their connection. The map for Cerro del Chivo follows immediately south (below) the Central Cerro de las Mesas map. The southernmost mound in the Central Cerro de las Mesas map (Feature 911) also appears on the Cerro del Chivo map. The Feature 71 Group on the Cerro del Chivo map is the southern continuation of Central Cerro de las Mesas construction, with the Chivo group offset to the east. Cerro de las Mesas has been described in previous publications (Stark 1999b, 2001, 2003a). Key points are summarized here.

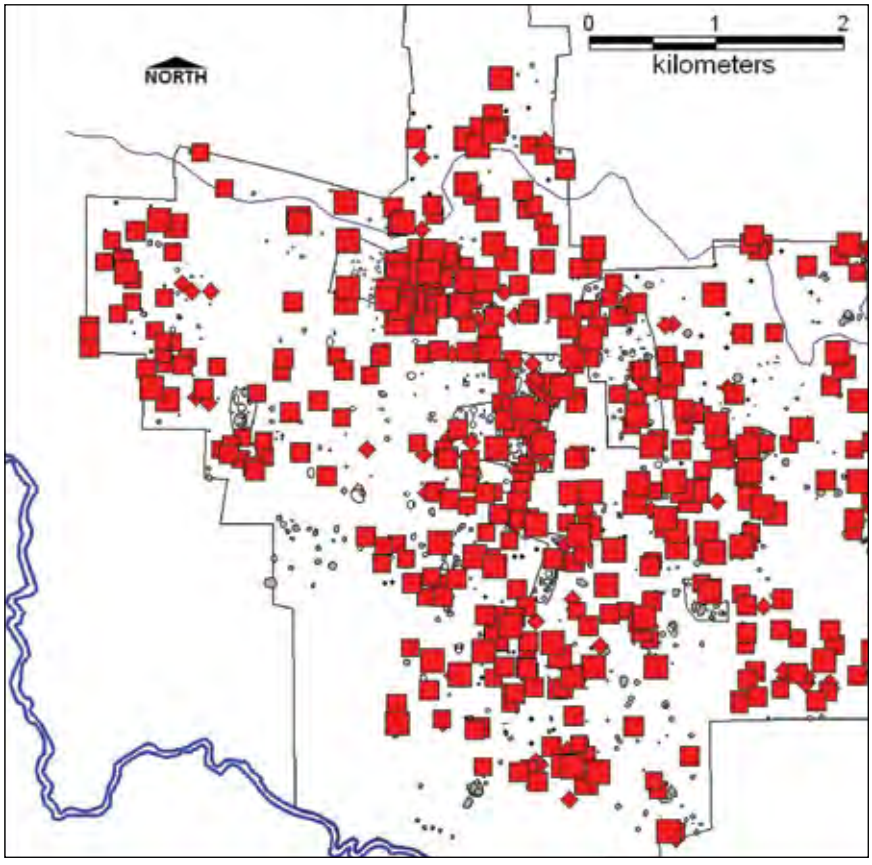

Figure 7.7. Western Central Block, Postclassic diagnostics, percent quartiles for collections of 76 or more sherds (Table 7.1). Features that yielded no surface collection are gray.

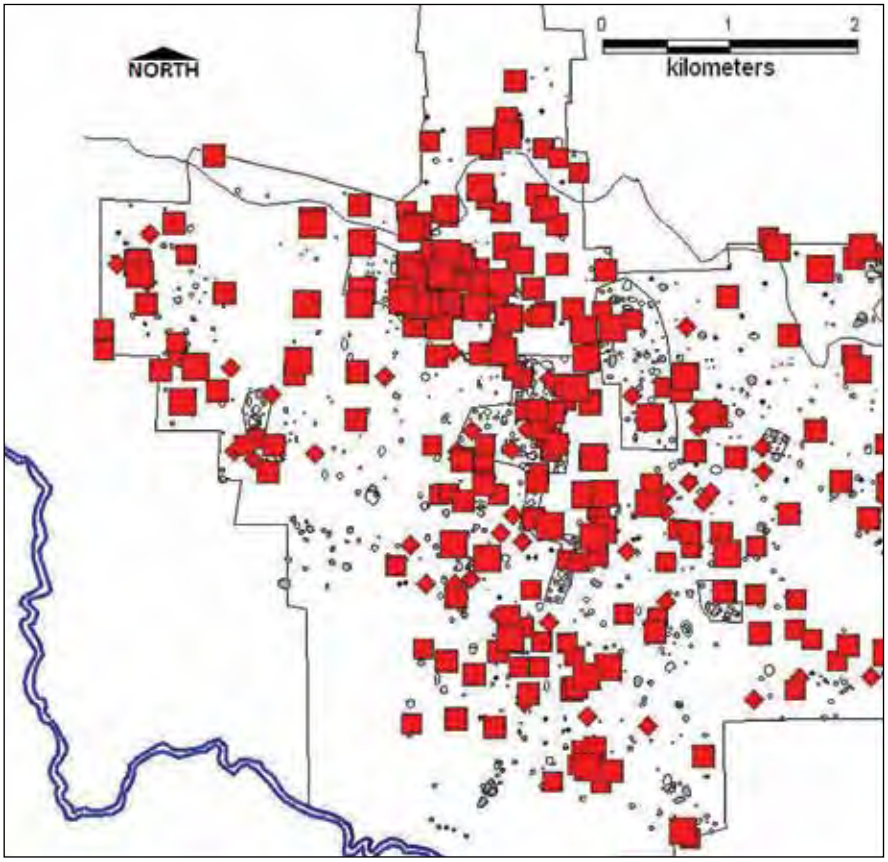

Figure 7.8. Western Central Block, Middle Postclassic diagnostics, percent quartiles for collections of 76 or more sherds (Table 7.1). Features that yielded no surface collection are gray.

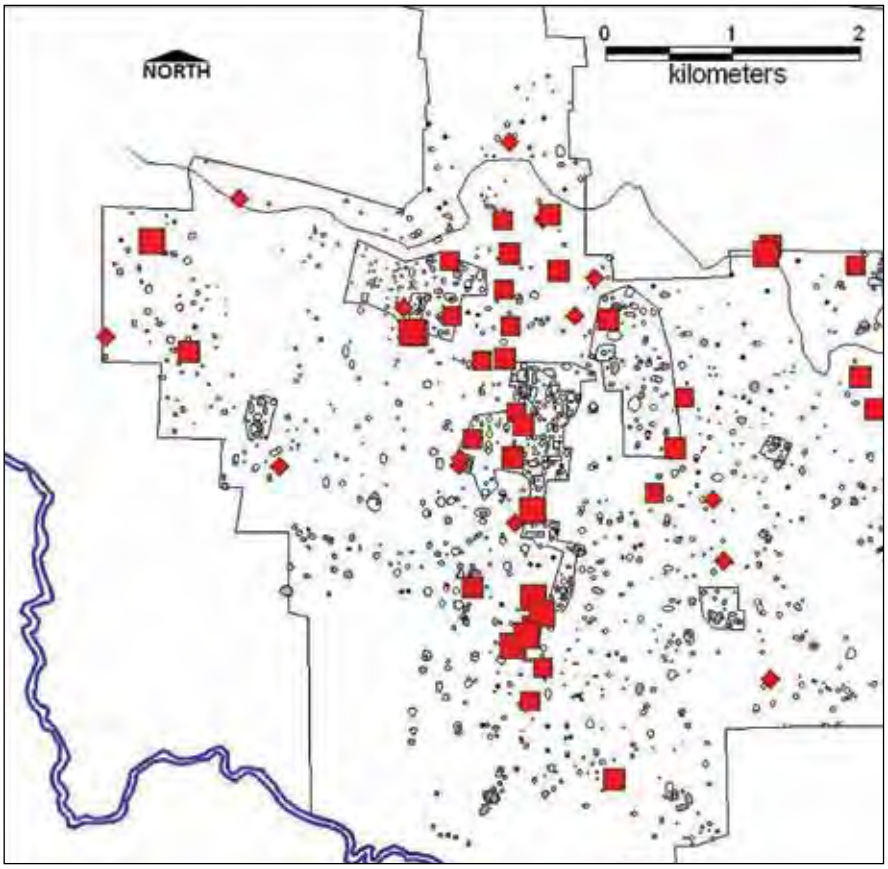

Figure 7.9. Western Central Block, Late Postclassic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

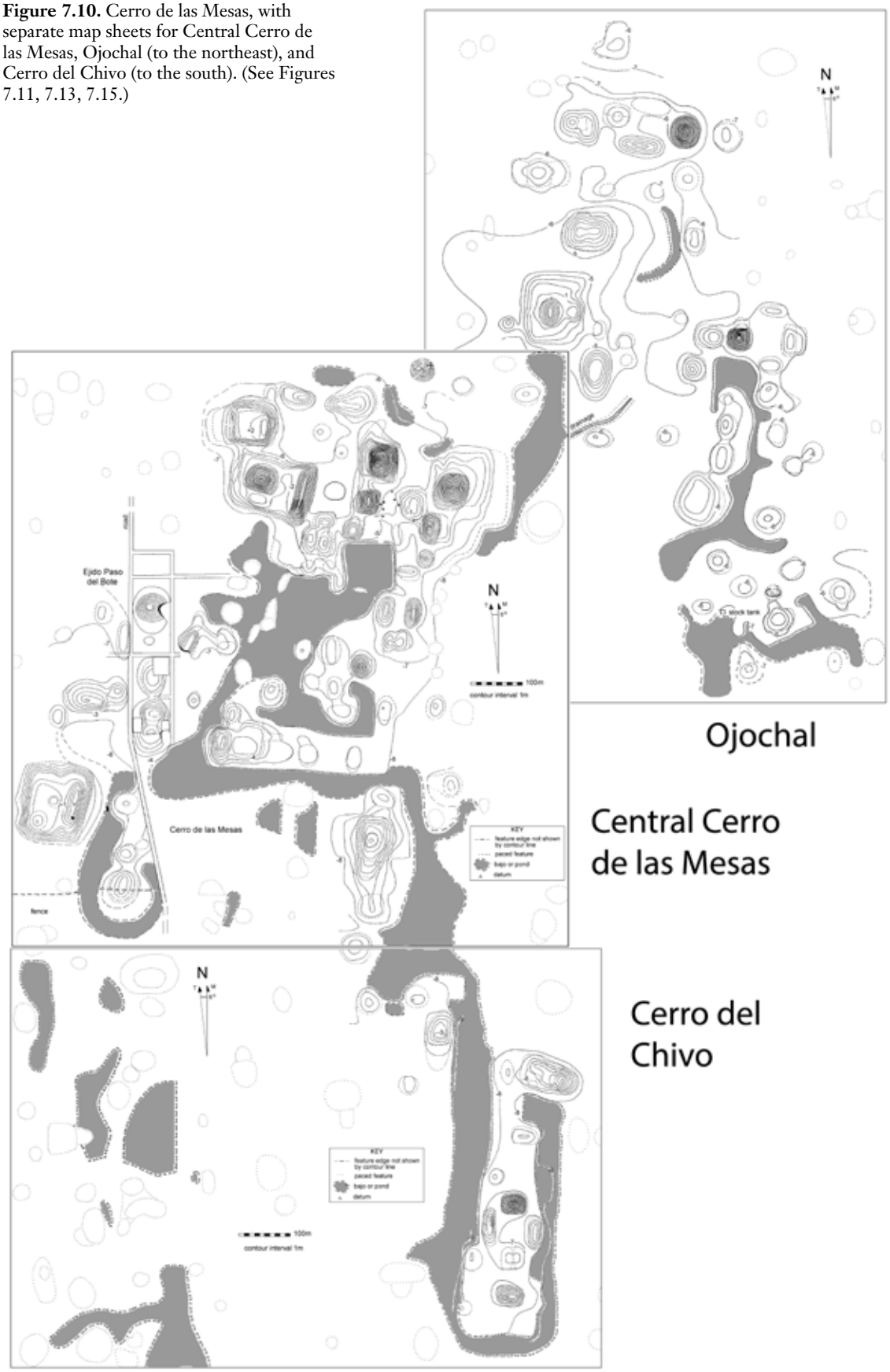

Figure 7.10. Cerro de las Mesas, with separate map sheets for Central Cerro de las Mesas, Ojochal (to the northeast), and Cerro del Chivo (to the south). (See Figures 7.11, 7.13, 7.15.)

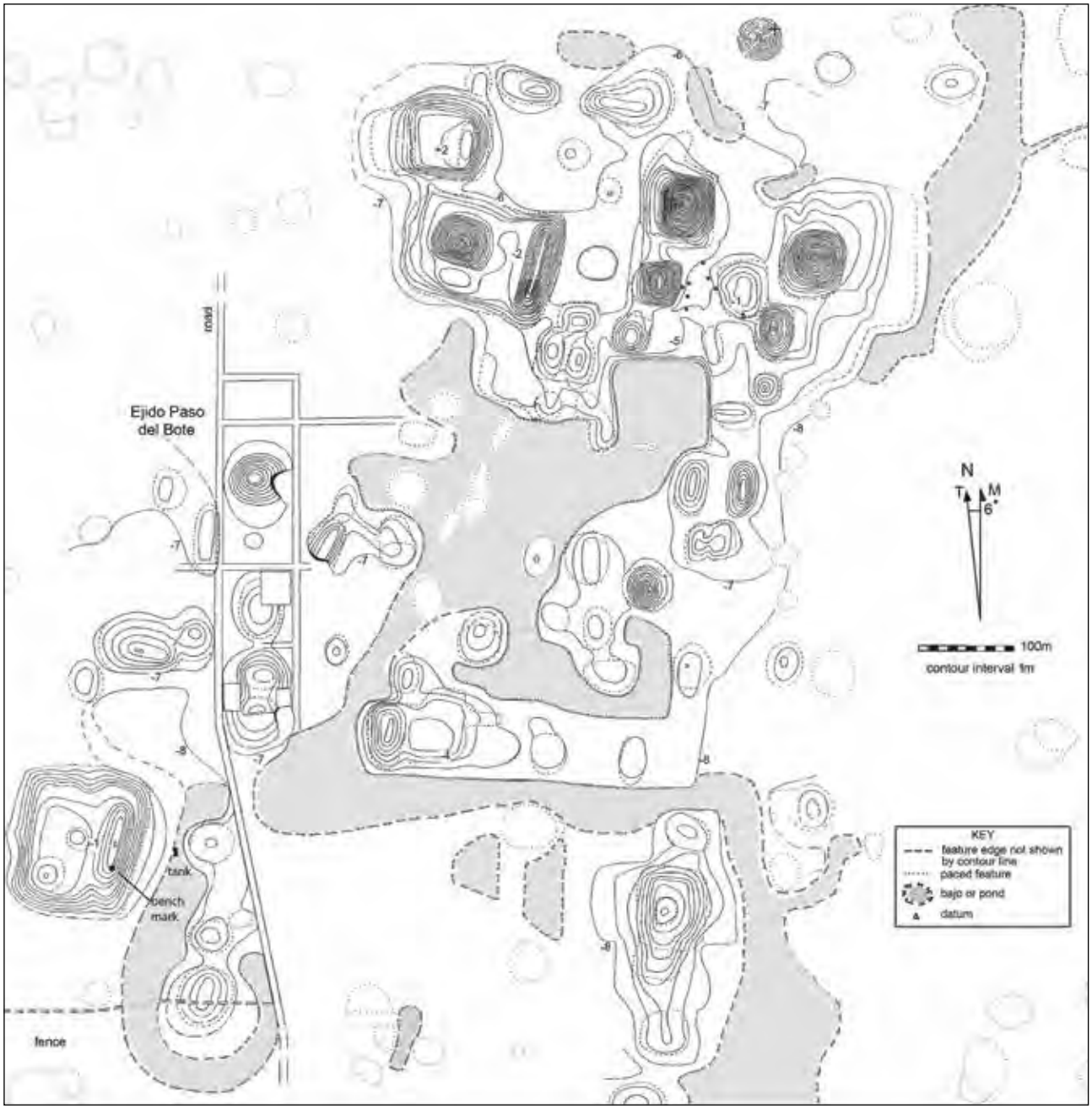

Figure 7.11. Central Cerro de las Mesas complex contours were mapped with a theodolite. Two other mapped areas, Cerro del Chivo and Ojochal, adjoin this map. See Figure 7.10 for their relationship. See Figure 7.12 regarding stone monument fragments shown as letters.

Central Cerro de las Mesas Complex

Description

Central Cerro de las Mesas is arranged around a central pond, with additional mound groups continuing southward (Figures 7.11, 7.12). We did not contour map the central pond, but it has a deeper square area at the north, with one mound (Feature 951) partially closing it on the south side and raising the possibility that water was regulated for the deeper end, perhaps closed to retain water through the dry season. We detected mound 951 during a revisit to Cerro de las Mesas, when local farmers had cleared the dense trees previously flanking the sides of the squared-off northern pond. One local resident reported that in his childhood, the pond

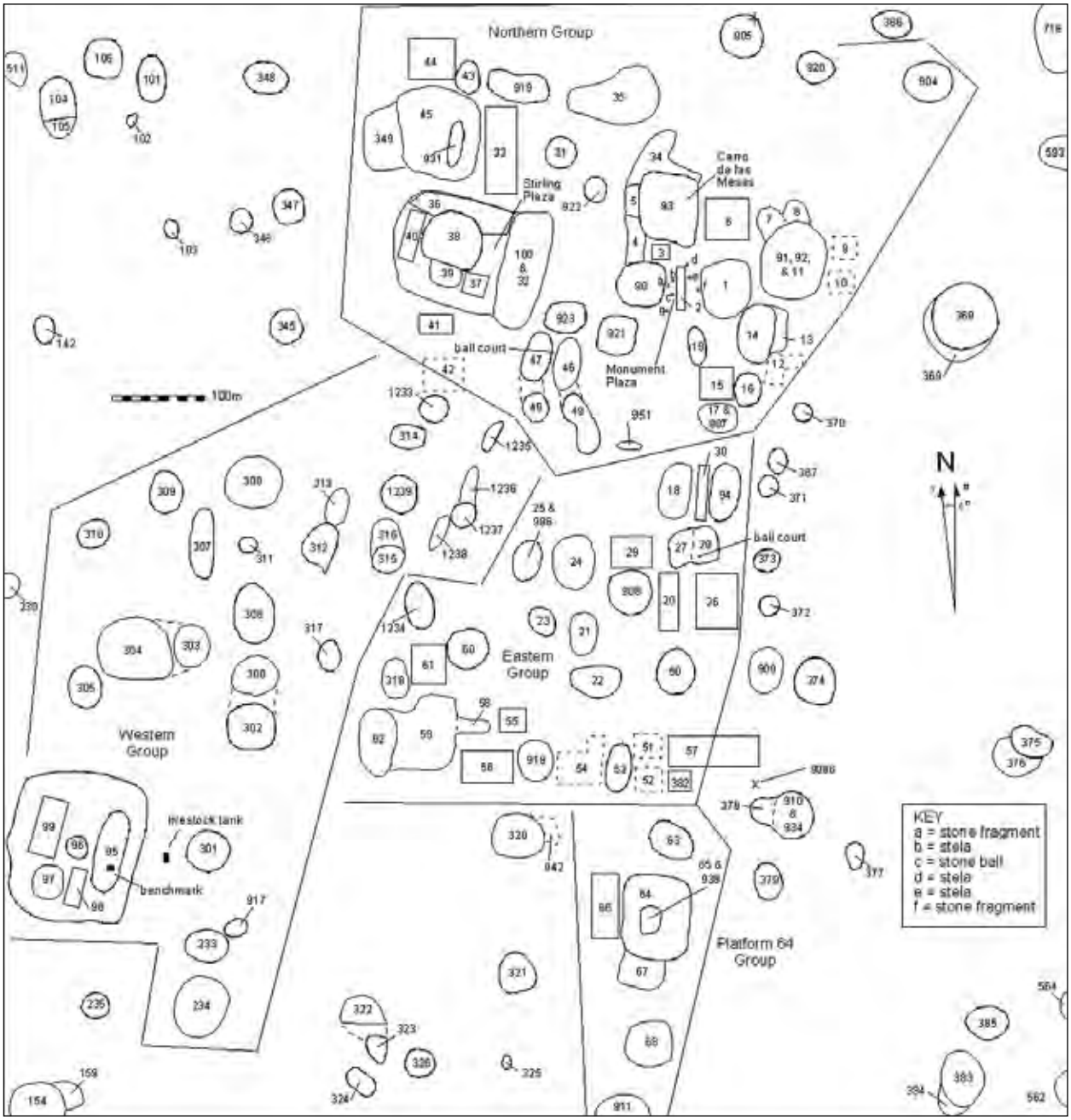

Figure 7.12. Central Cerro de las Mesas complex, feature and collection numbers. Two other mapped areas, Cerro del Chivo and Ojochal, adjoin this map (see Figure 7.10 for their relationship).

retained water all year and children swam in it. Today, continued cultivation and denudation of surrounding vegetation and trees has contributed to increased sedimentation so that the central pond typically remains in green grass through the dry season but lacks standing water. It almost certainly intersected the water table in prehispanic times. Additional small ponds are located on the northern perimeter of the complex, and *bajos* extend southward, carrying rainy-season flow southward alongside several major structures.

Northern Group

This group has several clustered conical mounds (including the one that gives its name to the entire

complex, mound 93). The clustered conical mounds and associated plazas have relatively restricted access. An embankment (Feature 4) between mounds 93 and 90 and ponds to the north and south constrain access to the plazas. The interconnected plazas among the conical mounds produced all of the stone monuments discovered at the complex to date. Mound 35, at the north edge of the Northern Group, had numerous cobbles on the surface and may have been cobble-faced. West of the conical mounds, a palatial platform (45), with a linear mound (931) on top, and a conical-on-platform (38 on 36) with a large linear mound adjacent (32), round out the northern area. The conical-on-platform mound has a low mound in front (39). An unusual feature of the Northern Group is the massive linear mound (32) at the eastern edge of the 36 platform. A small ballcourt (47, 46) has spatially associated mounds; a low mound, 923, closes the court on the north side; two other mounds (48 and 49) project southward into the pond in the center of Central Cerro de las Mesas.

Is this court part of a Partial SPPG-A1? Normally a ballcourt would occur at one end of a plaza framed by one or two lateral mounds. The massive linear mound 32 could be a lateral accompanied by the small ballcourt. Because Standard Plan principles were so pervasive in architectural arrangements, and because several conical mounds are nearby to the immediate northeast, perhaps erected earlier than the ballcourt, it seems reasonable to accept the ballcourt and mound 32 as a Partial SPPG-A1.

Western Group

This group is considerably affected by houses and streets in the *ejido* of Paso del Bote. It appears to have included a SPPG-2a, with 308 as the northern conical mound. Mounds 307 and 312 likely were laterals; the orientation of the remnant of 312 is skewed today, but the mound is so affected by modern disturbance that we cannot rule out an orientation parallel to 307. No ballcourt is evident with the Standard Plan arrangement, but mound 306, located in a ballcourt position, is too disturbed to rule out the possibility that it constituted a ballcourt. Alternatively, it may have been the end mound of a transverse ballcourt formed by mounds 300 and 302. Palatial platform 98 at the south end of the group has a linear mound and two small rounded symmetrical mounds on top. Additional sizable mounds are included in the Western Group but they do not form readily identifiable patterns.

At the east edge of the Western Group, a string of low mounds was detected during a PALM 2 revisit to Cerro de las Mesas. Clearing of trees around the central pond and dry conditions allowed us to clearly see a line of mounds: 1235, 1236, 1237, 1238, and 1234. These are likely analogous to the line of low mounds at Nopiloa that I propose as remnants of a dike. In the Cerro de las Mesas case, these mounds would have closed off the central pond, providing it a more regular shape than exhibited today. As in the Nopiloa case, erosion likely has broken up the dike alignment. The dike would have served to protect construction to the west during times of high water levels. It is difficult to determine from the surface where the central pond drained originally, if it did. Today, water egresses toward the south, flowing through a *bajo* on the south side of the east–west aligned platform on the south side of the Eastern Group, and then continuing farther southward toward the Chivo complex. Before modern road construction, central pond waters likely flowed southwest as well, where a *bajo* curls around mounds in the south part of the Western Group.

Eastern Group

To the northeast, this group displays two linear mounds (18 and 94) of unequal sizes that normally would be part of a Standard Plan, especially as a ballcourt (27-28) is positioned to their south. There is no conical mound at the north end, however. This group forms a Partial SPPG-A2. A somewhat isolated conical mound (50) is positioned farther southwest, situated at the edge of a northward arm of the pond. Low mounds dot a low shelf of land that extends toward the pond west of the conical mound.

The rest of the Eastern Group occupies an L-shaped low platform (51) that extends south from conical mound 50 and makes a right turn westward, flanked by the central pond on the north and a southward-draining *bajo* on the south side. This regular platform likely is artificially raised and leveled, rather than representing the ambient land surface; all along the east edge of the Eastern Group, the land drops away from the area of the formal complex, and the platform itself is remarkably level. At the west end of the L-shaped platform, platform 59 with mound 62 on top may be viewed as an unusually large mound-terrace complex or a modest palatial platform complex. I treat it as the latter although it differs somewhat from the usual proportions. Feature 58 clearly forms a ramp or stair onto the platform.

Platform 64 Group

Southward on the other side of the southern *bajo* that runs alongside the L-shaped platform, the Platform 64 Group is dominated by that platform, topped by a small mound (65). The upper mound had yellower soil and had been heavily looted. A separate collection was made in the looting backdirt (938). Across another *bajo*, the Feature 71 Group (shown on Figures 7.13, 7.14) continues the southern extension of construction in Central Cerro de las Mesas. Feature 71 and its terrace, 76, form the largest structures of this group. Three other mounds partially frame a plaza west of Feature 71. Mounds 69 and 74 are situated on either side of a small artificial pond.

Surroundings

Central Cerro de las Mesas and the two other segments, Ojochal and Chivo, share the surrounding area, which is discussed here for all three segments. Some of the occupation around Cerro de las Mesas is obscured by the Middle Postclassic complex of Sauce to the northwest. A series of low mounds runs north–south hugging close to the east edge of the contour mapped area of Central Cerro de las Mesas; they were recorded through pedestrian survey. In addition to this line of mounds (from 370 down to 909), residential mounds are scattered all around Cerro de las Mesas, somewhat more abundantly to the south and east than to the west and north.

As discussed in Chapter 6, Cerro de las Mesas has a settlement area defined by gaps in settlement, areas lacking occupation, and historical patterns in occupation. Segment complexes within the Cerro de las Mesas settlement include Zapotal South and Campana, as well as Complexes 422, 104, and 847, some of them possible border complexes near the perimeter.

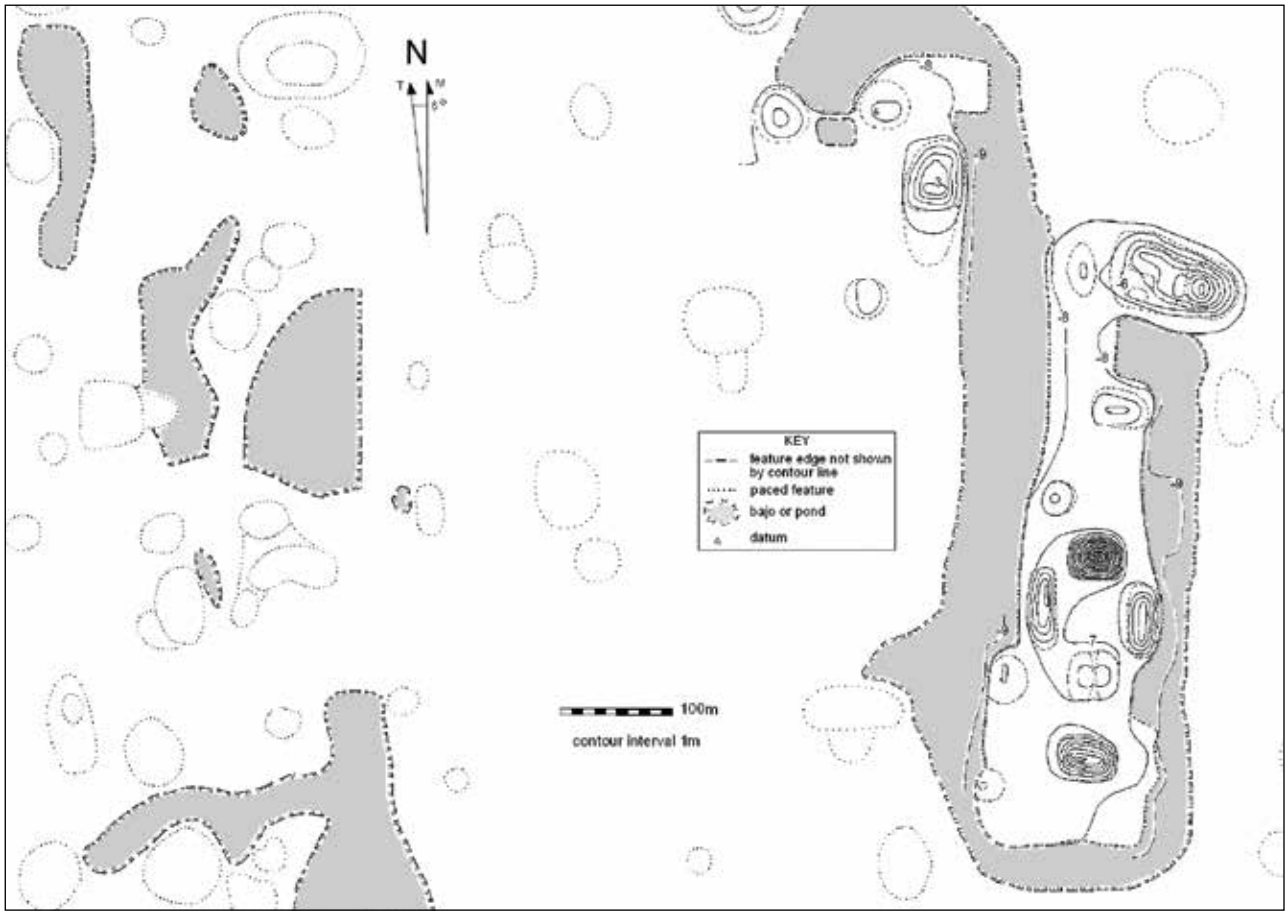

Figure 7.13. Cerro del Chivo complex contours were mapped with a theodolite. Pedestrian survey features nearby are shown with dotted lines. See Figure 7.10 for relationship to Cerro de las Mesas.

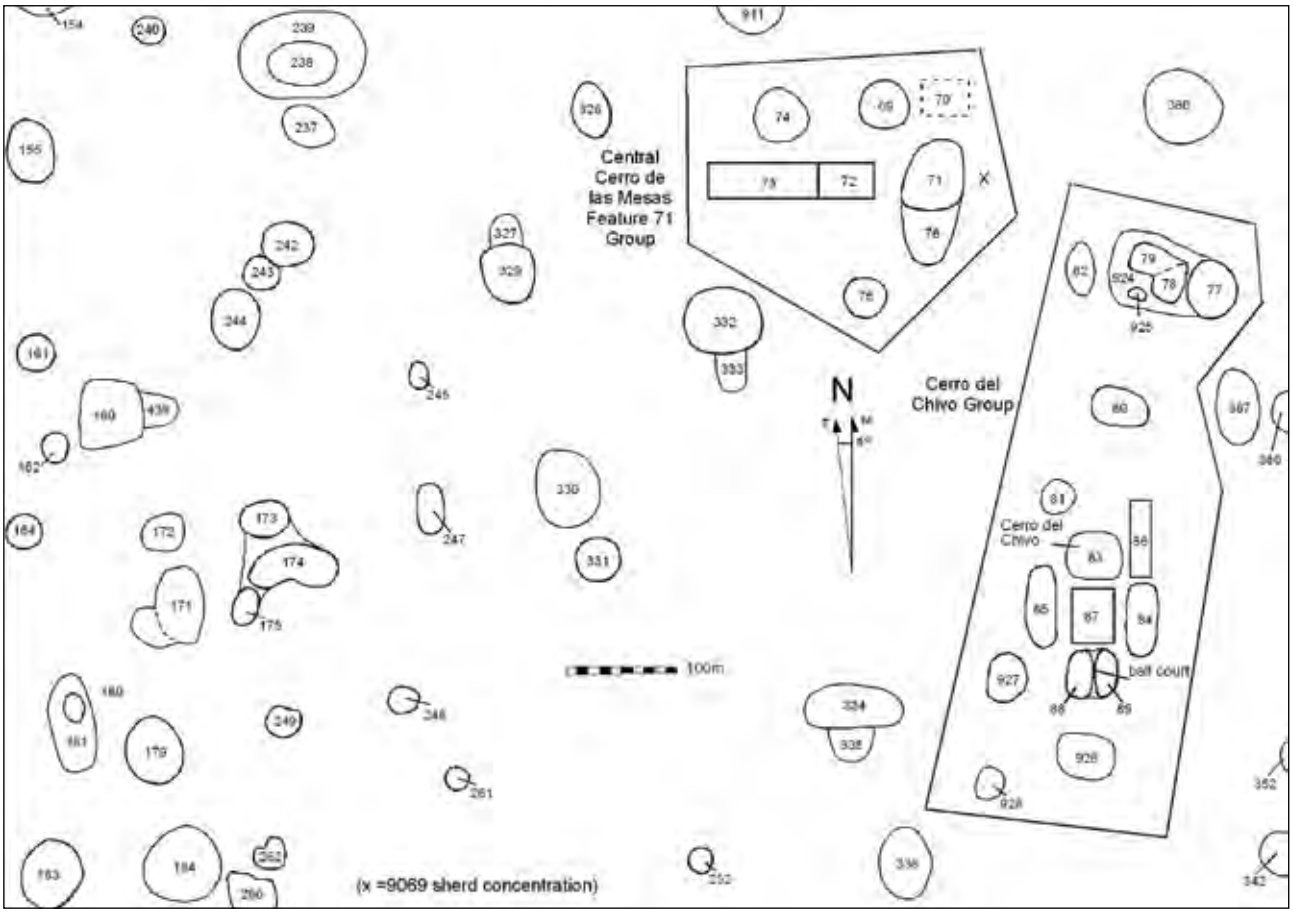

Figure 7.14. Cerro del Chivo complex feature and surface collection numbers are indicated. The map also shows the pedestrian survey features near the complex. See Figure 7.10 for relationship to Cerro de las Mesas.

Chronology

The Northern Group of Central Cerro de las Mesas produced a large total of sherds (3,876). Preclassic diagnostics outnumber Classic ones, a rarity among project data, with Postclassic sherds also scarcer. Every collection produced Preclassic sherds, indicating that occupation was dense in that area and use of Preclassic fill was common. Many structures may have been initiated in Late Preclassic times. Early Classic and especially Early Classic Tendency diagnostics are about as plentiful as Late Classic ones, with even more abundant Postclassic sherds, related to the concentration of occupation slightly northwest at Sauce during the Middle Postclassic.

The Western Group yielded numerous collections, but, in contrast, Classic diagnostics outnumber Preclassic ones. The SPPG mounds did not produce large collections, but in combination they appear to reflect a Preclassic and Early Classic emphasis. This contrasts with collections from palatial platform 98, which demonstrate a strong Late Classic emphasis, although earlier periods are represented, plus a few indications of the Postclassic period. At least the uppermost levels appear to reflect Late Classic additions or activities, with possible reoccupation or use in Postclassic times.

The Eastern Group also has abundant collections, with Preclassic and Classic diagnostics in similar amounts, but fewer from the Postclassic period. The Early and Late Classic period diagnostics are present in similar quantities, although exceeded by the Early Classic Tendency diagnostics. Among Postclassic sherds, almost all that can be attributed more specifically pertain to the Middle Postclassic period, with a single sherd diagnostic of the Late Postclassic. Postclassic sherds are most abundant in the south part of this group, along the L-shaped platform and mounds on or near it. The Partial SPPG has abundant

Preclassic representation, with Classic materials also, perhaps slightly favoring the Early Classic period if the Early Classic Tendency sherds are to be trusted.

The Platform 64 Group yielded several large collections, including one that was excessive (Feature 64) because the survey crew were unwell and failed to exercise normal restraint on the collection process. At this group the Preclassic and Classic periods are well represented, with less material from the Postclassic period; two collections (68 and 911) produced the largest Postclassic percentages. Both of these mounds lie to the south of the main structure that may itself have been reoccupied. The Late Classic period is the one best represented within the Classic period, and the looting backdirt materials (938) from mound 65 are exceptionally strong in Late Classic diagnostics. Within the Postclassic period, the Middle Postclassic has the greatest number of diagnostics, with only two sherds suggesting the Late Postclassic.

Mounds surrounding Central Cerro de las Mesas also are part of the surroundings of Ojochal and Cerro del Chivo. Preclassic diagnostics are common in the vicinity, with one exception. Toward the west of Central Cerro de las Mesas, among several mounds, not one displays any Preclassic sherds. Although some mounds could not be collected, this absence is nonetheless striking. Preclassic ceramics are particularly strongly indicated toward the south and southeast of Cerro de las Mesas. In the Classic period, residential remains are abundant in all directions, and the absence to the west can no longer be detected. The Early Classic, Early Classic Tendency, and Late Classic diagnostics are all abundant in the surroundings. The Postclassic is moderately abundant in the surroundings, but not as dense as Classic period materials. Most of the Postclassic presence is related to the Middle Postclassic, as the Late Postclassic is sparse, with one cluster noticeable immediately southwest of Chivo. This cluster is a likely candidate for a village as opposed to the more typical pattern of separated residential mounds.

Cerro del Chivo Complex of Cerro de las Mesas

Description

The Cerro del Chivo Complex represents the southernmost extension of Cerro de las Mesas monumental construction, located 1.5 km away and offset eastward of the Platform 64 and Feature 71 extensions that advance southward from Central Cerro de las Mesas. The Feature 71 Group is separated from the Chivo Complex by a *bajo*. The Feature 71 Group was discussed with Central Cerro de las Mesas.

Cerro del Chivo Complex

The Chivo Complex forms a distinct group isolated by surrounding *bajos* on all sides except the north end, which affords connectivity to Central Cerro de las Mesas (Figures 7.13, 7.14). The Chivo complex has a north–south aligned SPPG-2a at the south end of the complex. Mound 83 is called Cerro del Chivo locally and lends its name to the group. This conical mound is accompanied by two laterals of unequal sizes, 84 and 85. A ballcourt (88 and 89) forms the south end of the plaza. Additional small mounds are situated at the edges of the area surrounded by the *bajo* and continue northward to the rectangular platform at the north end, 924. Atop 924 are an L-shaped pair of structures, 78 and 79, with 925 completing the small plaza group situated on the platform. At the east end of the platform (possibly positioned on it) a conical mound rises to dominate the construction, mound 77, forming a combination of a conical-on-platform and palatial platform arrangement.

Surroundings

See discussion of surroundings for Central Cerro de las Mesas.

Chronology

The Feature 71 Group differs from Central Cerro de las Mesas in the much more modest representation of the Preclassic period, with the Classic period predominant, especially the Late Classic and Early Classic Tendency categories. Within the well-represented Postclassic period, only the Middle Postclassic is indicated. Mound-terrace 71-76 and mound 69 have the strongest Postclassic signatures, suggesting reoccupation or rebuilding. The modest representation of the Preclassic period in the Feature 71 Group hints that initially Cerro de las Mesas may have had a slight spatial separation of Central Cerro de las Mesas and the Chivo Complex.

The Chivo Complex has nearly equal amounts of Preclassic, Classic, and Postclassic diagnostics. Surface sherds from the SPPG mounds are strongly Preclassic and to a lesser extent yielded Classic period diagnostics, with some Postclassic sherds. At the north end of Chivo, the palatial platform and conical mound also have good representation of both Preclassic and

Classic sherds, with Postclassic sherds even more abundant, except for the conical mound. There is little indication of more specific information for Early versus Late Classic periods, although both are present. Only a couple of Postclassic sherds are specific to the Middle Postclassic period. In the more robust collections from the SPPG, the Postclassic is scarce and not distinctive of Middle versus Late Postclassic. For Chivo as a whole, only Middle Postclassic diagnostics (a few) were detected, with none for the Late Postclassic. Surrounding mounds are discussed with Central Cerro de las Mesas.

Ojochal Complex of Cerro de las Mesas

Description

Ojochal is a northeastward continuation of Cerro de las Mesas construction, separated by a slight gap from Central Cerro de las Mesas in which two low, possibly residential mounds (Features 306, 904) are positioned (Figures 7.15, 7.16). The gap appears to be a lower, more flood-prone area. Several slightly separated groups were defined for ease of presentation. Several additional mounds at Ojochal were mapped but are not particularly close to the defined groups. One of them, the mound-terrace 599, is heavily looted.

Overall, the Ojochal mounds form a rather diffuse array of construction, without any one of the groups constituting a central dominating element. The conical-on-platform (712, 713) forms the largest structure, 0.5 km from mound 93 at Central Cerro de las Mesas. Consequently, Ojochal, although separated by a small distance from northern Central Cerro de las Mesas, is an array of related construction.

Northern Group

The group consists of a SPPG-2a and a number of other mounds in the vicinity. In the case of the SPPG, the ballcourt mounds share a number due to an oversight in fieldwork. The SPPG has an east–west orientation, with markedly unequal laterals, as one has scarcely any elevation. The main plaza is accompanied to the west by a modest platform with a linear mound and a small circular mound on top. The platform is not as symmetrical and rectangular as is normally the case for monumental platforms.

Eastern Group

This group may have included a SPPG-2b. Atypically, a low projection (801) is located on the north side of the conical mound (597). This projection or platform was so extensively looted that it was covered with holes. Although there may have been low structures on it, no determination could be made. The persistence of the looting suggests that some sort of caches or burials were encountered, but no bone was evident on the surface. The two laterals are quite low and have approximately equal heights. The possible ballcourt was not recognized during mapping because a fence line crosses between what would have been the two mounds of a transverse ballcourt, and the east side was considerably plowed down. Later, when we appreciated better the common patterning of the SPPG, the likelihood that this was a ballcourt instead of a mound-terrace, as originally classified, became apparent. South of the SPPG, additional mounds follow along the two sides of a linear *bajo*. Platform 588 has two modern houses on top, obscuring the original topography, although the top surface seemed irregular, possibly indicating that low mounds were present. Mounds 594 and 595 were severely looted, obscuring their form, but the terrace attached to 595 (Feature 596) had not been looted.

Western Group

This group is dominated by a massive platform, 712. A conical mound (713) sits on top centrally, with a smaller mound, 714, in front, suggesting that this platform group faced east. A more gradual slope and projection of the northeast platform corner suggests a stair or ramp. Two large mounds, 715 and 716, are positioned to the north and south. Though sub-rectangular, they likely are palatial platforms; neither has any mound on top, however. Looting is marked on the 715 and 716 platforms, along with the nearby small mound 717. Three other small mounds are scattered in the near vicinity of the central platform, 712.

Southern Group

The Southern Group consists of a modest conical mound, with a small *bajo* situated symmetrically at its base. A scatter of other low mounds in the vicinity is partly closed off by a *bajo* to the south. Mound 575 was unusual in the number of metate fragments on the surface; nine were observed, none representing the same metate. Mound 577 was heavily looted.

Surroundings

See discussion of surroundings for Central Cerro de las Mesas.

Figure 7.15. Ojochal complex contours were mapped with a theodolite. Ojochal is part of Cerro de las Mesas (see Figure 7.10 for the relationship).

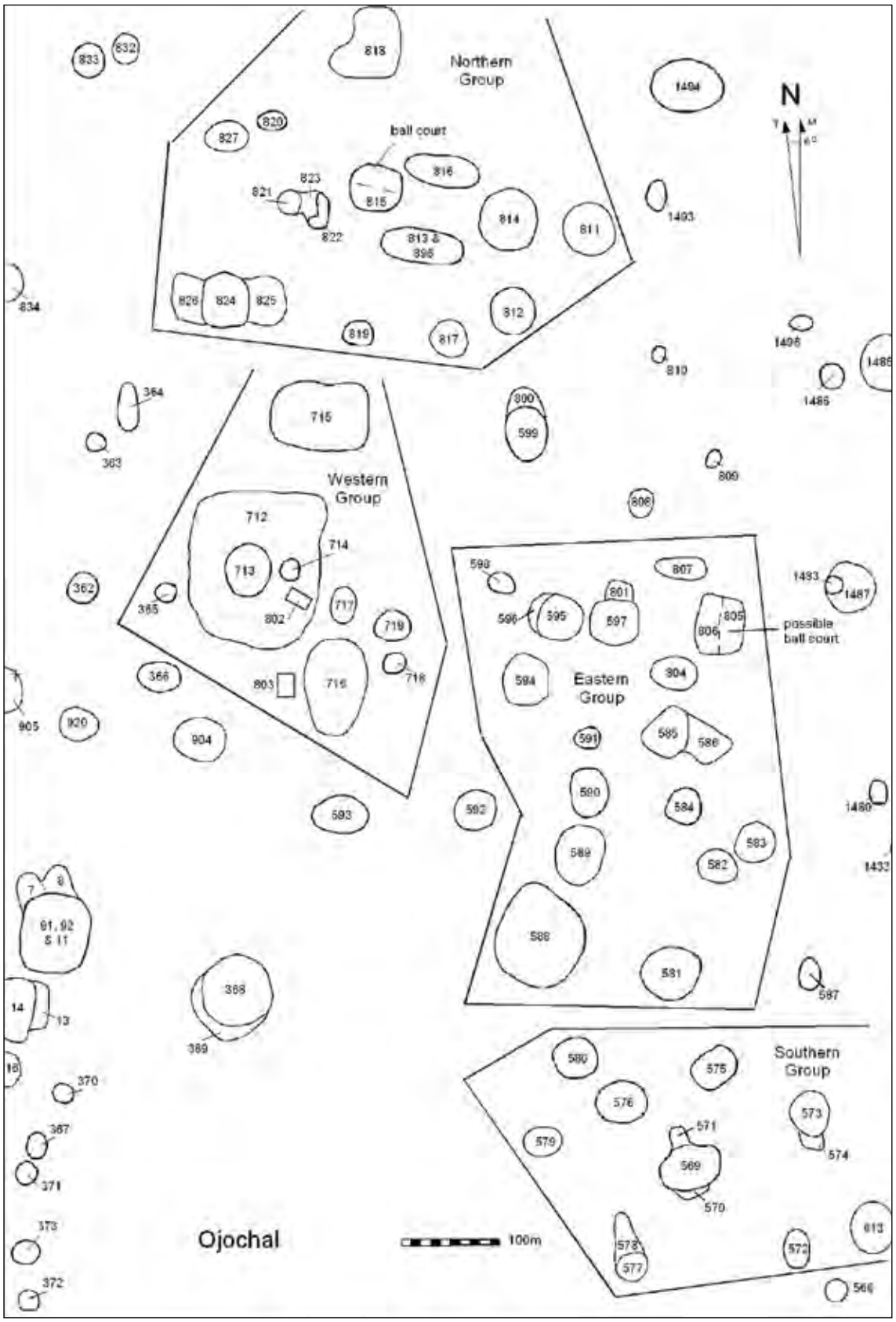

Figure 7.16. Ojochal complex feature and surface collection numbers are shown. Ojochal is part of Cerro de las Mesas (see Figure 7.10 for the relationship).

Chronology

The Ojochal Northern Group has a substantial representation of both Preclassic and Postclassic sherds, but the Classic period predominates by far. Within the Classic period, the Early Classic and Early Classic Tendency categories are more common than Late Classic. For the Postclassic, most of the more specific diagnostics are Middle Postclassic (5) and only one is Late Postclassic.

The Western Group has about equal representation of Preclassic and Postclassic diagnostics, but the Classic Period is more abundant. Within the Classic, perhaps the Early Classic is better represented if both those sherds and the Early Classic Tendency sherds are considered, but the Late Classic is also present. Only the Middle Postclassic can be detected among Postclassic diagnostics.

The Eastern Group also has nearly equal amounts of Preclassic and Postclassic sherds, but the Classic period is particularly abundant, with strong representation of both Early and Late Classic. Among Postclassic sherds, only three are distinctive of the Middle Postclassic, with none for the Late Postclassic.

The chronology of surrounding mounds is discussed with Central Cerro de las Mesas.

Discussion of the Cerro de las Mesas Complex

Cerro de las Mesas (all three segments) by virtue of the sizes of constructions, carved monuments, and extent of the monumental construction, constitutes a primary center during the Early Classic period. Although we cannot gauge the amount of construction for the Late to Terminal Preclassic period, it likely was the primary center for the WLPB then as well. The mapped core of Cerro de las Mesas covers approximately 1.5 sq km. The complex includes six SPPGs or Partial SPPGs, the greatest number in a monumental complex recorded for the region. During the Late Classic period, occupation and some construction continued, but at a significantly reduced scale. In view of its earlier prominence, it may have continued as a secondary center to Azuzules and perhaps Zapotal—both of which were important during the Late Classic period, although perhaps in succession.

All the SPPGs and Partial SPPGs are at or near the perimeter of the monumental construction, except for the Partial SPPG with ballcourt mounds 46, 47, which is located north of the central pond and surrounded by other construction. The mound 814 SPPG is 0.94 km from the mound named Cerro de las Mesas, and the Chivo SPPG is 1.5 km distant from that mound. Consequently, since it is likely that initial construction in Central Cerro de las Mesas occurred in the Northern Group during the Late Preclassic period, followed by many centuries of building and use at greater Cerro de las Mesas, what may have been separated SPPGs at the north end of Ojochal and at the south end of the Chivo group eventually became part of a large area of construction as intervening structures were built. The largely perimeter position of the SPPG would facilitate articulation with groups beyond the central core if different social segments were linked preferentially with some of the SPPGs.

These SPPGs located within the core are accompanied by monumental segment complexes. In the discussion of Zapotal South, Campana, and Complexes 847, 104, and 422, I will suggest that these groups were segment or boundary complexes that were part of the Cerro de las Mesas settlement. As mentioned in Chapter 6, the consideration of other complexes, their distances, and gaps in the settlement array suggests a boundary or transition that delimits the Cerro de las Mesas settlement.

Tío Primo Complex

Description

Tío Primo is a north–south aligned probable SPPG-2a with Feature 4040 as the conical mound and 4043 and 4041 as unequal-sized laterals (Figure 7.17). The top of 4040 had been heavily looted. Due to modern disturbance from a corral, there was no indication that 4042 had once been a ballcourt, but it is a possibility. Three low mounds are situated around the SPPG, and a linear *bajo* runs alongside to the east. Monumental platform 4046 is situated at the south end of the Tío Primo group. It has at least three structures on top (4047, 4048, and 4049), but this platform and its mounds were heavily looted.

Although mapping of this complex was attempted in 1988, we had insufficient time to complete it. During 1998 a PALM 2 crew returned to perform the contour mapping and surface collecting. At that time, the 4043 structure showed two slightly higher areas that had not been observed in 1988. These were very faint and no separate numbers were assigned, as we were unsure if they might be an artifact of plowing or whether we had better ground visibility than in 1988. Two structures were collected again, with the new collections given numbers in the 900 series (972 and 973). The primary conical mound, 4040, was named differently by a local inhabitant in 1988, who referred to it as Cerro Mándi, but that mound and the complex were named Tío Primo by local inhabitants in 1998.

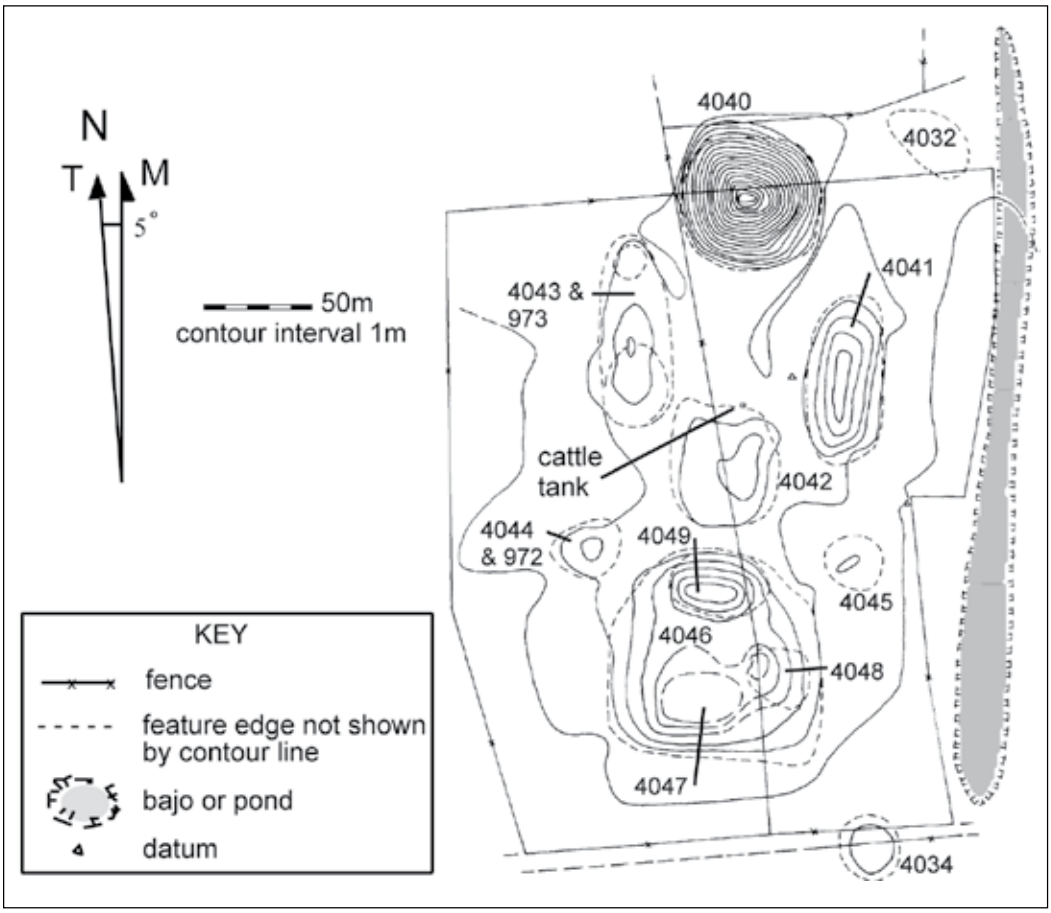

Figure 7.17. Tío Primo complex feature and surface collection numbers and contours, mapped by theodolite.

Surroundings

Tío Primo is located 2.3 km west of Cerro de las Mesas, immediately south of Gap 3. As discussed in Chapter 6, it may be a boundary complex or it may lie beyond the Cerro de las Mesas boundary, depending on whether that boundary is constructed mainly from the gaps in occupation or whether historical patterns are considered. With the revised boundaries based on historical patterns, Tío Primo is a secondary center just beyond the limits of Cerro de las Mesas. Residential mounds near Tío Primo are located mainly to the south and east, with fewer to the west, and Gap 3 lies to the north (Figure 6.1).

Chronology

Tío Primo yielded several collections totaling 338 sherds, but only one collection was abundant, that from a low residential mound (4032) just northeast of the main plaza. The western lateral mound was collected twice, as was mound 4044 just south of it. Except for mounds 4044 and 4032, Preclassic diagnostics are found in the collections from mounds that were part of the main plaza layout. None was recovered from the smaller ancillary mounds. All mounds with sufficient sherds have Classic period diagnostics, however, usually outnumbering the Preclassic ones, although not by much. Except for mound 4032, the Early Classic, although scant, is present, but the Late Classic is not. Postclassic diagnostics occur in almost all collections, especially 4042 at the south end of the main plaza and 4032 at the northeast corner. The few more specific diagnostics indicate the Middle Postclassic, never the Late Postclassic. The main complex likely is Classic period in date, mainly Early Classic, but it probably had a Preclassic inception. Some locations were reoccupied in the Middle Postclassic period.

Despite the chronological patterns among sherds in the Tío Primo complex, evidence from nearby residential mounds provides slightly different indications. Preclassic diagnostics are found among the surrounding residential mounds, as are both Early and Late Classic diagnostics. The Classic period is quite heavily represented

immediately south of Tío Primo, a pattern characteristic of the Postclassic period as well. The Postclassic indications derive from the Middle Postclassic, not the Late Postclassic, as only one collection yielded sherds distinctive of the latter period. Early and Late Classic patterns do not diverge from the overall Classic pattern, suggesting considerable occupational continuity. Tío Primo surroundings provide an important instance of possible continuity in occupation (or reoccupation) into the Middle Postclassic at the residential level.

Discussion of Tío Primo Complex

As discussed in Chapter 6, Tío Primo constituted a secondary center if the revised Cerro de las Mesas boundaries are valid. The settlement boundary based on gaps would instead imply it was a boundary complex. Because it has an arrangement and mound sizes comparable to other secondary centers, the interpretation using revised boundaries is more likely.

Campana Complex

Description

I treat Campana as a Conical Plaza Group with additional mounds. Campana is dominated by a high conical mound (638) on the western side of its accompanying plaza, framed by Features 1345 and 636. On the east side, a set of structures forms a small plaza group, possibly sharing a low platform, but this last point could not be determined definitively (Figure 7.18). Although mounds 1347 and 1348 might have formed a ballcourt (with the possibility that 636 is a low, small, single lateral of conical mound 638), this ballcourt possibility cannot be evaluated because of disturbance by fence lines and a path. The mounds do not seem to be of comparable length, and 1351 and 1349 seem, instead, to form a plaza group with 1347 and 1348. Mound 1349 has a terrace projection (1350) and may represent an elite residence, possibly the case for 1352 as well. Mound 1352 was noted as rather flat

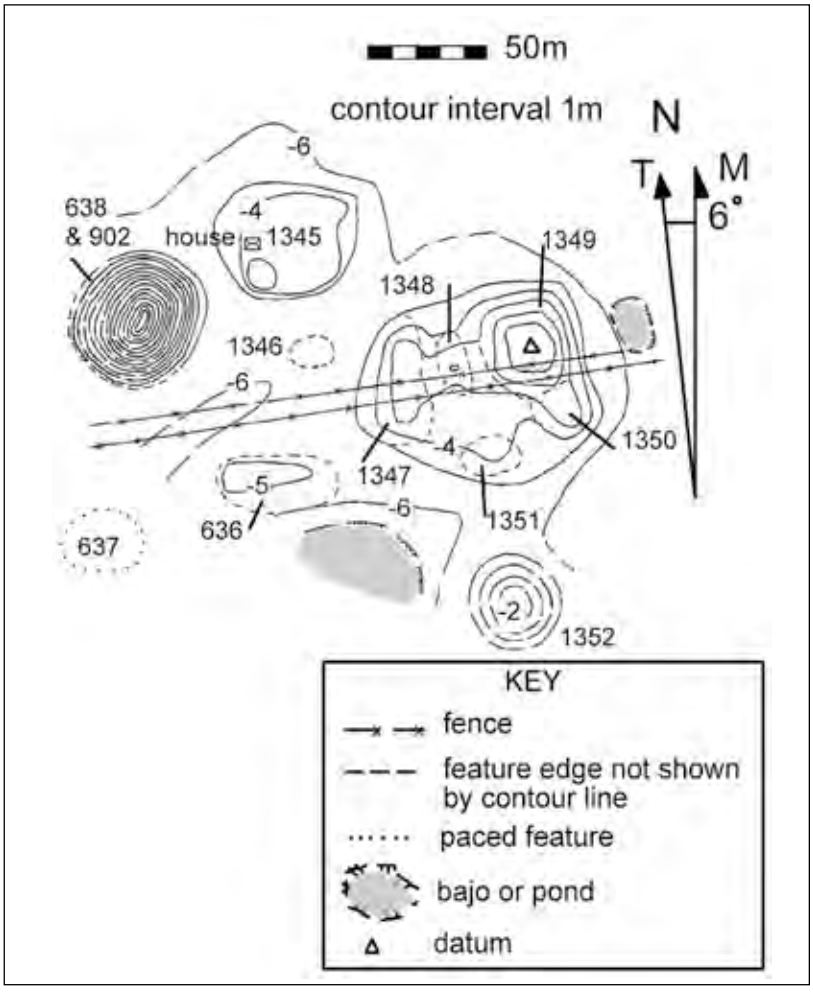

Figure 7.18. Campana feature and surface collection numbers and contours, mapped with a theodolite.

and broad on top, perhaps a smaller version of the rectangular palatial platforms. Mound 1349 also could be viewed as a rectangular platform with a terrace or ramp (1350), but it better resembles a mound-terrace combination.

In sum, the Campana complex is a cluster of mounds forming two plazas, including likely elaborate residential mounds, associated with a conical mound, with two small *bajos* nearby. If a ballcourt is represented, then a SPPG is present, with a conical mound, an inconspicuous lateral (636), and a transverse ballcourt (1347 and 1348) opposite the conical mound; I remain unconvinced, however, and treat this as a Conical Plaza Group.

Surroundings

Campana is located 1.7 km east of the mound (93) named Cerro de las Mesas, and approximately 0.7 km east of the east edge of the mapped Ojochal area. Residential mounds are more abundant west, north, and south of Campana than east of it.

Chronology

Several collections derive from the Campana complex, totaling 575 sherds. All but one have Preclassic diagnostics, often exceeding the number for the Classic period. Two collections from near the plaza group (1347, 1346, 1349, 1351) have more Classic than Preclassic diagnostics, however, suggesting that the plaza group may have been a focus of Classic activity or construction. To the west, fill in the conical mound is strongly Preclassic, and this chronological pattern applies to a low mound nearby (636) as well. Mound 637 on the west side is exceptional, however. The large collection from this low mound recorded during pedestrian survey has a few Classic diagnostics, but it is heavily Postclassic in date (over half the sherds). Only one of the abundant Postclassic sherds in this collection can be more specifically assigned to the Middle Postclassic period, and none signal the Late Postclassic. Thus, Campana has a complex history, perhaps with initial construction of the conical mound during Preclassic times, but with continued construction and/or use during the Classic period, plus construction and/or activity to the east where the plaza group is located.

Because of the proximity of Ojochal, occupation in the vicinity of Campana cannot be separated from occupation near Ojochal. The Preclassic is slightly more abundant than the Classic period, but both are well represented, as is the Postclassic. Middle Postclassic occupation is responsible for the Postclassic indications, as the Late Postclassic is scarcely represented. The Early Classic and Late Classic are both present with similar patterning, suggesting continuity of occupation through that period.

Discussion of Campana Complex

As noted in the discussion of Cerro de las Mesas, Campana is positioned north and slightly west of Gap 7, possibly in a boundary position. A noticeably lighter area of occupation is evident in an arc east of Ojochal, with Campana situated at the fuzzy edge of the denser occupation area. Like Tío Primo and Cerro de las Mesas, Preclassic ceramics are well represented, suggesting continuity in settlement history.

Zapotal South Complex

Description

Zapotal South presents a puzzle. A partial or complete SPPG is present (Partial SPPG-B2), depending on whether some features constitute a ballcourt (Figure 7.19). A conical mound (700) is 10.1 m high; looting holes were evident on top, and the holes suggested relatively clean earthen fill. Two laterals, 399 and 398, frame a plaza; lateral 398 was heavily looted. We detected a yellow stain (932) in the middle of the plaza when we revisited the complex after mapping, when the area was plowed; the stain may signal a plowed-down altar. Frequently mound sediment has a lighter, yellower color than the surrounding topsoil. A small mound, 397, may close the plaza on the west side, or it too may have been a small structure in the middle of the plaza. It is so small that it does not seem likely to represent a plowed-down ballcourt.

Farther west a large platform (389) is topped by two parallel elongate structures, 391 and 392. If these elongate mounds frame a ballcourt, the court is approximately 75 m long and positioned on the highest platform constructed for a ballcourt detected during our survey. Only the Nopiloa ballcourt has comparable length, and it lacks a large supporting platform. Such a sizable ballcourt is anomalous for an otherwise modest-sized complex. The two parallel mounds also are rather widely separated compared to other ballcourts we mapped. The pair of elongated mounds is in the correct position for a transverse ballcourt according to the canons of the Standard Plan, however. The alternative interpretation of the pair of mounds is to regard them as elongated mounds facing each other atop a monumental palatial platform. The arrangement of

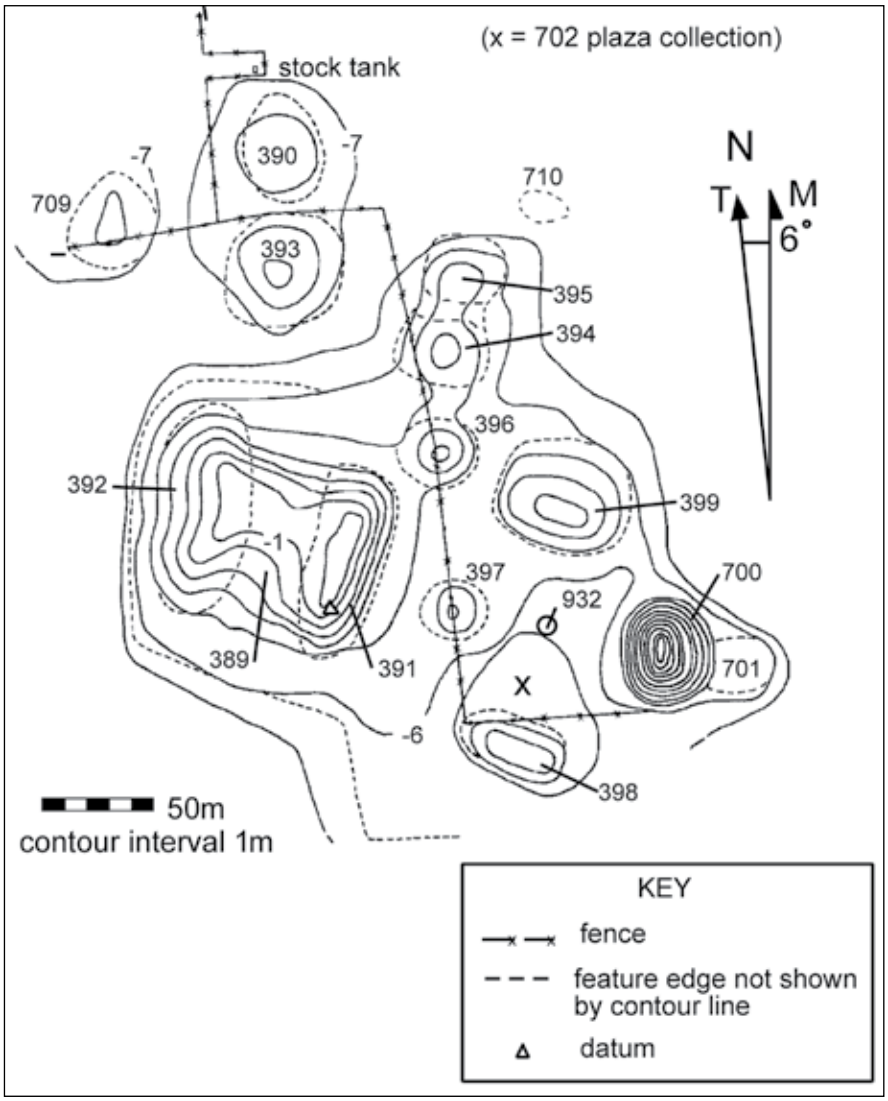

Figure 7.19. Zapotal South complex feature and surface collection numbers and contours, mapped with a theodolite.

two elongated mounds facing each other would be unique for such platforms. At present, the size and spacing of the two elongated parallel mounds is more in keeping with the idea of a monumental palatial platform, but only excavations can resolve the ambiguity. Provisionally, I treat Zapotal South as a Partial SPPG-B.2.

One other aspect of Zapotal South is unusual. Just north of the formal construction, there are two "pairs" of similarly-sized rounded mounds, 390-393 and 394-395. Mound 395 in the latter pair was noted as high in *comales* (tortilla griddles) by surveyors (approximately 36% of all sherds). In both cases the paired mounds are positioned very close, and one is slightly higher than the other, but they are distinct, not forming a mound-terrace.

Surroundings

Zapotal South is located between Gaps 6 and 7, 2.3 km southeast of Cerro de las Mesas but slightly closer to it than to the gaps. Zapotal South has a scatter of residential mounds around it except for the area to the south (populated by one feature).

Chronology

Zapotal South yielded numerous fairly robust collections. Preclassic sherds are not evenly distributed among them, with collections 389, 390, 391, 396, 397, and 399 containing the majority, although every collection produced a few. Consequently, it is likely that some structures were substantially rebuilt (or built) during the Classic period when much less Preclassic material was incorporated. The Classic period diagnostics

are somewhat more abundant than those from the Preclassic, with the Early Classic and especially Early Classic Tendency diagnostics more prevalent than Late Classic ones. The Postclassic is more abundant than either of the other two major periods; only Middle Postclassic diagnostics are included, with none that are Late Postclassic. The Postclassic is strongly dominant in only one collection, however: the one from 395, one of the paired mounds situated at the north edge of the group. This chronological pattern suggests that 395 represents a later occupation.

Preclassic sherds are abundant in the vicinity of Zapotal South, especially to the southeast, where a likely Preclassic village contains two mounds that were excavated by Speaker (2001), Features 693 and 985, occupied in the Late Preclassic period. The Classic period is abundant around Zapotal South, and Early Classic and Early Classic Tendency sherds are the primary contributors, with a lesser representation of the Late Classic. The Preclassic village to the southeast also shows strong Early Classic indications suggestive of continuity in occupation, and the presence in several collections of Late Classic sherds testifies to continuity through that period as well, although the material is not as abundant. The Postclassic also is abundant around the complex, primarily reflecting the Middle Postclassic, as only a couple of nearby collections have Late Postclassic sherds.

Discussion of Zapotal South Complex

Zapotal South likely is a boundary Partial SPPG on the perimeter of Cerro de las Mesas. It is located slightly closer to the core than two gaps in settlement that lie on either side.

Sauce Complex

Description

Sauce is the only Middle Postclassic complex located during the survey. It is positioned alongside the Viejo River, contrasting in this respect with Cerro de las Mesas, which is located south of the current channel. Sauce was only partially contour mapped (Figures 7.20, 7.21). The east part, just east of the eponymous *ejido* settlement, was mapped in 1986, while features within the *ejido* were sketched and heights estimated during a pedestrian survey in 1988, supplemented by aerial mosaics (Figure 7.22). The most sizable mapped platform, 119, dominates the eastern segment, but

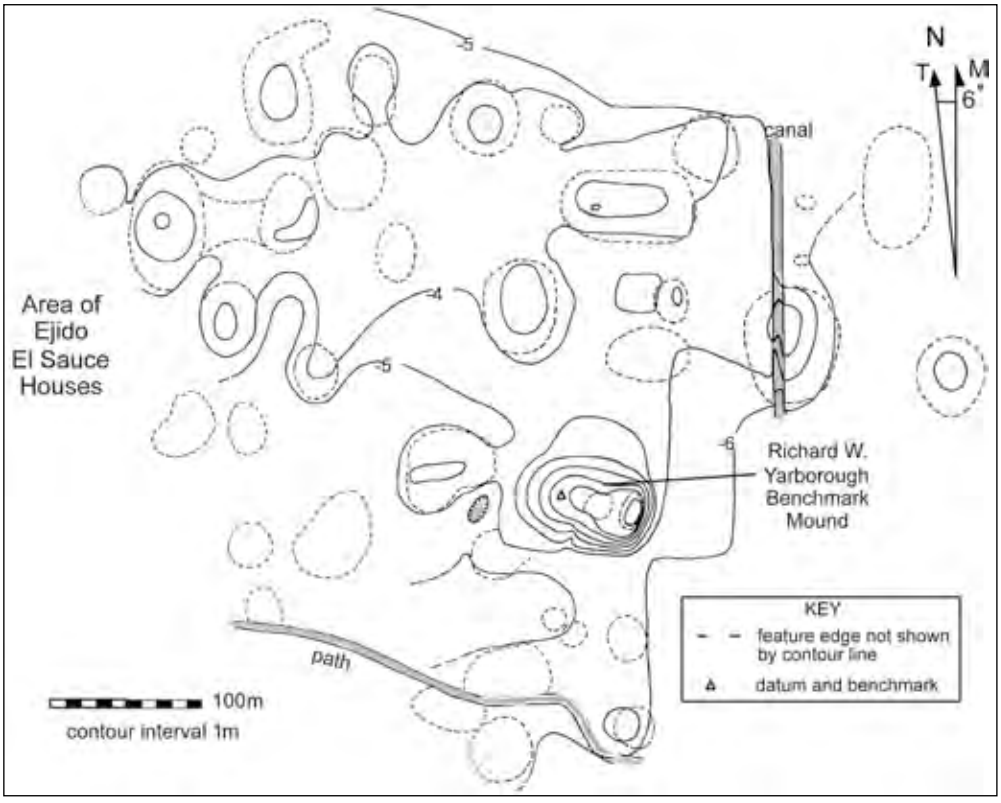

Figure 7.20. Eastern Sauce complex contours, mapped with a theodolite (see Figure 7.22 for the remainder of the complex).

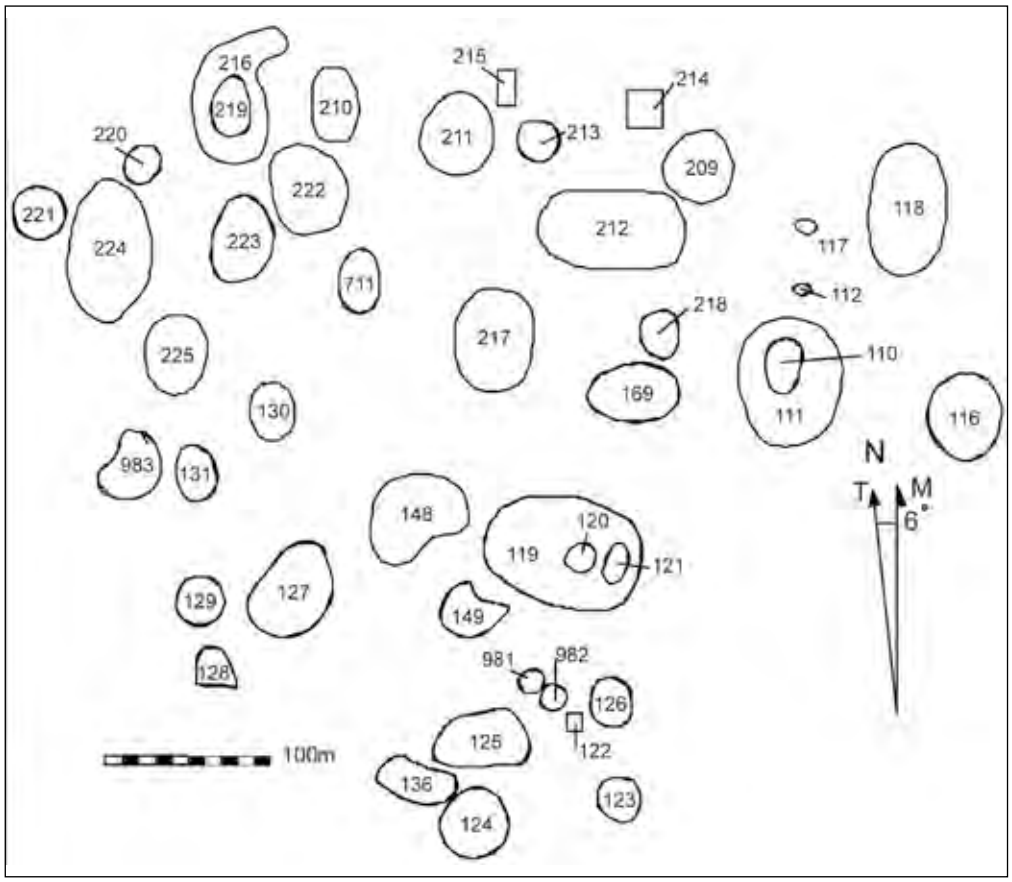

Figure 7.21. Eastern Sauce complex feature and surface collection numbers (see Figure 7.22 for the remainder of the Sauce core).

mound 4022, 4.4 m high, today supports a chapel in the *ejido* and is the other substantial platform. Due to disturbance by the chapel construction, there is no surface indication of any mound on top of the 4042 platform, which also has been affected on its margin by road construction. Mound 119 has two mounds atop, 120 and 121, with the latter showing plaster fragments on the surface. The platform appears to face west, as the slope is more gradual on that side. A low broad mound, 148, is situated in front of the platform, and, apart from this mound, a plaza appears to be framed by 119 on the east, 217 on the north, 130 on the west, and 127 on the south. Several fragments of clay tubing were observed on terrace 111. Mound 130 had a profusion of pebbles—surveyors counted 95, possibly an indication of facing or flooring materials. Mound 219 has a separate number for its lower northeastern projection (216), which lies on the other side of a fence line. It is unclear, however, if 219 and 216 constitute a mound-terrace.

The contoured area of Sauce is occupied by numerous low mounds, all plowed and spread out by cultivation. They are rather compactly crowded, with a marked drop in density beyond the 6 m contour line on the north side, where there is a slight shelf, with the land dropping to the north side. A path runs along the south side, with most of the clustered mounds north of the path, which is higher ground. No clear eastern boundary is evident, however, although a limit just east of platform 111 is possible, perhaps including Feature 118 as well. To the west, because we do not have a contour map for the area within the modern settlement, I can only comment that the array of small residential mounds continues, petering out approximately 0.3 km to the west of the western edge of the contoured area.

Thus, the Sauce cluster of small mounds appears to respect some elevation changes that may indicate an ancient settlement boundary, although additional mounds occur in the immediate vicinity. Because sherds were denser inside the southern shelf margin, there seems to be a strong constraint on the accumulation of materials. The distinctly higher ground for much of the contoured area of Sauce, with a clear

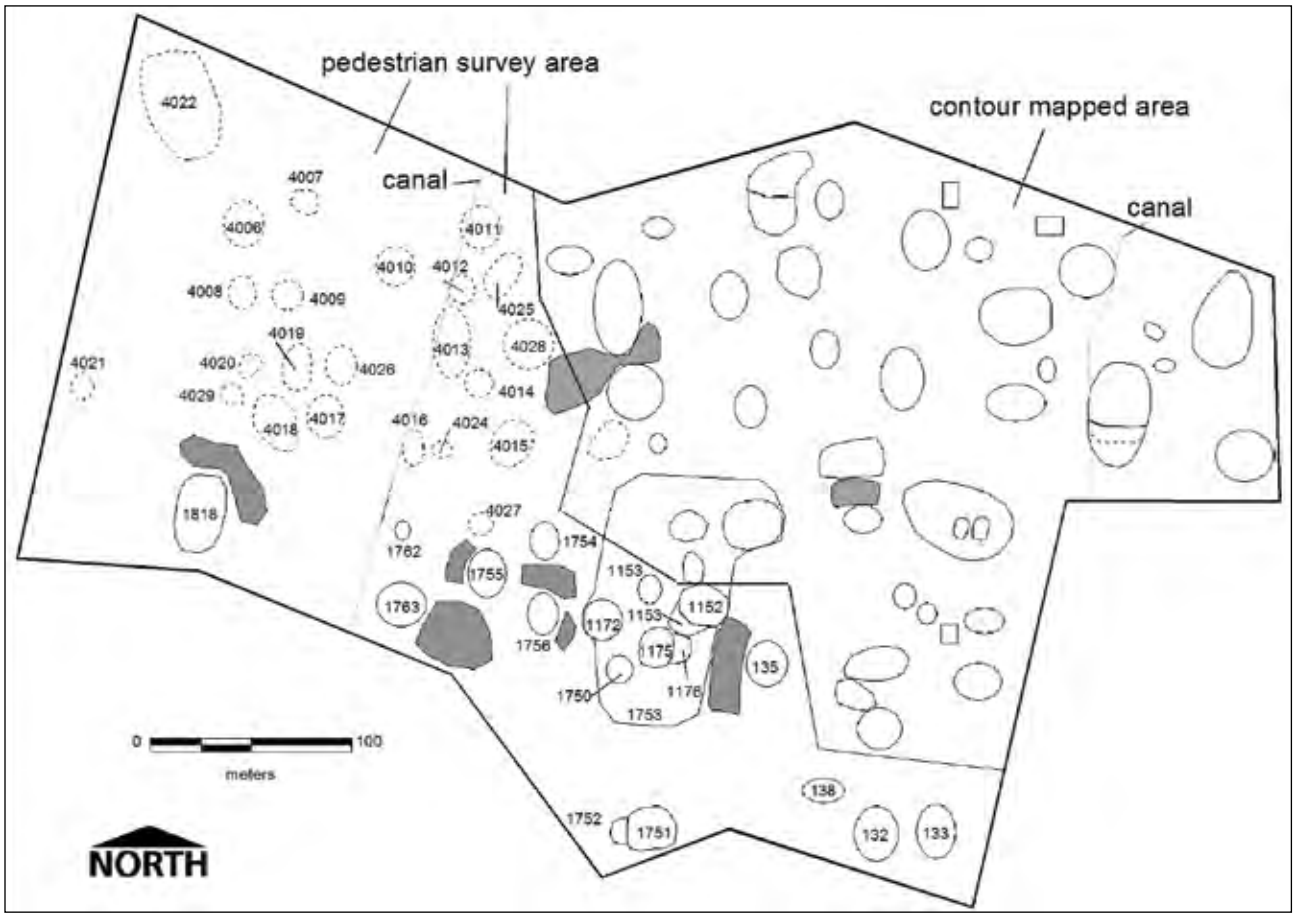

Figure 7.22. Sauce feature numbers from the pedestrian survey, with bajos shaded (see Figure 7.21 for feature numbers in the contoured area).

margin for the most part, poses questions. Did a wooden palisade encircled the central part of the site, constraining the accumulation of artifacts and daub melt? Given the fairly tightly packed mounds, is this elevation an effect of the concentration of trash and wall debris? Was the area filled and leveled to some extent? Wooden palisades are mentioned by Bernal Díaz (Díaz del Castillo 1963 [1568]:69) in Tabasco, so the practice may have existed in lowland areas lacking stone for walls.

A cluster of ponds lies immediately southwest of the contoured area of the site, with low mounds situated around them (Figure 7.22). In particular, mounds 127, 128, and 129 in the mapped area appear to share an elevated platform, 1763, with mounds 1173, 1152, 1172 and 1750 atop the same platform; mounds 1152 and 1175 have attached terraces. A rectangular pond is situated along the southeast side of the platform.

Monumental platforms are scarce at Sauce (two) and there is no arrangement similar to the Standard Plan. Sauce looks more like a nucleated residential settlement with scant monumental civic platforms and does not resemble any of the Classic period monumental complexes; platform 119 supports an elongated mound on its eastern edge and may represent a rectangular palatial platform, a structural form found during the Classic period. Feature 119 is named the Richard W. Yarborough mound in memory of the father of a crew member, Clare Yarborough, always supportive of his daughter's career; regrettably, he died during our field season. The mound has a surveyor's benchmark on it.

Surroundings

Because Sauce is only 1.1 km northwest of Central Cerro de las Mesas, it is situated amid the residential mounds surrounding that center, likely obscuring some of their patterning. Residential mounds are

scarce west of Sauce, and that area contains Gap 3. To the north also, residential mounds cease about 1 km from Sauce. In other directions, residential mounds continue, but the patterning is conflated with Cerro de las Mesas and its attendant settlement.

Chronology

Sauce produced numerous collections, totaling 5,465 sherds. Only 65 diagnostics are Preclassic, while 552 are Classic. The 2,649 from the Postclassic period include 559 from the Middle Postclassic and only 6 from the Late Postclassic. These numbers virtually speak for themselves. Sauce was a Middle Postclassic town, and much of the settlement may have been superimposed over earlier Classic period occupation. Nevertheless, there is a distinct possibility that the locality had a strong Late Classic presence because 6 of the 552 Classic sherds pertain to the Early Classic, 21 pertain to Early Classic Tendency, but 96 are Late Classic. This is a strong Late Classic representation, and it raises a possibility of continuity between occupation in Late Classic Sauce and Middle Postclassic Sauce, but with substitution or imposition of a different cultural pattern.

Surrounding mounds cannot be disentangled from the effects of Cerro de las Mesas, and the discussion of settlement around that complex appears in the Central Cerro de las Mesas section. The maps showing Middle Postclassic sherds indicate that parts of Cerro de las Mesas were occupied/reoccupied in that period. Middle Postclassic occupation is concentrated in the western part of the Central Block, thinning somewhat toward the eastern part. Occupation extends southward and southeastward from Sauce, just as the Cerro de las Mesas settlement had done. Since the Cerro de las Mesas area was relatively densely occupied during the Late Classic period, with only the area around Azuzules showing yet denser remains, the profusion of Middle Postclassic occupation in the western Central Block reversed the imbalance that had existed in the Late Classic period when Azuzules was at its peak. The presence of Middle Postclassic sherds throughout the Central Block is as much a reflection of the prime farmland as of any prior political factor. The Middle Postclassic settlement appears in some respects to "copy" the Classic patterns, possibly showing a degree of continuity, but likely responding to some of the same underlying farmland and ecological factors that made the delta so important for prehispanic occupation.

Discussion of Sauce Complex

Sauce is the only nucleated settlement we encountered (except for those on mangrove levees) and the only Middle Postclassic center. Although it was clearly the primary settlement in the part of the WLPB that we surveyed, we should be cautious in evaluating its settlement role. It may have been subsidiary to a larger settlement in south-central Veracruz. As shown elsewhere (Stark 2008a), the Middle Postclassic ceramics are strongly localized in the Blanco delta, suggesting that Sauce functioned as the head town for an ethnic enclave intrusive to the region. Middle Postclassic artifacts and settlement represent a marked departure from the prior Classic tradition. Intrusive Middle Postclassic occupants may have arrived after a collapse of Classic period society or conceivably contributed to its collapse (Curet et al. 1994; Stark 2008a; Stark and Eschbach 2017, 2018).

A site in the Eastern Lower Papaloapan Basin, San Marcos, has pottery and figurines similar to Middle Postclassic Sauce (Stirling 1943:27; see also Kruszczynski 2001:Figure 6.15).[1] No other strongly similar complex has been reported. The Late Classic ceramic profile at Sauce raises the possibility that the founding of the Middle Postclassic settlement was in a location that had some prominence in the Late Classic. Since there is no indication of substantial Classic construction there, I conclude that it was a residential focus, not a monumental complex at that time. A concentration of Late Classic occupation at Sauce raises the possibility that the selection of that location by Middle Postclassic people may not have occurred in a vacuum. New inhabitants did not select (or they avoided) the many prior Classic monumental complexes, establishing a settlement where little monumental construction existed. They may have selected the location not only for its riverbank location but also because a Late Classic occupation continued there.

Nevertheless, we cannot be sure that Late Classic occupation influenced the location of Sauce. There is a general tendency for major centers to have reasonably close access to waterways (only the paleodunes centers are an exception). Thus, the location of Sauce in a place that previously had Late Classic occupation could be incidental.

Pedestrian Survey Complexes with High Structures (7–15 m)

As noted in Chapter 3, I examined features recorded during pedestrian survey to identify high structures not defined initially as monumental complexes. The

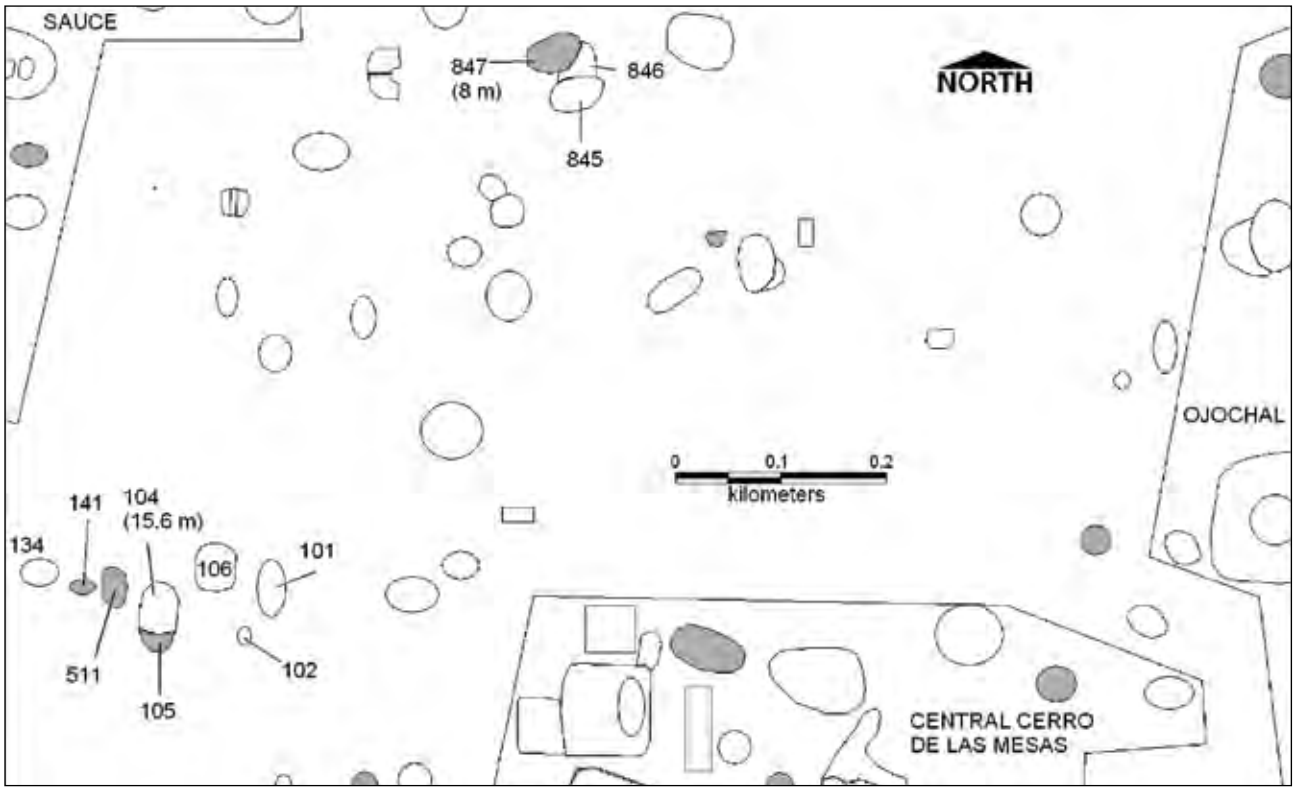

Figure 7.23. High structures in Complexes 847 and 104 (shaded mounds not collected).

search yielded ten examples in the Blanco delta. All but one are located in the Central Block. Three discussed here fall within the western half of the Central Block.

Complex 847

Description

This complex is a Conical with Contiguous Mounds. Located north of central Cerro de las Mesas and west of Ojochal, mound 847 reaches 8 m, with two contiguous mounds: 846 (3.2 m high) links to 845 (4.1 m high; Figure 7.23).

Surroundings

Additional mounds in the vicinity of mound 847 do not establish a formal arrangement. None is close enough to obviously warrant inclusion as part of the complex.

Chronology

Among the 102 sherds from this complex, Preclassic and Classic diagnostics predominate in approximately equal percentages, with both Early and Late Classic diagnostics similarly represented (but scarce). Postclassic sherds are scarce (four) and cannot be assigned to the Middle versus Late Postclassic period.

The general vicinity already has been discussed with Cerro de las Mesas, and Preclassic and Classic period representation is similar to that of the 847 complex. The Middle Postclassic period is strongly represented in the vicinity, however, especially to the northwest in Sauce.

Discussion of Complex 847

Although the ceramic material is not abundant, this complex appears to be a conical mound within the extent of the Cerro de las Mesas settlement. Just as the core monumental construction itself has segments and groups, so the 847 complex (and others) appear to be part of the settlement area. Conceivably it served as a neighborhood temple platform.

Complex 104

Description

Mound 104 is a Conical Mound Group with nearby residential mounds forming a relatively linear array east–west, situated west of the north end of Central Cerro de las Mesas. Mound 104 is a high conical mound (15.6 m) that likely supported a temple, with a lower terrace 105 on its south side, 3.9 m high (Figure 7.23). Six low mounds are aligned approximately east–west on either

side of the conical mound (134, 141, 511, 106, 102, and 101). These mounds range from 0.3 to 1.9 m in height.

Surroundings

Several mounds are scattered in the vicinity of conical 104 and its closely associated features. Sauce, a Middle Postclassic center, is located immediately north and west.

Chronology

Preclassic and Classic sherds are both strongly represented in the complex, with an approximately equal presence of Early versus Late Classic. The Postclassic period is also strongly represented, but with few sherds specific to either the Middle or Late Postclassic. Postclassic sherds are particularly abundant on mounds 134 and 101and well-represented on mound 106 also.. Since the high conical mound, 104, has very scant Postclassic pottery (one sherd), it is likely that it had ceased to perform its original ritual roles and was not rebuilt in the Postclassic period.

The general vicinity already has been discussed with Central Cerro de las Mesas, and Preclassic and Classic period representation is similar to Complex 104. The Middle Postclassic period is strongly represented in the vicinity, especially to the northwest in Sauce.

Discussion of Complex 104

This relatively linear arrangement of the complex is unusual, reminiscent of Pinchones South, a Conical Mound Group north of Nopiloa. In the latter case, the linear arrangement is suspect because a canal and gravel road may have obliterated some mounds and created an appearance of a more linear array than was the case. Another Conical Mound Group, Canal 2 in the interfluve between the Blanco and Guerengo drainages, is a separate settlement. Complex 104, however, is located quite close to Cerro de las Mesas and falls within the revised settlement area formulated on the basis of gaps in settlement and settlement history. Conceivably the conical mound supported a temple for a neighborhood.

Complex 422

Description

This complex is a Conical Plaza Group. Mound 422 and its plaza group are positioned on a 1.7 m high platform (Feature 424; Figure 7.24). Mound 422 is 5.2 m high, with a grand height of 6.9 m due to the underlying platform. This elevation is so close to the 7 m height used as lower limit for the examination of high structures located during pedestrian survey that I include mound 422 and its group. The 10-cm difference is likely within

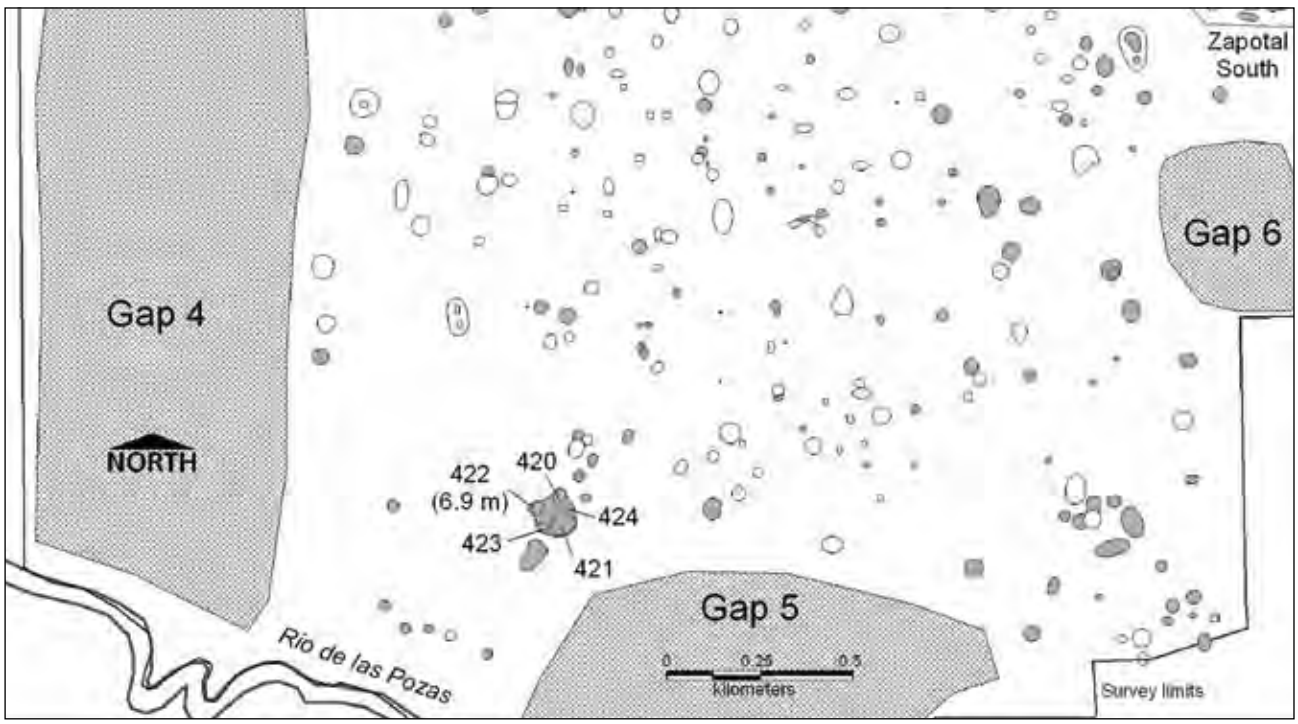

Figure 7.24. High structure in Complex 422 (shaded mounds not collected).

the margin of error of Abney level and tape elevation measurements for the mound and its platform. Mound 422 is at the west end of the plaza. It faces the second-highest of the plaza mounds, 421, with a grand height of 6.6 m. Thus, these are nearly twin structures. Mounds 420 and 423 have grand heights of 3.1 and 2.6 m, respectively. There is no indication that they had the elongate form characteristic of the Standard Plan laterals. Although there are additional mounds clustered near the complex, the platform and its mounds are somewhat separated by a *bajo* surrounding the platform, and my definition of the complex is confined to the platform and its structures.

A cluster of small mounds is situated in the immediate vicinity of Complex 422, mainly to the north. The de las Pozas River is nearby to the south, with a line of small mounds paralleling it on an old levee. Other mounds are scattered in the vicinity, mainly north of Complex 422.

Chronology

No collection was obtained from mound 422, nor 424, the two largest structures. The other features yielded small collections, with no examples of Preclassic sherds and mainly Classic diagnostics, with one Middle Postclassic sherd.

The vicinity has all major periods well represented, with both Early and Late Classic. Preclassic occupation occurs in the vicinity even though the small sample from the complex does not attest to the Preclassic period. For the Postclassic period, only Middle Postclassic material is well represented, with light representation of the Late Postclassic.

Discussion of Complex 422

The complex is situated between Gaps 4 and 5 at the edge of residential settlement around Cerro de las Mesas. The group is a boundary complex in the settlement limits proposed for Cerro de las Mesas.

Notes

1 In the Smithsonian National Museum collections, for complex black-on-red incised examples see http://n2t.net/ark:/65665/3e275c33e-6ffe-4423-a4df-9a4d0b42a15d; for Dull Buff Polychrome and Mixteca-Puebla style polychromes, see http://n2t.net/ark:/65665/3f1c23c27-b419-405c-8f7c-b0bf321fb2df; and for large cookie-cutter style figurines see http://n2t.net/ark:/65665/3d3de-0b7e-5831-4e80-9f5b-4a20e6e20d4a. The only Postclassic pottery detected by Kruszcynski (2001:182) in his Cerro El Vigía survey was fragments of Texcoco Molded censers; Kruszcynski (2001:89–90) viewed San Marcos as Quemado phase, AD 600–900 and earlier, but the collections from Stirling are convincing that Middle Postclassic occupation occurred as well. San Marcos is a stronge possibility for a Tuxtlas site with immigrants in view of the parallels with Sauce ceramics.

Chapter 8

Monumental Complexes in the Eastern Central Block of the Blanco Delta

The first section in Chapter 7 describes the organization of Chapters 7–11. In this chapter, eastern Central Block complexes are discussed approximately in a west-to-east order (Figure 8.1), but major complexes are presented before some of their associated segment complexes within or on the edges of their settlement area. Zapotal, the first major complex, is outside the survey. We did not map Zapotal because another project under the direction of the late Arqueólogo Manuel Torres Guzmán was still in process and had mapped the complex. That map has not been published, but a simplified version appears in a display at the Museo de Antropología in Jalapa, Veracruz. I provide a stylized version to contextualize the nearby PALM survey. Several complexes defined during pedestrian survey near Zapotal are small monumental complexes characterized by a mound between 7 and 15 m in total height: Complexes 1564, 1613, 1574, 1377, 1464, and 1473. The first three appear on Figure 7.1 but discussion is deferred until this chapter because of their spatial proximity to Zapotal.

In the Central Block survey, monumental complexes were mapped during PALM 1 as crews moved eastward from Cerro de las Mesas, aiming toward Azuzules, another major complex. Complexes included in the eastern Central Block section are Palmas Cuatas, Tiesto, Villa Nueva, 1094 (Molina) Complex, Fraternidad, Azuzules, and Azuzules East. Due to time constraints during PALM 1, the survey area narrowed progressively eastward. Although the core of Azuzules was mapped, we had insufficient coverage of its surroundings. This situation was partially remedied during PALM 2 through three extensions. The extensions are addressed in a separate subsection due to slight changes in survey procedures, as described in Chapter 3.

We mapped more separated monumental platforms during survey of the eastern Central Block, and these structures are more characteristic in Late Classic settlement patterns (further discussed in Chapter 13). The major complex at the eastern end, Azuzules, likely functioned during the Early Classic period as a secondary center, but it was primarily a Late Classic complex, which may account for the number of monumental platforms in the eastern Central Block. An initial overview of chronology provides a backdrop for the sections about individual monumental complexes.

Preclassic occupation is concentrated at Palmas Cuatas, with a scattering elsewhere (Figure 8.2). The Azuzules area at the east end of the Central Block is more lightly occupied than later during the Classic period (Figure 8.3). Early Classic diagnostics continue to be concentrated at Palmas Cuatas, with considerable representation to the east in the proposed

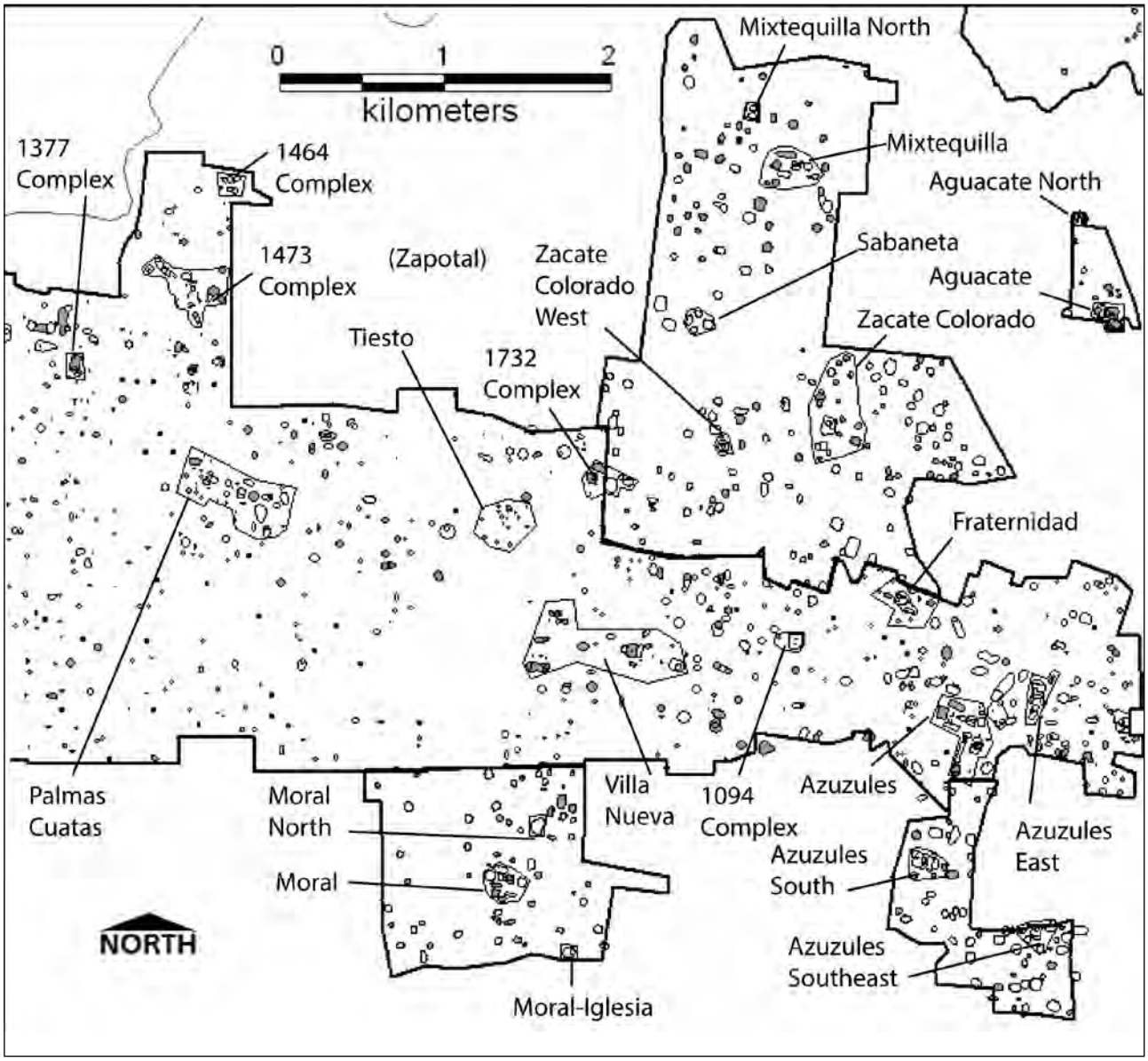

Figure 8.1. Monumental complexes and features are labeled in the eastern Central Block. See Figure 7.1 for high structures 1564, 1613, and 1574. Features shown in gray were not surface collected.

extent of the Azuzules settlement (Figure 8.4). Early Classic Tendency diagnostics are more markedly concentrated at Azuzules and to the south near outlier monumental platforms (Figure 8.5).

Late Classic diagnostics are particularly concentrated at Azuzules and segment complexes in its proposed settlement area (Figure 8.6). Nevertheless, concentrations also occur to the west in the general vicinity of Zapotal.

Postclassic diagnostics are scattered throughout the eastern Central Block, with the Azuzules area well represented, raising the possibility of some continuity in occupation. Postclassic materials are much more abundant to the west, however, forming part of the rural occupation associated with Sauce in the western Central Block (Figure 8.7).

Separation of the Middle Postclassic diagnostics yields a closely parallel picture of occupation to that for the general Postclassic (Figure 8.8). The Late Postclassic, although depauperate in diagnostics, suggests sparser occupation, but also concentrated more to the west than the east (Figure 8.9).

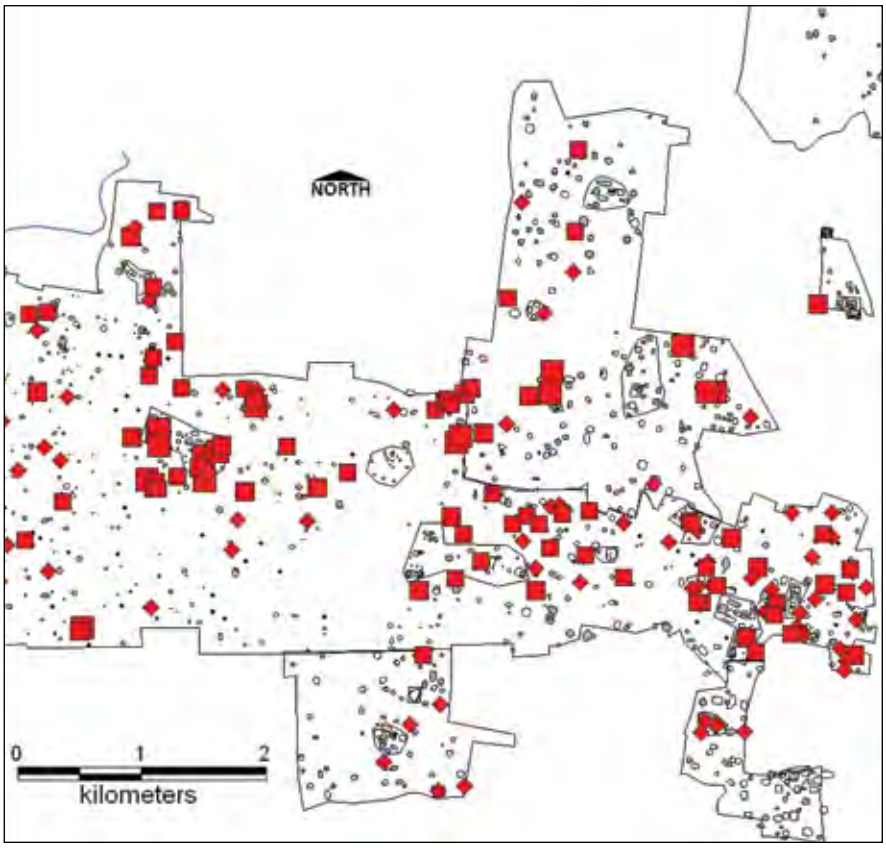

Figure 8.2. Eastern Central Block, Preclassic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

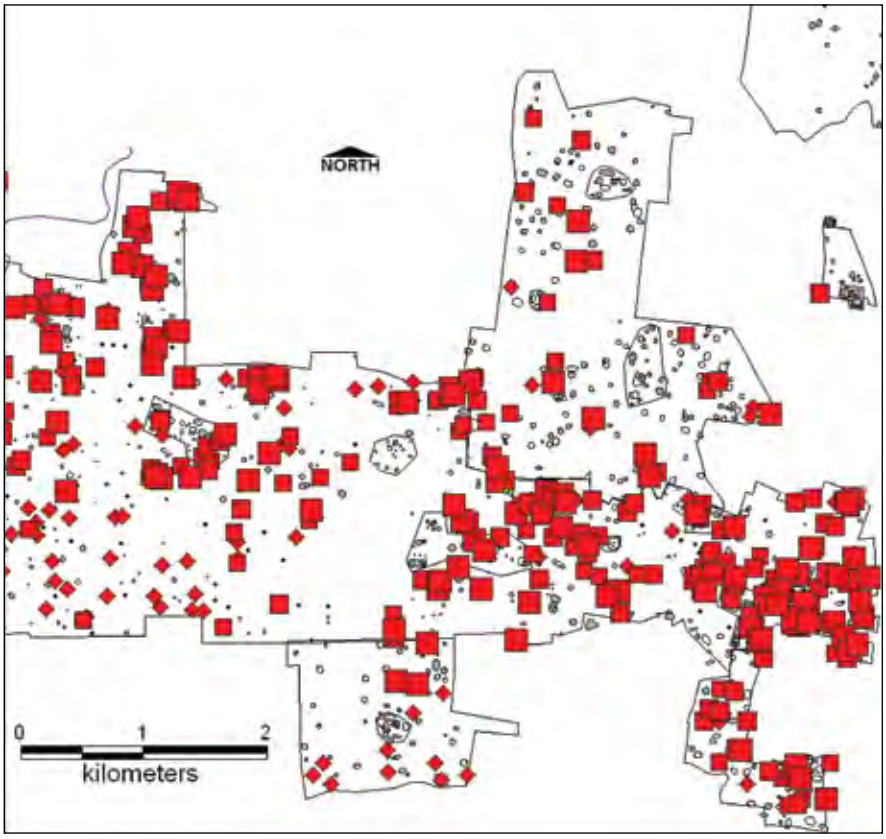

Figure 8.3. Eastern Central Block, Classic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

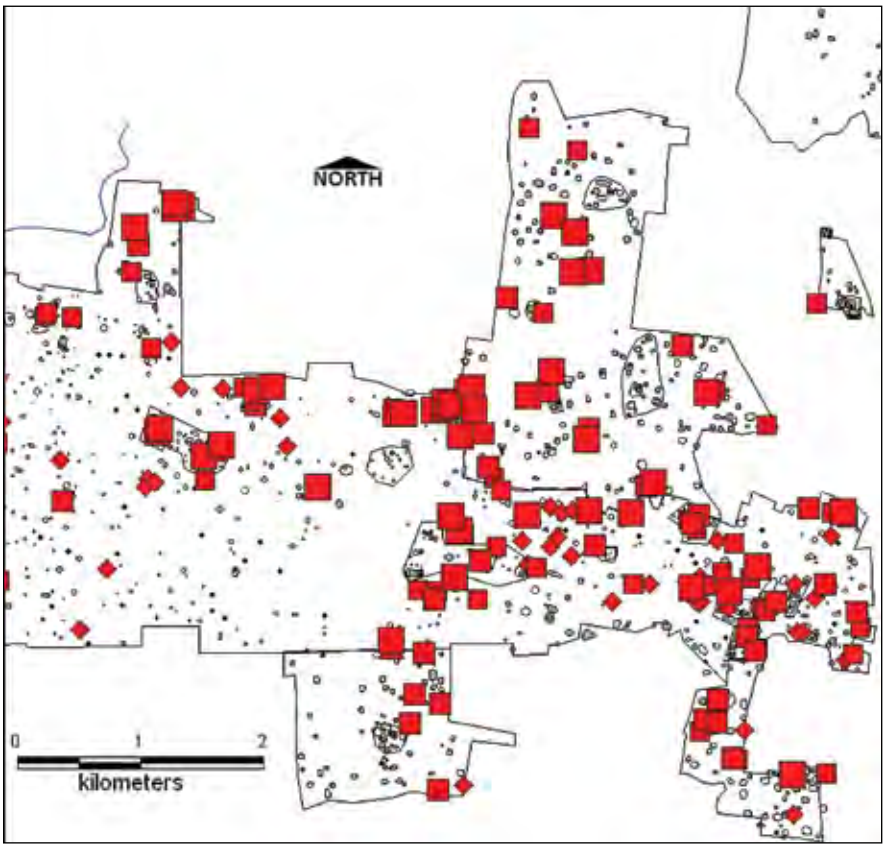

Figure 8.4. Eastern Central Block, Early Classic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

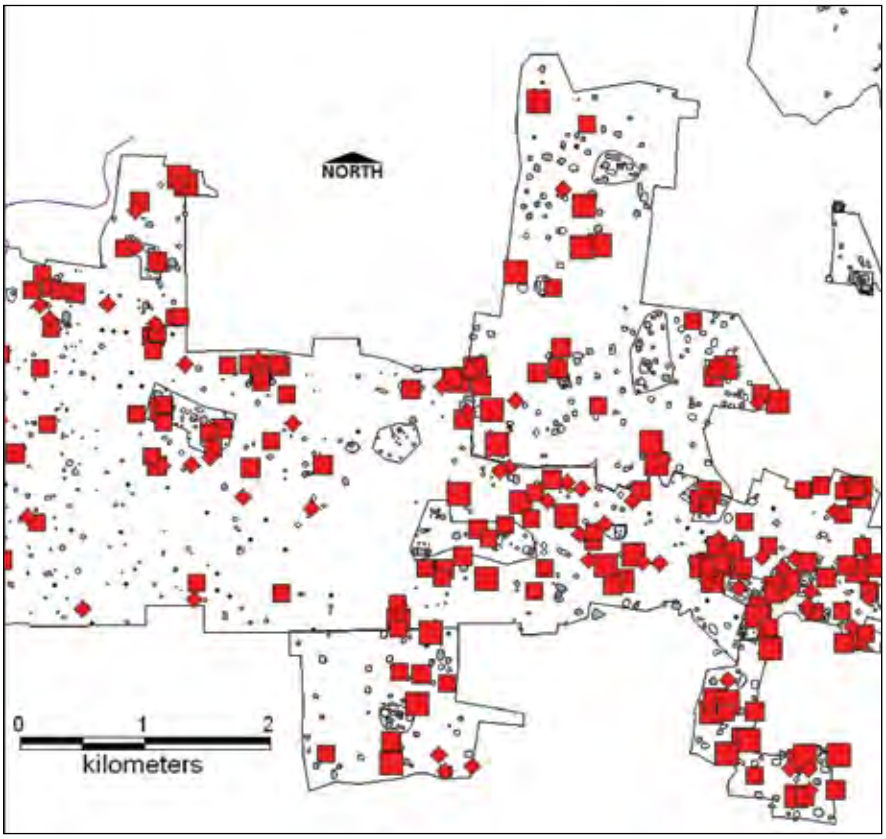

Figure 8.5. Eastern Central Block, Early Classic Tendency diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

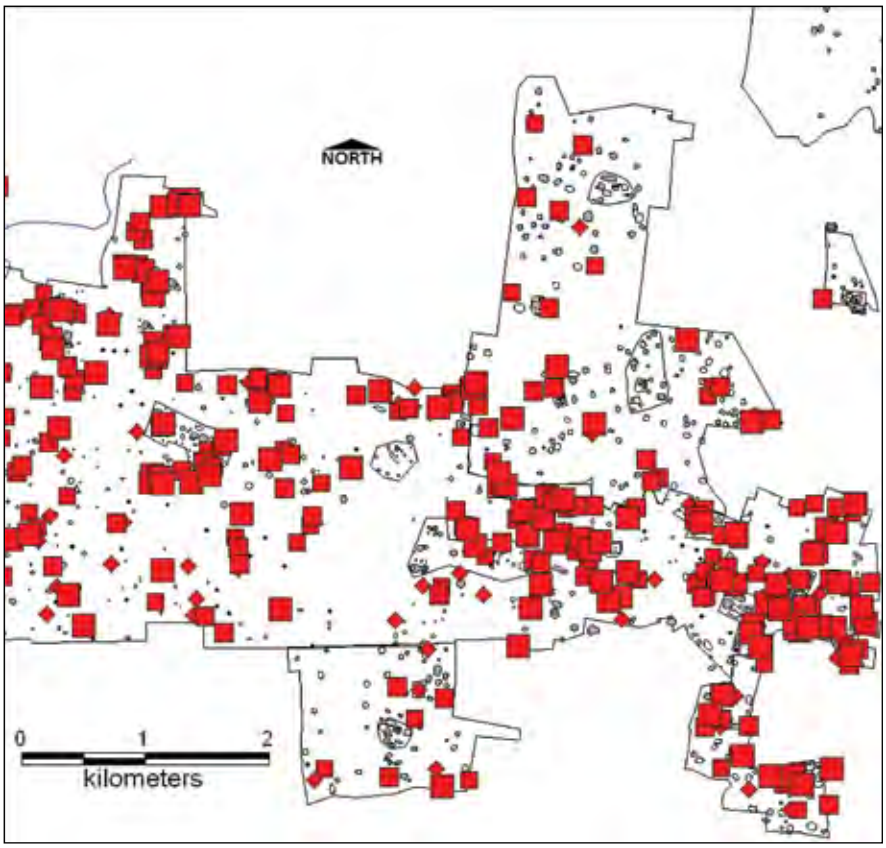

Figure 8.6. Eastern Central Block, Late Classic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

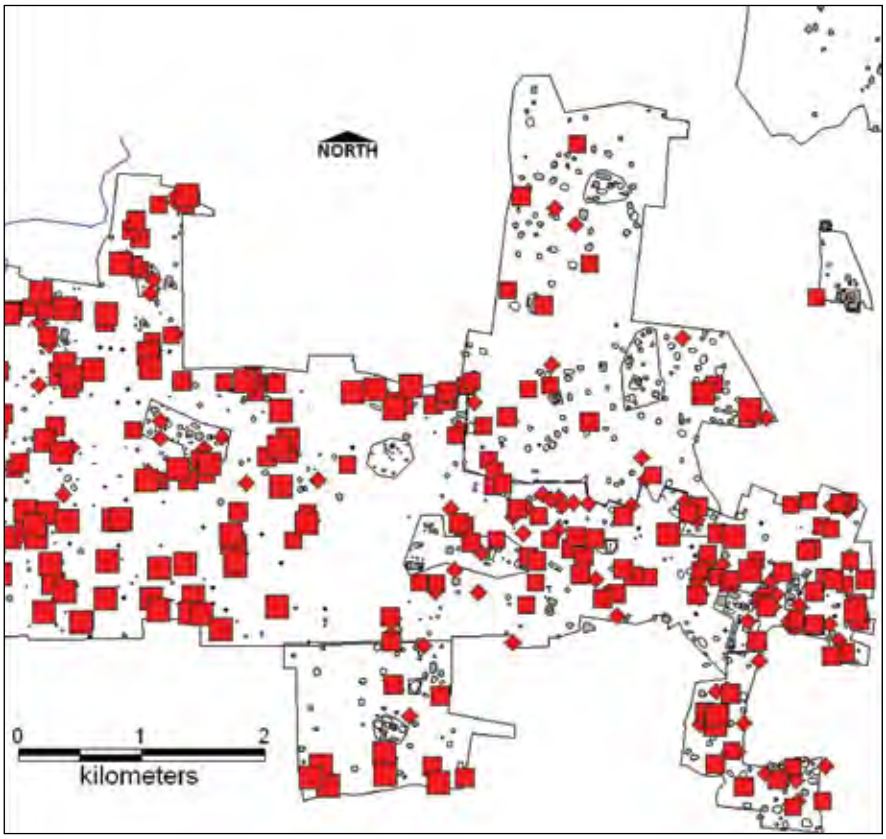

Figure 8.7. Eastern Central Block, Postclassic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

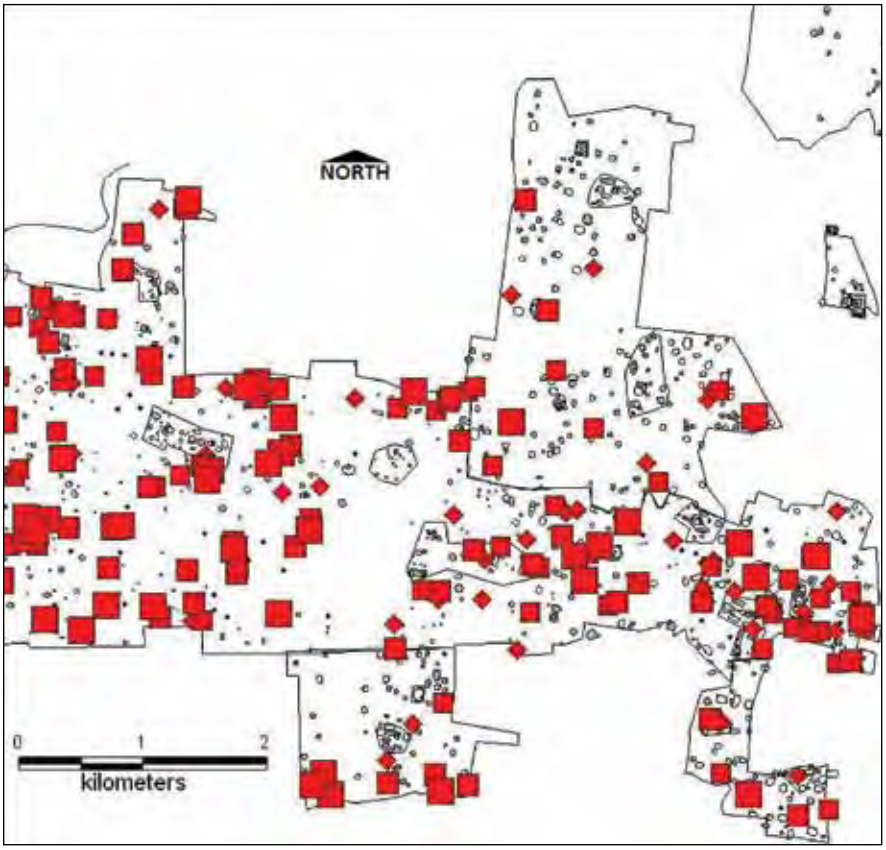

Figure 8.8. Eastern Central Block, Middle Postclassic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

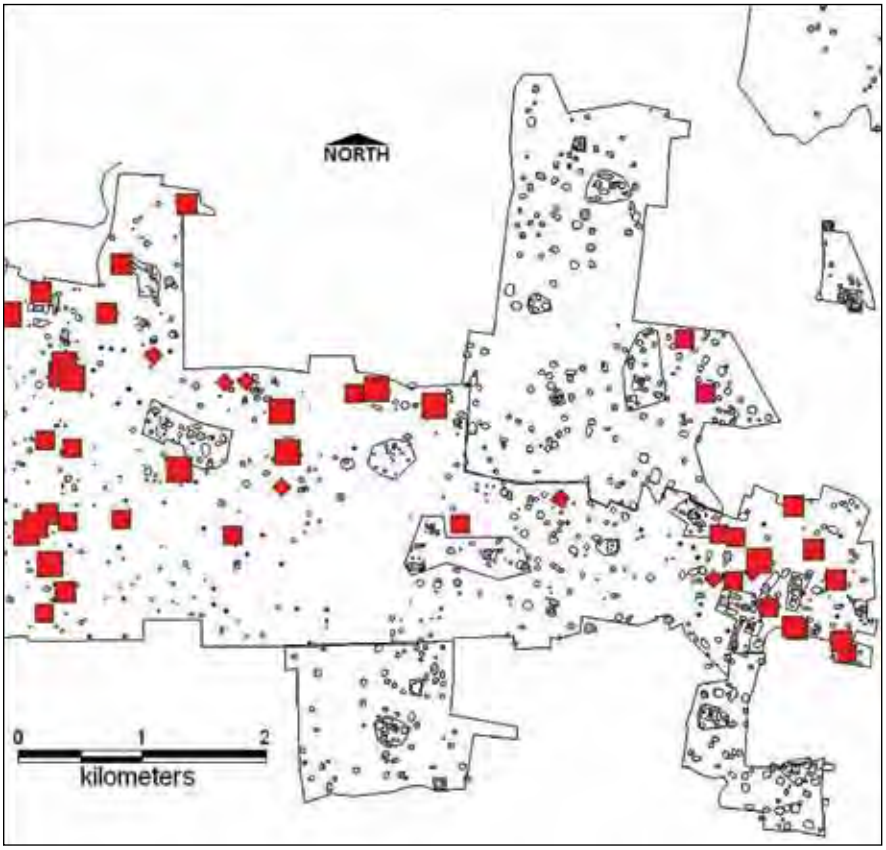

Figure 8.9. Eastern Central Block, Late Postclassic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

Zapotal Complex

Description

Zapotal is a *Zona Arqueológica* administered by the Instituto Nacional de Antropología e Historia, established following a project directed by the late Manuel Torres Guzmán (Figure 8.10). Zapotal immediately adjoins the Central Block survey and is represented by a "dent" in the survey northern limit based on the road that circles the southern part of the site and *ejido* of the same name. (Figure 8.11). A further small dent in the Zapotal partial outline reflects the position of the massive platform where Cerro del Gallo is situated. Here I include a simplified rendition of Torres Guzmán's project map, including information for heights of structures, but the information is tentative, as the contour lines on that map are difficult to follow (Figure 8.10). The scale is more reliable, as I was able to calibrate it with the Compañía Mexicana de Aerofoto controlled aerial mosaics.

To clarify the discussion, I arbitrarily assigned letters to the mounds. The mapped area discussed occurs roughly in the center of the modern *ejido* settlement, and it is virtually certain that additional mounds, not so prominent, occur in the area covered by streets and houses in the *ejido*. Streets and houses have caused significant alterations of the topography.

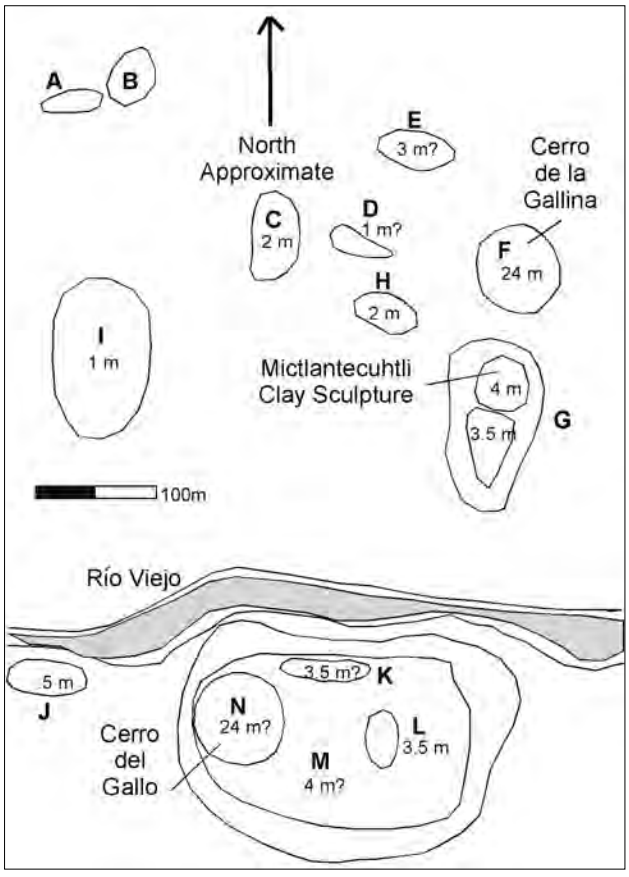

Figure 8.10. Approximate placements of Zapotal mounds, after map in the Museo de Antropología and personal observations.

Torres Guzmán excavated in mound G immediately south of Cerro de la Gallina (Torres Guzmán 1972, 2004; Torres Guzmán et al. 1975). The results of the excavation remain only partially published. Mound G (Montículo 2) yielded several strata with burials or offerings, but the most striking discovery was the "Mictlantecuhtli" sculpture, representing the Lord of the Underworld, seated in a temple with painted murals, created at life-scale, made from painted unfired clay. Outside the temple, later burials with elaborate offerings suggest honored persons, and the pottery suggests a Late Classic period date. Also deposited later, a row of large ceramic sculptures appears to represent a procession near the temple. Mound G is extensive, possibly forming a palatial compound at some point, but apparently primarily representing first a shrine and then a burial area. The slightly lower area projecting southward raises the possibility that mound G represents a mound-terrace, perhaps an elite residence, but the funerary materials are extraordinarily lavish, involving multiple interments, which suggests a structure that was more than an elite residential location.

Cerro de la Gallina (F) is a conical mound fronting a plaza with two laterals (E and H), apparently of unequal height. At the west end of the plaza, a low mound (D) is followed by a slightly higher one (C). D is crossed lengthwise by a street, and C lies centered on the intersection of two streets. Consequently in neither case can we evaluate whether a ballcourt was present, but mound C, on the basis of its size and position, is the more likely candidate, and I treat it as a possible ballcourt (thus the layout is likely SPPG-2a).

The Cerro de la Gallina group is not the only SPPG at Zapotal. South across the seasonal channel of the Viejo River lies the extraordinarily massive platform M, with Cerro del Gallo (N) and two other structures on top (K and L). Mound K forms a single lateral for the Gallo conical mound but mound L is not a ballcourt; it is slightly elongated. Thus, the Cerro del Gallo group constitutes a Partial SPPG, Variant D, but Standard Plans or variants are not normally placed atop a massive platform. At the southwest plaza group in the Madereros complex along the Upper Blanco, this same arrangement appears, but not on a massive platform.

Platform M is approximately 250 m by 175 m according to the contour map, the second largest base for

a rectangular platform known to date for the WLPB. At Nopiloa platform 6382 is slightly larger, 264 by 192 m and 7.4 m high, but some of that platform likely is underlain by a higher ridge. In contrast, Platform M is entirely built with fill or other structural elements. The height of Platform M is at least 4 m, possibly higher. A gentler descent and projection to the northeast from mound M probably indicates a ramp or stair. Today, soccer is played on the plaza in front of Cerro del Gallo, and the modern cemetery occupies the southwest corner. Stirling (1941:279) reported a crudely carved stela from Cerro del Gallo. He did not illustrate it, and its whereabouts are unknown.

Surroundings

Zapotal, like Azuzules, is positioned alongside the Viejo River, which bisects Zapotal. It partly cuts through Azuzules as well, since Azuzules East is across the riverbed. Another case divided by a river is Madereros-Tilcampo along the Blanco, so the Zapotal situation is not unique. In contrast to Zapotal, Cerro de las Mesas is not as close to the channel, although only a short distance south of it. The PALM 1 survey reached the western, southern, and eastern limits of the *ejido* town. Several high structures (ca. 7–15 m) were recorded by pedestrian survey quite near Zapotal, as will be discussed. Complex 1473, located southeast of Zapotal, also was recorded during pedestrian survey, but a contour sketch was created to better represent the layout. Most of the other high structures near Zapotal have contiguous mounds, as does Complex 1473.

Chronology

Vessels placed with the burials above the level of the Mictlantecuhtli sculpture include Late Classic diagnostics. Zapotal appears to be predominantly Classic period in date with respect to mound G, the Mictlantecuhtli mound. The Gallina SPPG and Gallo group conceivably had different timings for their major construction, but we lack chronological data. Single lateral Standard Plans are more characteristic during the Late Classic period, with double laterals more common during the Early Classic period. The Gallo group presents a single lateral, but the Gallina group has two.

In the immediately surrounding survey area, Preclassic diagnostics form a light scatter, as do Early Classic and Early Classic Tendency diagnostics. Late Classic diagnostics are relatively dense, and Middle Postclassic diagnostics are abundant also. Late Postclassic remains are sparse.

Discussion of Zapotal Complex

Given available information, it is difficult to situate Zapotal within WLPB settlement patterns. Because of its sizable constructions, Zapotal seems likely to have been a secondary center during the Early Classic period, perhaps focused on the Gallina group. The Gallina group is not of exceptional size. A case can be made that Zapotal functioned as a primary center during the Late Classic period. The sheer size of platform M and Cerro del Gallo would be surprising in a secondary center. Also, as mentioned, Stirling (1941:279) reported at least one stela there, and otherwise stelae or other stone monuments are only known from primary centers. The absence of a ballcourt in the Gallo Partial SPPB, Variant D, would be anomalous in a primary center, but conceivably the Gallina SPPG with a likely ballcourt continued to function.

If constructed earlier, the Gallina group may have been the focus of a secondary center to Cerro de las Mesas, but continued in use during the Late Classic period. The unusual character of the Gallo arrangement, and the exceptional scale of platform M and the mounds atop it, raise the possibility that Zapotal represents an episode of political independence as a primary center. If so, this episode likely falls within the Late Classic period, when other primary centers, such as Nopiloa, Azuzules, and Ajitos-Pitos, express various architectural innovations that diverge from Standard Plan principles. The unique feature of the Gallo group is placement of a Partial SPPG on a massive platform.

Contributing to the likelihood of an episode of political independence is the presence of several high structures in the immediate vicinity of Zapotal. Although their functions are uncertain, some of these mounds may have supported elite residences. The customary monumental palatial platforms are absent save one (Feature 1473) located in an aberrant arrangement. If it was a primary center, Zapotal deviated architecturally from other Late Classic primary centers with nearby palatial rectangular platforms, for example, Azuzules and Nopiloa. One exception near Zapotal is platform 1473, which is distinct from other rectangular palatial platforms in its accompanying construction.

Five complexes are high structures detected in the pedestrian survey. The 1613 Conical, Contiguous Mounds, the 1574 Conical Mound Group, the 1377 Conical, Contiguous Mounds, the 1564 conical-on-platform, and the 1464 Conical, Contiguous Mounds are distributed in a half-ring around Zapotal to the east, west, and south, ranging from 0.3 to 1.4 km from Cerro del Gallo.

Complex 1377 mounds are similar to Platform 1473 in having an extended access platform with mounds atop it. The combination of contiguous mounds and extended access mounds is dissimilar to the rectangular monumental platforms in the vicinity of Azuzules and Nopiloa.

Unfortunately, we lack any clues about the chronology of a putative episode of political independence of Zapotal in relation to Azuzules, which is not far away, 6.3 km. Various scenarios are possible, such as a breakaway polity that defeated Azuzules, a decline of power at Azuzules that permitted Zapotal to become independent, or a sequence of rule in which Azuzules declined and Zapotal subsequently replaced it. Perhaps none of these ideas is valid, and Zapotal remained a secondary settlement. Without better chronological information, we cannot evaluate these possibilities.

The presence of possibly ritual or elite residential monumental construction in an arc around Zapotal argues strongly that there was an episode of Zapotal history in which it functioned as a primary center, as does the reported stone monument. If this was the case, a reasonable guess would place it later than the apogee of Azuzules. Such a placement would accommodate the deviation from preceding architectural norms seen at Azuzules.

Unlike Azuzules, which has a possibility of gaps in settlement on its periphery that help delimit a settlement area, there is no clear indication of settlement limits for Zapotal. The relatively close positioning of the high structure segments to the core monumental construction suggests the settlement limits may have been closer than for Cerro de las Mesas and Azuzules. In part, the course of the Viejo River likely delimits Zapotal settlement to the west because residential mounds diminish close to the river. This observation may be misleading, however; if the channel was active during the Late Classic period, seasonal flooding may have deposited sediment that obscures a number of residential mounds or artifact concentrations. Additional survey to the north and east of Zapotal will be required for adequate assessment of possible settlement limits. To the south, no clear gaps in settlement occur, perhaps due to earlier Classic period occupation and to later Postclassic occupation or reoccupation.

Pedestrian Survey Complexes with High Structures (7–15 m) near Zapotal

This section describes the high mound complexes recorded in the vicinity of Zapotal during regular pedestrian survey. It includes those that fall just west of the arbitrary division of the Blanco delta survey (the west half is in Chapter 7), but are taken to be part of the array of high structures in the near vicinity of Zapotal.

Complex 1564

Description

This complex is a Conical (1564), Contiguous Mound. Complex 1564 is damaged by looting, highway construction, and a drainage ditch alongside the road. Part of the lobed underlying platform (1565) appears to have continued across the highway, where the separated portion bears a separate feature number, 1566 (Figure 8.11). Mound 1564 is 6.2 m high, but 9.2 m in grand height when the underlying platform 1565 is taken into account. The recorded total height of 1564 likely does not represent its maximum original height. Collection 1567 derives from a looters' pit cut into 1564. Mounds 1499 and 1563 are in close proximity to the southeast but are not contiguous and do not establish a formal arrangement.

Surroundings

The Viejo channel runs immediately south of the complex. Nearby mounds within the survey area are situated a short distance away to the southeast and nearer to Zapotal. The complex is approximately 1.4 km northwest of Cerro del Gallo.

Chronology

Although 1564 yielded no collection except for the looters' pit, the other structures each did, with 232 sherds in total. No Preclassic sherds are present, and Classic sherds predominate, with considerable representation of the Postclassic as well. Within the Classic period, the Late Classic produced most of the diagnostics, with scant representation of the Early Classic or Early Classic Tendency categories. For the Postclassic period, diagnostics favor the Late Postclassic over the Middle Postclassic among the contiguous mounds, but the opposite is true for 1499, which favors the Middle Postclassic. Apparently the 1564 complex was one of the locations selected for reoccupation during the Postclassic period.

Discussion of Complex 1564

This complex falls within the arbitrarily defined western Central Block but, along with some other complexes in the vicinity of Zapotal in the eastern Central Block, Complex 1564 may be an outlying structure related to Zapotal. Although 1564 is approximately

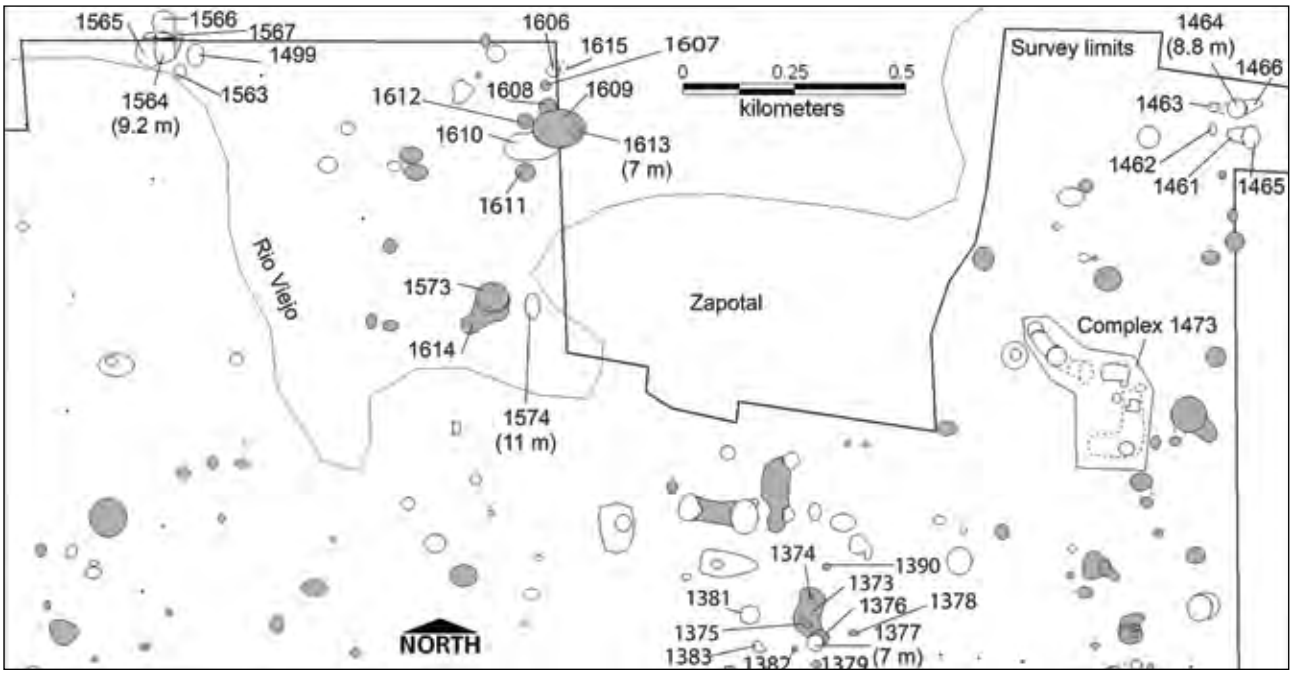

Figure 8.11. High structures in Complexes 1564, 1613, 1574, 1377, and 1464. Features not collected are in gray.

equidistant between Zapotal and Cerro de las Mesas (Ojochal segment), it lies on the opposite bank of the Viejo River from Cerro de las Mesas, and there is a noticeable diminution of residential remains between 1564 and Cerro de las Mesas in the area of the river channel. Thus, although 1564 might have formed a border complex within the settlement area of Cerro de las Mesas, the near absence of intervening settlement makes 1564 more likely to have been associated with Zapotal. Further, the likely apogee of Zapotal in the Late Classic period is more in keeping with the ceramic diagnostics in Complex 1564.

Complex 1613

Description

In this Conical, Contiguous Mounds group, mound 1613 (2.5 m high) sits atop 1609 (4.5 m high), yielding a grand height of 7 m (Figure 8.11). The 1609 platform is extensive compared to the modest diameter of 1613. Even lower in elevation is 1610, an elongated terrace or access way. Mound 1608 is contiguous to the 1609 platform on the north side, but considerably lower, only 1.8 m high. Five mounds are nearby but not contiguous. None establishes an obvious formal arrangement, but they are clustered around the conical and its contiguous mounds, similar to a Conical Mound Group.

Surroundings

The complex sits at the western edge of the Zapotal *ejido*, approximately 0.6 km from Cerro del Gallo, with scattered residential mounds to the west; no information is available concerning occupation in the adjacent part of the town because the structures mapped in the Torres Guzmán project are farther east.

Chronology

Almost none of the Complex 1613 features were collected, with only 1610 yielding 98 sherds. In this collection, Classic diagnostics predominate, with most of those with a more specific affiliation favoring the Late Classic (17 sherds versus three Early Classic and six Early Classic Tendency). The Preclassic is quite scarce, and the Postclassic is not abundant. Postclassic diagnostics cannot be further specified between the Middle and Late Postclassic. At two nearby residential mounds in the complex, 1615 and 1606, collections were abundant, with no Preclassic and scant Postclassic pottery. Classic period diagnostics were abundant, with both Early and Late Classic, but more of the latter.

Preclassic sherds are represented in a scatter of locations to the west of Zapotal, as are Postclassic sherds, but Classic sherds predominate. Early Classic and Early Classic Tendency categories are not as strongly represented as Late Classic categories. Within the

Postclassic period, the Middle Postclassic is more abundant than the Late Postclassic.

Discussion of Complex 1613

Given its size and proximity to the Zapotal complex, I assume Complex 1613 was part of the Zapotal settlement. The chronological emphasis on the Late Classic period is in keeping with the probable apex of construction at Zapotal.

Complex 1574

Description

This complex forms a small Conical Mound Group. A high (11 m) conical mound, 1574, is just east of a mound (1573, 2.7 m high) that has an elongated terrace (1614, 1.7 m high; Figure 8.11).

Surroundings

A scatter of smaller residential mounds occurs in the vicinity. The complex is located immediately north of the Viejo River and approximately 0.4 km from Cerro del Gallo.

Chronology

The only collection is from 1574 itself. Among the 38 sherds, Classic diagnostics predominate, with no Preclassic and one Postclassic sherd. More specific chronological indications are too few to warrant conclusions, but both Early Classic Tendency and Late Classic sherds occur. The chronology of mounds in the immediate vicinity has been discussed above for Complex 1613.

Discussion of Complex 1574

The complex is situated immediately west of the western boundary of the Zapotal *ejido* and likely constitutes part of the construction at Zapotal. Conical mounds with contiguous mounds are common among the outlying monumental complexes surrounding Zapotal.

Complex 1377

Description

This Conical, Contiguous Mounds group is located south of Zapotal (Figure 8.11). Mound 1377 is 7 m high, with an extended projection or access way (1374, 0.8 m high) a terrace (1376, 0.3 m high), and two mounds located on the access way (1374 and 1375), both with very scant elevation. An elongated access way with mounds atop is also characteristic of Complex 1473. This unusual form is found only in the Zapotal vicinity.

Surroundings

Mound 1377 lies approximately 0.7 km south and slightly east of Cerro del Gallo. The complex is part of a scatter of mounds extending south from Zapotal and lacking any formal arrangement.

Chronology

The only structure collected was 1377. No Preclassic sherds were obtained, and Classic diagnostics predominate by far, with a modest representation of Postclassic sherds that could not be further separated into Middle versus Late Postclassic. Within the Classic period, Late Classic diagnostics are more abundant than those for the Early Classic and Early Classic Tendency groups combined.

South of Zapotal, Preclassic sherds are infrequent among the scattered mounds. The Classic and Postclassic periods are well represented, however. Early Classic categories are not abundant, but those for the Early Classic Tendency are well represented, and Late Classic sherds are even more abundant. The Late Postclassic is scarcer than the Middle Postclassic.

Discussion of Complex 1377

This complex is likely an outlying element of the Zapotal settlement in view of its close proximity and chronology.

Complex 1464

Description

This complex is a Conical (1464), Contiguous Mounds group located immediately east of Zapotal (Figure 8.11). The relatively high (8.8 m) conical mound has an extended terrace (1466) to the east and a faint connecting raised area to the west leading to mound 1463. Both of the connected features are much lower in elevation, 1.8 and 1.2 m high, respectively. Immediately to the south is a similar pair of structures, with 1465 (2.2 m high) having a lower terrace (1461, 1.4 m high) extending west. A slight distance farther west is low mound 1462 (1.2 m high).

Surroundings

Complex 1464 is approximately 1.4 km northeast of Cerro del Gallo. A scatter of other mounds extends southward from this conical mound, its contiguous structures, and associated mounds toward Complex 1473, a much more sizable monumental complex.

Chronology

Each of the contiguous structures yielded a collection, with a total of 394 sherds. None are Preclassic

diagnostics, and the great majority are Classic (127), with a lesser quantity (62) of Postclassic sherds. Late Classic diagnostics are considerably more abundant than Early Classic or Early Classic Tendency sherds. Within the Postclassic materials, only Middle Postclassic sherds provide a narrower time assignment—there are no Late Postclassic diagnostics. For the three structures to the south, which also each yielded abundant collections (335 total sherds), a similar pattern of diagnostics is present (e.g., a single Preclassic sherd).

Discussion of Complex 1464

Complex 1464 is likely an outlier construction that is part of the Zapotal settlement, forming part of a ring of mainly conical and contiguous mound groups.

Platform 1473 Complex

Description

Complex 1473 is a set of contiguous structures associated with a monumental rectangular platform (Figure 8.12). This unique complex has an alignment of mounds, with descending elevational segments in a slight arc to the northwest from the large rectangular platform (1473). The alignment could have provided a grand ascent toward the largest structure, 1473. This alignment earned the complex its nickname of the "elephant mound" because of the imagined resemblance to an elephant's trunk. The "trunk" is interrupted with two mounds (1412 and 1416).

An extended elevated access with structures on it also occurs in more modest proportions in Complex 1377, and several high structures near Zapotal have extended terraces or other sets of contiguous structures. The monumental platform, 1473, is unusual in having two low projections to the north and south; it also has indications of a possible ramp or stair on the east side.

An additional low platform (1446) extends south from platform 1473, and I treat 1446 as a structure that underlies the rectangular platform and possibly descends as the "trunk." Excavation will be required to determine the stratigraphic relationships, however. This underlying platform has a projection westward at the south end, which descends and likely afforded a ramp or stair. The underlying platform is level and straight toward the south, comparable in its well-defined, level surface to the platform (51) at the south edge of the main pond at Central Cerro de las Mesas. Two low mounds (1474 and 1445) are placed atop the underlying 1446 platform.

Other mounds occur in the close vicinity, with 1468 the most substantial, accompanied by a large terrace, 1469. This mound-terrace may constitute an elite residential location. Artificial *bajos* dot the area near the platform 1473 arrangement, especially to the east and south. One *bajo* is "nested" within the slight U-shape of the 1446 platform and represents a more formal placement. Looters' holes were abundant on mounds 1445, 1469, and 1473. A dirt road crosses 1416, and houses have disturbed several parts of the complex.

Surroundings

Residential mounds are lightly scattered in the vicinity of the complex, which is situated nearly 1 km east of Cerro del Gallo and likely constituted an associated monumental platform for Zapotal.

Chronology

None of the features immediately east or south of the U-shaped platform (1446) was surface collected. Collections derive from structures on the platform, the platform, and its northwesterly extension, as well as from one mound on a platform to the west (1415 on 1418). The complex has a trace of Preclassic diagnostics with a spotty occurrence: a few from the U-shaped platform (1446 is a collection from this platform), from the mound at its south end (1445), and from 1443 at the start of the curving extension to the northwest. Early Classic or Early Classic Tendency sherds are scarce, but the Late Classic is well represented in collections from the 1446 platform and the northwestern extension, including the nearby mound, 1418. The monumental platform itself, 1473, was not collected. The overall pattern suggests that the complex is predominantly Late Classic. Postclassic sherds occur in all collections at Platform 1473, however, likely indicating reoccupation or construction of some features subsequently, particularly 1412 and 1415, both in the northwest area. Among Postclassic sherds, few are specific to the Middle versus the Late Postclassic period, but the Middle Postclassic is better represented.

Among nearby surrounding mounds, diagnostics from the Late Classic are more strongly represented than the Early Classic or Early Classic Tendency categories. Preclassic diagnostics are present in a light scatter, and Postclassic diagnostics are present in a moderate scatter, with slightly better representation of the Middle than the Late Postclassic.

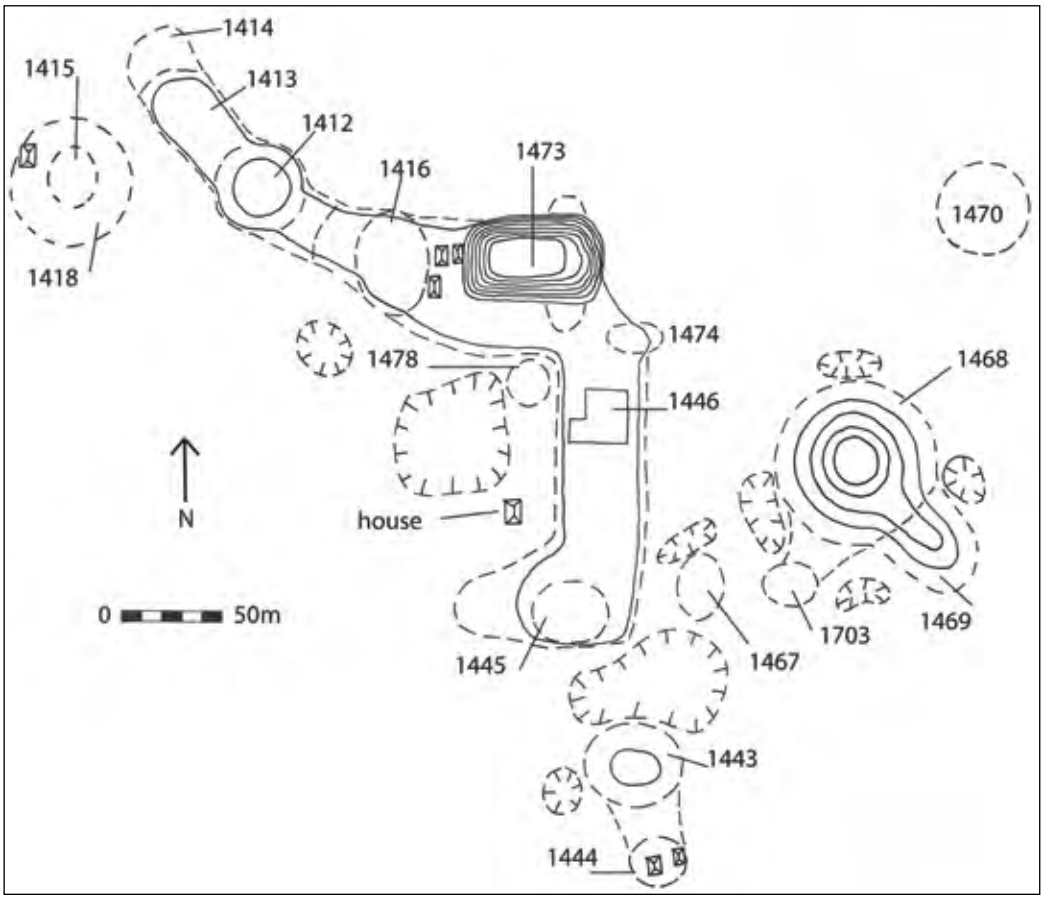

Figure 8.12. Platform 1473 Complex feature and surface collection numbers and approximate contours that were sketched using pedestrian survey data (surface collection area shown on Feature 1446).

Discussion of Platform 1473 Complex

This complex is the most elaborate of those located in an arc around Zapotal, with a monumental palatial platform as its most prominent structure. As with the other outliers and collections from residential mounds in the vicinity, Late Classic period ceramics are the most abundant, suggesting a temporal link with the Mictlantecuhtli G mound that Torres Guzmán excavated. The morphology of these outliers is distinct from that characteristic at two other Late Classic primary complexes, Nopiloa and Azuzules, both of which feature multiple monumental palatial platforms in their settlement area. Instead, Zapotal has primarily segment complexes with high structures detected during pedestrian survey.

Palmas Cuatas Complex

Description

Located 4.4 km east of Cerro de las Mesas, Palmas Cuatas is situated on the east side of a remnant branch of the Viejo River that trends southeastward from Zapotal. At Palmas Cuatas a Western Group and an Eastern Group can be analyzed separately (Figures 8.13, 8.14). Each has a partial or complete SPPG arrangement, but one arrangement definitely lacks a ballcourt and the other is uncertain in this respect due to disturbance.

Western Group

The group consists of several conical mounds, most of them grouped along the north and east sides of a central pond, with several small mounds ringing the pond on the south and west sides. This general pattern of placement of mounds around a pond is shared only with Central Cerro de las Mesas. Another *bajo* secondary in size is situated just west beyond the mounds on the west edge of the main pond. Two conical mounds (1655 and 1656) lie north and west of the secondary *bajo*. On the north side of the main pond, a Partial SPPG-C has two conical mounds (1592 and 1599) that face each other across a plaza that is delimited on the north and south sides by lateral mounds. This Partial SPPG, Variant C, is unusual because it presents two conical mounds combined with two laterals, but no ballcourt.

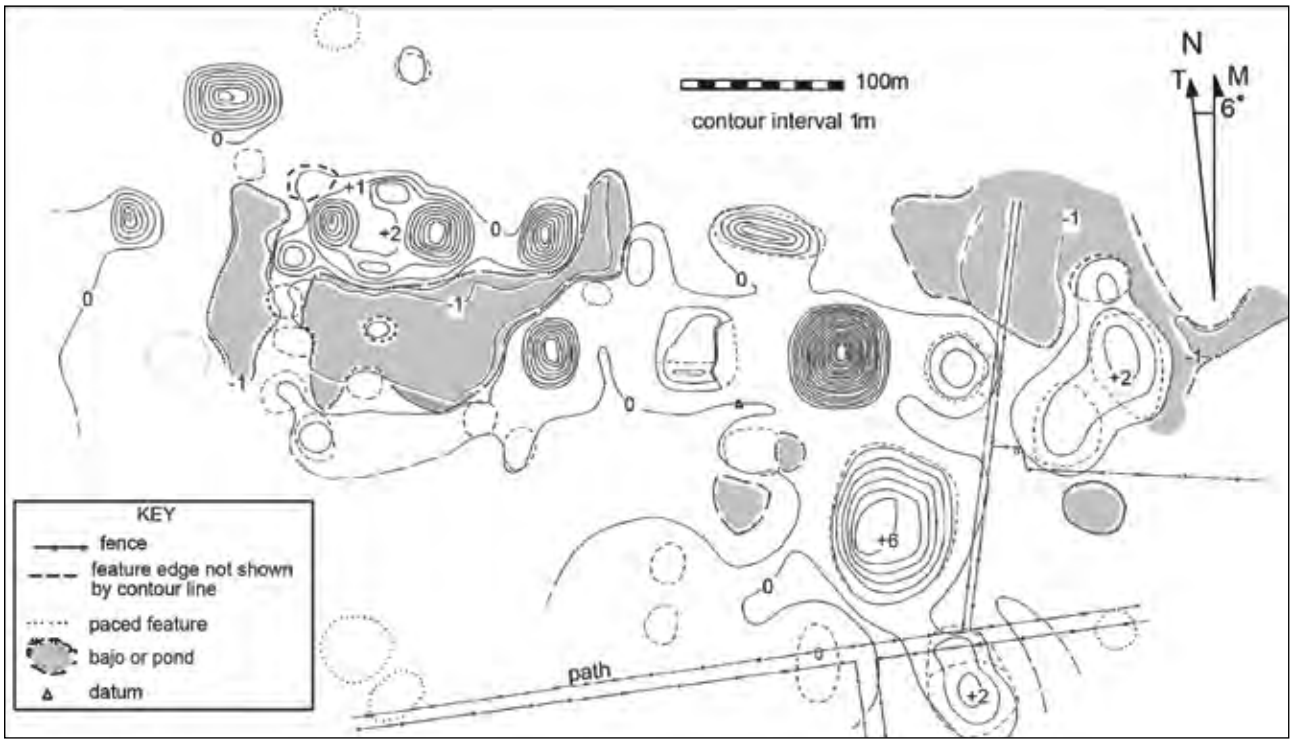

Figure 8.13. Palmas Cuatas contours, mapped with a theodolite.

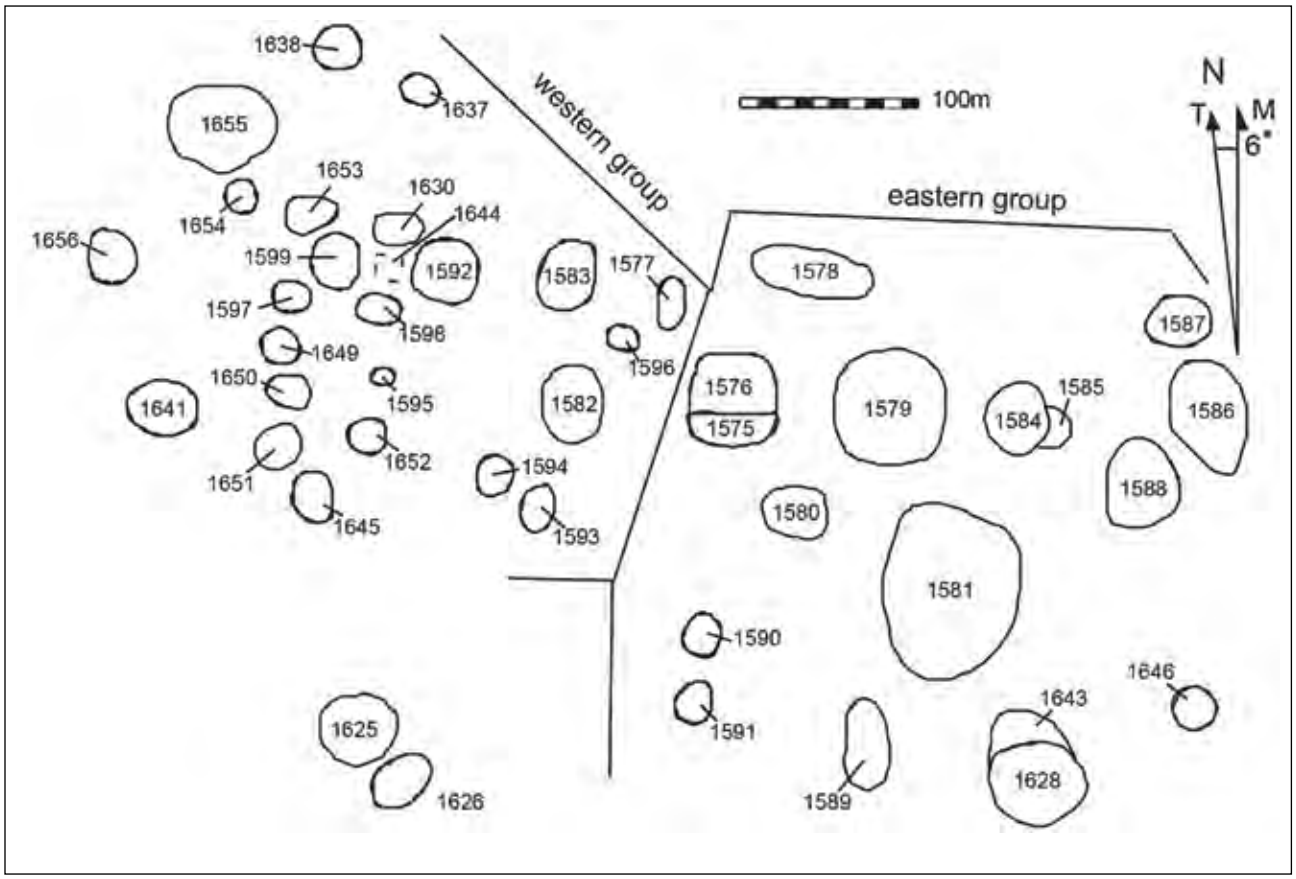

Figure 8.14. Palmas Cuatas feature numbers.

Eastern Group

In a SPPG-2a (?) pattern, a large conical mound 1579 overlooks a plaza to the west and is accompanied by two quite unequal laterals, 1578 and 1580. The mound on the west, 1575, and its apparent terrace, 1576, may be remnants of a ballcourt, but no conclusion can be made from the surface because the structures have been cut by brick-making on the east side, and grass pasture made surface evaluation difficult. The southern lateral mound had been cut at its east end, creating a modern borrow pit (shown as a *bajo*), possibly related to brick-making. There is no clearly rectangular platform in the Eastern Group, but 1581 may be such a platform and was considered comparable to Platform 1094, Molina, by field crews, although without mounds evident on top (perhaps due to heavy plowing). Additional mounds are scattered in close proximity to the Eastern Group.

Surroundings

Palmas Cuatas is situated just east of Gap 8 and is surrounded by scattered residential mounds in all other directions. The residential scatter is denser toward the northeast and east, however. The Tiesto Complex, dominated by a conical mound, is situated nearby, 1 km east of Palmas Cuatas. Palmas Cuatas lies nearly 2 km east of the suggested boundary for the Cerro de las Mesas settlement, signaled in part by Gap 8. Therefore, it is a promising candidate for a secondary center to Cerro de las Mesas.

Chronology

In both the Eastern and Western Groups of Palmas Cuatas, Classic diagnostics preponderate, with Preclassic ones also strongly represented. The Eastern Group and the Western Group SPPG mounds both exhibit a strong profile of Preclassic fill in structures as well as Classic period material. Without excavation, we cannot determine when these groups were first constructed; if the Palmas Cuatas area was a focus of Preclassic occupation, these sherds may have been garnered up for fill in later periods. The two groups have overlapping ceramic profiles, including both Early and Late Classic diagnostics. In the Eastern Group, Late Classic diagnostics slightly outnumber Early Classic and Early Classic Tendency combined. In contrast, in the Western Group the combination is considerably more abundant than the Late Classic diagnostics. Consequently, as with Cerro de las Mesas, Preclassic origins for the public foci are likely, and the two groups seem to have functioned contemporaneously, at least during part of their histories during the Classic period.

For the Postclassic period, occupational evidence in the Eastern Group is concentrated at two structures, mounds 1589 and 1628, with a lighter scatter of sherds at a few other mounds. Both mounds display earlier materials as well, and they likely were reoccupied. They are situated side by side at the extreme southeastern edge of Palmas Cuatas. The Postclassic diagnostics that are more specific temporally all pertain to the Middle Postclassic, not the Late Postclassic. Among collections of reasonable size in the Western Group, only 1594 stands out for the amount of Postclassic material, a small mound on the south edge of the mapped area.

Among surrounding mounds, Preclassic materials are concentrated either at mounds immediately south of Palmas Cuatas or those to the north and east. Palmas Cuatas and the mounds to the north and east form a loose cluster of Preclassic materials, slightly separated from the mounds nearer Azuzules farther east or others farther to the north. Classic diagnostics are more widely distributed around Palmas Cuatas than Preclassic ones, extending southward into the Moral area and more continuously north and east. Within the Classic period, these patterns hold for the Early Classic and the Early Classic Tendency diagnostics, but the Late Classic shows diminished evidence to the south and a stronger concentration east of Palmas Cuatas, again, slightly separated from the clustered materials around Azuzules or the somewhat lighter density for this period to the north. Postclassic materials also concentrate immediately east of Palmas Cuatas and slightly northeast. More specific attributions indicate this pattern is almost entirely due to Middle Postclassic occupation. Very few collections have any definite Late Postclassic sherds.

Discussion of Palmas Cuatas Complex

For the Preclassic period, Palmas Cuatas and nearby residential mounds represent a concentration of settlement, but we cannot ascertain if any of the monumental construction had an inception then. The agglomerative arrangements correspond to Cerro de las Mesas, however, and a Preclassic public focus is likely. For the Early Classic period, Palmas Cuatas lies nearly 2 km east of the suggested transition from the Cerro de las Mesas settlement, signaled in part by Gap 8. Therefore it is a promising candidate for a secondary center to

Cerro de las Mesas during the Early Classic period in view of the amount of construction. During the Late Classic period Palmas Cuatas and nearby residential mounds are slightly separated from and outside the proposed settlement boundary for Azuzules, suggesting Palmas Cuatas continued as a secondary center. Because settlement limits for Zapotal are unclear, its relationship to that center is also uncertain. In the Postclassic period Palmas Cuatas did not function as a monumental complex although occupation occurred in a scattered fashion in its vicinity.

The doublet of a presumed SPPG and a Partial SPPG is not akin to the "long plaza" chains described for southern Veracruz during the Late Classic period (Killion and Urcid 2001; Lunagómez Reyes 2002, 2011, 2014; Urcid and Killion 2008). In the Palmas Cuatas instance the groups do not form an alignment because their long dimensions are slightly offset, with intervening structures. The paired arrangements are more akin to the agglomerative quality of Cerro de las Mesas. One characteristic in common with the long plaza chains is the differential in the sizes of the plaza groups. The Palmas Cuatas Eastern Group is bigger.

Tiesto Complex

Description

The Tiesto Complex is dominated by a conical mound (1735) with adjoining mounds, surrounded by a cluster of relatively low mounds, with a *bajo* encircling them except on the north side (Figure 8.15). The mounds loosely frame a plaza area, and I classify Tiesto as a Conical Plaza Group. Across the *bajo*, other low mounds are nearby. This cluster lacks a ballcourt and monumental platform. The higher mounds 1736 and 1737 along with 1746 (with terrace 1738) are candidates for more imposing residences, but 1736 and 1737 form a contiguous line abutting the conical mound, aligning northward, and may, instead, have had a civic-ceremonial function. Although Tiesto has possible elite residential mounds, it is otherwise similar to the Conical Mound Group at Canal 2 in the interfluve area.

Surroundings

Tiesto is positioned 1.6 km east of the larger complex of Palmas Cuatas in an area with few surrounding mounds except to the west between it and Palmas Cuatas. Consequently, although some of the residential mounds are closer to Tiesto than to Palmas Cuatas, they may be as relevant (or more so) to the larger complex.

Chronology

Due to pasture, Tiesto yielded only two collections, one from the conical mound (1735) and another from a mound north of it. These collections diverge slightly from each other, with the one to the north showing more Postclassic and less Preclassic material. Both have primarily Classic diagnostics, however, with only a few sherds pointing more specifically to the Early, Early Classic Tendency, or Late Classic. Certainly fill in the conical mound included Preclassic sherds, minimally indicating occupation in the immediate area during that period.

West of Tiesto, there is only a light indication of Preclassic occupation, but a moderate representation of the Classic period as well as the Postclassic period. Within the Classic period, three mounds relatively near Tiesto suggest Early Classic occupation, but Late Classic indicators are found at many of the scattered mounds between Tiesto and Palmas Cuatas. The implications of this difference within the Classic period are difficult to evaluate, but Tiesto may have been slightly more important as a complex during the first half of the Classic period. For the Postclassic, the Middle Postclassic is well represented among the scattered residential mounds, but the Late Postclassic is present only in two collections.

Discussion of Tiesto Complex

Tiesto poses problems in regard to its position in the settlement hierarchy. To the west of Tiesto, Palmas Cuatas may have functioned as a secondary center for Cerro de las Mesas during the Early Classic period, and during the Late Classic period for Azuzules. The presence of a scatter of residential mounds linking Tiesto and Palmas Cuatas and a gap in settlement eastward toward Villa Nueva suggest Tiesto is more likely to be related to Palmas Cuatas (1.5 km away) than to Villa Nueva. The latter lacks a SPPG, which is one indication of a broader span of central activities at Palmas Cuatas. Tiesto is 1.2 km from the rectangular platforms at Villa Nueva, which I suggest were segments of the Azuzules settlement.

Available data do not clarify if Tiesto should be viewed as a segment of the Early Classic and Late Classic Palmas Cuatas settlement, a separate tertiary/quaternary level center during those periods, or, during the Late Classic period, a boundary complex for Azuzules. During the Late Classic period, because Tiesto occurs roughly along a line between Gaps 8 and 9, it may have served as a boundary complex. During the Early Classic period, on the model of Canal 2, I

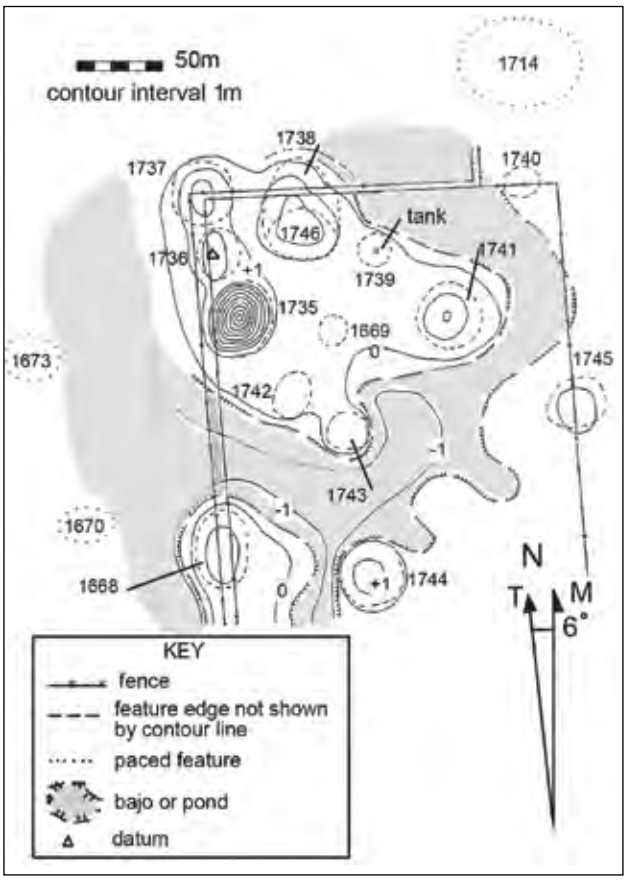

Figure 8.15. Tiesto feature numbers and contours, mapped with a theodolite.

treat it as a tertiary/quaternary settlement because we have few clear indications of segment monumental construction for secondary centers, and likely segments for them involve monumental palatial platforms, not Conical Plaza Groups.

Villa Nueva Complex

Description

Villa Nueva has three defined groups and an intervening scatter of mounds (Figures 8.16, 8.17).

Eastern Group

This group has two monumental platforms on the east, separated from mounds located to the west (Figures 8.16, 8.17). The monumental platforms in the Eastern Group are surrounded by a major *bajo*, leaving only one elevated access, from the north side. Both monumental platforms have mounds on top. Platform 756 has a projection on the west side that may have constituted stairs or a ramp. Mound 798 atop platform 1090 was heavily looted, and many figurine parts were evident in the vicinity of the disturbed area. Platform 1090 has a rectangular, rather than nearly square, shape.

Northwestern Group

Several mounds form a plaza group around a central pond. The pond is positioned where we might otherwise expect shared plaza space.

Southwestern Group

This orderly arrangement has two mounds on a platform and three small mounds forming a line along the north side of the platform.

Surroundings

Residential mounds occur in a light scatter south of Villa Nueva, and a slightly less dense scatter is evident to the north of the complex. Mounds are denser toward the northeast, which includes the Molina complex, 1 km distant, which, like Villa Nueva, may be a segment complex of Azuzules during the Late Classic period.

Chronology

Neither the Northwestern Group nor the Southwestern Group yielded collections. Only one of the features not included in either group yielded a collection, 754, positioned close to the Eastern Group. Mound 754 has no Preclassic sherds, and diagnostics are mainly Classic period, with the likelihood that all relate to the Late Classic. The Postclassic is also well represented, with a few sherds indicating the Middle Postclassic but none related to the Late Postclassic.

Among several collections from the Eastern Group, the Preclassic is scarcely present, and the majority of diagnostics are Classic in date, with ones for the Late Classic somewhat more common than those for the Early Classic, but if the Early Classic Tendency is combined with the Early Classic, the two together slightly exceed the Late Classic. The Postclassic is well represented, especially at low mound 778. With five sherds relating to the Middle Postclassic and none from the Late Postclassic, the Middle Postclassic is a more likely date for activities there.

The surrounding mounds have a strong representation of Preclassic sherds, even though this period is poorly represented in the monumental area. The Classic period is even more abundantly represented, predominantly indicating the Late Classic, especially to the north, but the Early Classic occurs at numerous mounds as well. For the Postclassic period, the Middle Postclassic is well represented, but the Late Postclassic is nearly absent (two collections have such sherds). The surrounding mounds

concur with the indications from the monumental complex that the Classic period, especially the Late Classic, was a peak of occupation, with monumental construction likely during the Classic period. Middle Postclassic diagnostics are also common in the area, but confined to mainly lower mounds, suggestive of reoccupation.

Discussion of Villa Nueva Complex

Villa Nueva, 1.9 km west of Azuzules, lies within the area contained by the two settlement gaps that may signal a boundary for Azuzules. For this reason, as well as the presence elsewhere around Azuzules of monumental palatial platforms, Villa Nueva seems likely to have

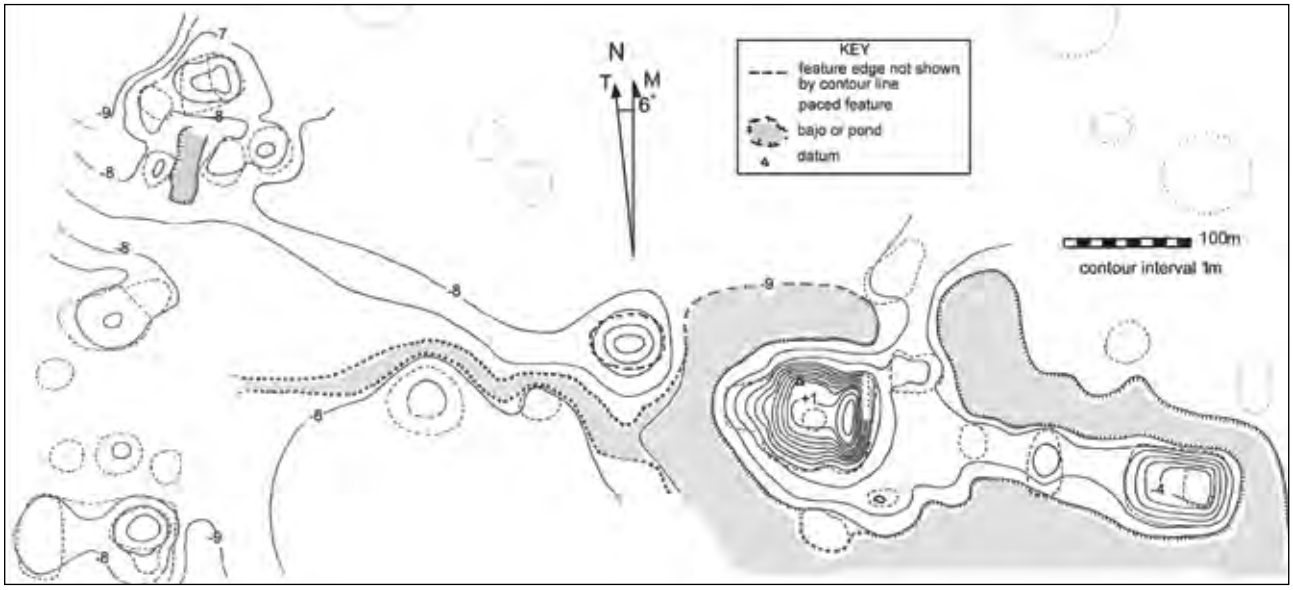

Figure 8.16. Villa Nueva contours, mapped with a theodolite.

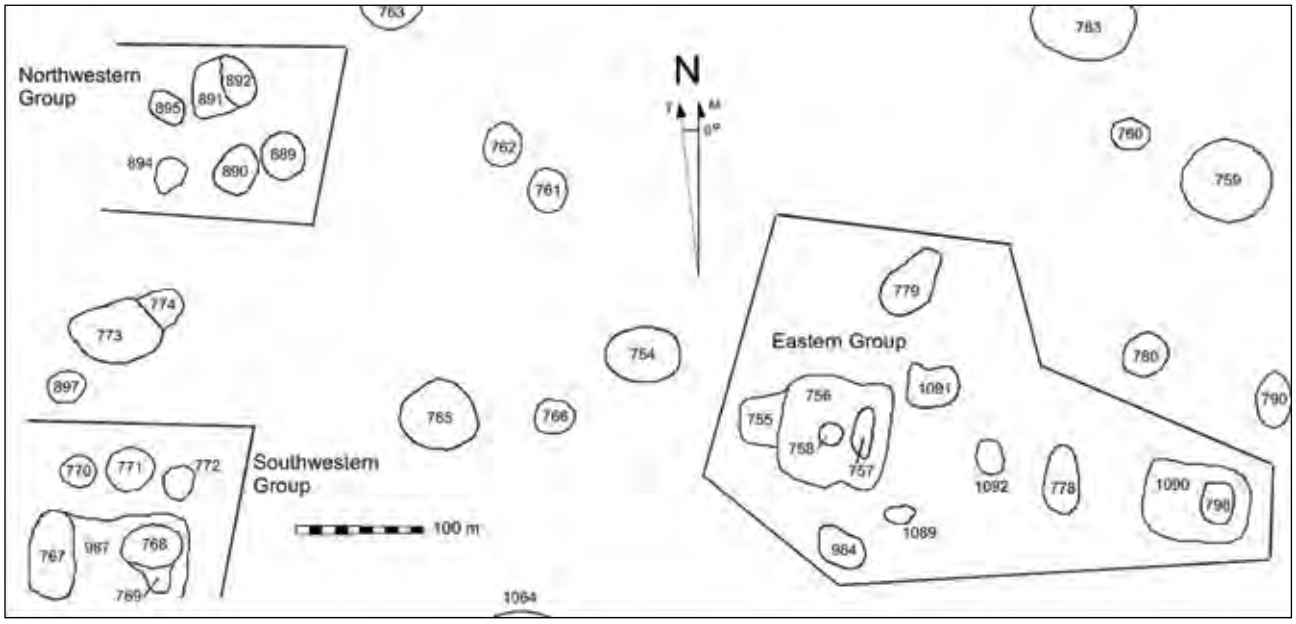

Figure 8.17. Villa Nueva feature numbers.

been a segment complex of Azuzules. One other complex also has two neighboring monumental platforms, the Aguacate South Complex, but at Aguacate South they form a closer pair.

Complex 1094, Molina

Description

In addition to its feature number (1094), this complex bears the name of the first Director of the Centro INAH Veracruz, the late Arqueólogo Daniel Molina Feal, who advanced archaeology in the state and provided me with a gracious welcome when I began planning the mapping of Cerro de las Mesas. The Molina complex was the first clear example we mapped of a monumental platform separated from other construction (Figure 8.18). Eventually this phenomenon was established as an important aspect of settlement patterns in the WLPB that points toward accepting separated monumental constructions as internal components of settlements.

Platform 1094 is rectangular, with three small mounds on top (914, 915, and 916), arranged to create a small plaza. A projection at the northeast corner offers a more gradual ascent and may indicate a stair or ramp. A small mound is located immediately to the west, but no cluster of residential mounds is aggregated around the platform. The top of the platform showed numerous looters' holes affecting all three mounds on the top as well as the east side of the platform, where systematic long narrow trenches were visible.

Surroundings

Residential mounds are more abundant west, north, and south of the Molina complex than east of it. To the east, an expanse of terrain holds few mounds until the vicinity of Azuzules, probably in part due to the presence of an extensive *bajo* to the east and northeast of Molina. The Fraternidad monumental complex lies past the *bajo* to the northeast. Platform 1094 lies slightly over 1 km east of the Villa Nueva massive platforms and is part of a series of such platforms around Azuzules. The Molina complex is 1 km northwest of Azuzules, likely a segment complex related to that center during the Late Classic period.

Chronology

Collections from this complex were negligible (two sherds) because of pasture. A Late Classic period diagnostic sherd is present.

Because the complex itself yielded so few sherds, evidence from the surrounding residential mounds plays an important indirect role in dating the complex. Light Preclassic occupation in the areas to the north, west, and south is followed by heavy Classic occupation, both Early and Late Classic. The Late Classic indications are more extensive and abundant than Early Classic, especially to the south, and Early Classic Tendency diagnostics tend to follow the Late Classic pattern. Postclassic occupation is more moderate, with only the Middle Postclassic represented. Since massive rectangular platforms are not clearly documented for the Postclassic period, it is likely that the Molina complex dates to the Classic period, with substantial construction and/or use during the Late Classic. Inhabitants in the area gave us two sherds, both part of a red-slipped cylindrical vessel with straight vertical walls that has a molded scene on the exterior (Stark et al. 2001:129). The vessel likely was Early Classic in date and likely derives from some of the looting backdirt at Platform 1094.

Discussion of 1094 Molina Complex

I consider Complex 1094 Molina to be a segment of the Azuzules settlement. At 1 km from the core, it is well within the settlement boundary arc postulated from the two gaps in settlement on the west and northwest sides of Azuzules. The Molina complex was the first case in which we observed what proved to be a series of monumental platforms separated from Azuzules and scattered around its vicinity at various distances. Such platforms occur at Cerro de las Mesas

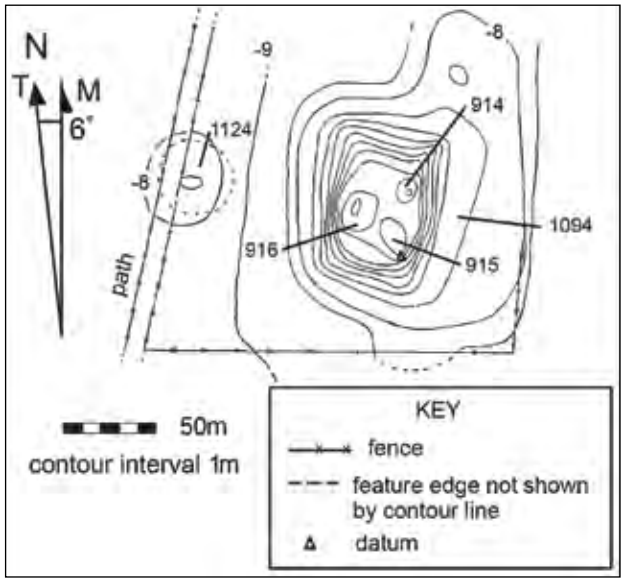

Figure 8.18. Complex 1094, Molina, feature numbers and contours, mapped with a theodolite.

as part of the Early Classic core construction, but they do not occur as isolates in the settlement area. Because these platforms likely are substructures for palatial platforms in many cases, their proliferation around Azuzules in the Late Classic period (and at Nopiloa) suggests a reorganization of local polities and a greater control of resources by multiple groups—as it seems unlikely they were all royal estates (see Chapter 12).

Fraternidad Complex

Description

A platform with a rectilinear L-shape (1156) has two mounds atop, one linear (1151) and the other with a sub-square shape (1154; Figure 8.19). Several additional low mounds cluster nearby, and two *bajos* partly frame the complex on the north and south sides. The south *bajo* is elongate, ending in a squared-off form adjacent to mound 1158. Fraternidad, like Platform 1473, located near Zapotal, is an example of a monumental platform with considerable nearby construction.

Surroundings

A scatter of low residential mounds occurs around Fraternidad on all sides including between it and Azuzules. Complex 1094, Molina, is 0.7 km southwest of Fraternidad.

Chronology

The 942 sherds from Fraternidad are mainly Classic period in date, with only three from the Preclassic period, but 34 from the Postclassic. None of the Postclassic sherds can be assigned more specifically within that period. Among Classic sherds, both the Early Classic and Late Classic are represented, but mainly the Late Classic, with Early Classic Tendency intermediate in count. Sherds from all these periods tend to appear in the same collections, suggesting considerable continuity or reoccupation.

Mounds in the immediate vicinity of Fraternidad display the same patterns already noted, with one exception. Both Middle and Late Postclassic diagnostics occur in collections just east of the mapped complex, whereas the main complex did not indicate these subdivisions of the Postclassic period.

Discussion of Fraternidad Complex

Fraternidad lies within the settlement limits proposed for Azuzules on the basis of settlement gaps and the characteristics of the monumental groups contained within the perimeter, which are predominantly monumental platforms. Located 0.8 km northwest of Azuzules, Fraternidad is a segment complex. The association of a monumental platform and several low mounds nearby also occurs at Nopiloa, where one outlying platform (6234) has several associated mounds. Nevertheless, this pattern is not characteristic at many platforms.

Azuzules and Azuzules East Complexes

Description

Azuzules is located at the east end of the Central Block and presents one of the most elaborate and sizable of the complexes surveyed (Figures 8.20, 8.21). Azuzules is situated along a branch channel of the seasonal Viejo River. Part of the center across the Viejo channel was termed Azuzules East and mapped separately, but I treat the two areas together, and the maps have been joined. Zapotal is another example of a monumental complex distributed on two sides of a river, as is Madereros, upriver along the Blanco, and Zapotal, along the Viejo River. Azuzules is a complex almost entirely enclosed by deep *bajos*, parts of which usually hold water throughout the dry season.

The complex can be subdivided into three parts. Two segments occupy the west bank of the Viejo River and Azuzules East is situated on the east bank. The Viejo course in this locality is severely affected by road construction. We made a substantial effort to reach the complex and map it during the PALM 1 survey, but we were dissatisfied with the amount of coverage around the complex. The northward Mixtequilla expansion and the southward Azuzules South and Azuzules Southeast expansions were efforts to remedy the situation during PALM 2, but in many respects we still have only partial coverage of the Azuzules surroundings.

Azuzules East

This construction consists of a massive rectangular platform (1213) with an L-shaped mound (1214 and 935) and a small mound (1215) completing a plaza grouping on top. A gradual descent or terrace (1217) occupies the north side of the platform, with a raised area connecting to mound 1218. The south side has two low projections (1216 and 1212). Two additional mounds are aligned southward between the projections; one of these is a platform (1209) with a mound on top (1210). The twin projections from platform 1213 are reminiscent of platform 6848 at Tuzales North, located northwest of the

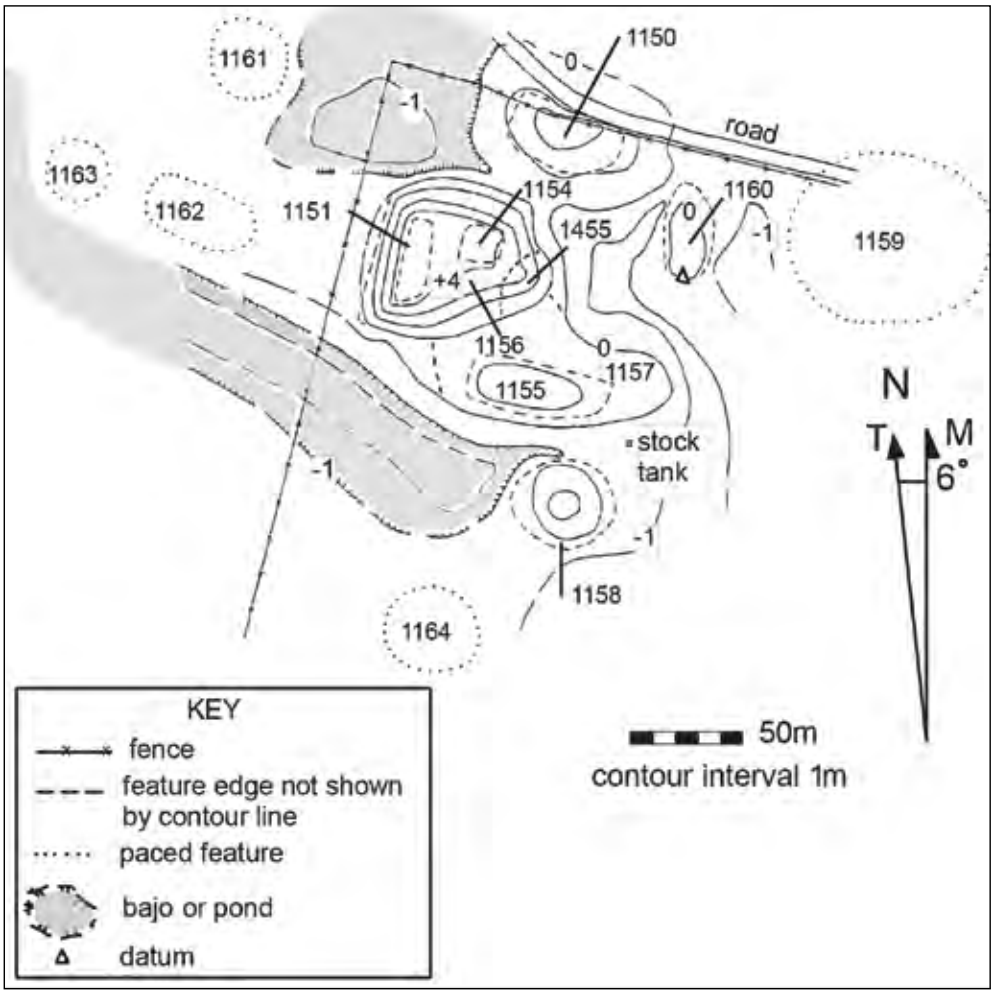

Figure 8.19. Fraternidad feature numbers and contours, mapped with a theodolite.

Central Block and outside the Blanco delta, and, in faint form, on the east side of mound 93 in Central Cerro de las Mesas.

Central Group

The Central Group at Azuzules is oriented roughly east–west on the west bank of the Viejo. The Central Group displays a SPPG, with a high conical mound (1138) and two laterals of markedly unequal sizes (1147, 1148). A mound with a low projection or terrace frames the plaza to the east, just in front of a ballcourt (1141, 1142). The ballcourt is aligned with the axis of the plaza, but the inclusion of a mound closing the court and partially blocking it from the main plaza is atypical of the Standard Plan. Three additional mounds (1168, 1167, and 1143-1144) are aligned roughly north–south at the east end of the central plaza beyond the ballcourt. The pair of numbers 1143 and 1144 was assigned to mound 1143, with 1144 representing materials from looters' backdirt; a trench in the center of the mound and holes at the north end badly disturbed this structure. Dry access to the Azuzules Central Group is today possible only from one area to the east, alongside Features 1149 and 1169. During a return visit to Azuzules during PALM 2 we discovered mound 1168 had been substantially destroyed by looting, apparently with heavy equipment.

Central Extension

Construction continues southward from the southeast part of the Central Group. Two mounds (1145 and 1188) constrain access southward to a "causeway" nearly 200 m long (the causeway appears to represent the ambient land surface, but is elevated above the artificial *bajos* that surround it). Just east of the beginning of the causeway, a group of mounds forms an enclosure with a single opening (mounds 1188, 1189, 1191, and a lower mound 1192). A low mound is situated in the plaza (1200) of the enclosure.

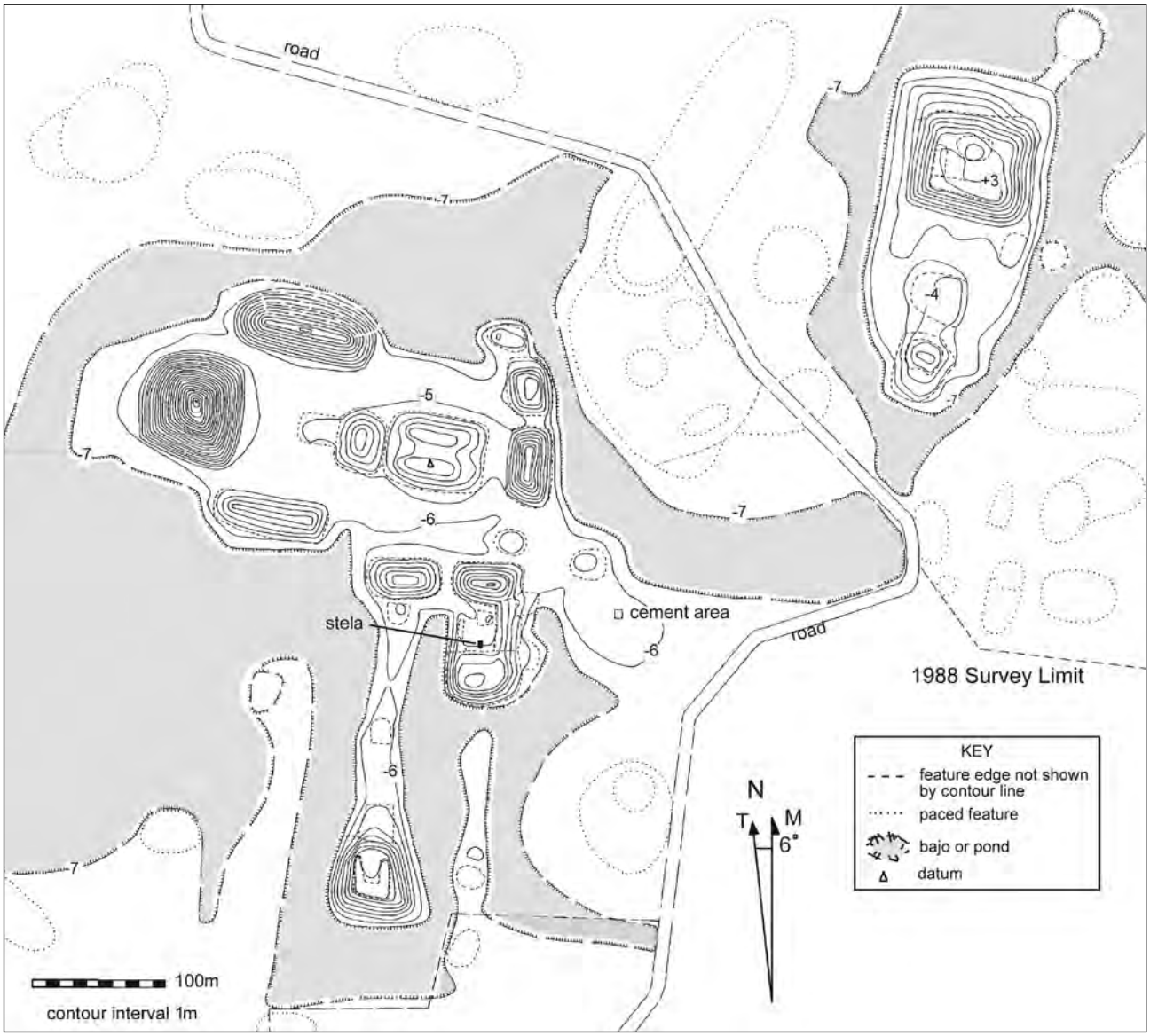

Figure 8.20. Azuzules and Azuzules East contours were mapped with a theodolite. The center was mapped in 1987, and the map shows the survey limit at the close of PALM 1 in 1988. The survey area was expanded in PALM 2. Dotted features are from pedestrian survey. Stela is Monument 1.

A plain rectangular stela of white stone (Monument 1) lies on the ground within the plaza (Figures 8.22, 8.23). We detected no signs of carving but we could not turn it over or examine it with lighting that might disclose eroded low relief. A fragment of another stela of similar stone was partially exposed at the base of Feature 1191 by local vegetation clearing and excavation (Monument 2; Figure 8.24). It also appeared to be plain and may be a broken fragment from a stela.

Two small mounds (1202, 1203) project outward from the enclosed plaza group into the *bajo* that encircles the causeway and mounds. They could have served as an access way to a perishable bridge or might have been docks for canoes.

The continuation of the causeway southward is interrupted by mound 1193, perhaps providing a control point for movement farther southward. The causeway culminates in a rectangular platform 1195 with a U-shaped linear mound atop, the only clearly U-shaped structure we encountered. In front, a low mound (1194) extends northward providing access to the platform. Two additional mounds (1207 and 1208) were mapped, located on a low spit of slightly elevated terrain that extends northward paralleling the east side of the causeway. This

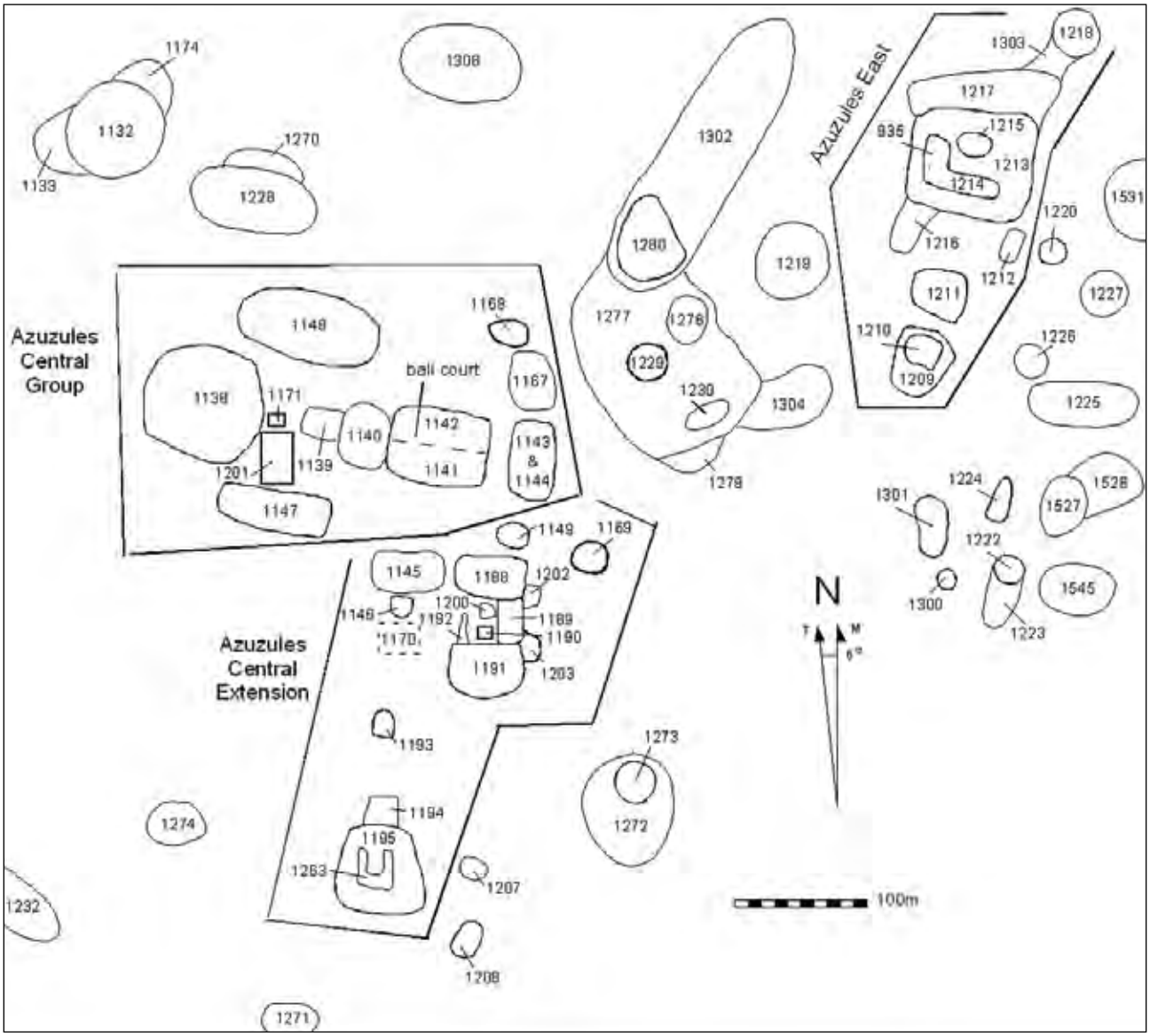

Figure 8.21. Azuzules and Azuzules East feature and surface collection numbers.

is one of two terrain projections northward into the *bajo*; the other is on the west side of the causeway. Many additional mounds are close to Azuzules monumental construction, however, and these two somewhat arbitrarily were included during contour mapping. The rest were recorded during pedestrian survey.

Surroundings

Scattered residential mounds are evident in all directions from Azuzules. Although they thin slightly at times, there are no substantial interruptions until Gaps 8 and 9 to the west and northwest. Nevertheless, we were not able to achieve extensive coverage around Azuzules comparable to that around Cerro de las Mesas. Our coverage is especially truncated to the southeast and southwest. Consequently, the evenness of the surrounding residential scatter is difficult to assess.

Chronology

The Azuzules Central Group produced only one large collection (from a plaza), but most structures yielded small collections. Only two Preclassic diagnostics were recovered, and Classic diagnostics (193 sherds) far outnumber Postclassic ones (2 sherds). Within the Classic

period, the few Early Classic, Early Classic Tendency, and Late Classic diagnostics do not differ greatly in amount, although the last are more numerous unless Early Classic Tendency plus Early Classic sherds are considered, which yields equal amounts. The fills for the central structures clearly drew upon Early Classic materials, but Late Classic building or rebuilding seems to have occurred widely, not at any particular structure. These collections, like some others in the Azuzules settlement, suggest increasing activity in what may be a bridging span between the Early and Late Classic periods, represented by Early Classic Tendency diagnostics.

The Central Extension produced numerous collections, although only a few are close to or above the median size. Only three Preclassic diagnostics were collected, and only 12 from the Postclassic period, scattered in small amounts at several structures. The Classic period greatly predominates, with 490 diagnostics. Within the Classic period, the Early Classic diagnostics (12 sherds) do not associate well with the Early Classic Tendency diagnostics (35 sherds), which are considerably more abundant. Early Classic Tendency sherds even outnumber the Late Classic ones, which nevertheless are relatively abundant (25 sherds). Mounds 1145 and 1191 are mainly responsible for the unusual amounts of Early Classic Tendency diagnostics. If the Early Classic Tendency category is associated with the last part of the Early Classic period and the early part of the Late Classic period, these ceramic patterns point to the growing importance of Azuzules at the inception of the Late Classic period.

Figure 8.22. Monument 1 at Azuzules, lying on the ground in front of Stuart Speaker (PALM Image Archive 1757).

Figure 8.23. Monument 1 at Azuzules (PALM Image Archive 1859).

Figure 8.24. Monument 2 at Azuzules, at the bottom of a hole dug by local farmers (PALM Image Archive 1858).

Azuzules East produced several collections, although only one is sizable (total sherds for all collections 469). One collection yielded two Preclassic sherds. Diagnostics are mainly from the Classic period, although a few Postclassic diagnostics were recovered from most collections, with only collection 1211 providing a more noticeable Postclassic representation. Within the Classic period, the Late Classic is much more strongly represented than the Early Classic (or Early Classic Tendency sherds). The few Early Classic diagnostics were scattered among collections. Consequently, Late Classic activities were predominant.

Surrounding mounds show a scatter of Preclassic evidence west, north, and east of the complex, but to the south primarily the Azuzules South locality produced Preclassic sherds. Classic diagnostics predominate in all directions from Azuzules. Postclassic pottery likewise is found in most of the residential mounds nearby in all directions. Both Early and Late Classic diagnostics appear among surrounding residential mounds, but the Early Classic is not as abundant as the Late Classic. The Early Classic Tendency sherd distribution is similar to the Late Classic distribution. Overall, the Preclassic to Late Classic occupation suggests considerable continuity in occupation. Within the Postclassic period, the Middle Postclassic is more frequently indicated than the Late Postclassic, with the latter confined mainly to a few locations north and east of Azuzules. In comparison, sherds from the Middle Postclassic are more widespread.

Discussion of Azuzules and Azuzules East Complexes

By virtue of the highly integrated layouts of large structures at Azuzules, it qualifies as a primary center during the Classic period, primarily during the Late Classic period in view of the ceramic evidence and the innovations in monumental arrangements compared to Cerro de las Mesas. Its Early Classic role remains clouded because we lack excavation data to determine building sequences. Nevertheless, the amount of Early Classic diagnostic pottery suggests that there was a nucleus of population in the general area, and it seems likely that Azuzules was an Early Classic secondary center to Cerro de las Mesas, which is located 8.8 km to the northwest.

Excavations by Clare Yarborough (2001) at mound 1126 located immediately across the *bajo* northwest of Azuzules show an Early Classic residential sequence (Yarborough 2001). During the Late Classic period, however, Cerro de las Mesas declined and Azuzules became the best candidate for a primary center in the Blanco delta. It has a greater amount of monumental construction in its core than does Zapotal, which nevertheless also appears to have functioned as a primary center at some point during the Late Classic period, perhaps subsequent to Azuzules.

On the basis of principles derived in part from examination of the Cerro de las Mesas surroundings that indicate a transition 2–3 km from the core, partly indicated by gaps in settlement, I interpret the Azuzules surroundings as possibly exhibiting a similar

phenomenon. Two gaps, 8 and 9, lie 2.7 km to the west and 2.4 km to the north. On the basis of historical patterns in Preclassic sherds, Moral and its segment complexes as well as Lobato fall outside the Azuzules settlement boundaries. SPPGs or Partial SPPGs are sparse in the vicinity of Azuzules, and monumental platforms are more common (e.g., Azuzules East, Fraternidad, Molina, Villa Nueva, and others recorded during the PALM 2 survey, discussed later in this chapter).

Pedestrian Survey Complex with a High Structure (7–15 m) near Azuzules: Complex 1732

Description

This Conical Mound Group straddles the eastern Central Block and one of the later survey extensions to the north undertaken to provide better coverage of the Azuzules area. Conical mound 1732 sits atop platform 1731 and reaches a grand height of 7.2 m (Figure 8.25). Several mounds are clustered in the vicinity (1733, 6640, 6583, 6584, 1739, and 1730) in a curve of the Viejo channel, but they do not clearly form a plaza group.

Surroundings

Nearby residential mounds are scattered mainly to the northwest and southeast. The mound cluster is located between Tiesto and Complex 1094 Molina and about equidistant between Gaps 8 and 9.

Chronology

Neither 1732 nor 1731 yielded collections, but four of the remaining six mounds did, with a total of 437 sherds for the cluster. Preclassic and Classic sherds are both abundant. There is about equal representation of Early Classic, Early Classic Tendency, and Late Classic sherds, which suggests occupation during all of the Classic period. The three largest collections also yielded a few Postclassic sherds, with only the Middle Postclassic period more specifically indicated.

Discussion of Complex 1732

Because the trial boundary or transition for Azuzules falls along Gaps 8 and 9, Complex 1732 may be a border complex, as Tiesto might be. It is similar to

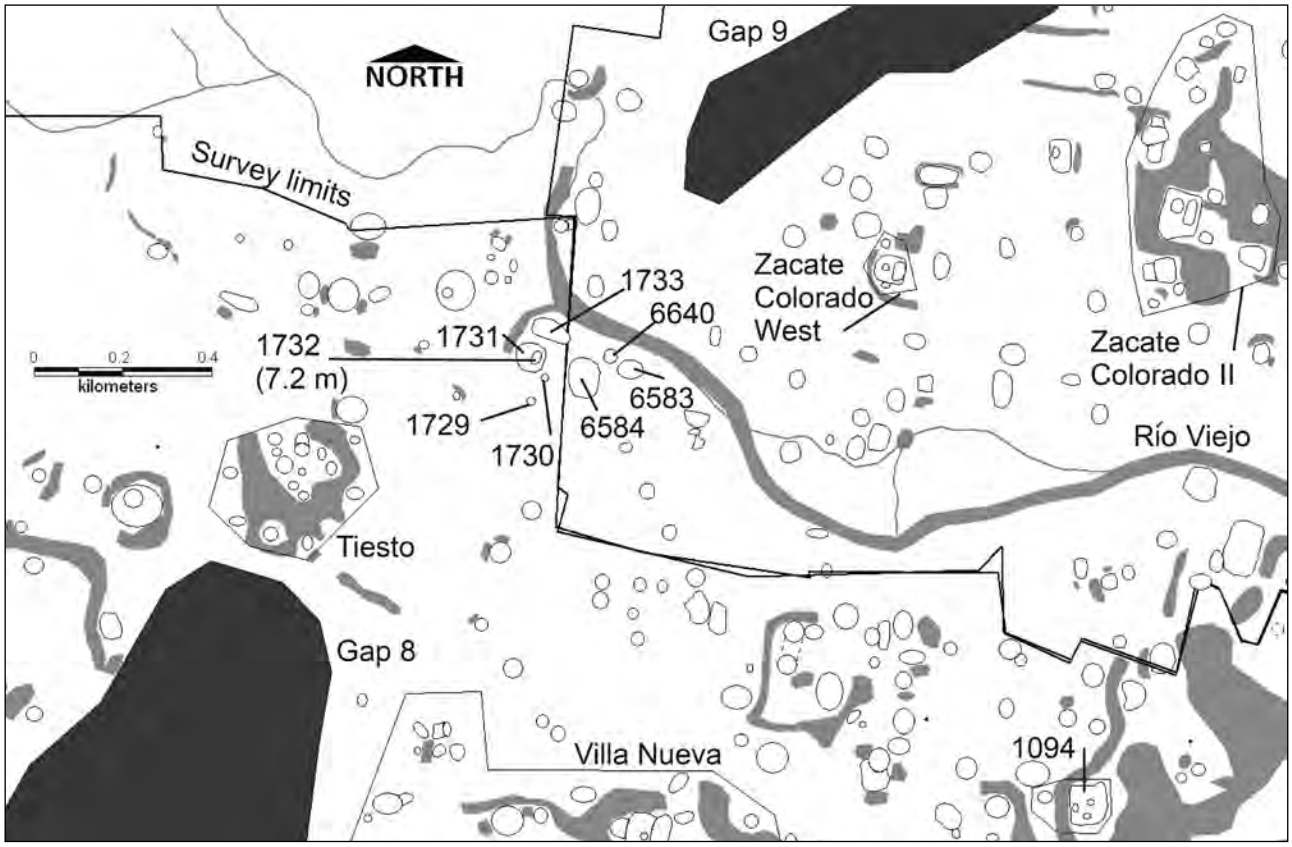

Figure 8.25. Complex 1732 cluster of mounds, with bajos or waterways (gray) and gaps in residential remains (black).

some high structure complexes within the settlement of Cerro de las Mesas and especially around Zapotal.

Central Block Additions

Because of the incompleteness of the PALM 1 survey around Azuzules, we expanded survey to the north and south during PALM 2 with the intention of including monumental complexes evident in aerial photographs or discovered through reconnaissance. Another southward expansion was undertaken to incorporate a large complex at Moral. Additionally, a small separate block was surveyed at Aguacate because our route to embark to the mangrove swamp revealed massive platforms near the Aguacate *ejido*. Two of Speaker's survey blocks are close to our survey expansions, but we lacked resources to cover the intervening terrain. Likewise, we could not complete the area between the Azuzules South and Moral. The result is an imbalance, with enough gaps in the coverage of residential remains that we have a partial picture of the Azuzules settlement, which seems to be as spatially extensive as that surrounding the core of Cerro de las Mesas.

Azuzules South Complex

Description

Azuzules South consists of a monumental rectangular platform (6748) surmounted by an elongated mound with two levels (6746, 6753) and a smaller mound (6747; Figure 8.26). An access way (6754) at the northwest corner of the platform suggests, in combination with the placement of the linear mound, that the platform faced west. Despite these indications concerning the platform orientation, a cluster of low mounds sits on the east side; mounds, 6760, 6768, and 6749 form a plaza group facing the platform. The presence of this plaza group is analogous to that accompanying one of the massive platforms at Aguacate South. A *bajo* surrounds Azuzules South, with another mound to the south of it, as well as others slightly farther to the north of the complex (not shown in Figure 8.26).

Surroundings

Residential mounds dot the southward survey extension from Azuzules, providing a continuous link to Azuzules South. Azuzules South lies 0.9 km south of Azuzules.

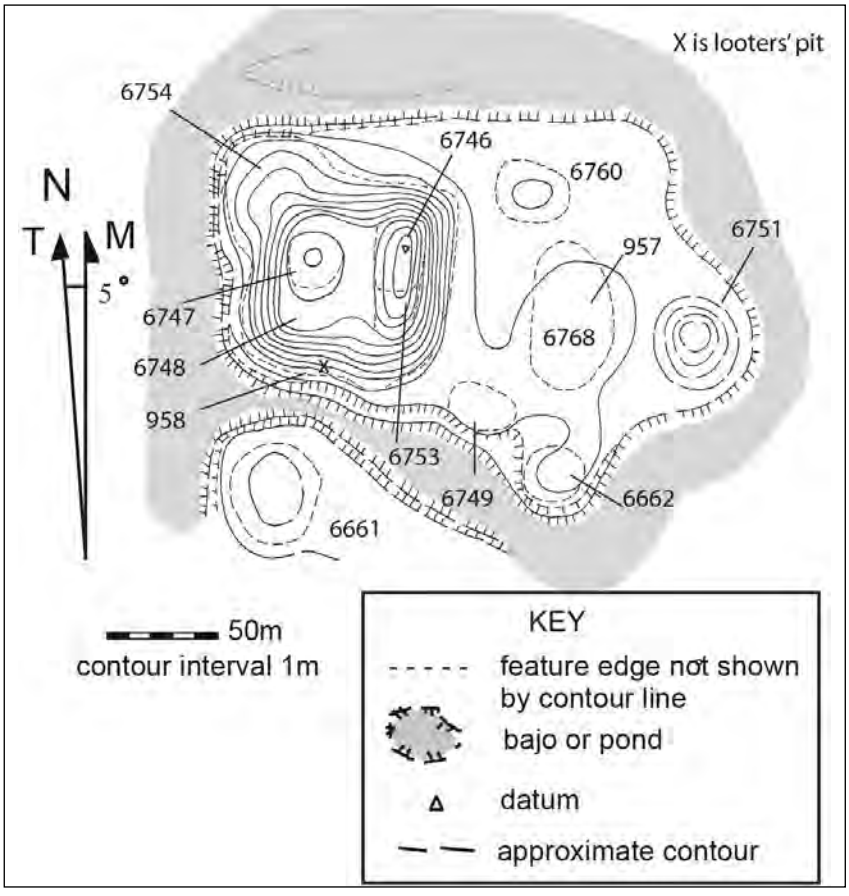

Figure 8.26. Azuzules South features and contours, mapped with GPS and theodolite (Feature 6768 has an added collection, 957).

Along with Azuzules Southeast and Azuzules East, it appears to be an outlying platform to Azuzules, analogous to outlying platforms at Nopiloa; at Nopiloa these platforms occurred at distances of 0.4 to 1 km, however, and Azuzules Southeast, discussed in the next section, is farther, 1.5 km.

Chronology

Azuzules South yielded numerous sherds (880), with several sizable collections. Only three sherds point to the Preclassic period, with 210 for the Classic period. This complex is unusual for the large number (34) of Early Classic Tendency sherds, with only 12 firmly Early Classic and 20 Late Classic. The Postclassic is abundant here, with 173 diagnostics, eight of them Middle Postclassic and one Late Postclassic. All but one collection yielded Postclassic sherds, so reoccupation and activity at this complex was extensive, as the monumental platform is likely Classic period in origin. Azuzules South, like Azuzules, suggests a strong Early Classic presence, but it is not clear if the structures had their present configuration during the Early Classic period. The Early Classic diagnostics are overshadowed by Early Classic Tendency and Late Classic ones, and it is tempting to view the numerous Early Classic Tendency sherds as an indication of growing importance of the location during the waning of the Early Classic period and onset of the Late Classic.

Surrounding mounds display almost no Preclassic diagnostics, and Classic diagnostics are characteristic, with a more modest amount of Postclassic sherds. Within the Classic period both the Early and Late Classic are well represented. These two periods are about as well represented as the Early Classic Tendency diagnostics. For the Postclassic, there are few indications of the Middle Postclassic and none for the Late Postclassic apart from those at the complex itself. Overall, this complex and its surrounding mounds are strongly Classic period in date, with a modest indication of mainly Middle Postclassic occupation.

Discussion of Azuzules South Complex

I interpret this complex as a segment complex within the Azuzules settlement.

Azuzules Southeast Complex

Description

Azuzules Southeast was detected during reconnaissance around Azuzules, and survey angled eastward from the area around Azuzules South in order to include the Azuzules Southeast complex. Rectangular platform 6638 has a small mound centered on top (6639) and a terrace to the south (6769; Figure 8.27). A small projection (6928) at the northeast corner may have constituted a stair or ramp. Several small mounds surround the platform on each side except the north, where an extensive drainage area is connected to the Viejo River. A small artificial *bajo* is located immediately south of the platform. Mound 6795 has been affected by road construction and originally may not have had the "kidney" shape that was mapped.

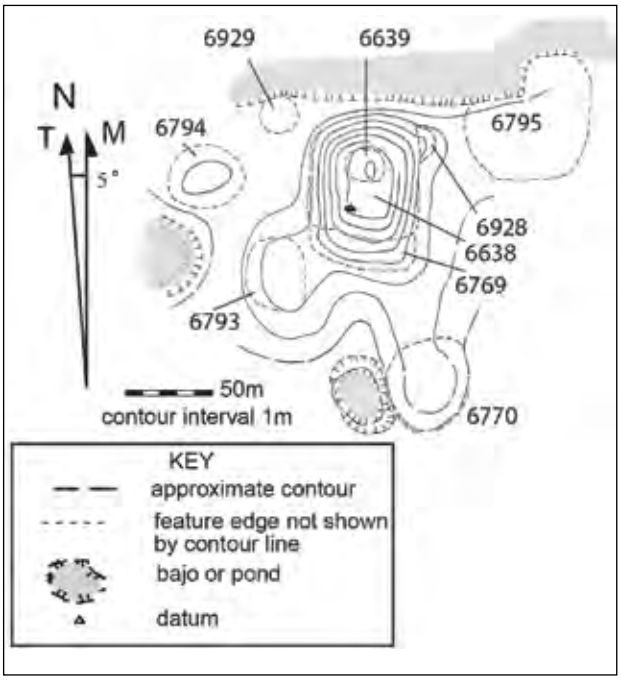

Figure 8.27. Azuzules Southeast contours, mapped by theodolite and GPS.

Surroundings

This rectangular platform is 1.5 km southeast from Azuzules. Residential mounds dot the area surrounding Azuzules Southeast, just as they do in the survey block that includes Azuzules South and leads northward to Azuzules. Southeast of Azuzules Southeast 1.6 km is the small complex of Lobato recorded in Speaker's (2001b) survey.

Chronology

Azuzules Southeast produced a large total of sherds, with three features well represented, including the platform. No Preclassic sherds were recovered, and

the majority of diagnostics were Classic in date (166), with the Late Classic much more abundant than the Early Classic and especially well represented at mound 6770. Early Classic Tendency sherds are intermediate in count. Among the 18 Postclassic diagnostics, one is Middle Postclassic. Postclassic pottery occurs in small amounts in four of the seven collections, suggesting light activity at several structures.

Among surrounding mounds the Preclassic is not represented, but Classic diagnostics occur in most collections, with Postclassic diagnostics also widely distributed but not as abundant. Within the Classic period, the Early Classic is sparse, but Early Classic Tendency and Late Classic sherds are more prevalent. Although Postclassic sherds are relatively common, only the Middle Postclassic is indicated, not the Late Postclassic. Overall, the surrounding mounds correspond well in their chronological profiles to the information from Azuzules Southeast. The area was not occupied during Preclassic times and witnessed an apogee of occupation in the Late Classic period. The area also has a substantial Middle Postclassic occupation.

Discussion of Azuzules Southeast Complex

During the Late Classic period, Azuzules Southeast likely was a segment complex within the Azuzules settlement.

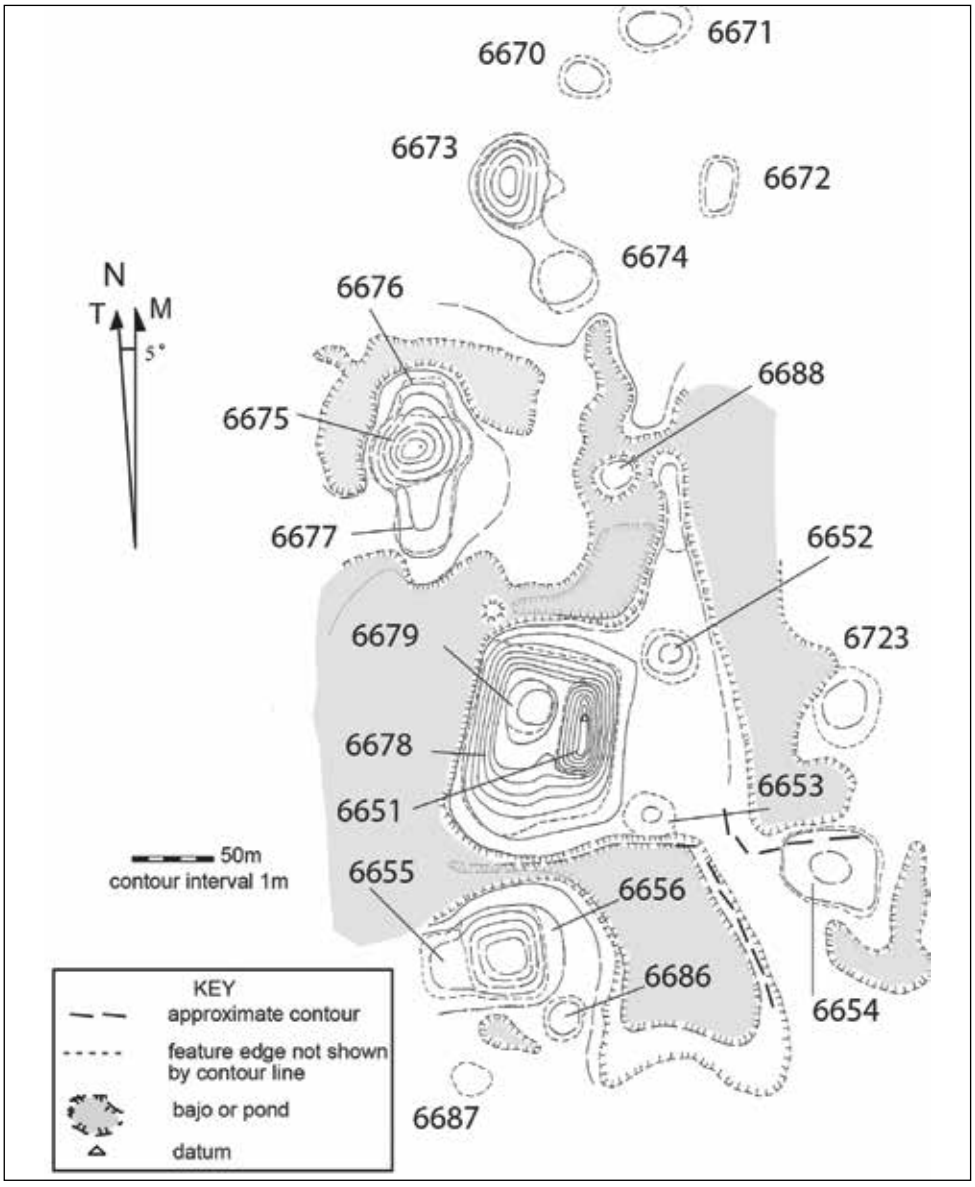

Figure 8.28. Zacate Colorado II features and contours, mapped with theodolite and GPS.

Zacate Colorado II Complex

Description

One large monumental platform (6678) and three smaller platforms (6673, 6675, and 6656) dominate this group (Figure 8.28). Atop the largest platform an elongated mound (6651) likely faced west toward another lower mound (6679) also on top. The three smaller platforms each have either a slight projection (see 6673), possibly signaling an access route, or one or two terraces. Only Platform 6656 has a flattened top surface, and the other two of the smaller platforms are aberrant because they (now) have a more rounded shape. *Bajos* wind among the structures, and several low mounds are scattered in the vicinity.

Surroundings

This complex is located amid a band of scattered residential mounds north of the Viejo River. A gap in residential remains lies to the north, where a more northerly cluster is associated with the Mixtequilla Complex. A less obvious thinning of residential mounds occurs southward, near the Viejo channel, but visibility of features is possibly affected by flooding and siltation. The large platform at Zacate Colorado II is located 1.9 km northwest of Azuzules, similar to the distance between the Villa Nueva large platform and Azuzules. Both lie inside the proposed settlement area of Azuzules.

Chronology

Zacate Colorado II produced several collections even though many features could not be collected. Among the 364 sherds, 57 are Preclassic, 72 Classic, and 14 Postclassic. Finer discrimination within the Classic period shows about equal indications of Early Classic, Early Classic Tendency, and Late Classic diagnostics, and individual collections share this pattern. Postclassic sherds are not diagnostic of the Middle versus the Late Postclassic. Zacate Colorado II, like Azuzules and most of its possible satellites, indicates continuity of occupation from the Early to the Late Classic period.

Surrounding mounds show an increment of occupation between the Preclassic and Classic periods. Preclassic diagnostics are more clustered than those from the Classic period, with one area to the west and another area to the northeast yielding most of the sherds. Within the Classic period, there is more abundant evidence pertaining to the Early Classic than Early Classic Tendency or Late Classic. The latter two sets of diagnostics resemble each other in amount. For the Postclassic, diagnostics are less abundant, although

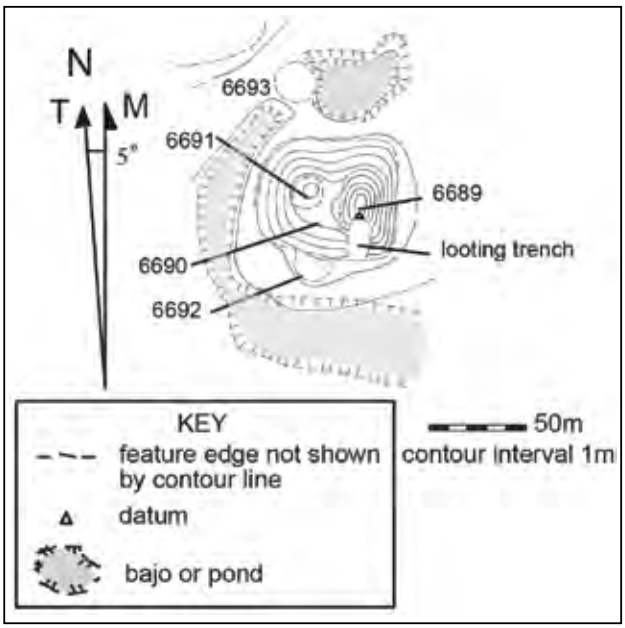

Figure 8.29. Zacate Colorado West feature numbers and contours, mapped with theodolite and GPS.

involving more mounds than the Preclassic period. Within the Postclassic period, the Middle Postclassic predominates, with only three collections yielding any sherds pertaining to the Late Postclassic. Overall, the surrounding mounds supplement collections from the complex and suggest that within the Classic period, the Early Classic may have been more important for local occupation than the Late Classic, with a similar finding for the Middle versus the Late Postclassic periods.

Discussion of Zacate Colorado II Complex

Zacate Colorado II, a segment complex, presents a cluster of likely elite residences that fall within the Azuzules settlement area as defined by perimeter gaps in settlement. The strong representation of Early Classic sherds lends support to the notion that Azuzules functioned as a secondary center to Cerro de las Mesas during the Early Classic period, with continuity into the Late Classic period.

Zacate Colorado West Complex

Description

Directly west of Zacate Colorado II, approximately 0.7 km, Zacate Colorado West consists of a rectangular platform (6690) with a low projection that may indicate a stair or ramp (6692; Figure 8.29). On top, an elongated mound (6689) is situated on the east side, facing a low rounded mound (6691). Another low mound

(6693) is situated nearby to the north. *Bajos* surround most sides of the platform. A major looters' trench cuts into the platform and the elongated mound on top. The exposed profile showed clean fill and no buried surfaces or floors.

Surroundings

Zacate Colorado West is positioned amid the scattered residential mounds that form an east–west band including Zacate Colorado II. See the description of surroundings for Zacate Colorado II.

Chronology

Only 39 sherds were recovered from this complex. The Preclassic and Classic are represented, but not the Postclassic. Within the Classic period, too few sherds were specific to the Early Classic and Early Classic Tendency versus Late Classic to allow assessment, although all periods are represented. Between them, the Early Classic and Early Classic Tendency are more numerous than the Late Classic. As discussed above for Zacate Colorado II, the surrounding mounds suggest an increment in occupation from the Preclassic to the Classic period, and more abundant indications of Early Classic than Late Classic. This evidence is compatible with the pottery from Zacate Colorado West. One difference, however, is that surrounding mounds also indicate a modest Postclassic occupation, mainly Middle Postclassic.

Discussion of Zacate Colorado West Complex

Like Zacate Colorado II, this platform was a segment complex of Azuzules during the Late Classic period and possibly earlier; it lies 2.1 km northwest of Azuzules. Pottery suggests continuity in occupation from the Early to the Late Classic period. Whether it began as an Early Classic segment of Azuzules when that center likely was a secondary center under Cerro de las Mesas remains unclear.

Sabaneta Complex

Description

Sabaneta is a small SPPG-1a (?) with a conical mound (6563), one lateral (6603), and two other mounds on the remaining sides of the plaza (Figure 8.30). Both 6637 and 6636 have suffered considerable disturbance. Mound 6636 is affected by modern houses and ramadas on its east side, and 6637 has been plowed. I scrutinized the surface configuration of 6637 with great care, but if ballcourt mounds were present, they are no longer visible. Nevertheless, 6637 has appropriate overall dimensions to have constituted a small ballcourt and, on the basis of its position, it would conform to the canons of the Standard Plan. Conceivably 6636 is a pale reflection of the normally massive rectangular platforms.

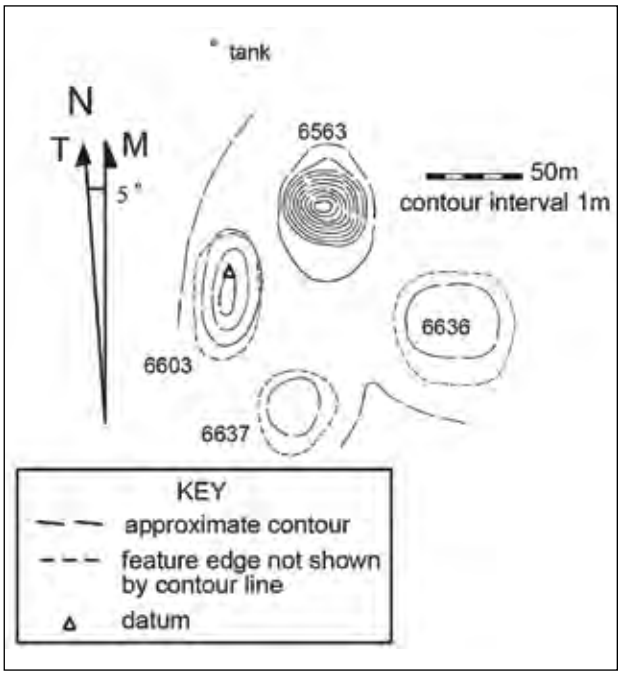

Figure 8.30. Sabaneta feature numbers and contours, mapped with theodolite and GPS.

Surroundings

Sabaneta is at the southwestern edge of an array of scattered residential mounds south and west of Mixtequilla but separated slightly from that scatter. It lies immediately north of Gap 9. Sabaneta is 1.1 km northwest of Zacate Colorado II and 1 km southwest of Mixtequilla.

Chronology

Sabaneta sherds are unequally distributed among the features, with mound 6636 providing the majority. The Preclassic is represented by seven diagnostics, although only one is from the large collection. Thirty sherds derive from the Classic period, with the Early Classic and Early Classic Tendency outnumbered slightly by the Late Classic, but all are represented in small amounts. The Postclassic is well represented (29 diagnostics), with four of them Middle Postclassic in date, but the sherds mainly derive from 6636, the low mound on the east side of the plaza. Likely this mound was reoccupied.

The mounds closest to Sabaneta do not differ in their chronological patterns compared to the rest of the residential scatter that continues northward

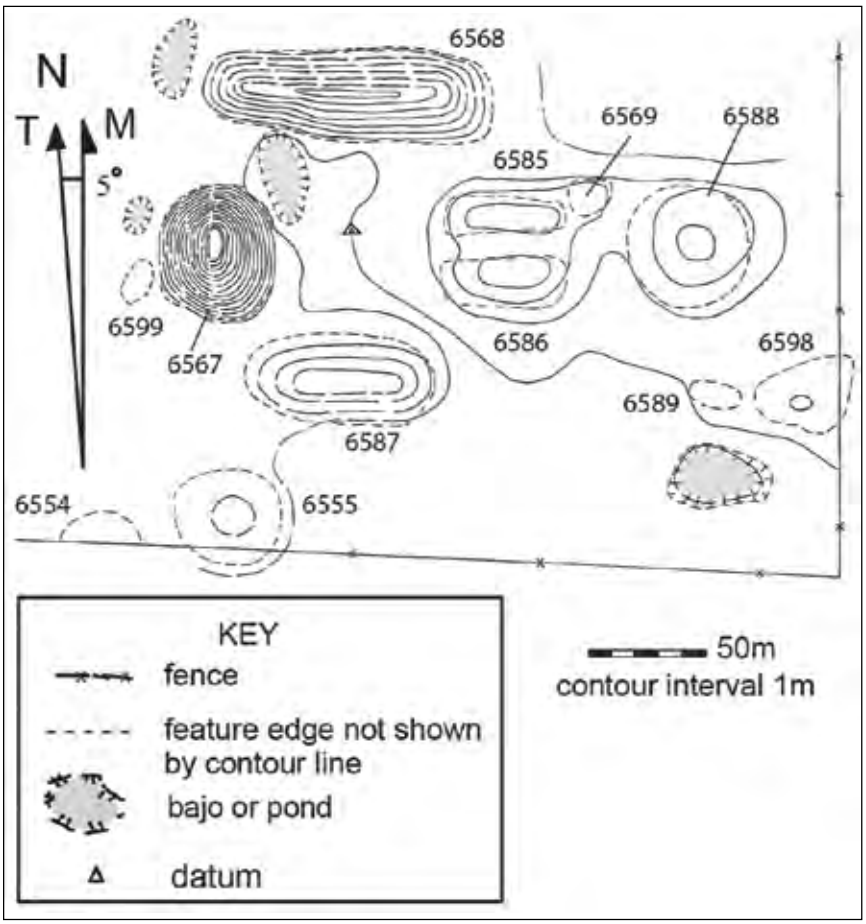

Figure 8.31. Mixtequilla features and contours, mapped by theodolite and GPS.

to Mixtequilla. However, a cluster of mounds with Preclassic sherds lies immediately west of Sabaneta.

Discussion of Sabaneta Complex

Sabaneta could be a border SPPG for Azuzules, 2.9 km away, but it lies beyond the settlement area defined by gaps. One kilometer away is Mixtequilla, a secondary center to Azuzules during the Late Classic period, and Sabaneta could be a segment complex for Mixtequilla, but most segment complexes are monumental platforms, not SPPGs, especially for a secondary center like Mixtequilla. More appropriately, it may be viewed as a tertiary center. Most segment complexes within the Azuzules settlement area do not have ballcourts, and Sabaneta probably had one.

Mixtequilla Complex

Description

Mixtequilla is a SPPG-2a with a conical (6567) 13.2 m high, two laterals of markedly unequal dimensions (6568 and 6587), and a ballcourt (6585 and 6586; Figure 8.31). An unusual feature is the small mound adjacent to one of the ballcourt mounds (6569), a positioning not noted in other complexes. Four small *bajos* are dotted around near the complex, three close to the conical mound. No massive rectangular platform is associated closely with this group, but 6588 is an extensive mound nearly 2 m high that conceivably was a substantial residential mound. Just 0.4 km northwest of the complex, a massive platform (Mixtequilla North Complex) likely was the associated palatial complex.

Surroundings

Several residential mounds are scattered around Mixtequilla in all directions except eastward. The mounds thin toward the north. Gap 9 is approximately 1.5 km southwest of the complex, and the principal conical mound at Azuzules lies approximately 3.5 km to the southeast.

Chronology

Mixtequilla produced few collections, totaling 71 sherds, with six pointing to the Preclassic period and 16 to the

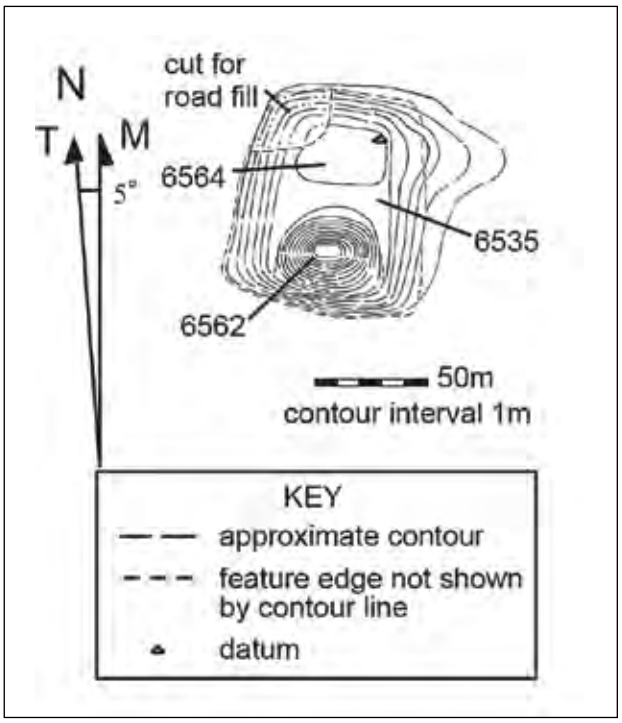

Figure 8.32. Mixtequilla North feature numbers and contours, mapped with a theodolite.

Figure 8.33. Heavy equipment cut into Mixtequilla North (PALM Image Archive 2676).

Classic period. The Postclassic is represented by five diagnostics, of which two are Middle Postclassic. Within the Classic period, there are insufficient sherds to evaluate Early versus Late Classic activity, but each period yielded a few sherds (none for Early Classic Tendency).

Among the surrounding mounds, Preclassic diagnostics are infrequent, with the Classic period best represented, followed by the Postclassic period. The

Figure 8.34. Aline Lara Galicia points to floors visible in the section of Mixtequilla North cut by heavy equipment (PALM Image Archive 2677).

Early Classic is more commonly represented than the Late Classic, and within the Postclassic period, only the Middle Postclassic is indicated. Thus, the nearby mounds mirror the modest information from the complex itself, but add the indication that the Early Classic period is better represented than the Late Classic.

Discussion of Mixtequilla Complex

Mixtequilla lies outside the trial limits for the Azuzules settlement and likely was a secondary center to Azuzules during the Late Classic period. During the Early Classic period it likely functioned as a secondary center for Cerro de las Mesas. It lies 7.5 km east of Cerro de las Mesas.

Mixtequilla North Complex

Description

A large rectangular platform (6535) has a conical mound (6562) atop on the south side, with a low mound (6564) in front of it (Figure 8.32). A slight projection on the northeast corner likely indicates a stair or ramp. The northwest corner has been removed by heavy equipment, likely in an effort to get road or construction fill (Figure 8.33). Several construction episodes were evident in the cut, some showing floors of clay or sand (Figure 8.34). Note that the "facing" of the conical mound and platform are away from the complex of Mixtequilla, but Mixtequilla is the closest larger formal complex, unless the town of Ignacio de la Llave, located at the north edge of the survey, has obliterated an entire complex.

Surroundings

Located 0.4 km northwest of Mixtequilla, Mixtequilla North is at the north edge of the scatter of residential

mounds spatially associated with Mixtequilla. Residential remains become sparse north of Mixtequilla North.

Chronology

Mixtequilla North yielded 93 sherds, only one from the Preclassic, but 28 that are Classic period in date. Nine sherds were Postclassic (none assignable to Middle versus Late Postclassic). Among the Classic sherds, only a few could be more finely discriminated, and Early Classic, Early Classic Tendency, and Late Classic are represented.

For the chronology of surrounding mounds, see the corresponding section for Mixtequilla, above. In contrast to the nebulous indications from Mixtequilla North, the surrounding mounds indicate more of an Early Classic emphasis than Late Classic, and they suggest Middle Postclassic but not Late Postclassic occupation.

Discussion of Mixtequilla North Complex

This platform is most parsimoniously regarded as a segment complex of Mixtequilla, and it falls within the range of distances for subsidiary monumental platforms observed for the Nopiloa settlement (0.4–1 km). Chronological information is comparable to Mixtequilla as well. Only occasionally is a secondary center accompanied by segment monumental platforms, however. Tuzales is an example, as is Rincón del Tigre Norte, both discussed in later chapters. One tertiary/quaternary center, Cerro Bartolo, has a monumental platform in its vicinity.

Moral Complex

Description

A survey extension south of the PALM 1 Central Block reached the center of Moral, previewed on

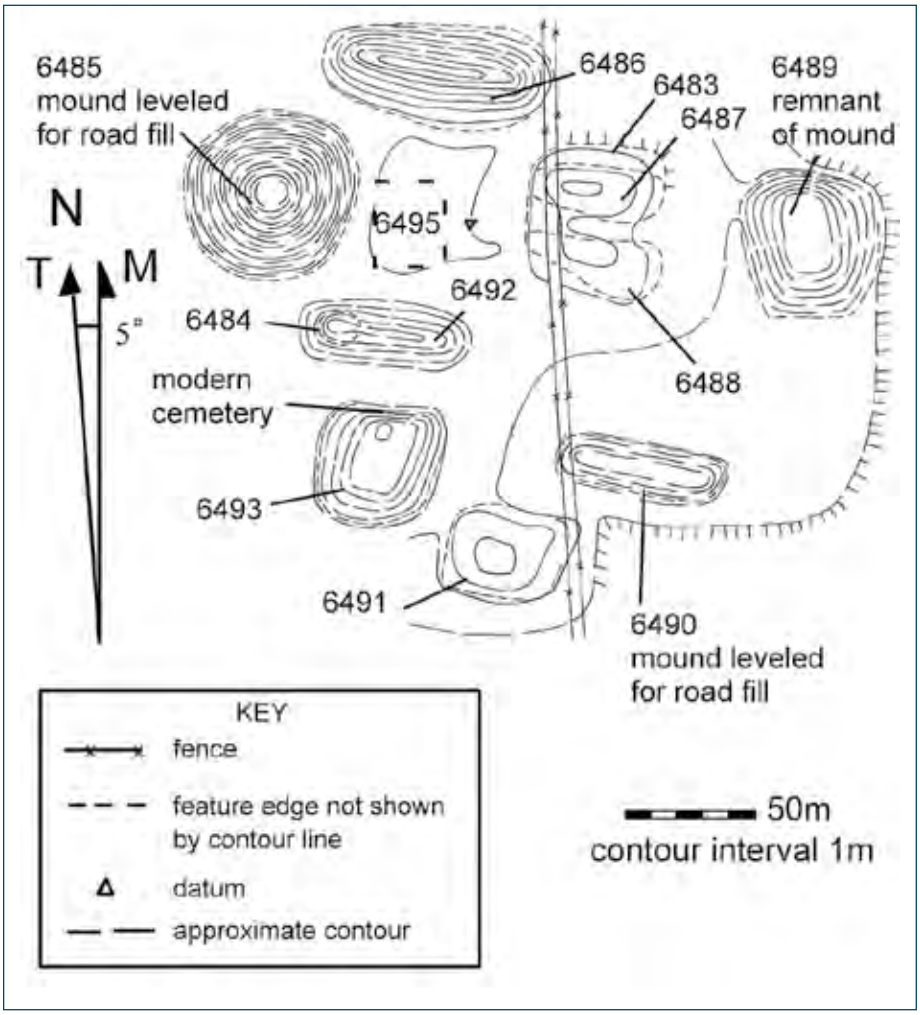

Figure 8.35. Moral feature numbers and contours, mapped with theodolite and GPS.

aerial photographs and in reconnaissance. Moral is a SPPG-2a, with the conical mound completely leveled for road fill (local residents suggested by Pemex contractors; Figure 8.35). Likewise, most of mound 6489, which was a large rectangular platform to the east, was entirely scraped off. Mound 6490 also was leveled off. Part of the south side of 6488 was cut. In each case, we were able to map the base of the structure accurately because the surface had been scrapped and either soil discolorations or, in the case of the conical mound, a slightly raised area, the remnant of the mound, indicated the position. The heights of the conical mound and of 6490 are based on estimates from local inhabitants. The height of 6489 is based on the remnant, spared only because it was across a fence line on a different landowner's property.

The SPPG has two laterals of markedly unequal size, with a ballcourt at the east end of the plaza, aligned with its axis. The northern ballcourt mound appears to have a low shelf on its north side (6483). One of the laterals, 6492, apparently has a small structure atop it at the west end (6484), but the entire surface is disturbed by modern graves. A second rectangular platform (6493) is located to the south and is heavily looted, obscuring any secondary structures on top. The elongated 6490 is similar to lateral mounds in Standard Plan arrangements, but it is not part of such an arrangement. In fact, it is unique in displaying this form separate from a SPPG or Partial SPPG. One other low mound (6491) is positioned at the south edge of the complex and conceivably it, the elongate mound, and the southern rectangular platform delimit a plaza.

Surroundings

Residential mounds are scattered in the Moral area but with little clustering near the center. Moral is 3 km from Azuzules and 6.6 km from Cerro de las Mesas. As discussed below, two segment platforms are nearby, Moral North and Moral-Iglesia.

Chronology

Moral yielded only five collections. Among the 153 sherds, eight are Preclassic, and 27 are Classic (with light indications of both Early and Late Classic and a few more from Early Classic Tendency), but 38 are Postclassic, one of them Middle Postclassic. Most of the Postclassic sherds derive from 6489, a structure nearly obliterated, and they were collected from the scraped-off area. It is not possible to decide what effect disturbance had on the proportions of diagnostics from different periods at this structure.

Among surrounding mounds the Preclassic is quite scant, and so is the Classic period, except in the northeast quadrant of the survey extension, near Moral North. The Postclassic is widely scattered, but most concentrated south of Moral. Early Classic, Early Classic Tendency, and Late Classic diagnostics all occur in the southern half of the survey extension or near Moral North. The Middle Postclassic is concentrated south of Moral. Late Postclassic sherds are almost absent in the survey extension. Overall, Moral and its surroundings indicate little Preclassic activity and mainly a Classic period role, with continuity throughout the Classic period. During the Postclassic period, the southernmost part of the survey shows occupation, with little elsewhere.

Discussion of Moral Complex

Moral was likely a secondary center to Cerro de las Mesas during the Early Classic period. During the Late Classic period, it might have had a similar role with Azuzules. As discussed in Chapter 6, the revised settlement limits for Azuzules place Moral outside. The nearby monumental platforms of Moral North and Moral-Iglesia are segment complexes of the

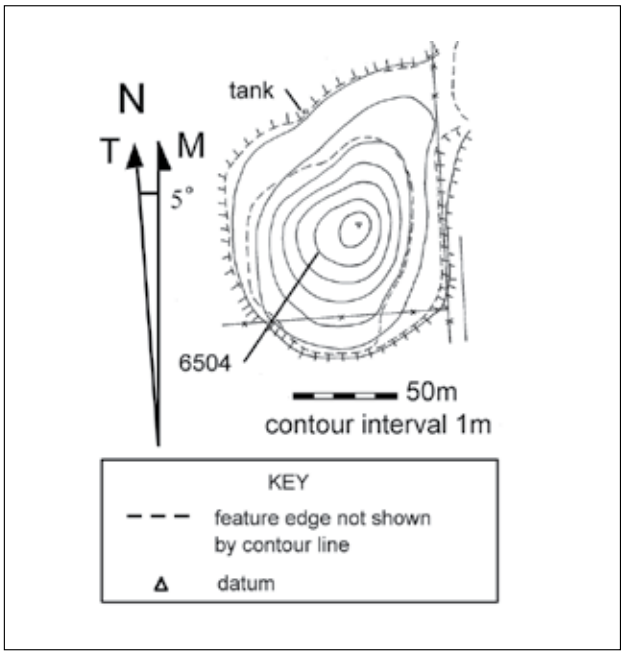

Figure 8.36. Moral North feature and contours, mapped with GPS and theodolite.

Moral settlement. For the Late Classic period I treat Mixtequilla as a secondary center to Azuzules, located 3.5 km north. It seems safest to consider Moral a secondary center during both the Early and Late Classic periods in view of the revised Azuzules limits, but as discussed in Chapter 6, Moral and the two segment complexes conceivably were border complexes for Late Classic Azuzules. Moral is anomalous among proposed secondary centers, however, as it has two monumental platforms in its core and two outlying segment complex monumental platforms.

Moral North Complex

Description

In the northeast quadrant of the survey extension, Moral North is a large mound of somewhat indistinct shape located 0.4 km from Moral. It is not clearly a rectangular platform or a conical mound (Figure 8.36). A more gradual extension toward the northeast may indicate an access. This major structure did not manifest any recent destruction to help account for its indeterminate shape except for plowing. Possible classifications are either as an isolated conical mound or a monumental platform. I treat it as an aberrant monumental platform, as conical mounds are relatively steep-sided.

Surroundings

The northeast quadrant of the Moral survey extension is populated by a scatter of mounds, several of them near Moral North.

Chronology

A single large collection from Moral North (122 sherds) indicates the Classic period, with scant representation of specifics for the Early Classic, Early Classic Tendency, and Late Classic. Among surrounding residential mounds, there is evidence of light Preclassic occupation, while the Classic period is strongly represented. For surrounding mounds the Postclassic is moderately represented, more strongly in the south part of the survey block than elsewhere. Among surrounding mounds the Early Classic and Early Classic Tendency diagnostics are more prevalent than Late Classic ones. Neither the Middle nor the Late Postclassic is strongly represented, with only one or two collections presenting diagnostics.

Discussion of Moral North Complex

Moral North is likely a segment complex of Moral, and both have indications of continuity in Early to Late Classic materials. The mounds surrounding Moral North raise the possibility that occupation favored the Early Classic more than the Late Classic, however. Moral North lies 0.4 km north of Moral, comparable to the distances of outlying monumental platforms around Nopiloa.

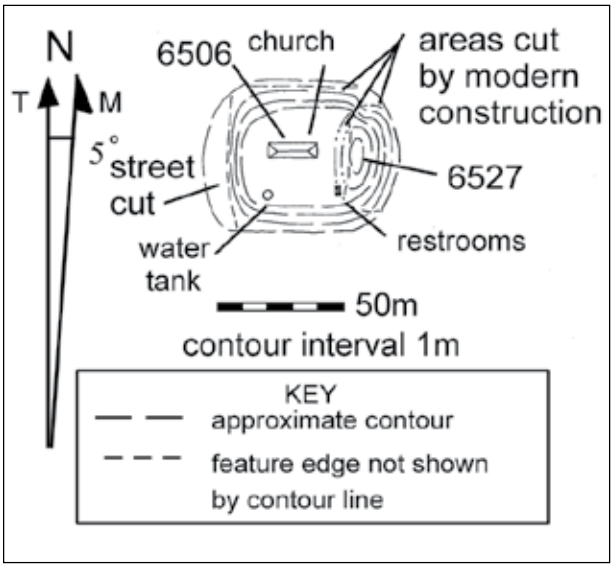

Figure 8.37. Moral-Iglesia feature numbers and contours, mapped with GPS and Abney level.

Moral-Iglesia Complex

Description

Moral-Iglesia is a monumental platform located within the *ejido* settlement of Moral (Figure 8.37), 0.7 km southeast of Moral. Both the church and other structures on top of the platform and nearby street and house construction have cut into it. The only ancient structure presently evident on top of the platform is 6527, an elongate mound on the east edge, suggesting a westward facing for the platform. Fired clay balls were eroding out of the platform surface, especially evident on the north half of the platform, suggestive of their use in the construction itself, either stabilizing fill or, more likely, as facing for an earlier structure.

Surroundings

Moral-Iglesia is part of the scatter of occupation around Moral. Residential mounds in the southeast quadrant of the survey extension do not particularly cluster near Moral-Iglesia. It lies 2.7 km from Azuzules, slightly farther than the Zacate Colorado West platform, for example. Its greater proximity to Moral, 0.7 km, suggests instead that it was subsidiary to that complex.

Chronology

The collection from the platform (312 sherds) is strongly Postclassic (194 diagnostics, with 16 from the Middle Postclassic and none from the Late Postclassic. The Preclassic is represented by two diagnostics, and the Classic by 49, with a few indicating Early Classic or Early Classic Tendency, but more pointing to the Late Classic period. Since large rectangular palatial platforms are not known as a Postclassic monumental form in the survey area, it is likely that the platform was reoccupied in Postclassic times, just as it is today. Evidence from surrounding mounds is discussed above with Moral. Moral-Iglesia differs from Moral and Moral North in its greater indication of a Late Classic emphasis within the Classic period. The Middle Postclassic evidence is consonant with the other indications of Postclassic occupation in the south part of the survey extension.

Discussion of Moral-Iglesia Complex

Moral-Iglesia likely constitutes a segment complex of Moral, as it is within the distances characteristic of segment complexes around Nopiloa. Moral-Iglesia differs from the rest of Moral in its indication of Late Classic activity more than an even mix of Early and Late Classic. Conceivably the functions of the greater Moral area shifted during the Classic period, with this monumental platform becoming a greater focus of activity in the Late Classic.

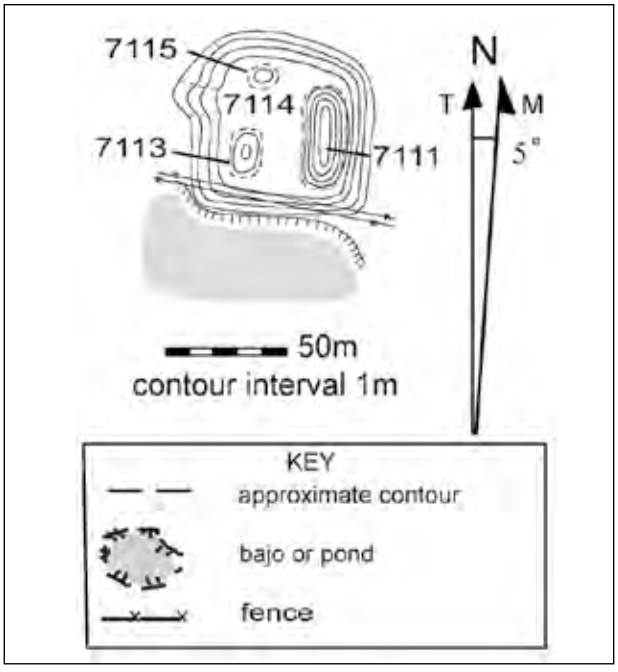

Figure 8.38. Aguacate North contours and feature numbers, mapped with GPS and Abney level.

Aguacate North Complex

Description

This rectangular platform (7114) is isolated from other monumental construction (Figure 8.38), although additional platforms are located 0.6 km south at Aguacate South. We observed it and the platforms at Aguacate South in transit to an embarkation for the mangrove swamp along the Limón estuary to the east, leading to our decision to record the platforms, even though we were unable to survey much of the surrounding area. On top, one elongated mound (7111) and two small mounds (7115 and 7113) delimit a small plaza area. The platform has a possible ramp projection to the west.

Surroundings

This complex is situated at the north edge of a small survey block. The area immediately south is nearly devoid of mounds. An *ejido* settlement lies immediately east of the platform. Farther south, residential mounds concentrate near Aguacate South. Speaker's Zone 3 survey lies 0.8 km north of Aguacate North, and yielded a scatter of residential mounds; the Mixtequilla complex lies 1.9 km west, and Azuzules is 3.2 km southwest. See discussion below for Aguacate South concerning whether Aguacate North might be a segment complex for Mixtequilla or Azuzules, or, alternatively, headquarters for a rural palatial estate.

Chronology

Few sherds were obtained from this complex (26), with five Preclassic diagnostics and four from the Classic period, one each of which is Early Classic or Early Classic Tendency, with none from the Late Classic period, and none from the Postclassic. As mentioned above, the dearth of nearby residential mounds prohibits examination of their chronology as a supplement to information from the complex. By extrapolation from other evidence, the monumental platform likely pertains primarily to the Classic period.

Discussion of Aguacate North Complex

Generally, monumental palatial platforms are within a settlement area or near moderate to large monumental core complexes—secondary or primary centers. Aguacate North (like Aguacate South) is farther afield from such larger centers than typical. Extrapolation of Azuzules settlement limits based on the gaps west of Azuzules would leave Aguacate North just outside the settlement limits, but because the limits are inexact,

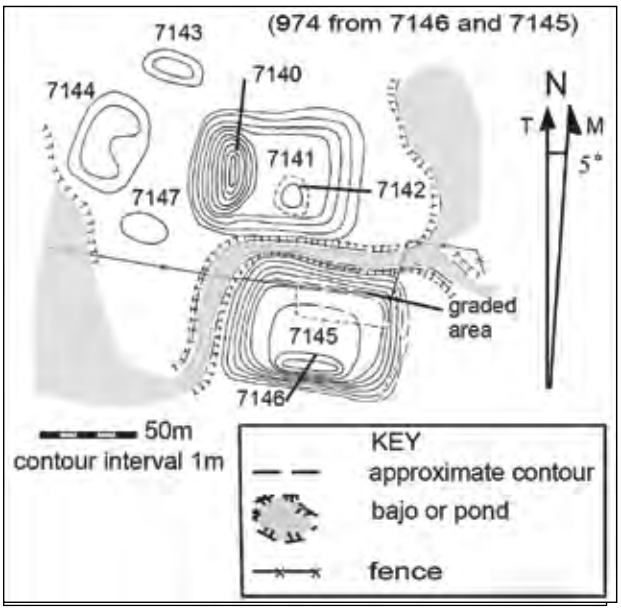

Figure 8.39. Aguacate South feature numbers and contours, mapped by GPS and Abney level.

it could have been part of the Azuzules settlement. It would be anomalous for a monumental platform to be so distant (1.9 km) from Mixtequilla, a secondary center. A promising interpretation is that it was a headquarters of an elite rural estate. The Recreo area also has examples of monumental platforms not closely associated spatially with a center.

Aguacate South Complex

Description

This pair of rectangular platforms is unique, situated away from other monumental construction, but positioned side by side, with one slightly offset to the west (Figure 8.39). A drainage runs between them connecting two *bajo* areas. Only Villa Nueva also has two monumental platforms, but not so closely paired. Immediately west of platform 7141, three mounds enclose a plaza. The major mound atop platform 7141 does not face toward this plaza group, however, as it likely faced eastward onto the platform top, where a small additional mound is situated (7142). A similar contrast in the orientation of a monumental platform in relation to an adjacent plaza group can be observed at Azuzules South. The top of platform 7145 was partly graded by machinery, but the owner stated no other small structures were atop it besides the elongated 7146. The arrangement on this platform suggests it faced northward, toward the other platform.

Surroundings

Several low residential mounds are scattered near Aguacate South in addition to the small plaza group west of platform 7141. They are closer to Aguacate South than Aguacate North and may reflect associated residential remains. Because of pasture, most did not yield collections. The complex lies 2.3 km southeast of the Mixtequilla complex. Azuzules is 2.6 km southwest.

Chronology

Aguacate South produced only one collection of ten sherds, preventing any meaningful assessment of the complex itself. Among these sherds, only four are diagnostic and indicate the Classic period. At two mounds collected nearby, Preclassic, Classic, and Postclassic sherds occur in one collection, and the other is similar except for its lack of Postclassic diagnostics. Within the Classic period, the Early Classic is indicated in two collections, and the Late Classic in one. None of the Postclassic diagnostics is specific to the Middle versus Late Postclassic period.

Discussion of Aguacate South Complex

Given the distances to other complexes mentioned previously, it remains unclear whether the Aguacate platforms (North and South) should be viewed as outlying structures to Mixtequilla or Azuzules, the two largest SPPGs in the vicinity (with Azuzules by far the more sizable and likely to have had distant outlying structures). It is unlikely that the secondary center of Mixtequilla had segment complex platforms as far away as Aguacate South. Azuzules South falls at the edge of the arbitrary, symmetrical trial boundary for Azuzules, and it is more likely than Aguacate North to be a segment of Azuzules. An alternative is that the Aguacate platforms were beyond either settlement's boundaries and represented countryside palatial estates. Provisionally I treat Aguacate North and Aguacate South as rural estate headquarters.

Chapter 9

Blanco River Delta Blocks from Speaker's Survey

The first section of Chapter 7 describes the organization of the descriptions of monumental complexes. Table 9.1 indicates the symbols and percent ranges for chronological maps of diagnostic rims for Speaker's (2001b) survey. Chronological maps accompany each subsection, but no maps are provided for the Late Postclassic because only one diagnostic was recorded from a monumental complex (Salto) and two from all other collections. Unlike for the PALM survey, chronological maps are based on rim sherd percentages, not all sherds collected because only rims were analyzed.

Speaker (2001b) recorded eight complexes in his survey blocks around the PALM Central Block. All but one have monumental construction, but one non-monumental complex is included because it may be instructive about the initial form of SPPGs. To the east, Zones 4 and 5 (Aguacate block) and Zone 6 (Limón River) did not yield any monumental complexes, but PALM 2 recorded monumental platforms to the south not far away from Zones 4 and 5, also within the Aguacate *ejido* lands (Aguacate North and Aguacate South complexes, discussed in the prior chapter). Residential occupation in

Table 9.1. Quartile percents for diagnostic rims for areas of Speaker's (2001b) survey

Quartile Symbols	Preclassic	Classic	Late Classic	Postclassic	Middle Postclassic	Late Postclassic
◆	>0 and <1.17	>0 and <21.39	>0 and <1.67	>0 and <2.59	>0 and <.01	>0 and <.00
■	>=1.17 and <1.83	>=21.39 and <29.3	>=1.67 and <2.99	>=2.59 and <7.5	>=.01 and <.01	>=.00 and <.01
■	>=1.83 and <3.76	>=29.3 and <34.69	>=2.99 and <6.07	>=7.5 and <15.89	>=.01 and <.02	>=.01 and <.01
■	>=3.76	>=34.69	>=6.07	>=15.89	>=.02	>=.01

Note: Established for collections at or above the median count of 54 rims
Values rounded to nearest hundredth

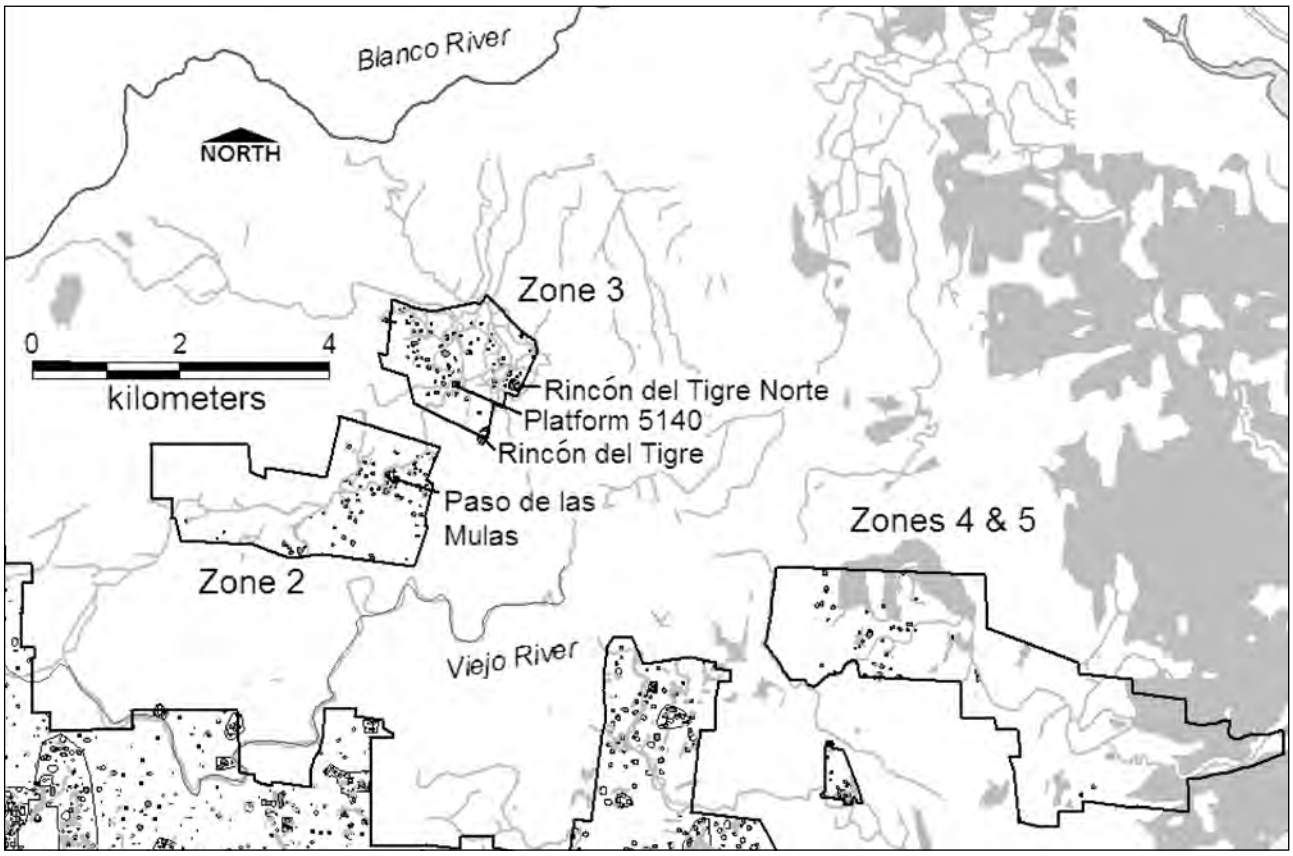

Figure 9.1. Speaker's (2001b) Blanco delta survey blocks that lie north of the Central Block survey, with fine-scale hydraulic detail.

Figure 9.2. Survey north of the Central Block, Preclassic diagnostics, percent quartiles for collections at or above the median, 54 rims (Table 9.1). Features that yielded no surface collection are gray.

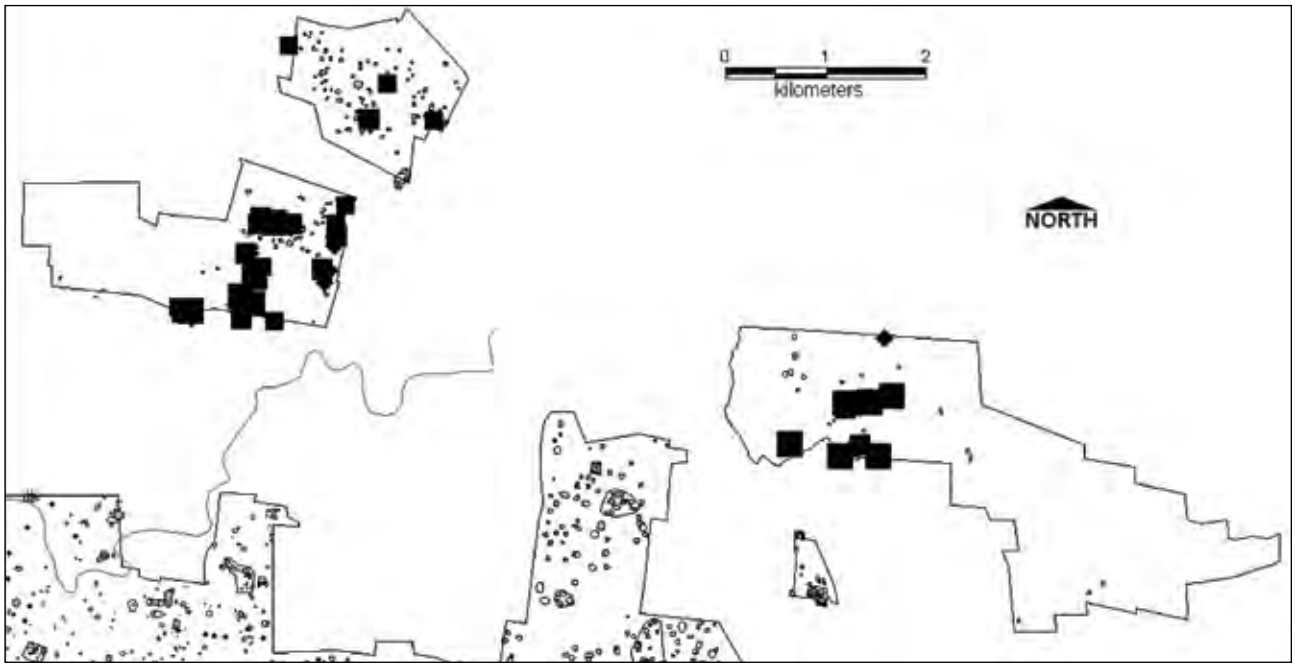

Figure 9.3. Survey north of the Central Block, Classic diagnostics, percent quartiles for collections at or above the median, 54 rims (Table 9.1). Features that yielded no surface collection are gray.

Figure 9.4. Survey north of the Central Block, Late Classic diagnostics, percent quartiles for collections at or above the median, 54 rims (Table 9.1). Features that yielded no surface collection are gray.

Figure 9.5. Survey north of the Central Block, Postclassic diagnostics, percent quartiles for collections at or above the median, 54 rims (Table 9.1). Features that yielded no surface collection are gray.

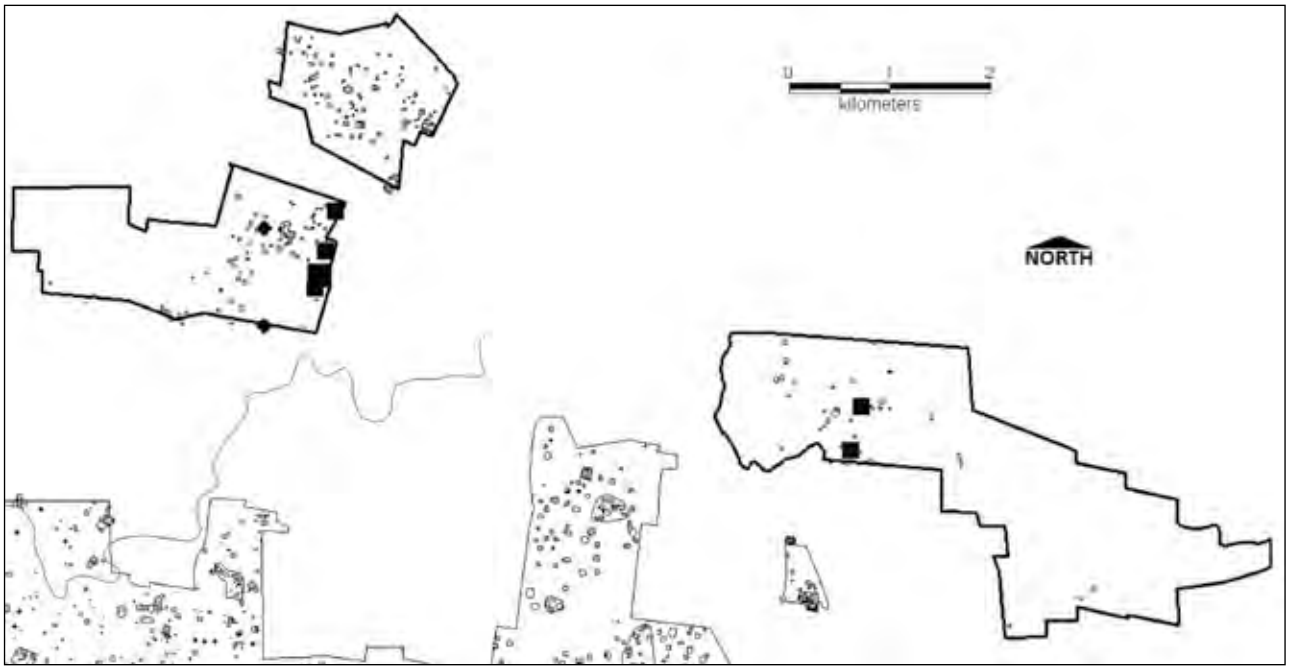

Figure 9.6. Survey north of the Central Block, Middle Postclassic diagnostics, percent quartiles for collections at or above the median, 54 rims (Table 9.1). Features that yielded no surface collection are gray.

Zones 4 and 5 is mainly confined to the western part of the zones near a seasonal drainage and extensive wetland. Zone 6 lies to the east of the Central Block, along the Limón estuary. The presentation of Speaker's survey zones is in three parts, those (1) north of the Central Block, (2) southeast of it, and (3) south and west.

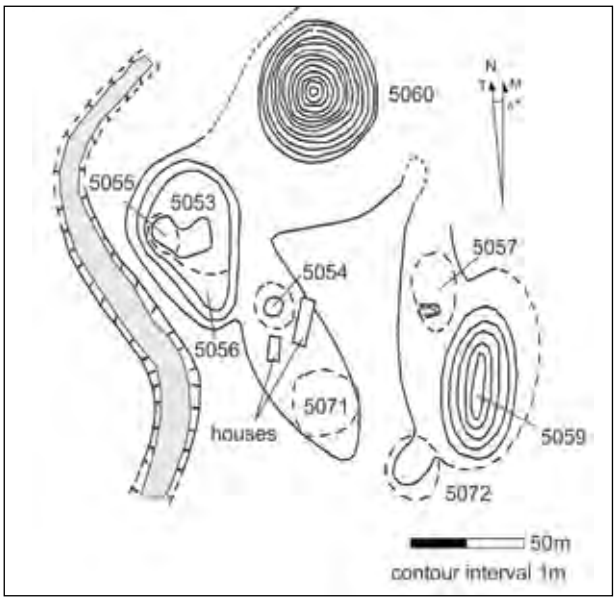

Figure 9.7. Paso de las Mulas contour map with feature numbers, redrafted from Speaker (2001b:Figure 3.21).

Complexes North of the Central Block in the Blanco Delta

Two of Speaker's (2001b) survey blocks lie north of the Central Block and yielded four monumental complexes in Zones 2 (Moyotla Block) and 3 (Rincón del Tigre Block; Figure 9.1). Zones 4 and 5 (Aguacate Block) produced no monumental complexes. The complex of Paso de las Mulas falls within Zone 2, while Zone 3 includes Rincón del Tigre, Rincón del Tigre Norte, and Complex 5140, a monumental platform. Residential occupation probably continues between the two zones because both exhibit mounds near the same channel.

General chronological patterns for the north survey zones provide a backdrop for the information about individual monumental complexes. Preclassic diagnostic pottery is particularly concentrated near Paso de las Mulas, with some occupation near Rincón del Tigre (Figure 9.2). Classic percentages show growth in occupation in Zones 4 and 5, with a continued concentration at Paso de las Mulas (Zone 2), but only a light presence continuing in Zone 3 (Figure 9.3). For the Late Classic, patterns remain similar to the overall Classic picture (Figure 9.4).

For the Postclassic period, Zone 3 shows no marked occupation, with the other two localities that were Late Classic foci continuing with Postclassic diagnostics (Figure 9.5). For the Middle Postclassic Zones 4 and 5 were scantily represented, with nothing in Zone 3 and a noteworthy concentration only in the Paso de las Mulas area (Figure 9.6).

The Late Postclassic is not represented.

Paso de las Mulas Complex

Description

Paso de las Mulas is a Partial SPPG-B1 in Zone 2, as it has a single lateral and likely no ballcourt (Figure 9.7; Speaker 2001b). The complex was contour mapped and comprises one lateral (5059) and a conical mound, 12.6 m high (5060). Although no ballcourt is evident, mound 5071 was in grass and heavily disturbed, so it may have been a ballcourt obscured by farming. The ballcourt interpretation is not promising, however, because the mound is positioned partly in front of the lateral, not at the end of the plaza. The only candidate for a palatial platform is 5053, with the slightly higher mound 5055 atop it; an access ramp or terrace is on the south side (5056). Because 5053 is offset to the north relative to the lateral mound, 5059, I assume 5053 is not another lateral mound damaged by erosion, but, rather, a platform. The 5053 platform, at 3 m height, is less massive that the monumental platforms at Cerro de las Mesas, for example, and the mound on top adds only 0.6 m. A drainage eroded the platform and mound 5055 atop it on the western flank, obscuring the original form, but the platform has an irregular form and may not have been rectangular.

Surroundings

The complex is positioned among a scatter of mounds concentrated in the eastern part of the Moyotla block (Zone 2) and lies 5.8 km northeast of Cerro de las Mesas and 7.5 km northwest of Azuzules. The mounds are near a distributary of the Viejo River that trends northeast toward the north branch of the Blanco. Occupation likely continues northeastward into Speaker's Zone 3 (Rincón del Tigre), where additional mounds and complexes are distributed along this distributary in the area where it joins another Viejo distributary and what appears to be a past channel of the Blanco. Paso de las Mulas is 1.2 km southwest of the complex of Rincón del Tigre and 1.8 km from the complex of Rincón del Tigre Norte, both located in the next survey block, Zone 3.

The north bank of the Viejo distributary almost entirely lacks settlement, as shown in both the Zone 2 Moyotla Block and the northern extension of the Central Block. North bank settlement occurs farther east, however, at the confluence with other channels. Aerial mosaics from 1969 (Cia. Mexicana de Aerofoto,

Mosaics 52 and 33) suggest that this area lacking mounds continues northward to lagoons and oxbow lakes near the northern Blanco distributary. Possibly the absence of settlement relates to a backswamp location susceptible to considerable flooding, yet the terrain does not support this interpretation. The north bank surveyed areas are not particularly low-lying, with contour intervals between 6 and 7 m asl (with elevations up to 10 m asl along the Blanco northern branch). Modern land use and lack of visible mounds on aerial photographs (beyond areas surveyed) strongly suggest that ancient settlement was preferentially along channels. Therefore, the north bank of the Viiejo distributary should exhibit occupation but does not.

As suggested previously, the absence of settlement in the Central Block north of the Viejo may be related to Cerro de las Mesas boundaries, since gaps in settlement surround Cerro de las Mesas at a distance of approximately 2–3 km. The north bank in the Zone 2 Moyotla block, however, is likely outside the Cerro de las Mesas settlement area, if that settlement was relatively symmetrical. This part of the north bank requires future investigation to better understand why it was avoided for occupation.

Chronology

Pottery from this complex is scarce, as only four mounds yielded collections, and the combined rim count is 114. Three of the collections are from the platform and closely associated mounds, the other deriving from the conical mound. Among the combined rims, traces of Preclassic (four rims) and Postclassic (four rims) diagnostics show occupation in the area during those periods; these sherds indicate light representation for the Postclassic and possibly light for the Preclassic, but the latter is more likely to have been obscured by later overburden. Classic diagnostics predominate (39 rims), suggesting final construction levels during the Classic period with at least some occupation during the Late Classic at terrace 5056. The complex lacks indications of the elaborate bowls that help date the Late Classic, and a metallic wash on red-orange-slipped utility sherds (3 rims, code 16m) is the only firm indication of Late Classic occupation. Detection of the Late Classic period can be affected by underrepresentation of diagnostic bowls at less distinguished social locations, but I would not expect this effect at a complex, even if it were a secondary or tertiary/quaternary center.

Surrounding mounds in the Moyotla block show a fairly balanced representation of Preclassic, Classic, and Postclassic occupation, although the Classic period is the most strongly represented, including the Late Classic, thus differing from the monumental complex. Among the Postclassic rims, the only more specific indicators pertain to the Middle Postclassic period.

Discussion of Paso de las Mulas Complex

Paso de las Mulas is 1.8 km from a larger complex to the east, Rincón del Tigre Norte, with nearly continuous residential settlement between them likely following the drainage that connects them. Rincón del Tigre lies between them, 1.2 km from Mulas. Chronological evidence from surrounding occupation does not show the Paso de las Mulas area to be different from complexes in the Rincón del Tigre block, and the geographical proximity makes the Mulas area possibly part of the same political-social unit at some time. The scant Late Classic material in the Mulas monumental complex points to a role in the Early Classic, and, because of its modest size, perhaps as a tertiary center to Cerro de las Mesas, but possibly diminished in importance and swallowed up in the Rincón del Tigre Norte settlement during the Late Classic period. Survey of the intervening area and expansion of survey around Rincón del Tigre Norte will shed light on the organization of settlement and whether two secondary centers, Paso de las Mulas and Rincón del Tigre Norte, functioned throughout the Classic period.

Comparison to the case of Salto and Salto Norte, discussed below, suggests that Mulas and Rincón del Tigre Norte may be separate centers on the basis of distance. Nevertheless, Salto and Salto Norte, separated by 1.6 km, are also separated by a diminution of residential mounds midway between them. Salto and Salto Norte present a more sizable amount of construction than Paso de las Mulas, and thus the interpretation of Mulas remains problematic. Mulas represents about the same amount of construction as Rincón del Tigre and considerably less than Rincón del Tigre Norte. Rincón del Tigre Norte is the best candidate for a secondary center among the three on the basis of the concentration of construction there. Mulas may represent, therefore, a tertiary/quaternary center.

Rincón del Tigre Complex

Description

This Zone 3 complex (Speaker 2001b) presents a small SPPG-1a, with a conical mound (5175) 9.3 m high and a single low lateral (5174; Figure 9.8). The conical mound has a terrace or projection to the southwest (5148),

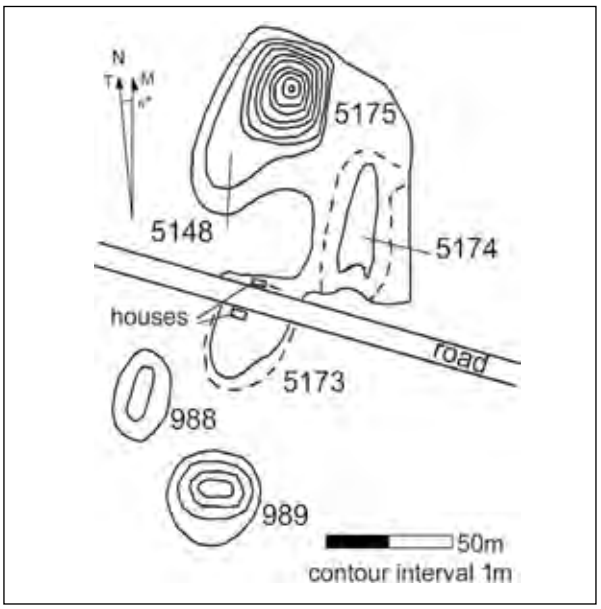

Figure 9.8. Rincón del Tigre contour map with feature numbers, redrafted from Speaker (2001b:Figure 3.22).

conceivably a remnant of a second lateral if that lateral was very low and eroded. Mound 5173 is in a position occupied by a ballcourt at many other Standard Plan arrangements. Since the mound is cut by a road, with two houses adjacent to the road on the north and south sides, plus a fence running across the mound north–south, modern disturbance precludes seeing a small ballcourt. Nevertheless, due to its position and the prevalence of Standard Plan arrangements, I consider it a possible ballcourt. Two other mounds are located nearby to the south. There is no candidate for a monumental platform.

Surroundings

Rincón del Tigre is associated with scattered settlement at the confluence of several channels; see preceding Paso de las Mulas discussion. Nevertheless, the immediate area surveyed does not show as much clustering of residential remains compared to Rincón del Tigre Norte. Rincón del Tigre is 0.6 km south of Rincón del Tigre Norte and 1.2 km from Paso de las Mulas to the southwest. Rincón del Tigre lies at the southeast corner of the survey block, and its two southernmost mounds were mapped but not collected. Numbers were assigned to these mounds after fieldwork.

Chronology

The conical mound and the possible ballcourt mound were collected. The lateral mound was collected according to field notes, but no collections were entered in the files. Perhaps the collection was lost or mislabeled. The collections provide similar temporal information except that the possible ballcourt yielded three Postclassic diagnostics. All but one of the five Preclassic sherds derive from the conical mound, which may indicate fill with earlier pottery. Most of the diagnostics (16 rims) indicate the Classic period. With only 50 rims, in total, the absence of Late Classic diagnostics is inconclusive.

Surrounding mounds for Rincón del Tigre and for the nearby complexes of Rincón del Tigre North and Complex 5140 are considered jointly here. The Rincón del Tigre Zone 3 block shows sparser occupation for all periods compared to the Moyotla block, and somewhat fewer mounds were surface collected. Like the Moyotla area, in the Rincón del Tigre block Preclassic, Classic (including the Late Classic), and Postclassic remains are relatively balanced in representation, with more evidence for Classic activity overall. Within the Postclassic period, more specific diagnostics all pertain to the Middle Postclassic.

Discussion of Rincón del Tigre Complex

Rincón del Tigre could have been a tertiary/quaternary center, with Rincón del Tigre Norte a secondary center, given the larger size of the latter complex, but the close spacing, 0.6 km, is problematic for viewing Rincón del Tigre as a separate settlement. If, as seems likely, the Platform 5140 Complex was an outlier of Rincón del Tigre Norte, then perhaps Rincón del Tigre was as well. Because Rincón del Tigre is situated at the edge of the survey block, we lack adequate information about its surroundings that might clarify whether it was a separate settlement despite the close spacing. There is an apparent thinning of residential mounds between the two complexes, which could point to separate settlements. The geomorphological position of Rincón del Tigre is different from Rincón del Tigre Norte because it is not positioned along a channel. Rincón del Tigre Norte and nearby occupation are clustered in the confluence of various channels. Provisionally, Rincón del Tigre will be treated as a tertiary/quaternary center, for both the Early and Late Classic periods.

Rincón del Tigre Norte Complex

Description

Located in Zone 3, Rincón del Tigre Norte was drawn to scale by Speaker from his field measurements, but was not contour mapped (Figure 9.9). It is the largest of the Zone 3 complexes, and partly falls outside the survey limits. It is positioned, along with several additional mounds, in a bend of a seasonal distributary

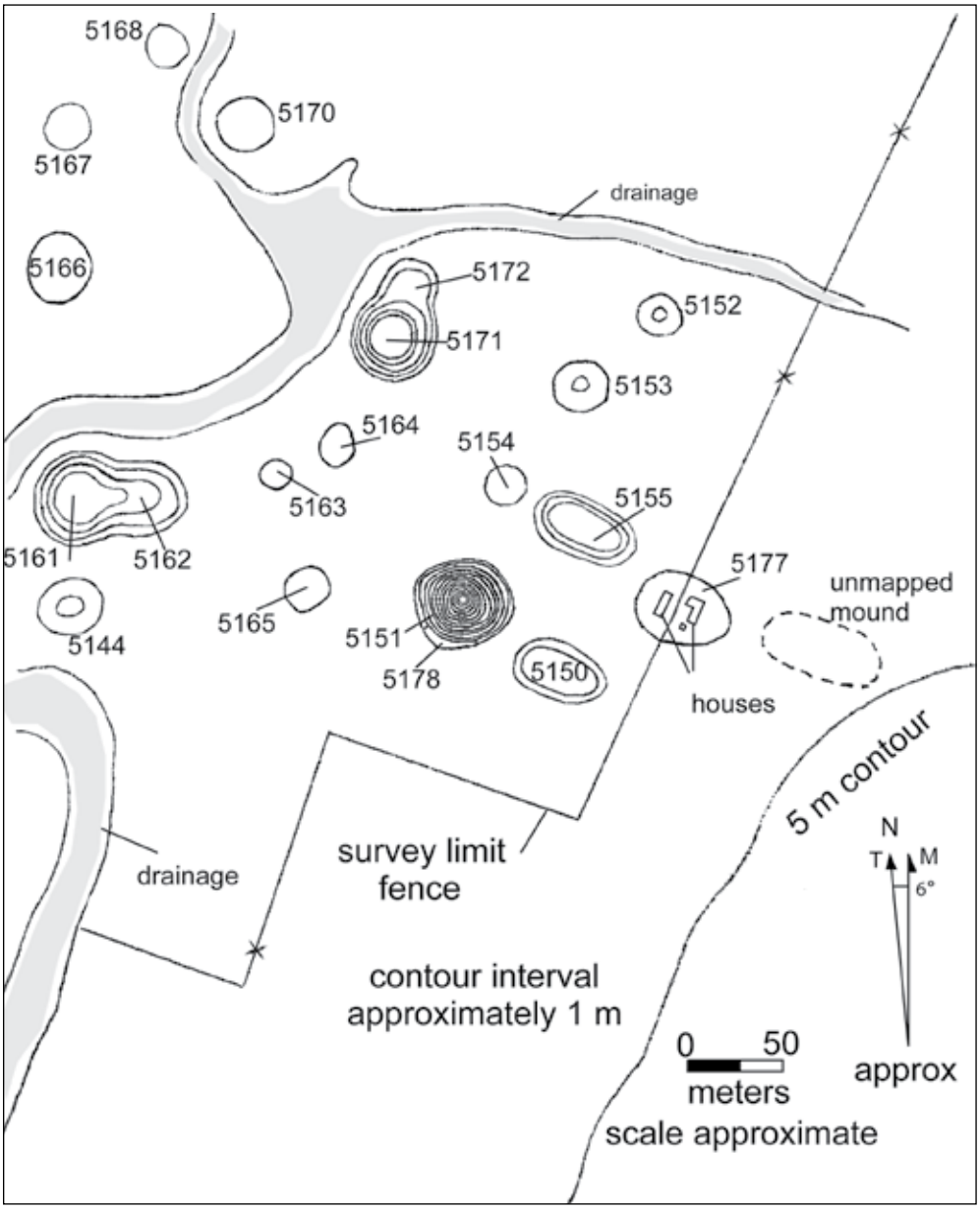

Figure 9.9. The Rincón del Tigre Norte map with feature numbers is redrafted from a scaled field drawing by Speaker (2001b:145). Mounds shown as part of the complex are east of the drainage, although additional mounds are shown to the west.

of the Viejo River. The complex exhibits a SPPG-2a, with a 13.1 m high conical (5151) and two laterals of unequal heights (5155 and 5150). The conical mound has a small terrace extension or slump area on one side (5178). At the eastern edge of the plaza, mound 5177 is positioned where a ballcourt would commonly occur, but the presence of two houses sufficiently affected the surface that no final determination could be made. I treat it as a possible ballcourt. Nearby, Features 5161 and 5171 are sizable mounds with terraces, possibly elite residences, but no monumental platform is present among the mapped mounds (an unmapped mound to the east should be evaluated in respect to its form).

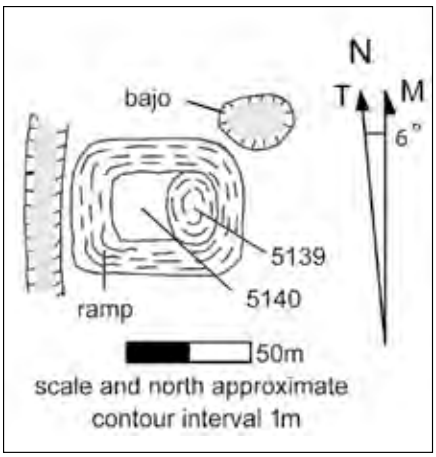

Figure 9.10. Platform 5140; orientation and contours approximated from Stuart Speaker's field notes.

Surroundings

Rincón del Tigre Norte lies 7.5 km northeast of Cerro de las Mesas and 7.7 km northwest of Azuzules. The occupational remains in Zone 3 are scattered in the area of confluence of several distributary channels.

Chronology

The collections for the central structures are few. The conical mound has similar amounts of Classic and Preclassic diagnostics in a collection of 90 rims. The possible ballcourt mound, with only 30 rims collected, lacks a strong Preclassic representation (one rim), and has Postclassic diagnostics (6 rims) equaling the Classic diagnostics (6 rims). Two rims indicate Late Classic material on the possible ballcourt structure.

Because of few collections from the central complex, those from surrounding mounds are especially important in temporal assessment. As noted above for Rincón del Tigre, the surrounding occupations are relatively balanced among the Preclassic, Classic (including the Late Classic), and Postclassic, although the Classic period represents the most extensive occupation. The evidence does not clarify the likely period(s) when the complex functioned, although the Postclassic can be ruled out because the Standard Plan arrangement is not characteristic in that period. Within the Postclassic period, more specific diagnostics all pertain to the Middle Postclassic.

Discussion of Rincón del Tigre Norte Complex

Among the three complexes in Zone 3, Rincón del Tigre Norte is both the most sizable and the most centrally located among tributary channels. Because of its greater size, Rincón del Tigre Norte is more likely than Rincón del Tigre to have had Platform 5140 as a segment complex. Size, location, and the possibility of a monumental platform all point to a role as a secondary center. On the basis of ceramics, it may have functioned as a secondary center during both the Early and Late Classic periods, with Rincón del Tigre as a tertiary/quaternary center not far away. Still farther, Paso de las Mulas is a possible tertiary/quaternary complex except during the Late Classic period, for which it has few ceramic diagnostics, making its role less certain.

Platform 5140 Complex

Description

Platform 5140 is a rectangular platform surmounted by a linear mound (5139) on its east edge (Figure 9.10). The platform is oriented east–west on its long axis. Given the position of Feature 5139 on top and indications of a more extended, gentler slope at the southwest corner of the platform, access was probably via a ramp or stair there. The platform, 67 by 54 m, is 4.8 m high, and the mound on top adds 2.6 m elevation. The platform is located 0.6 km from the two closest complexes, Rincón del Tigre and Rincón del Tigre Norte, approximately equidistant.

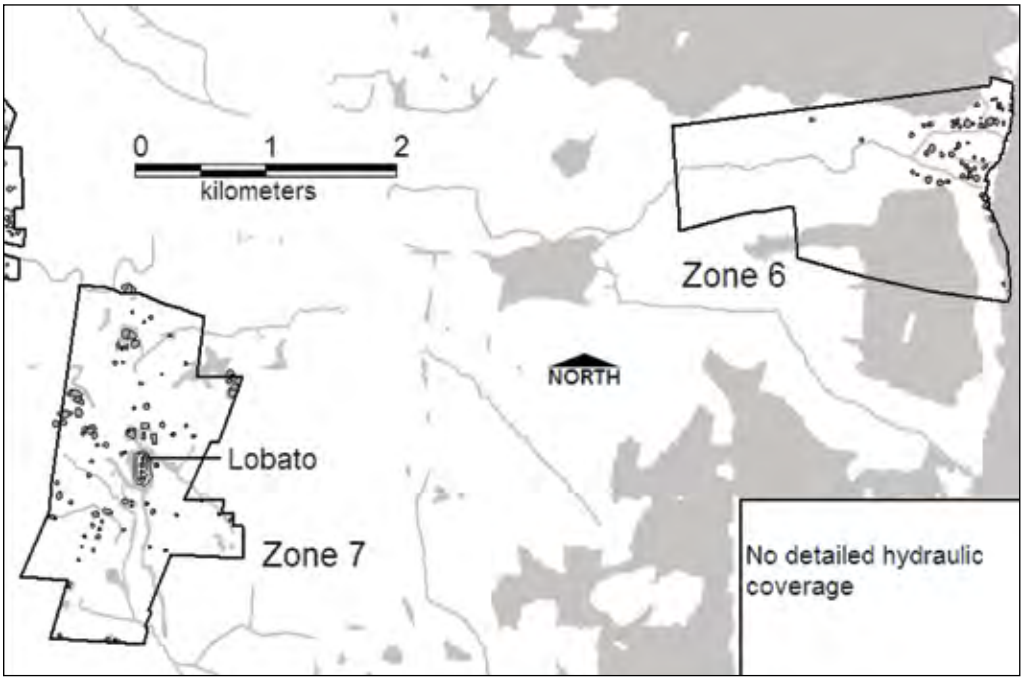

Figure 9.11. Hydrologic details for Speaker's (2001b) survey zones southeast of the Central Block in the Blanco delta.

Surroundings

Residential mounds are in the area where several channels intersect, and they probably are part of a continuous band of scattered mounds extending from the eastern portion of the Zone 2 survey. Complex 5140 is situated between the main channel and a tributary drainage.

Chronology

Chronologically, the smaller collection from the upper mound (29 rims) resembles the larger collection from the platform temporally (58 rims), and I discuss them combined. Postclassic diagnostics are absent, and the Preclassic is represented by only two rims, with 25 rims indicating the Classic period. An ultrafine orange rim (code 43) and one example of the metallic category (code 25) provide a reasonable indication that use of the platform continued in the Late Classic period. See discussion with Paso de las Mulas, Rincón del Tigre, and Rincón del Tigre Norte concerning the chronology of surrounding mounds.

Discussion of Complex 5140

This monumental platform likely constitutes an outlying structure related to either Rincón del Tigre or Rincón del Tigre Norte, with the latter more likely due to its greater amount of construction. As noted, these complexes are all close to each other, with Platform 5140 only 0.6 km from each. There is skimpy evidence of intervening residences in the area between Platform 5140 and either of the two. Although I cannot rule out Platform 5140 as a rural elite estate, its distance from Rincón del Tigre Norte falls within the values for segment complex platforms pertaining to secondary centers.

Summary for Complexes in Zones North of the Central Block in the Blanco Delta

These three blocks show that Preclassic settlement preceded the growth of occupation during the Classic period. Although the pottery classification Speaker applied does not discriminate the Early Classic period well, it is reasonable to assume continuity and treat all three centers as subsidiary to Cerro de las Mesas during the Early Classic period, with Rincón del Tigre Norte as a secondary center and Paso de las Mulas and Rincón del Tigre both as tertiary/quaternary. Preclassic antecedents are typical at centers secondary to Cerro de las Mesas, which itself had abundant Preclassic occupation. Continuity of occupation in the three north delta blocks during the Late Classic period suggests that Rincón del Tigre Norte continued as a secondary center for Azuzules, with Rincón del Tigre as a tertiary/quaternary center. The locale was also occupied (or reoccupied) during the Middle Postclassic period, but likely only at the residential level.

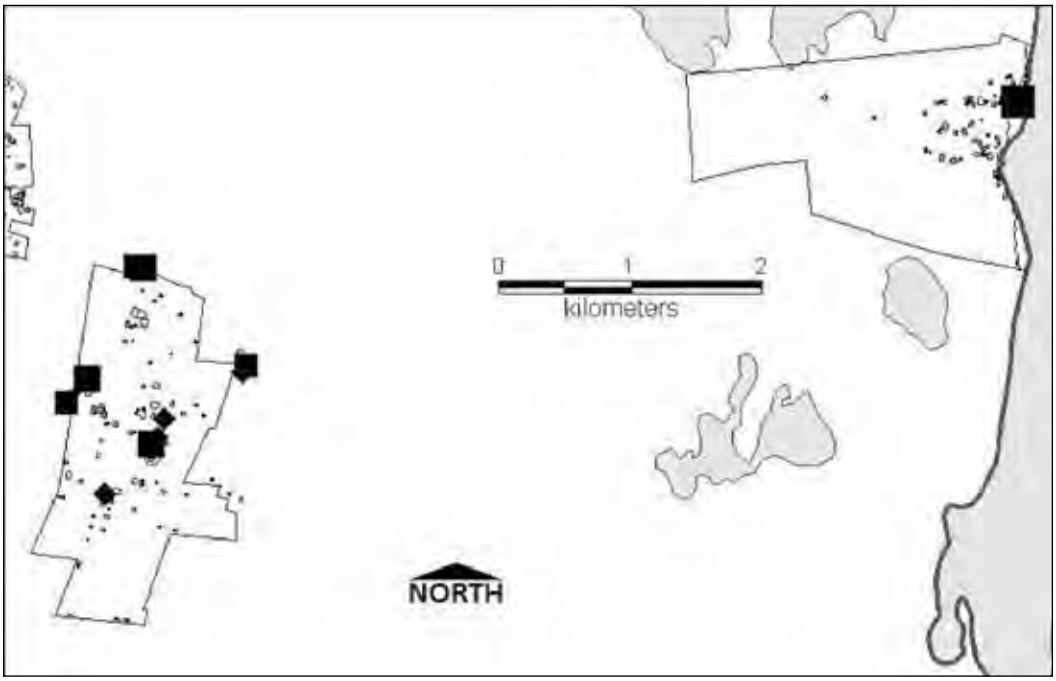

Figure 9.12. Survey southeast of the Central Block, Preclassic diagnostics, percent quartiles for collections at or above the median, 54 rims (Table 9.1). Features that yielded no surface collection are gray.

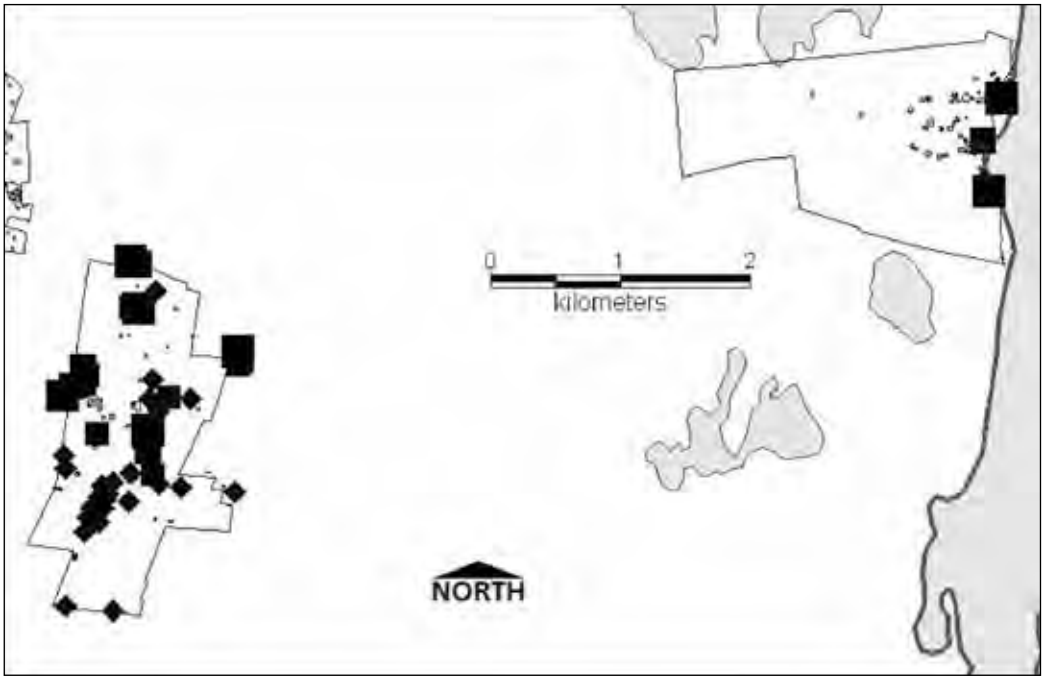

Figure 9.13. Survey southeast of the Central Block, Classic diagnostics, percent quartiles for collections at or above the median, 54 rims (Table 9.1). Features that yielded no surface collection are gray.

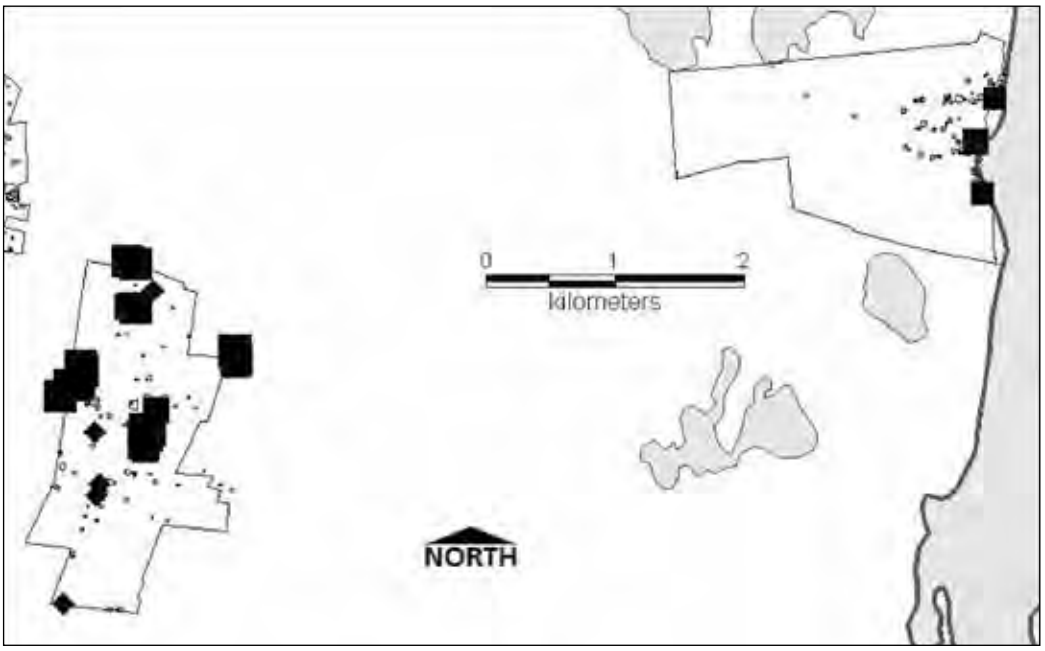

Figure 9.14. Survey southeast of the Central Block, Late Classic diagnostics, percent quartiles for collections at or above the median, 54 rims (Table 9.1). Features that yielded no surface collection are gray.

Complexes Southeast of the Central Block in the Blanco Delta

Two of Speaker's (2001b) survey blocks lie east and southeast of the Central Block (Zone 7, Lobato, and Zone 6, Río Limón; Figure 9.11). Zone 6 did not yield any formal complexes, however.

To provide a general chronological background for the sole southeastern complex, Lobato, a series of maps provides quartiles of diagnostic ceramics. For the Preclassic period, sparse occupation is indicated, but the small Lobato complex is included (Figure 9.12). Considerable proliferation of occupation is evident for the Classic period, with a concentration in the vicinity of the Lobato complex (Figure 9.13). Late Classic occupation closely resembles that for the Classic period generally, with slightly fewer features represented (Figure 9.14).

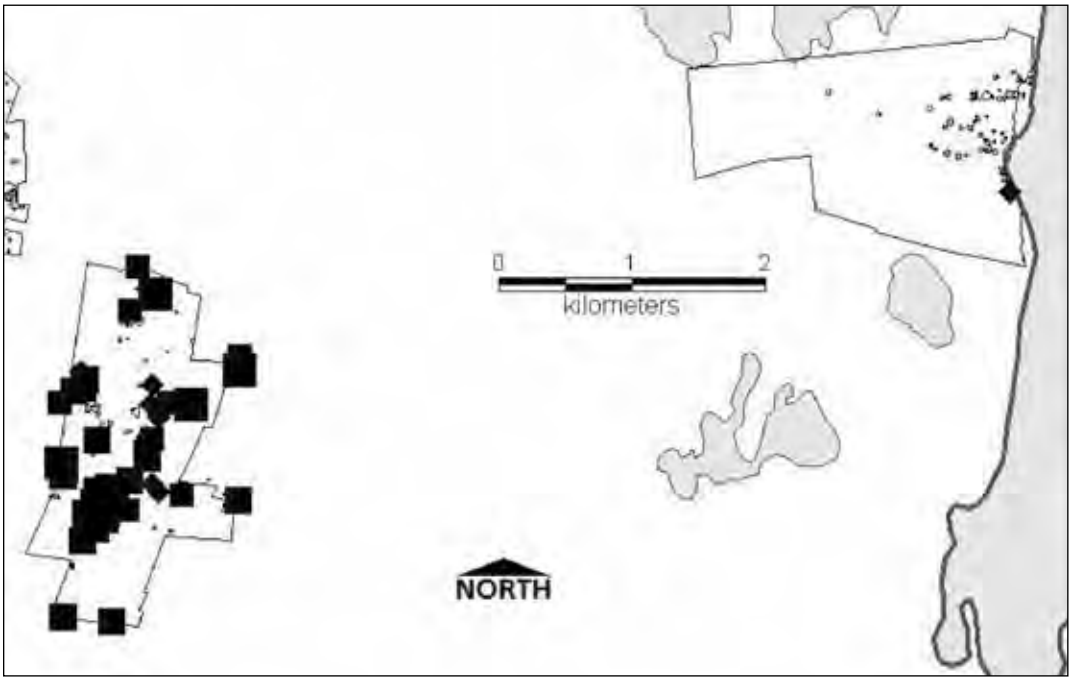

Figure 9.15. Survey southeast of the Central Block, Postclassic diagnostics, percent quartiles for collections at or above the median, 54 rims (Table 9.1). Features that yielded no surface collection are gray.

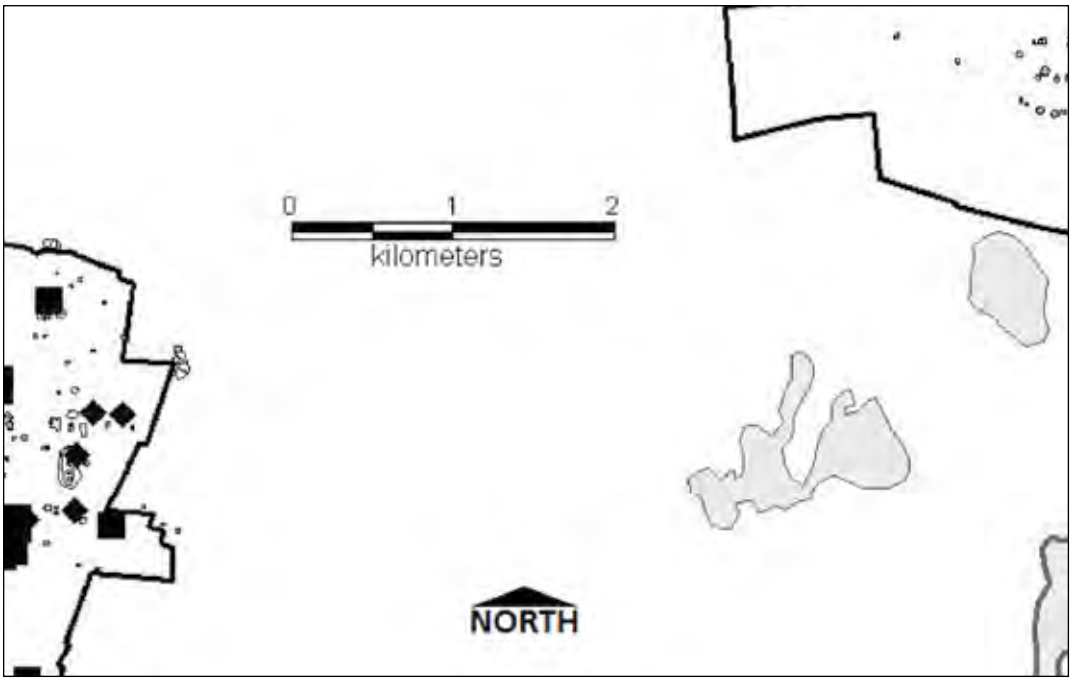

Figure 9.16. Survey southeast of the Central Block, Middle Postclassic diagnostics, percent quartiles for collections at or above the median, 54 rims (Table 9.1). Features that yielded no surface collection are gray.

During the Postclassic period, Zone 7 and the Lobato complex continue to be well represented, but Zone 6 near the Río Limón is scarcely occupied (Figure 9.15). Separating the Middle Postclassic diagnostics (Figure 9.16) shows much less occupation, with no concentration at the Lobato complex.

Lobato Complex

Description

Located in Speaker's (2001b) Zone 7, this north–south oriented complex is shown from a scaled field drawing (Figure 9.17). It consists entirely of low mounds, not monumental construction. Despite its non-monumental

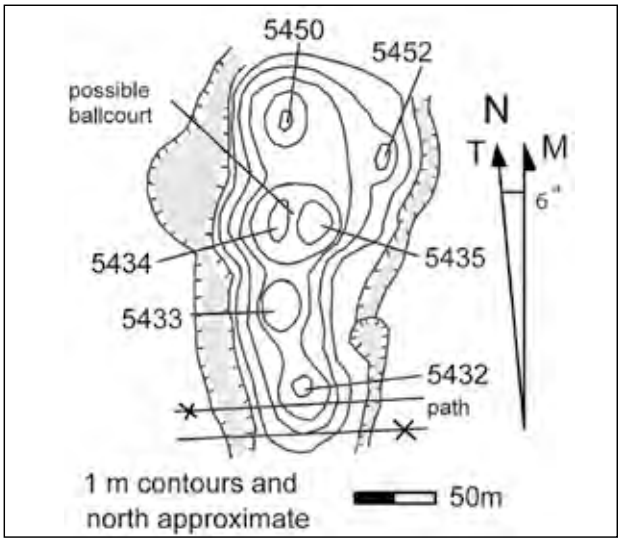

Figure 9.17. Lobato complex and feature numbers, redrafted from a scaled field drawing in Stuart Speaker's (2001b) survey.

character, the group exhibits Standard Plan principles (SPPG-1a). The north–south arrangement starts with mound 5450 in the conical position, followed by a pair of slightly elongated mounds, 5434 and 5435, so closely positioned that they appear to represent a small ballcourt (although a ballcourt was not identified by field crews). The presence of a ballcourt, if there was one, would be anomalous at a plaza group of small mounds. The first mound 5450 and the possible ballcourt mounds have similar heights, ranging from 4 to 4.5 m. All others are lower, approximately 3 m high.

The complex has no obvious laterals, but one low mound 5452 may be a nascent single lateral on the east side between the north mound and the possible ballcourt. Directly south of the possible ballcourt is mound 5433, remarked as having many clay ball fragments in field notes (concerning clay balls, see Stark 2001b:211–213). Two smaller mounds are located nearby, 5452 (the possible nascent lateral) and 5432, but only the latter is along the north–south axis of the complex. An alternative interpretation of Lobato mounds would treat 5434 and 5435 as laterals (not ballcourt mounds), with Feature 5433 a possible eroded ballcourt on the basis of its position. The previous interpretation is in keeping with Standard Plan precepts, however, with 5452 as a single incipient lateral, and 5434 and 5435 as ballcourt mounds. This interpretation yields the relatively square plaza proportions typical of Standard Plan plazas and is the interpretation adopted here (SPPG-1a).

The group is described as situated on a slight ridge; the field form shows *bajos* immediately north and south, but these were not marked on the scaled sketch of the complex. The complex, surrounded by *bajos*, might have appeared to be a ridge or levee due to the surrounding lower terrain. Thus, the structures may share an artificial platform, or be situated on a natural rise, or may simply appear to occupy higher ground in contrast to the *bajos* (Figure 9.17).

Surroundings

The Lobato complex lies 2.9 km southeast of the principal conical mound at Azuzules. Mounds in its immediate area are not particularly dense, and most are clustered in the vicinity of small seasonal drainages. In comparison, mounds are somewhat denser in the Limón estuary area, which also lies at the end of a seasonal drainage reaching the estuary.

Chronology

Every one of the complex features yielded a substantial collection of rims, with 1,042 rims in total. Only two mounds yielded Preclassic diagnostics, three rims total, from mounds 5432 and 5435. Classic period diagnostics are strongly represented in all the collections, 302 rims, and over one-third of them pertain to the Late Classic period, 124 rims. Early Classic materials cannot be reliably distinguished, but likely are present. Postclassic diagnostics are present in all of the collections, 42 rims in total, and the types strongly suggest the Middle Postclassic, not the Late Postclassic period. The two more "peripheral" mounds in the complex, 5432 and 5452, have the strongest representation of Postclassic materials and could have been the primary locations of residences during the Middle Postclassic period.

Among surrounding mounds, Preclassic remains are sparse and scattered. The Classic period is quite strongly represented, as is the Postclassic. These results are in keeping with the evidence from the Lobato complex itself. The Lobato area contrasts with Speaker's blocks north of the Central Block in the meager representation of Preclassic occupation. Ceramics underscore occupation during the Late Classic period. The Lobato area was also heavily occupied during the Postclassic period, and more specific diagnostics are almost entirely Middle Postclassic. Stark and Garraty (2004:137–139) propose that black-on-orange and black-on-red bowls were produced in the locality during the Middle Postclassic period. A single collection (5461) yielded Late Postclassic diagnostics. The strong indications of Middle Postclassic occupation in the Lobato Block are in striking contrast to the Río Limón Block, where Postclassic occupation is scarcely represented.

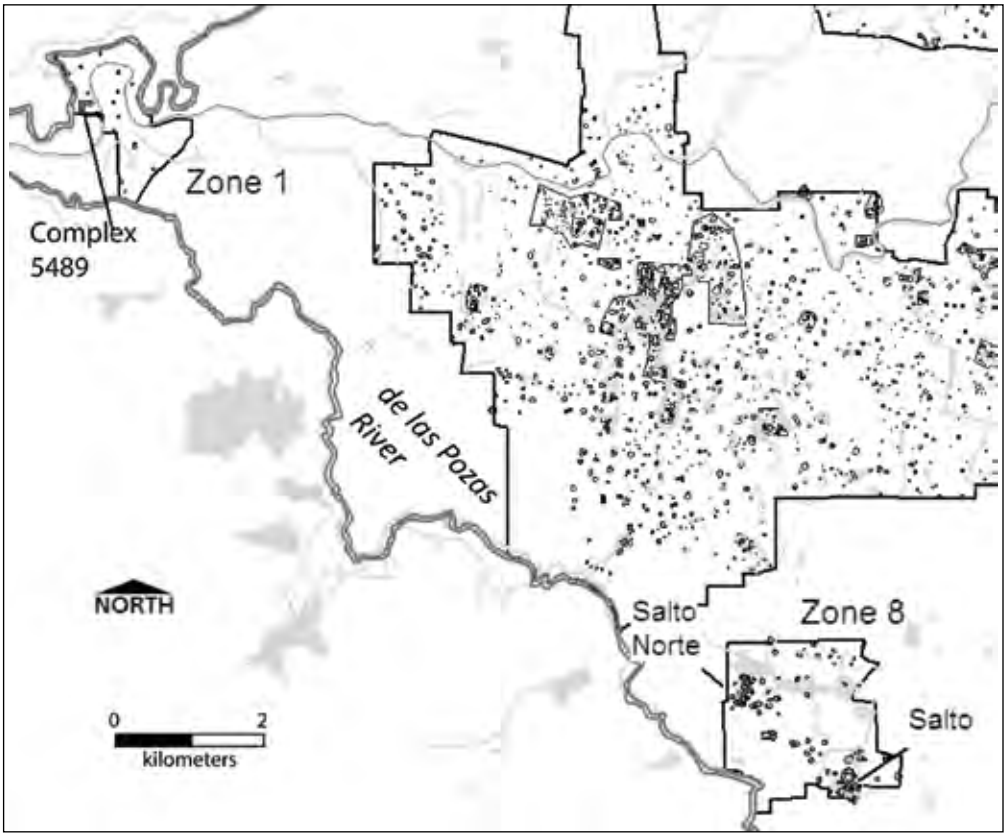

Figure 9.18. Hydrologic detail of the Salto and Paso de la Boca survey blocks (Speaker 2001b).

Discussion of the Lobato Complex

The strong representation of the Late Classic period and the proximity of Azuzules, 2.9 km to the northwest, suggests that this area became particularly important for occupation during the Late Classic period. With Azuzules boundaries on the basis of gaps, Lobato may have been a border complex of Azuzules. If the Azuzules settlement area is relatively symmetrical around the center, Lobato is about the same distance away as some of the gaps that suggest a settlement transition. The Lobato complex is 1.6 km southeast of Azuzules Southeast, an outlying platform group of Azuzules. Although Lobato might be a border complex on the basis of possible Azuzules boundaries defined by gaps, the revised settlement boundaries for Azuzules leave Lobato outside, implying it functioned as a tertiary/quaternary center. Unfortunately, the lack of survey coverage between Azuzules and Lobato curtails additional information. Lobato is intriguing as a possible example of how larger Standard Plan complexes began or how they appeared in smaller community contexts. Unlike other SPPGs, Lobato never grew to imposing proportions.

Complexes South and West of the Central Block in the Blanco Delta

Zone 8 (Salto block) is located south of the Central Block and yielded two complexes that today are situated along remnant channels; possibly they were located closer to the de las Pozas River during some periods, as the channels may be remnants of a past course of that distributary (Figure 9.18). Zone 1 (Paso de la Boca) is located west of the Central Block at the bifurcation of the Blanco and the de las Pozas channels at the western end of the delta. One group recorded in survey includes a sizable mound (5489) that forms part of a Conical Plaza Group recorded during pedestrian survey.

As a chronological background, maps show the quartiles of percentages of diagnostic rims. For the Preclassic period, both Salto and Salto Norte have concentrations of diagnostic pottery, but not Complex 5489 (Figure 9.19). Classic pottery diagnostics are well distributed in the two zones, but with scant representation at Complex 5489 (Figure 9.20). The same pattern characterizes the Late Classic period (Figure 9.21).

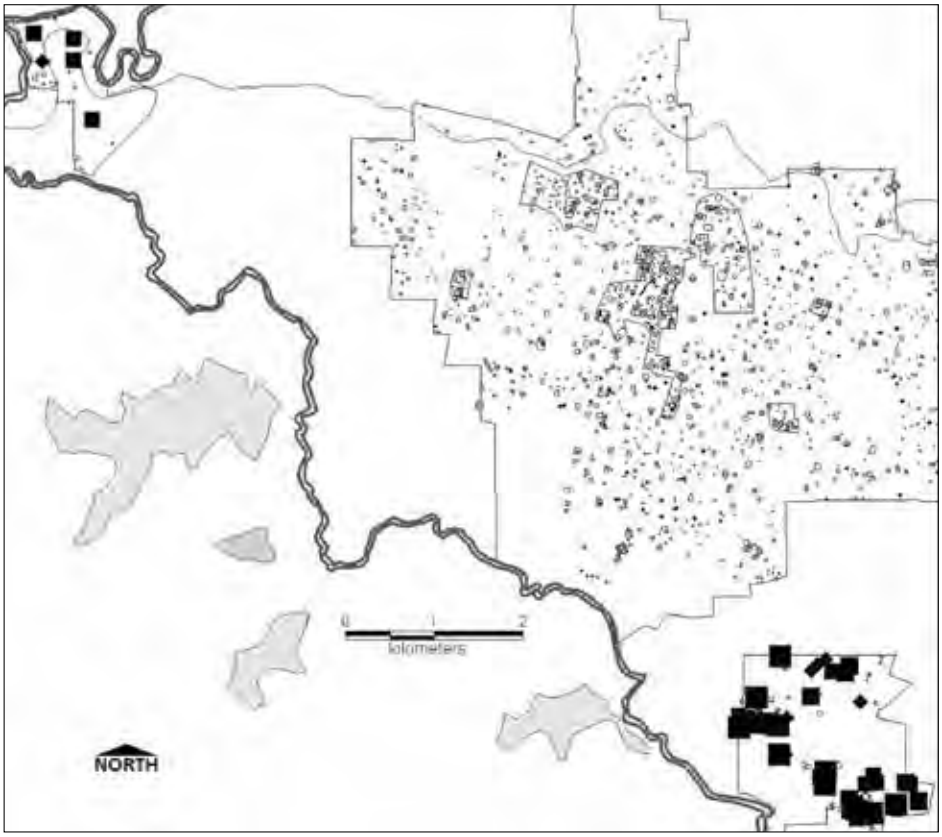

Figure 9.19. Survey south and west of the Central Block, Preclassic diagnostics, percent quartiles for collections at or above the median, 54 rims (Table 9.1). Features that yielded no surface collection are gray.

Postclassic diagnostics are concentrated in a similar fashion to Late Classic ones, except the two complexes in Zone 8 lack concentrations of this pottery (Figure 9.22). Middle Postclassic diagnostics are more sparsely distributed, and they are not evident for either the Salto or Salto Norte complexes (Figure 9.23). Late Postclassic diagnostics are absent.

Salto Complex

Description

Located in Zone 8 (Speaker 2001b), this north–south oriented complex is close to the survey limit, situated with a *bajo* and drainage channel winding around the east and south sides (Figure 9.24). Both Salto and Salto Norte are located along what appear to be remnant drainages, possibly an ancient course of the de las Pozas River. Salto consists of a SPPG-2a, with Feature 5231, 20 m high, as the conical mound, Features 5232 and 5233 forming the laterals, and 5234 as a ballcourt (the two mounds were not given separate feature numbers, and their presence is not indicated on Speaker's [2001:147] contour map, but he reported the presence of the ballcourt in his field notes). Farther south, Feature 5240 closes the plaza and has a small projection to the southeast, 5244. Immediately east of the plaza, a possible platform with four structures or lobes forms a quadrangular, probably elite residential group sharing a plaza (mounds 5235, 5236, 5237, 5238); the platform is not obviously rectangular, however. To the southeast, 5241, mapped in pedestrian survey, likely represents an elite residence, as it has a terrace, 5242. Also recorded in pedestrian survey and partially appearing on the map is mound 5243 and a slightly elevated projection (possibly an access) that extends eastward, 5245.

Surroundings

Salto is located in a pocket of land surrounded by remnant channels, with residential mounds clustered nearby. A decline in residential mounds separates Salto from Salto Norte to the northwest, 1.6 km distant. The complex is 6.4 km south of Cerro de las Mesas and 7.2 km southwest of Azuzules.

Chronology

All structures yielded a collection, but several are small, including all those from the principal structures. The

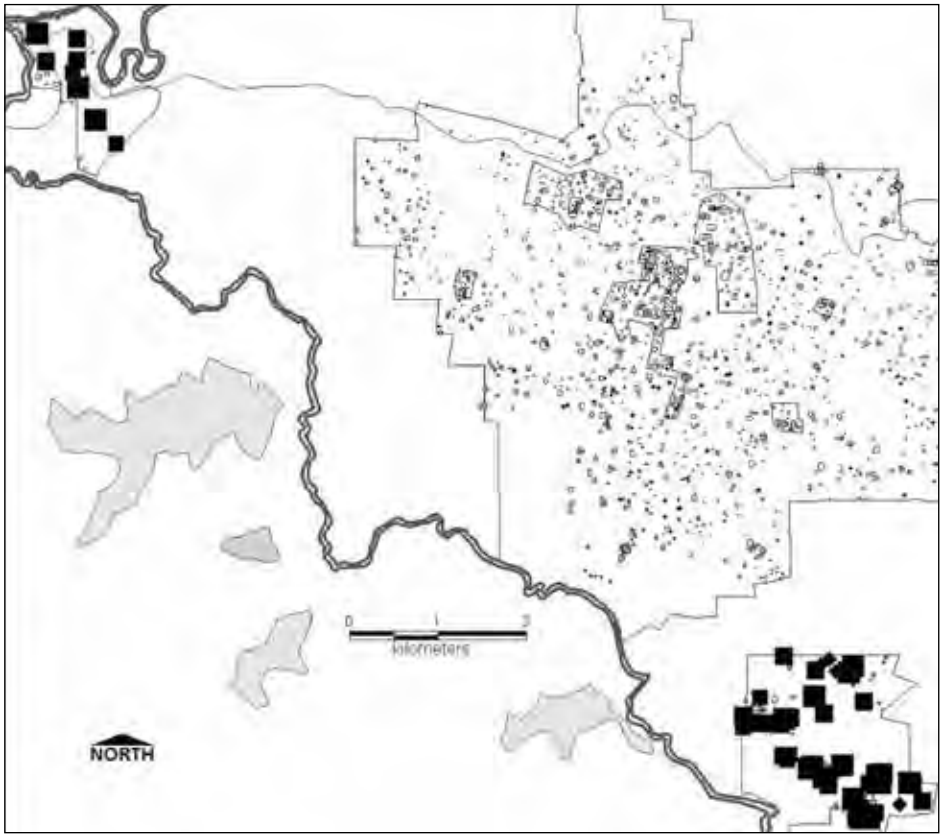

Figure 9.20. Survey south and west of the Central Block, Classic diagnostics, percent quartiles for collections at or above the median, 54 rims (Table 9.1). Features that yielded no surface collection are gray.

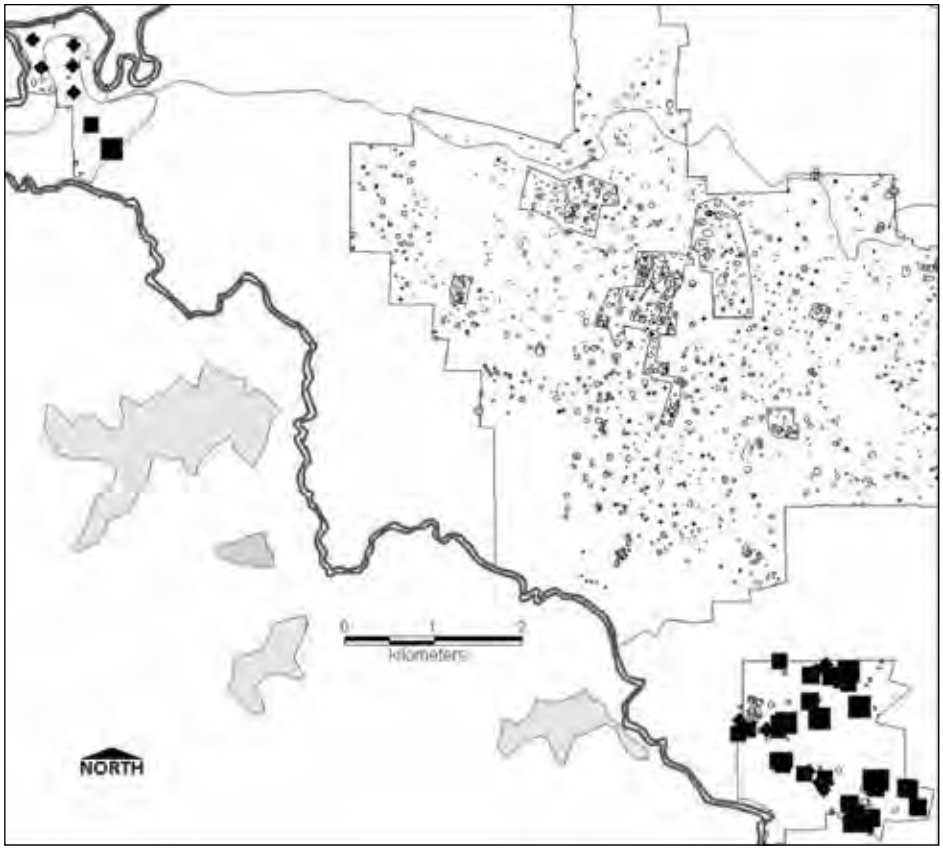

Figure 9.21. Survey south and west of the Central Block, Late Classic diagnostics, percent quartiles for collections at or above the median, 54 rims (Table 9.1). Features that yielded no surface collection are gray.

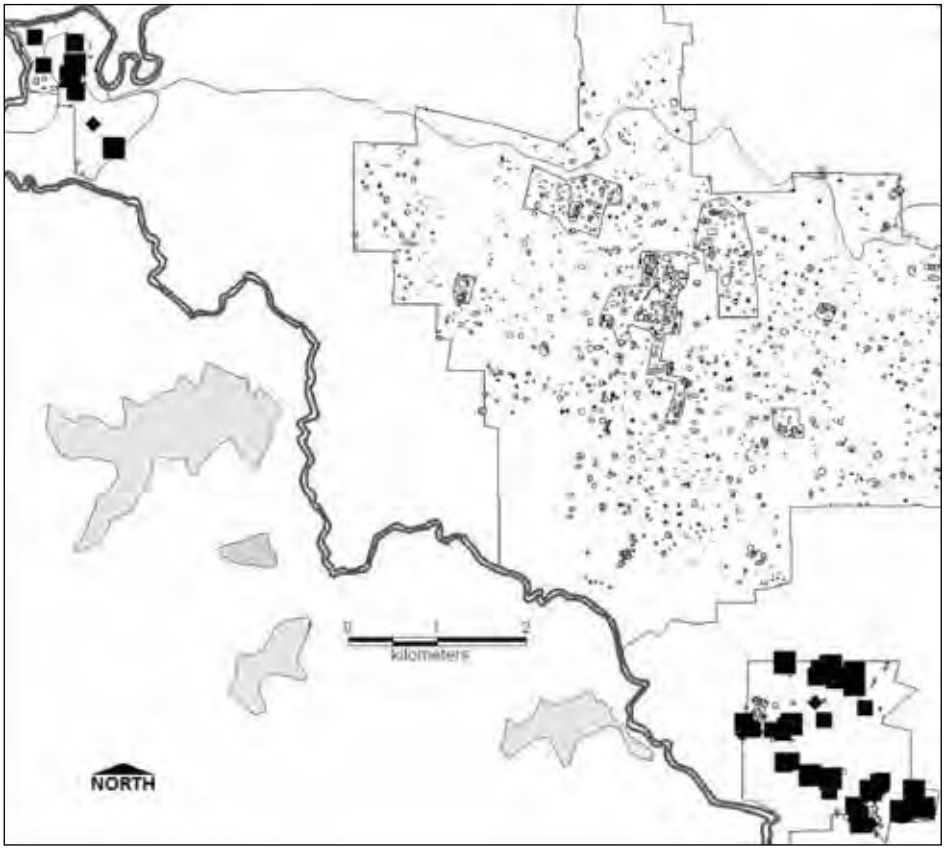

Figure 9.22. Survey south and west of the Central Block, Postclassic diagnostics, percent quartiles for collections at or above the median, 54 rims (Table 9.1). Features that yielded no surface collection are gray.

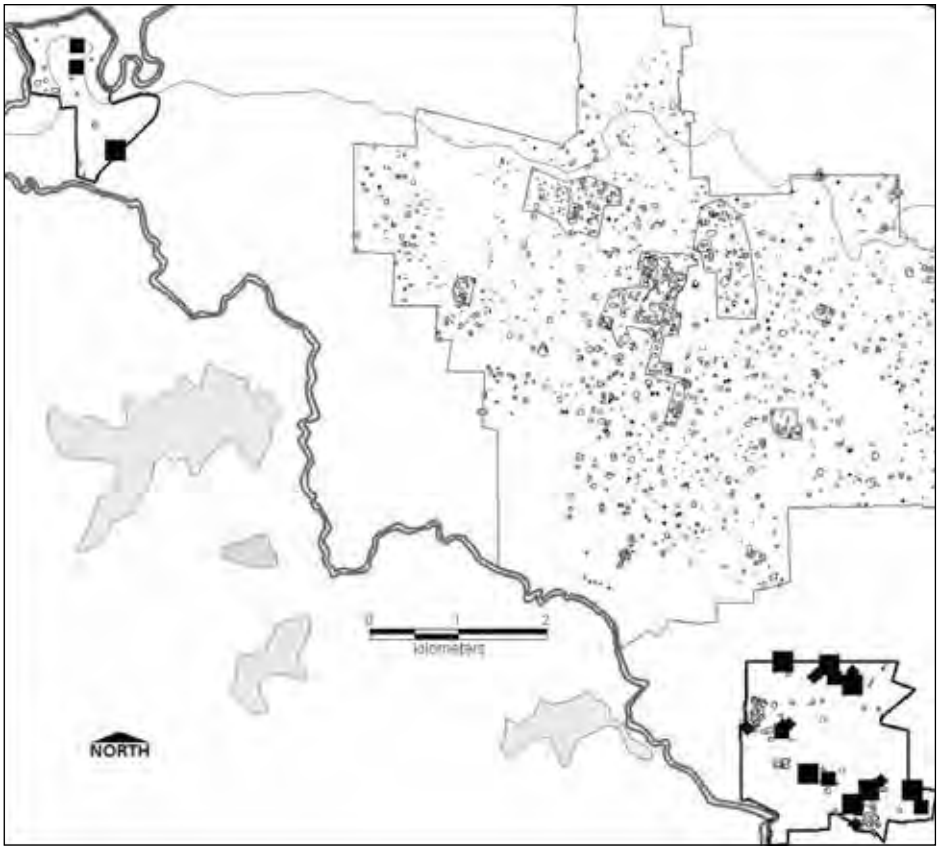

Figure 9.23. Survey south and west of the Central Block, Middle Postclassic diagnostics, percent quartiles for collections at or above the median, 54 rims (Table 9.1). Features that yielded no surface collection are gray.

combined 1,016 rims provide a good sample for this complex, but the biggest collections are from mounds to the southwest of the main complex. Preclassic diagnostics are present in collections from all but one structure, despite the small size of several collections. Preclassic sherds may be present as fill, but their prevalence is a strong indication that Preclassic occupation was in the very close vicinity; and some structures likely have Preclassic levels. Classic diagnostics are abundant, occurring in most collections. Late Classic diagnostics mainly occur in the quadrangular group and on the mound with a terrace. Consequently, use of this complex likely changed, with an elite quadrangular complex important during the Late Classic, while the SPPG played a reduced or negligible role.

Postclassic diagnostics derive mainly from mounds recorded in pedestrian survey to the immediate southwest (5241, 5242, 5243, and 5245). The Postclassic occupation was unrelated to the construction of the SPPG and people likely reoccupied the western mounds. Most of the Postclassic material was not distinctive of Middle versus Late Postclassic, with only one sherd assigned to the Middle Postclassic period.

Among surrounding mounds, the Preclassic, Classic (including the Late Classic), and Postclassic are all well represented. Almost all the Postclassic remains likely pertain to the Middle Postclassic, as it is well represented among the surrounding mounds, and only one mound (5242) near Salto yielded a Late Postclassic diagnostic. Consequently, surrounding mounds do not disagree with materials from the complex in regard to the periods indicated and clarify that Postclassic occupation is mainly Middle Postclassic.

Discussion of the Salto Complex

The distance between Salto and Salto Norte and the indication of separated pockets of residential occupation suggest they should be considered distinct secondary centers under Early Classic Cerro de las Mesas and possibly later under Late Classic Azuzules. The amount of construction is similar to Rincón del Tigre Norte, another candidate for a secondary center, but less than Palmas Cuatas, a secondary center with two SPPGs. The Late Classic sherds concentrated at the residential plaza group suggest a shift that involved lower importance of the SPPG and greater importance for an elite residential area, as is also seen at Cerro de los Muertos upriver along the Blanco.

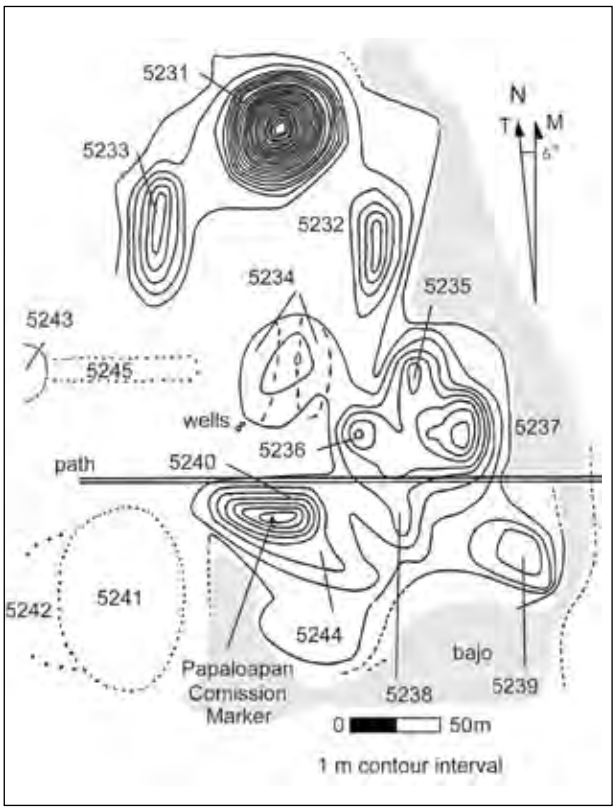

Figure 9.24. Salto complex contour map and feature numbers, redrafted from Speaker (2001b:147; dashed lines indicate the ballcourt).

Salto Norte Complex

Description

Located in Speaker's (2001b) Zone 8, Salto Norte is an east–west oriented Partial SPPG-B2 or SPPG-2a with several additional mounds sharing a slightly elevated ridge or platform (Figure 9.25). This complex is located along an elongated *bajo* or drainage that trends in the same direction as the de las Pozas distributary farther south, and it may have been the course occupied by the river in prehispanic times, or a remnant. Salto Norte was not contour mapped, but Speaker made a scaled drawing.

The core consists of a SPPG, with 5195 as the 10 m high conical mound. Laterals are of unequal heights, with 5191 (3 m) much lower than 5194 (7.1 m). Closing the plaza on the west side, 5193 is a low mound, just over a meter high, crossed by two fence lines. There is no indication it was a ballcourt, but disturbance could have obscured the form; nevertheless, its present dimensions seem disproportionately small to have contained a ballcourt and Salto Norte may be

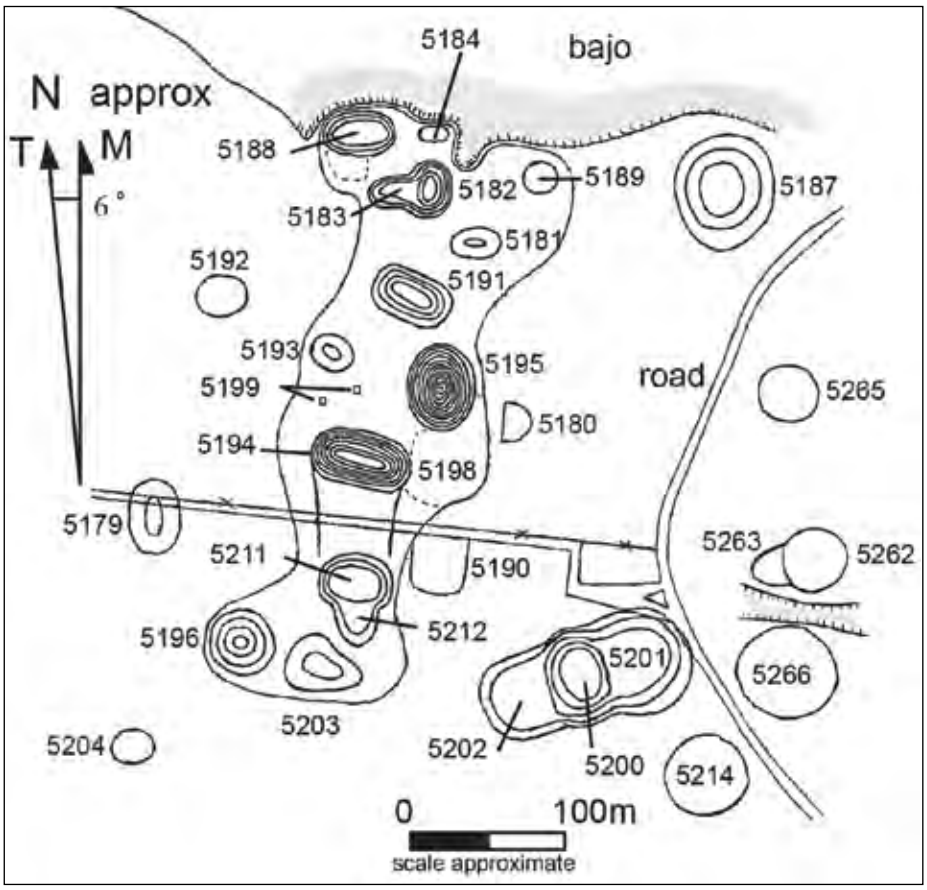

Figure 9.25. Salto Norte complex contour map and feature numbers, redrafted from Speaker (2001b: 149).

a Partial SPPG-B2. Salto Norte lacks a monumental rectangular platform, but there are three mounds with terraces (5188, 5182, and 5211) sharing the platform, and an additional double-terraced mound 5200, just outside. These may constitute elite residences. At the south end of the complex, 5196 is an additional conical mound, 3.3 m high. Mounds near the formal complex are indicated on the map but not used for evaluation of the chronology of the formal center (although they figure in the evaluation of the surrounding area).

Surroundings

Salto Norte is situated at the west edge of the survey block, but eastward a small cluster of residential mounds is associated with it, and mounds drop in frequency approximately midway between Salto Norte and Salto, suggesting that each complex has a distinct set of spatially associated residential mounds. Salto Norte is 1.6 km from Salto. It is 5.1 km south of Cerro de las Mesas and 3.2 km south of Zapotal South, a segment complex of Cerro de las Mesas. Salto Norte is 7.9 km southwest of Azuzules.

Chronology

Only one of the SPPG structures was collected, 5194, and only 14 rims were obtained. Few other structures on the platform were collected, but those collections were more substantial. In all cases Preclassic diagnostics were well represented, but Classic diagnostics were the most abundant, except for the small collection from the lateral mound, 5194. Among the Classic sherds, Late Classic diagnostics predominate at the two southernmost features (5196, 5203). Although a definitive conclusion is not possible due to the number of mounds that were not collected, possibly the southern residential areas were important during the Late Classic period when the SPPG had waned in importance. A similar tendency for Late Classic associations for elite residences and a possible decline of activities in the Standard Plan plaza area characterized the Salto complex. The two southern mounds also have Postclassic diagnostics.

Among surrounding mounds, the Preclassic, Classic (including the Late Classic), and Postclassic are all well represented. Within the Postclassic, only Middle Postclassic diagnostics occur near Salto Norte.

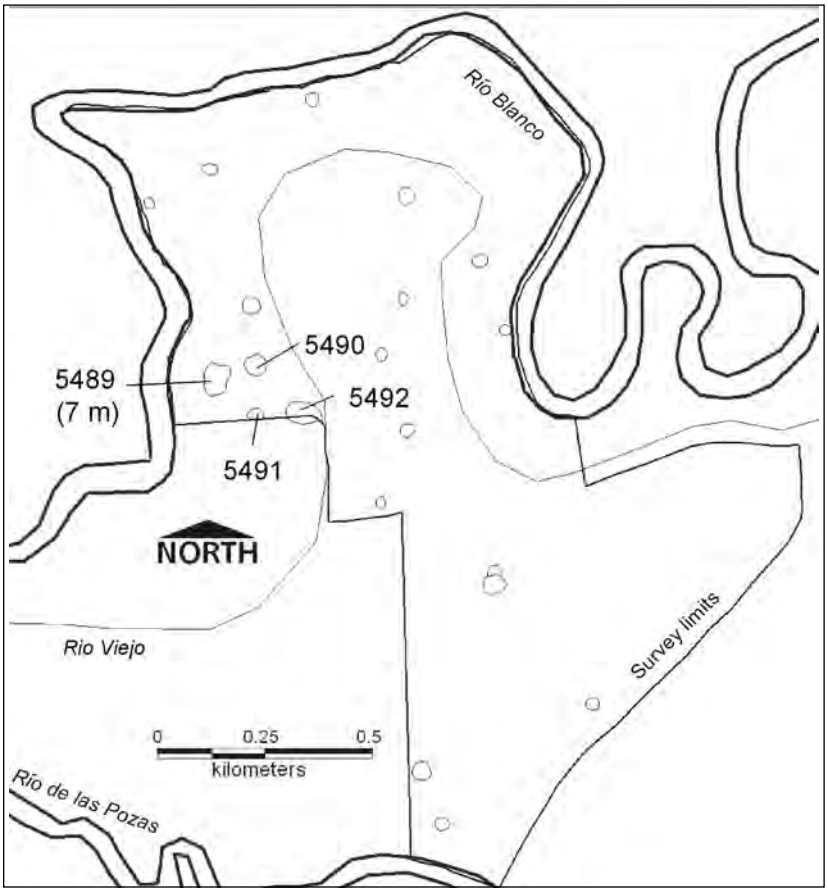

Figure 9.26. Complex 5489 Conical Plaza Group and feature numbers in the Zone 1 block, redrafted from a scaled drawing in Speaker's (2001b) survey field notes.

Consequently, surrounding mounds do not disagree with materials from the complex regarding the periods indicated, and they clarify that Postclassic occupation pertains to the Middle Postclassic.

Discussion of the Salto Norte Complex

Salto Norte is a good candidate for a secondary center under Cerro de las Mesas during the Early Classic period except that it has only a dubious candidate for a ballcourt, which would be expected as an ingredient of a secondary center. It is less certain that it was a secondary center under Azuzules, when it may have continued as a tertiary/quaternary center. As discussed for Salto, the two complexes seem likely to have been independent of each other due to the decline in residential occupation about midway between them.

Complex 5489

Description

This Conical Plaza Group is located in Speaker's (2001b) Zone 1 survey block situated immediately east of the Blanco River close to the bifurcation of the Blanco and de las Pozas Rivers (Figure 9.26). This group was not defined initially as monumental, in part due to disturbance. It was recorded during pedestrian survey. Conical mound 5489 may have been 5–10 m high on the basis of an aerial photograph and was entered into our files as 7 m high as an arbitrary midpoint. Its current height is 1.13 m due to disturbance, including construction of a modern irrigation canal. This group was identified through the canvass of the survey files for high structures (7 m or higher) among features outside the monumental complexes. Aside from Feature 5489, the mounds comprising the plaza group range from 1–1.2 m (height is missing for 5492 due to bulldozer action; it is bisected by a modern irrigation canal).

Surroundings

The Complex 5489 plaza group is the only formal group with a sizable structure located in the Zone 1 block. A light scatter of residential mounds is distributed across Zone 1, with no obvious tendency to cluster near Complex 5489. Cerro de las Mesas is 7.4 km to the east.

Chronology

Classic period diagnostics predominate in the plaza group collections, but a trace of Preclassic pottery occurs in all collections as well. Only one Postclassic rim was recovered among these collections. Among residential features in the surrounding zone, Preclassic pottery is relatively common, but the Classic period predominates, mimicking the pattern for the plaza group. Only one Late Classic rim was recovered, suggesting the complex may have been more important in the Early Classic period. However, all collections were small, with a total of only 54 rims.

Surrounding mounds have Late Classic period diagnostics similar to the general Classic period pattern. The Postclassic period, however, is relatively well represented in the surrounding features, even though it is not characteristic in the plaza group. Thus, the Conical Plaza Group likely no longer functioned in any administrative, ritual, or social role during the Postclassic period.

Discussion of Complex 5489

This Conical Plaza Group likely functioned as a tertiary/quaternary administrative and ritual center in the regional settlement hierarchy, provided mound 5489 was as high as the aerial photographic mosaic suggests. It has modest mound construction in comparison to some other tertiary/quaternary groups and is more likely to have been a quaternary center. Because of the survey gap between Zone 1 and the western edge of the Central Block, where Cerro de las Mesas is located, one or more secondary level centers may have intervened between Complex 5489 and the primary center during the Early Classic period. During the Late Classic period Complex 5489 did not function under Azuzules (or Zapotal)—at least, there is no clear indication that it did.

Summary of Monumental Complexes in Speaker's Survey

Speaker's (2001b) survey covers terrain distant from the major Central Block delta complexes of Cerro de las Mesas and Azuzules. Much of the terrain is especially low in elevation. Candidates for secondary centers appear along remnant drainage channels, such as Rincón del Tigre Norte to the north and Salto and Salto Norte to the south. The distance between Mulas and Tigre Norte, 1.2 km, is similar to that between Salto and Salto Norte, 1.6 km, but Mulas may have been an Early Classic tertiary/quaternary center in view of the modest amount of construction.

The Rincón del Tigre and Rincón del Tigre Norte complexes also have Late Classic pottery that suggests they continued to function as subsidiary settlements to Azuzules, but this is more dubious for Mulas. Salto and Salto Norte both can be interpreted as undergoing a functional shift, with elite residential areas continuing to be important during the Late Classic period, but the importance of the SPPG and its attendant secondary center roles declined. The same decline in the role of a complex applies to Complex 5489, the small Conical Plaza Group in Zone 1. The atypical Lobato complex, with its ballcourt and modest-sized mounds, does not display a decline in diagnostic sherds from the Classic to the Middle Postclassic period. Lobato, despite its small ballcourt, likely was a tertiary/quaternary center, situated just beyond the proposed boundary of Azuzules.

Chapter 10

Monumental Complexes Upriver along the Blanco River, in the Guerengo Drainage, and in the Interfluve

The first section of Chapter 7 describes the organization of topics for monumental complexes. Outside the Blanco delta, survey covered terrain in several localities addressed in this chapter: upriver along the Blanco (divided into western and eastern sections for convenience of presentation), near the Guerengo River (Nopiloa area), and the interfluve between the Blanco and Guerengo. A total of 18 monumental complexes was recorded, along with varying amounts of nearby residential remains.

Upper Blanco River Area

A series of monumental complexes is strung along the banks of the Blanco River. Although we attempted reconnaissance to ascertain how far westward this pattern continued, we were thwarted by vegetation that prevented a rapid assessment. The Upper Blanco survey involves the area above the division of the Blanco, de las Pozas, and Viejo distributaries. This area was surveyed in several segments, one beginning in 1998, with additional coverage mainly in 1999, but with a return in 2000 to Callejón del Horno (mapped in 1998) to collect part of the field where the center was leveled to plant beans earlier that year. Most of the survey coverage lies along the north bank of the Blanco River, with one block along the south bank and another small block a short distance south of the river undertaken to map Cerro Coyote (Figure 10.1). In addition to Coyote, Upper Blanco complexes include Bartolo West, Bartolo, Tilcampo, Madereros, Callejón del Horno, and Muertos.

The two banks of the Blanco may have been closely related because we recorded one instance of monumental construction on opposite banks of the river, Tilcampo and Madereros. Prior to the opening of a vehicle bridge at Suchil, individuals could traverse the Blanco using a *columpio*, an apparatus of pulleys and ropes to haul themselves in a basket-like container from one bank to the other, about 40 feet above the entrenched Blanco. Some type of perishable catwalk or pedestrian bridge could have linked the two banks as needed in antiquity. Such a construction would have year-round utility compared to canoe travel across the Blanco, which likely would have been seasonally hazardous.

Aside from the south bank survey blocks, we conducted reconnaissance along other parts of the south bank, paralleling our north bank coverage (Figure 3.3). Large mounds but apparently no formal plaza arrangements were observed but not mapped slightly farther west of Coyote at Suchil on the south bank. Logistical problems reaching the south bank became progressively more difficult, culminating in 2000, when the road to the area washed out (it had been precariously built on a raised earthen base). By 2002, a new bridge over

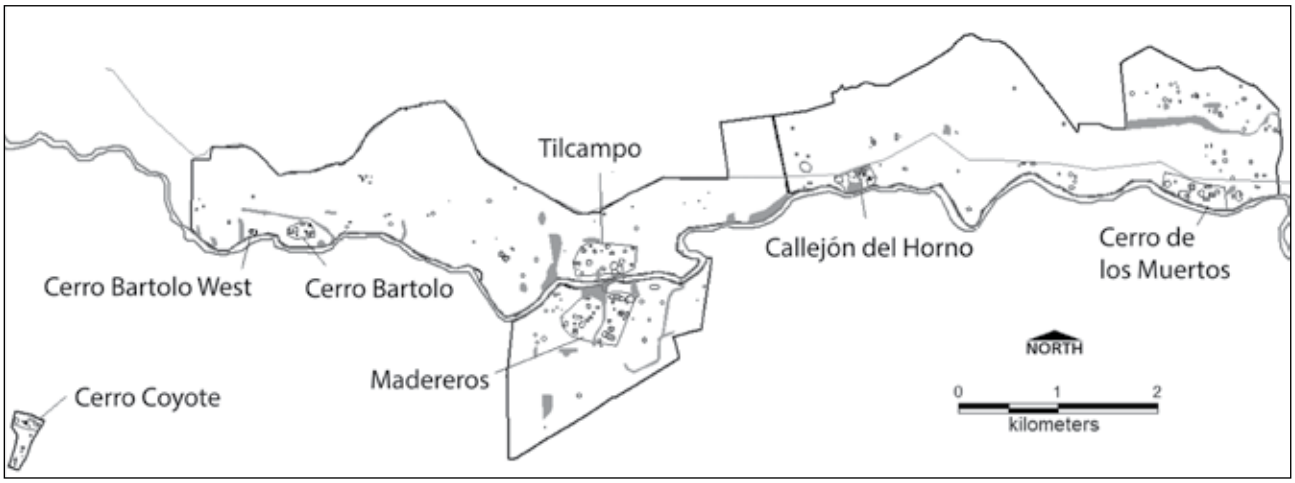

Figure 10.1. Upper Blanco River survey, upriver from the delta, with a solid line arbitrarily dividing the western and eastern Upper Blanco areas. Bajos are shown in gray.

the Blanco and a road had been constructed, but by that time, survey was in the mangrove zone far to the east, and we were unable to perform additional survey at Suchil and elsewhere along the south bank of the Blanco. Suchil appeared to have a possible tertiary cluster of mounds. Vehicle and pedestrian reconnaissance of the south bank between the surveyed block (Madereros) and the confluence with the Blanco revealed a conical mound accompanied by a scattering of nearby low residential mounds, a pattern similar to Canal 2 and Loma de Pinchones South. The mound was damaged by looting and housed a large beehive in looters' holes, so the complex was not mapped. Aggressive Africanized bees are common in the region.

The density of monumental remains appears to decline farther west of our survey along the Blanco, but this observation remains to be determined more reliably. In general, settlement along the Blanco has the advantage of seasonal drainages reaching the river, permanent water in the river, and access to aquatic resources and travel routes. The survey clearly demonstrates settlement concentration along the banks of the Blanco. The north bank allows land access westward toward the Cotaxtla drainage as well as northward toward rich agricultural lands along the lower Tlalixcoyan River and, farther north, connections to the Gulf shore. Occupation on the south bank would enjoy these connections only through suspended bridges or canoe transit on the Blanco.

Western Upper Blanco River Area

A series of maps presents quartiles of diagnostic pottery percentages for the western Upper Blanco. Following a discussion of the general chronological background, the complexes along the Blanco are discussed in succession from west to east.

Preclassic diagnostics are strongly concentrated at Madereros (Figure 10.2). Although in many cases this pottery was garnered as fill, the concentration is striking, and plots of all Preclassic pottery (not shown) indicate only a modest occurrence across the river at Tilcampo and upriver near the riverbank.

Classic diagnostics are no longer so concentrated at Madereros, although well represented, and there is greater dispersion along the north bank away from the monumental complexes (Figure 10.3). When the Classic period is subdivided, the Early Classic continues the strong concentration at Madereros seen in the Preclassic, but Tilcampo and several locations along the river also have high percentages (Figure 10.4). The Early Classic Tendency plot accords with the Early Classic plot (Figure 10.5). By the Late Classic, however, Madereros and the north bank of the Blanco are poorly represented (Figure 10.6).

The Postclassic period is also poorly represented on the south bank in the Madereros area, but a concentration is evident at the east end of Tilcampo (Figure 10.7). The Postclassic pattern is almost entirely due to Late Postclassic sherds, as shown in Figures 10.8 and 10.9. The Late Postclassic presence at the east end of the western Upper Blanco area is related to the nearby center of Callejón del Horno, located immediately east in the eastern Upper Blanco area.

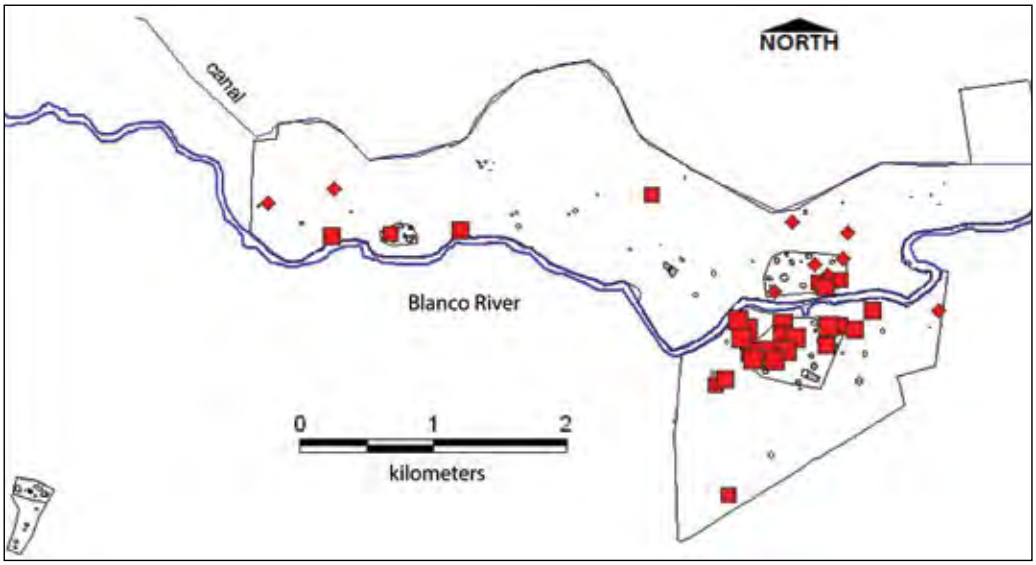

Figure 10.2. Western Upper Blanco, Preclassic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

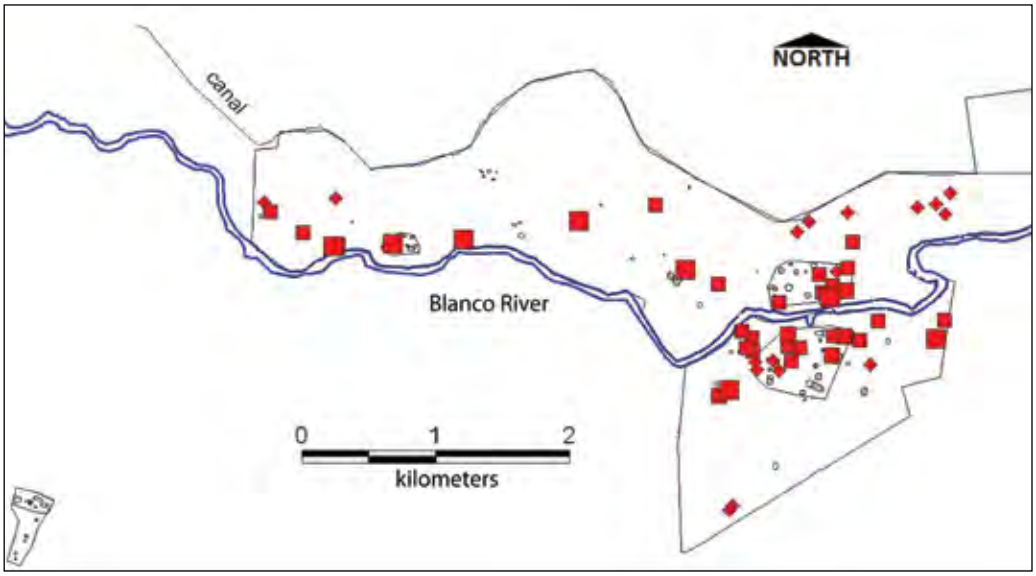

Figure 10.3. Western Upper Blanco, Classic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

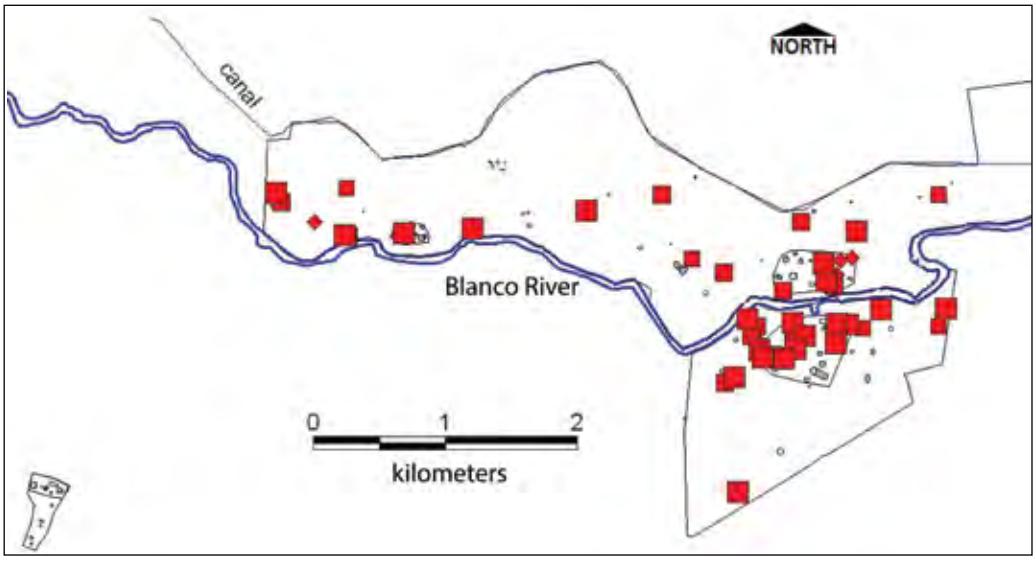

Figure 10.4. Western Upper Blanco, Early Classic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

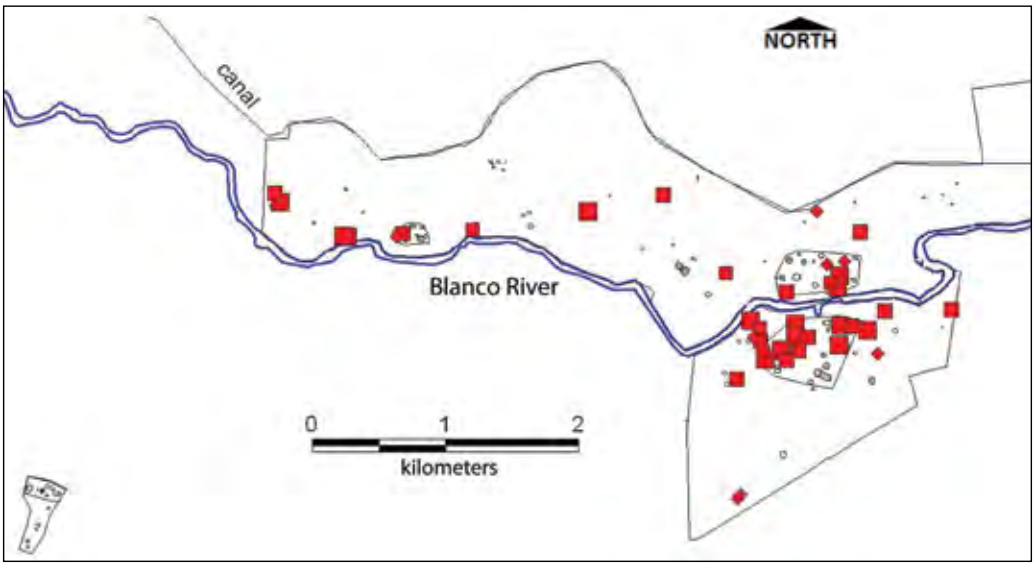

Figure 10.5. Western Upper Blanco, Early Classic Tendency diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

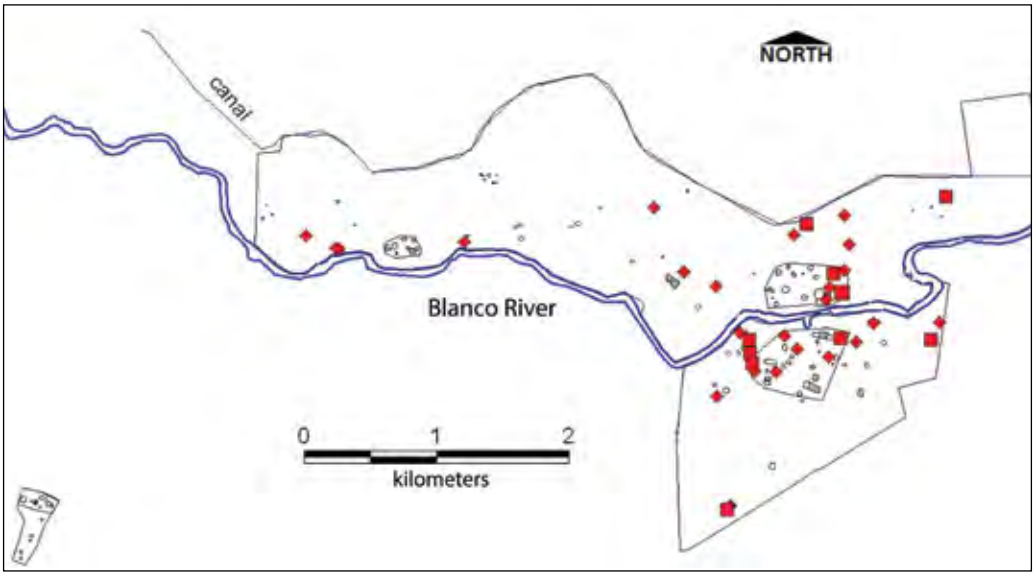

Figure 10.6. Western Upper Blanco, Late Classic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

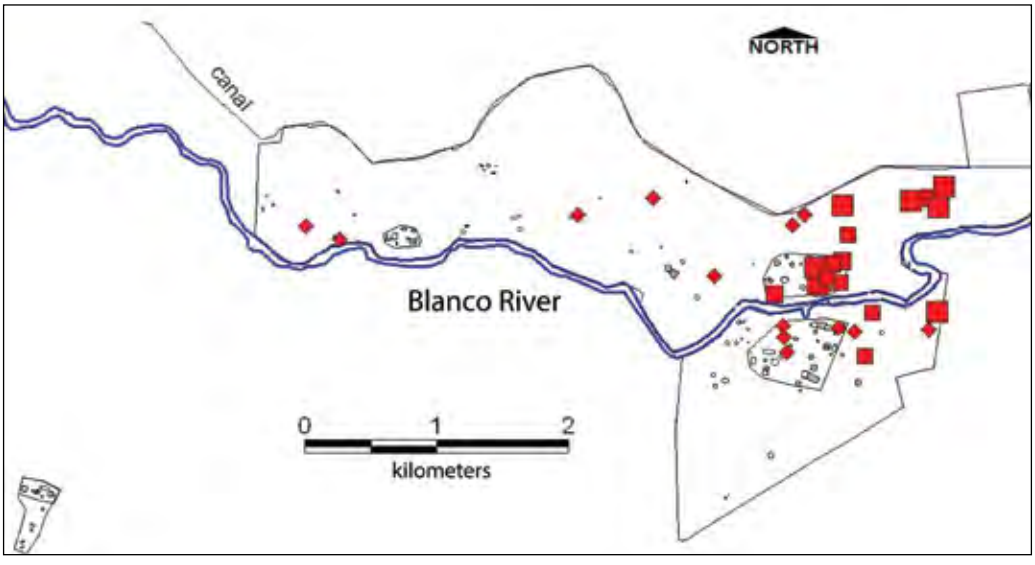

Figure 10.7. Western Upper Blanco, Postclassic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

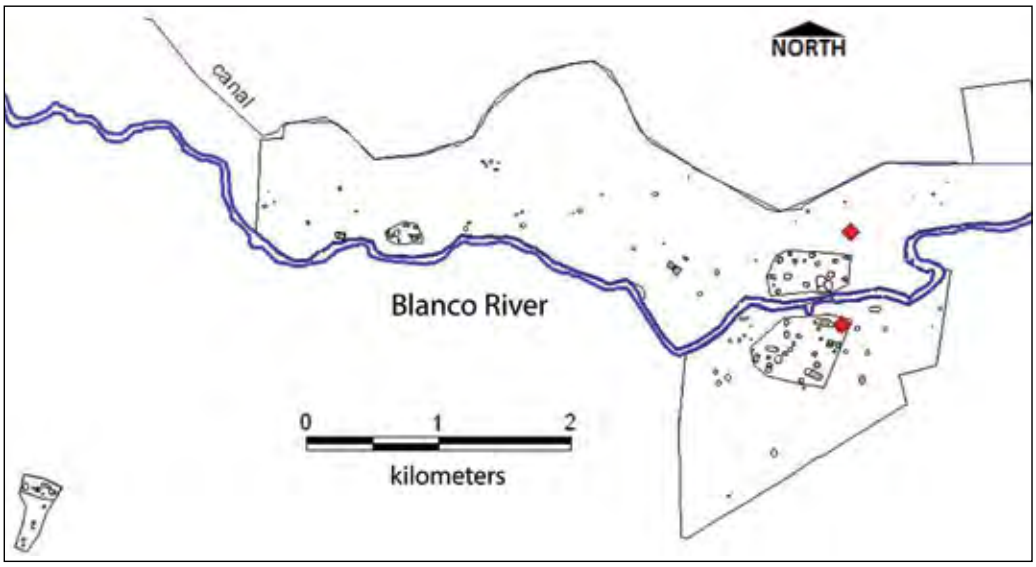

Figure 10.8. Western Upper Blanco, Middle Postclassic, diagnostic percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

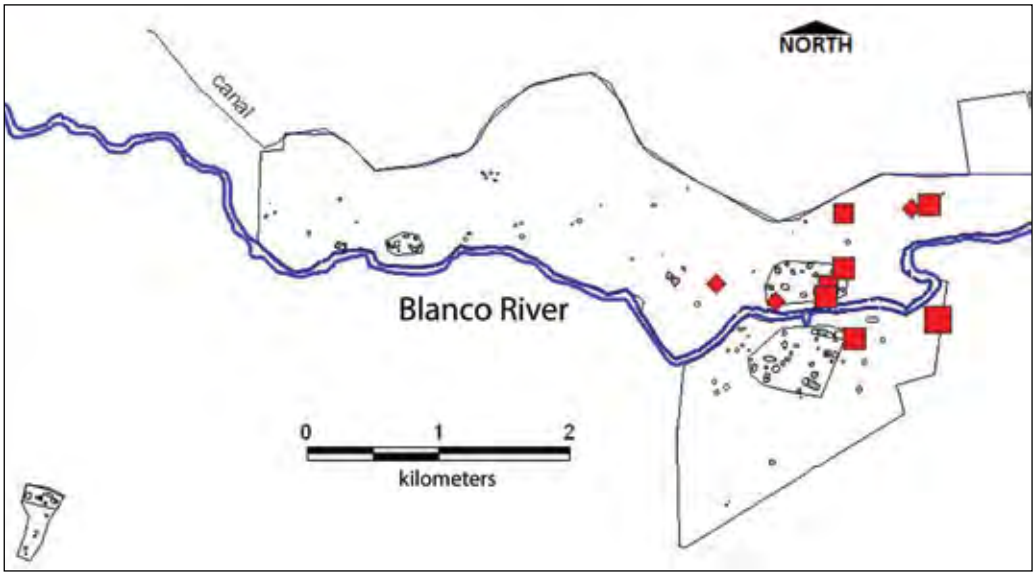

Figure 10.9. Western Upper Blanco, Late Postclassic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

Cerro Coyote Complex

Description

Located during reconnaissance near the south bank of the Blanco River west of the Madereros survey block, the Coyote complex has the ingredients of a SPPG but lacks a normal arrangement (Figure 10.10). A conical mound (6475) to the west dominates the group, but another lower conical mound (6465) at the east end of the elongated plaza is accompanied by a terrace (6467) on its east side, away from the plaza. A single lateral (6466) is positioned on the north side of the plaza, closer to the lower conical mound than to the higher one. The transverse ballcourt (6469 and 6470) is located within the plaza. The eastern conical, the lateral, and the ballcourt form a SPPG-1b. Normally, the highest conical mound dominates the Standard Plan plazas, but, in this case, the lateral and transverse ballcourt are positioned "more correctly" for the eastern, lower conical mound. The western conical I treat as an additional structure. The presence of a terrace attached to the eastern conical is atypical of Standard Plan canons, however, and transverse ballcourts are unusual.

There is no rectangular monumental platform, but the eastern mound might have been an elite residence at one point, in view of the terrace; terraces are attached to some of the larger residential mounds in the Blanco

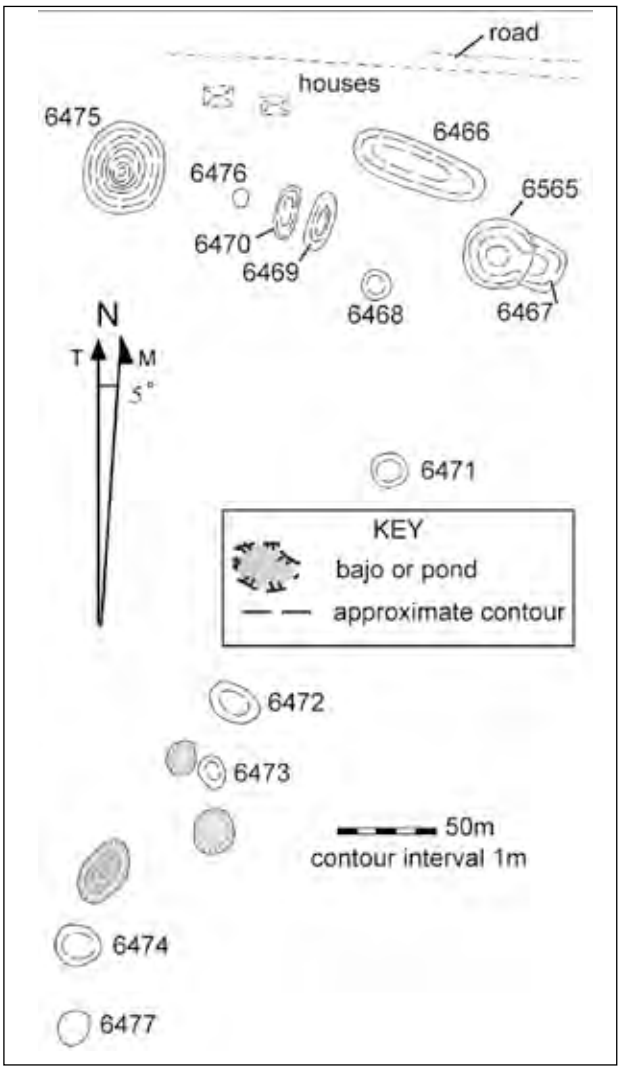

Figure 10.10. Cerro Coyote monumental complex with feature numbers and contours, mapped with GPS and Abney level.

delta. A roughly linear scatter of low residential mounds and three artificial *bajos* are strung southward from the monumental construction, slightly separated from it by a gap. Cerro Coyote planning either misinterpreted or freely innovated on Standard Plan precepts, or, alternatively, construction was sequential, with later decisions made independently of Standard Plan canons.

Surroundings

Coyote is 2.8 km south of the Blanco River and positioned 5.6 km west and slightly south of Madereros, a secondary center on the south bank of the Blanco; the location is 3.2 km from Cerro Bartolo on the north bank. Coyote is 22.5 km west of Cerro de las Mesas and 13.8 km northwest of Nopiloa, both primary centers in different periods. Thus, the complex is relatively distant from other monumental complexes, especially the nearest primary centers. Overall, the Cerro Coyote monumental construction and the light accompaniment of residential remains is typical of many complexes on the south bank as well as in the interfluve area between the Blanco and Guerengo Rivers and near the Guerengo. The survey was extended south to include a small group of residential mounds apparently associated with the formal complex. Because of the small area surveyed around Cerro Coyote, we lack a good representation of the surrounding area, however.

Chronology

Sherd collections were small, 148 sherds in total. Classic diagnostics predominate, with a few Preclassic diagnostics and none from the Postclassic period. Classic sherds provided few indications to subdivide the period, but the Early Classic and Early Classic Tendency are represented, while the Late Classic is not. The Preclassic sherds derive from a terrace (6467) off the back of 6565 at the east end of the main plaza and from the conical mound 6475. These Preclassic sherds likely were included as fill, and they suggest a light Preclassic occupation in the vicinity of the main plaza. The five residential mounds that extend southward from the monumental complex together yielded only 40 sherds, too few to provide a separate line of chronological evidence from the surroundings.

Discussion of Cerro Coyote Complex

The distance of the Coyote complex from primary (and secondary) centers and its modest amount of construction suggest a low position in the settlement hierarchy. It is similar to other second-ranked settlements in displaying the Standard Plan, including a ballcourt, but there are deviations from typical arrangements, and it lacks much associated residential occupation. I consider it a tertiary/quaternary center during the Early Classic period, but there is no evidence that it continued as a center during the Late Classic, similar in this respect to Cerro Bartolo. To the east, Madereros, a secondary center, also declined during the Late Classic.

Cerro Bartolo West Complex

Description

Cerro Bartolo West is relatively isolated, consisting of a single monumental platform, with a higher, roughly conical area at the west end (Figure 10.11). Bartolo West, like Cerro Bartolo, is close to the Blanco River,

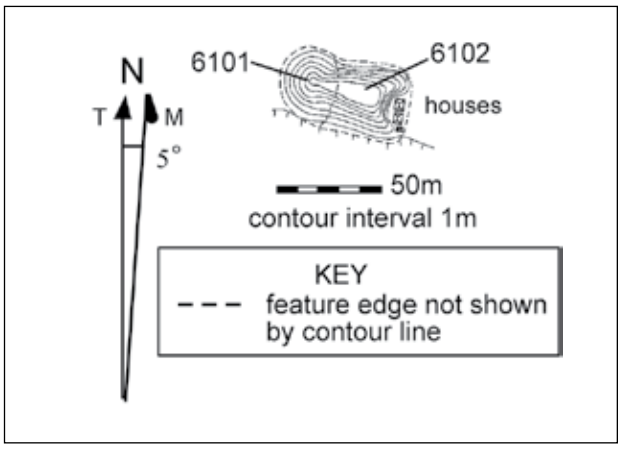

Figure 10.11. Bartolo West contours and feature numbers, mapped by GPS and Abney level.

and it lies only 0.4 km west of Cerro Bartolo, likely constituting an outlying structure. There is no obvious cluster of low residential mounds around it. The east end of the platform has been cut back by modern residential construction. Other *ejido* houses and streets around Cerro Bartolo West undoubtedly have obscured some of the ancient settlement.

Surroundings

The Bartolo West surroundings are relatively depauperate in residential mounds and those observed usually fall within 0.5 km of the Blanco River. At greater distances from the river, we did not observe residential mounds.

Chronology

Despite yielding only two collections, Cerro Bartolo produced a total of 452 sherds, most of them from the platform. The Classic period clearly predominates, with only three Postclassic diagnostics and four Preclassic diagnostics. Within the Classic period, the Early Classic (and Early Classic Tendency) is better represented than the Late Classic. None of the three Postclassic sherds is specific to the Middle versus Late Postclassic. All of the Preclassic diagnostics derive from the mound atop the platform, presumably included as fill and indicating a light Preclassic occupation in the vicinity.

Mounds in the vicinity have less Preclassic than Classic evidence, with the Postclassic also very lightly represented. Within the Classic period, the Early Classic and Early Classic Tendency are more prevalent than the Late Classic. As with Bartolo West, the Postclassic sherds in the vicinity are not specific to the Middle versus Late Postclassic.

Discussion of Cerro Bartolo West Complex

I treat Bartolo West as a segment complex, a monumental platform related to Cerro Bartolo. Its distance from Cerro Bartolo, 0.4 km, is within the distances from central complexes to outlying monumental platforms elsewhere in the survey area. Since I classify Bartolo as tertiary/quaternary rank during the Early Classic period, the presence of a monumental platform in its orbit is unusual. Outlying monumental platforms occur with several secondary centers (e.g., Moral, Rincón del Tigre Norte, Tuzales), and, except for Bartolo, never with tertiary centers. Ceramics from Cerro Bartolo do not suggest that it continued to function during the Late Classic, but the Cerro Bartolo West platform may have continued to be occupied, even if not a major locus of activity or rebuilding. Consequently, I do not treat Bartolo as a ranked settlement during the Late Classic period because a remote platform may have been headquarters of an elite estate rather than part of a settlement hierarchy.

Cerro Bartolo Complex

Description

Cerro Bartolo is a small Partial SPPG-B1 that lacks a ballcourt, located on the north bank of the Blanco in the westernmost part of the survey (Figure 10.12). A conical mound to the west (7001) is accompanied by a single lateral (7006). The Standard Plan plaza mounds are unusually widely spaced. Three other mounds delimit the plaza, one of them (7004) accompanied by what today appears to be a large terrace. A local resident said there had originally been two mounds and that 7003 had been approximately 1.5 m higher but was leveled for filling out the field. Mound 7005 is heavily looted. There is no indication, however, that 7004 and 7003 ever formed a ballcourt, as their position would not have aligned with the plaza appropriately.

Surroundings

Residential remains do not cluster appreciably near Cerro Bartolo. Moreover, they are sparse in the surrounding area, as mentioned for Bartolo West. The few residential mounds usually fall within 0.5 km of the Blanco River. Bartolo West is probably a segment complex for Cerro Bartolo.

Chronology

Cerro Bartolo's 354 sherds derive mainly from the conical mound and a small mound to the west of the conical. The lateral mound was a noteworthy but lesser contributor to the total. In all three cases, the profile

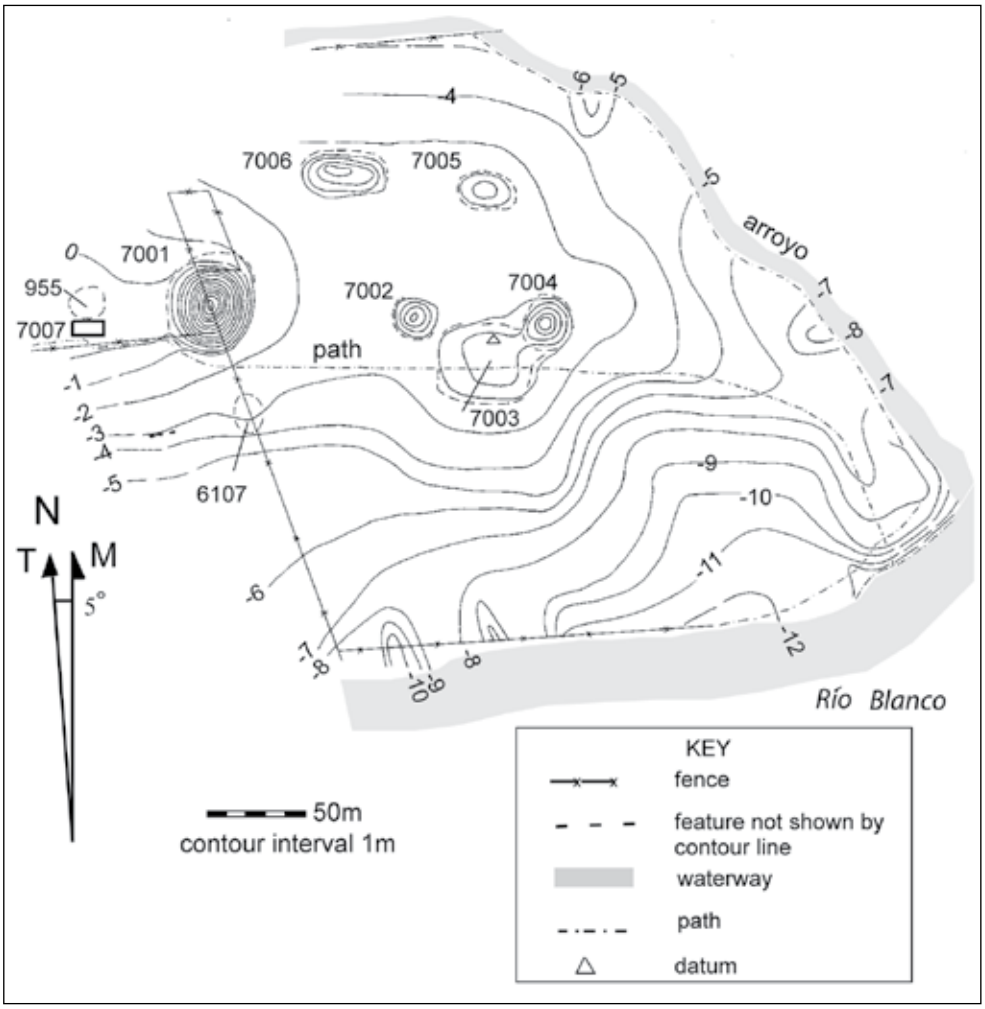

Figure 10.12. Cerro Bartolo feature numbers and contours, mapped with a theodolite.

of diagnostics is similar, with Classic sherds predominating and Early Classic well represented (only a little Early Classic Tendency), but with the Late Classic absent. Preclassic sherds are present in extremely small amounts, indicating light occupation in the vicinity, as they are possibly included as fill (except for 7007 to the west of the conical, which lacks Preclassic diagnostics). This modest center provides one of the clearest Early Classic associations, without an indication that it functioned as a center during the Late Classic period. The Postclassic is not represented among the collections.

Among surrounding mounds, Preclassic evidence suggests a light scatter of occupation, with much stronger indications from the Classic period. The Classic remains are mainly Early Classic or Early Classic Tendency, with only a light residential signature for the Late Classic period. The Postclassic is very sparse, and none of it can be linked to the Middle versus Late Postclassic. In the Cerro Bartolo case, the surrounding mounds and the complex itself have highly congruent chronological patterns, suggesting that the principal period of activity was Early Classic, although this area and the complex were always at least lightly occupied.

Discussion of Cerro Bartolo Complex

I consider Bartolo a tertiary/quaternary center during the Early Classic period, as it has a variant Standard Plan without a ballcourt. Construction is modest in scale except for the conical mound, and the wide spacing of the conical and lateral is atypical of other Standard Plans. Atypical or variant Standard Plan plaza groups are more characteristic of lower-ranked settlements, for example, Cerro Coyote. At the Nacastle-Patarata settlement in the mangrove swamp, partial Standard Plan plaza groups without ballcourts occur at intervals in the linear settlement, clearly subsidiary

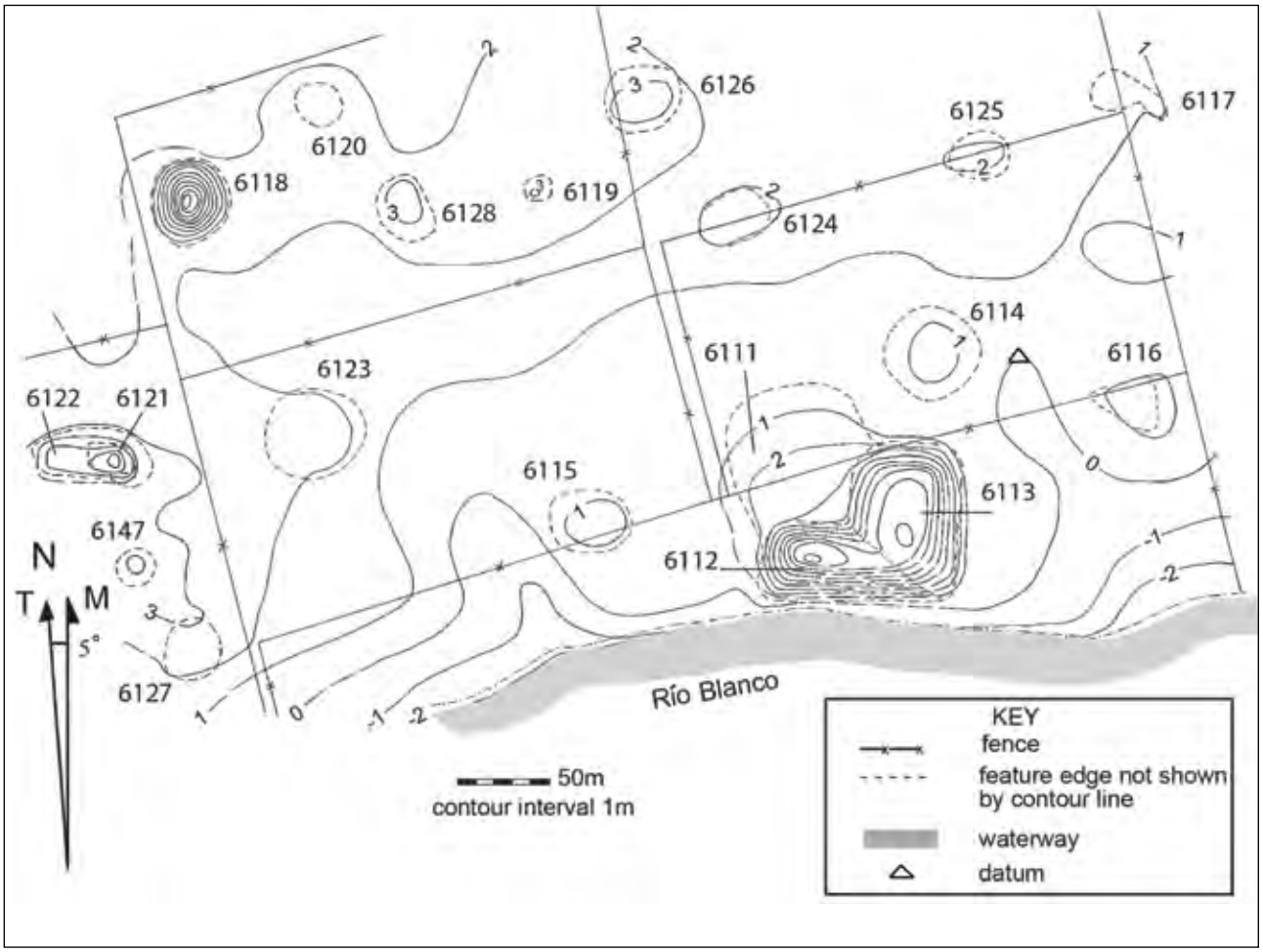

Figure 10.13. Tilcampo feature numbers and contours, mapped with a theodolite.

to the Tío Perciliano main monumental complex that has a ballcourt. At 2.9 km upriver from Tilcampo (itself probably the north bank portion of a settlement across the river at Madereros), Bartolo was likely a dependency of Madereros-Tilcampo during the Early Classic period and in turn part of the Cerro de las Mesas realm. Bartolo no longer functioned as a center after the decline of Cerro de las Mesas, to judge from the lack of Late Classic pottery.

Tilcampo Complex

Description

Tilcampo is positioned on the north bank of the Blanco opposite Madereros, with the latter presenting a greater accumulation of monumental construction. Tilcampo may be a northern extension of the Madereros complex on the opposite bank, assuming the two were linked by some sort of construction across the Blanco, such as a bridge, or by canoes. Tilcampo lacks a monumental plaza, but it has a Conical Plaza Group formed by the conical mound, 6118, and low mounds, 6120 and 6128 (Figure 10.13). Overall, however, the complex presents a disparate array. Tilcampo resembles Madereros in the wide separation of major structures.

Besides the Conical Plaza Group, Tilcampo has an L-shaped monumental platform (6112 and 6113), with a low terrace extension and supporting platform (6111) between the two arms of the L-shaped mounds. The L-shaped mounds are heavily looted, dotted with excavation holes. One other sizable structure is mound 6121 and its western terrace or platform (6122). Functionally, both the L-shaped group and mound 6121 and its terrace likely represent elite residences. Until a local person mentioned the Tilcampo name for this complex, it was known in project notes as "Pica-pica" for the profusion of the stinging vine in the surrounding field.

Surroundings

Residential remains are sparse in the Tilcampo vicinity and tend to fall within about 0.5 km of the river. No appreciable clustering is evident near Tilcampo, although the map of the complex itself includes a number of low, likely residential mounds.

Chronology

Tilcampo in aggregate produced a large quantity of sherds, 1,277. Several collections are well above the median size. The conical mound, however, did not yield any sherds. Spatial patterning of chronologically diagnostic sherds partly reflects the absence of collections

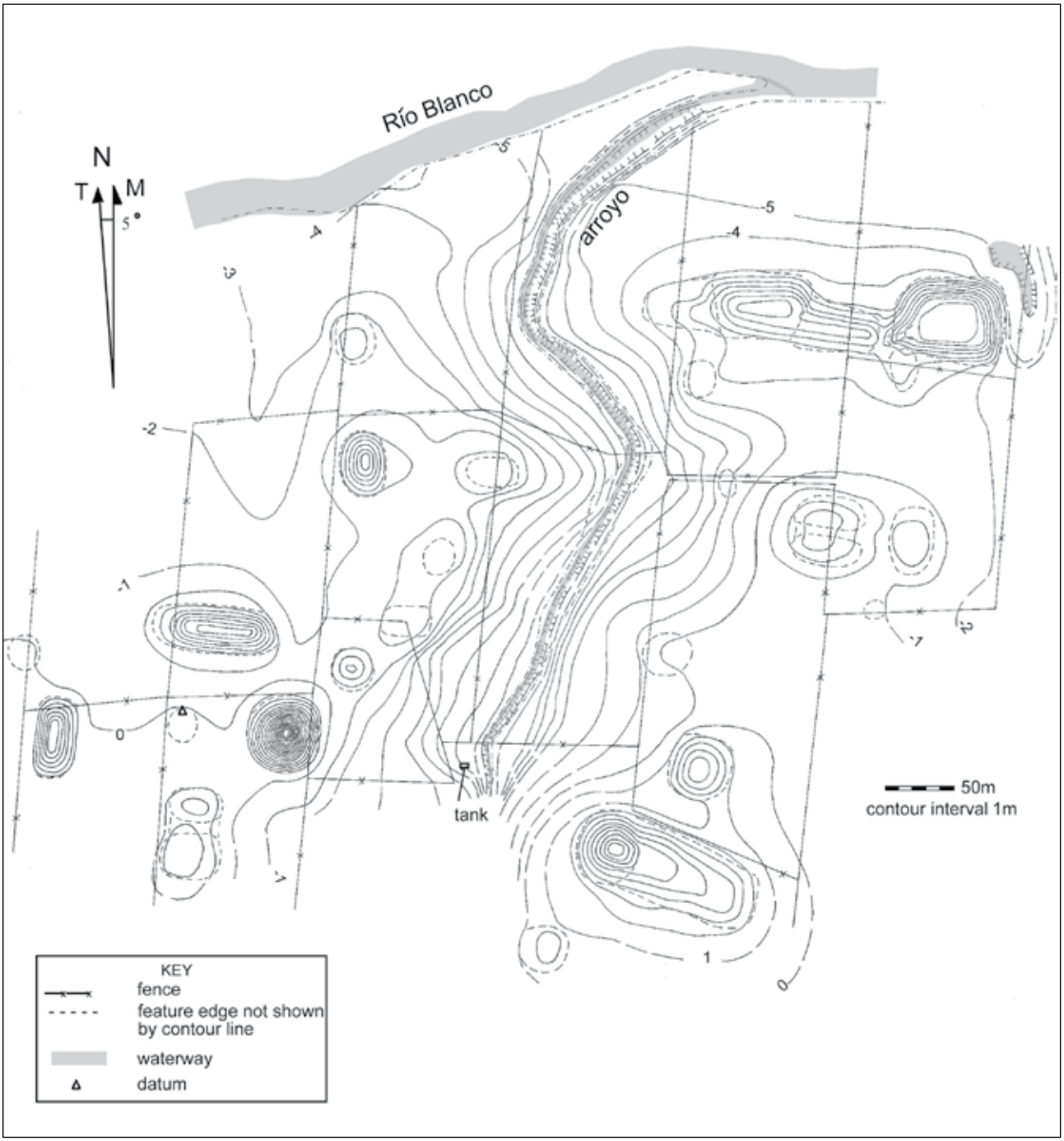

Figure 10.14. Madereros contours, mapped by theodolite, with GPS supplementation.

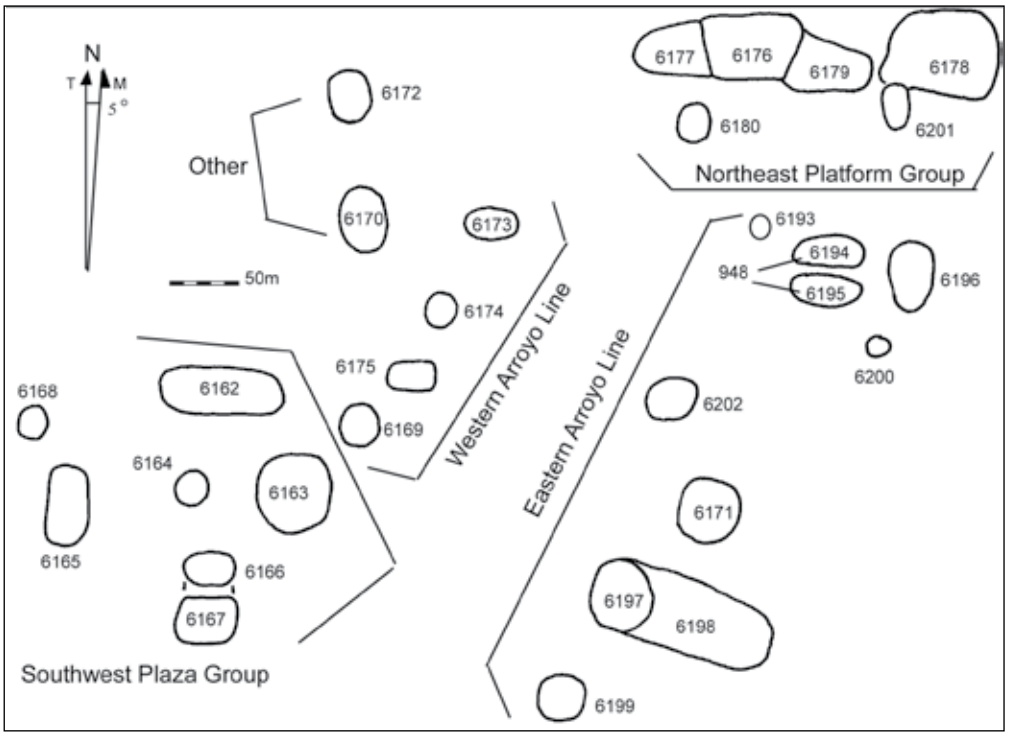

Figure 10.15. Madereros feature numbers and sectors.

from features in the northwest quadrant. Apart from this gap in information, there is some spatial patterning in the distribution of Preclassic and Postclassic diagnostics. Preclassic diagnostics occur at all features except 6121, 6122, and 6123 on the west side of the mapped area (all have small collections), but in aggregate the Preclassic is only lightly represented. Nor were Postclassic diagnostics recovered from those same three features. Postclassic diagnostics also were not recovered from the southeast quadrant features despite several sizable collections. Instead, Postclassic sherds are abundant from other mounds at Tilcampo apart from the southeast quadrant and the trio of mounds mentioned for the west side; the few that can be more precisely dated are mainly Late Postclassic, with only one sherd ascribed to the Middle Postclassic period.

The southeast quadrant features, including the massive L-shaped palatial platform, seem to have been used during the Classic period; the platform, although possibly begun during the Preclassic period, also may have incorporated Preclassic sherds as fill in later construction. Among Classic period sherds, the Early Classic and Early Classic Tendency diagnostics are far more prevalent than Late Classic ones, strongly suggesting that although the area was not abandoned, the primary time of construction and occupation was the Early Classic period.

Among surrounding mounds the Preclassic period is indicated at only a light scatter of locations, but almost all mounds produced Classic diagnostics. Within the Classic period, most of the same locations indicate the Early Classic period strongly, but the Late Classic period has a lighter, sparser signature (as does Early Classic Tendency). The Postclassic is well represented in the area immediately north and east of Tilcampo, but almost none of these collections indicate the Middle Postclassic period and, instead, most pertain to the Late Postclassic. In sum, surrounding mounds concur with assessments from Tilcampo itself that this complex pertains mainly to the Early Classic period, as does much of the occupation surrounding it. At least light occupation is indicated in all periods, with a moderate occupation during the Late Postclassic period toward the east side, undoubtedly forming some of the outlying occupation associated with the Late Postclassic center of Callejón del Horno farther downriver on the same bank of the Blanco River.

Discussion of Tilcampo Complex

Because of the likelihood that Tilcampo is an extension of the Madereros complex across the river, I discuss the two together. The overall amount of construction at Madereros, including a variant Standard Plan plaza

Figure 10.16. Ceramic drainpipe, left behind at looters' hole on Feature 6178, is held upright by Crorey Lawton (PALM Image Archive 2553). At the bottom of the pipe, the slightly everted lip shows how an additional section would articulate.

group, monumental platforms, and a ballcourt, combines to suggest a secondary center. Tilcampo is 6.2 km straight-line distance upriver from Cerro de los Muertos, also a secondary center. Thus, two secondary centers occur along the Blanco upriver from the Blanco delta, and they appear to have been secondary to Cerro de las Mesas during the Early Classic period. During the Late Classic period, they may have served as settlement nodes in the realm of Azuzules (or Nopiloa) but possibly no longer had an equally high settlement rank.

Madereros Complex

Description

Madereros is opposite Tilcampo on the south bank of the Blanco. Construction at Madereros is positioned on both sides of an arroyo that runs into the Blanco, discharging rainwater seasonally (Figure 10.14). The arroyo likely is not a recent feature, although a definitive conclusion is not possible from the surface evidence; my reasoning is there are no signs of ancient structures cut by it or collapsing into it. It may be more deeply incised than during prehispanic occupation, but likely existed at that time as well. The declivity would provide closer access to the water table and to the Blanco, and hence to fresh water year round, as well as to canoe travel along the Blanco. Madereros has relatively dispersed monumental construction that can be discussed as separate groups (Figure 10.15). For convenience, the tendency of some structures to align along the arroyo will be used to assign them to a western or eastern arroyo line.

Southwest Plaza Group

On the west is a Partial SPPG Variant D, with a conical mound (6163) and a single lateral (6162). There is no ballcourt at the plaza, and another linear mound faces the conical mound on the west side instead of a ballcourt. In this respect, the Southwest Plaza Group resembles the Cerro del Gallo Group at Zapotal. In the middle of the plaza a low mound (6164) is likely a plowed-down altar. Paired mounds connected by a low raised area (6166 and 6167) mark the south side of the plaza.

Northeast Platform Group

An elongated group of contiguous rectangular platforms stretches east–west near the Blanco (6177, 6176, 6179, 6178) in the northeast quadrant. Platform 6178 has the characteristics of a typical monumental platform, and a possible stair or ramp is positioned at the southwest corner in the form of a low projection (6201). Platform 6178 had been cut by an extraordinarily deep looters' trench in approximately the middle of the south side (not shown in contours). The looters had left behind an entire segment of a ceramic drainpipe (Figure 10.16). Such drains were part of the technology to maintain the integrity of massive earthen architecture. There was no indication atop platform 6178 of additional low mounds. Trees were not sufficiently dense to entirely obscure low structures, so I conclude there are none evident from the surface. The set of interconnected rectangular platforms has no exact counterpart in other mapped complexes, but atop the massive platform at Nopiloa, there is a linear grouping of contiguous mounds, and La Mojarra along the Limón distributary also has a linear grouping of contiguous mounds (Diehl et al. 1997:207). Mound 6201 is a low mound just south

of the ramp/stair on 6178. Another low mound is positioned slightly farther south opposite the westernmost extension of the platforms.

Western Arroyo Line

Mounds 6173, 6174, 6175, and 6169 are members of this group. Three features in the Southwest Plaza Group also fall along the western edge of the arroyo, but they are clearly part of the Partial SPPG.

Eastern Arroyo Line

This group aligns along the arroyo only roughly. South of the Northeast Platform Group, a ballcourt (6194 and 6195) is aligned with a mound at the east end of the court (6196). This positioning is reminiscent of one of the Cerro de las Mesas ballcourts (46 and 47, with mound 923) which is part of a Partial SPPG in relation to the linear mound 32. In contrast, the Madereros court and accompanying mound are somewhat removed from other major construction. Another small mound, 6200, sits near the ballcourt, but is not clearly related.

Another major structure at Madereros is positioned at the southeast end of the mapped area. A conical mound and very elongated terrace (6197, 6199, respectively) stretch southeastward, away from the arroyo. Although this set of structures might be viewed as a rectangular platform with a conical mound, similar to Bartolo West, the terrace/platform today slopes down eastward and for the most part is relatively low, unlike monumental platforms, which tend to be higher and to rise sharply to create a flat platform. This conical mound and terrace, like the similar structure on the north bank of the Blanco in Tilcampo, may be an elite residence. Either an outcrop or blocks of *tepetate* were observed about 3 m above the base of 6197. Two other mounds to the north are part of the Eastern Arroyo Group, as is one mound to the south.

Other Structures

On the west side of the arroyo north of the Southwest Plaza Group is conical mound 6170. It faces a low mound, 6173 to the east in the western arroyo alignment. Another low mound lies beyond the conical mound to the north, 6172.

Surroundings

A modest scatter of residential remains lies near Madereros to the east and west. To the south, mounds are almost absent (there are three at some distance). The residential mounds, like Madereros itself, are situated less than a kilometer from the Blanco River. Residential mounds may be declining in frequency toward the east edge of the south bank survey block, and possibly toward the west edge as well. If so, there is a tendency for residential remains to cluster within about 0.5 km of the complex and decline in density farther along the riverbank. The associated residential mounds around Madereros contrast with Tilcampo, across the river, because Tilcampo lacks closely arrayed residential remains.

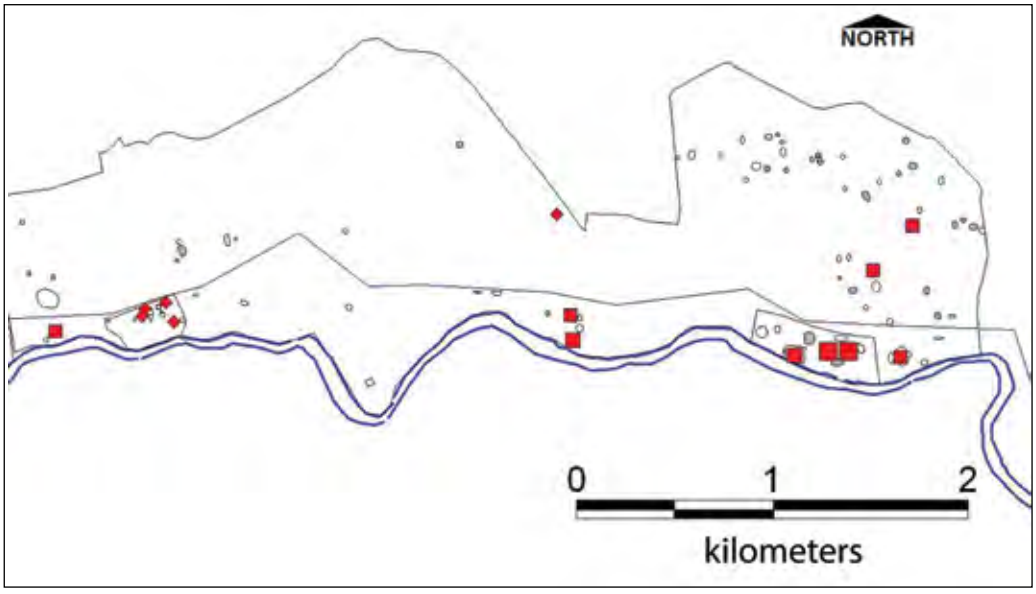

Figure 10.17. Eastern Upper Blanco, Preclassic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

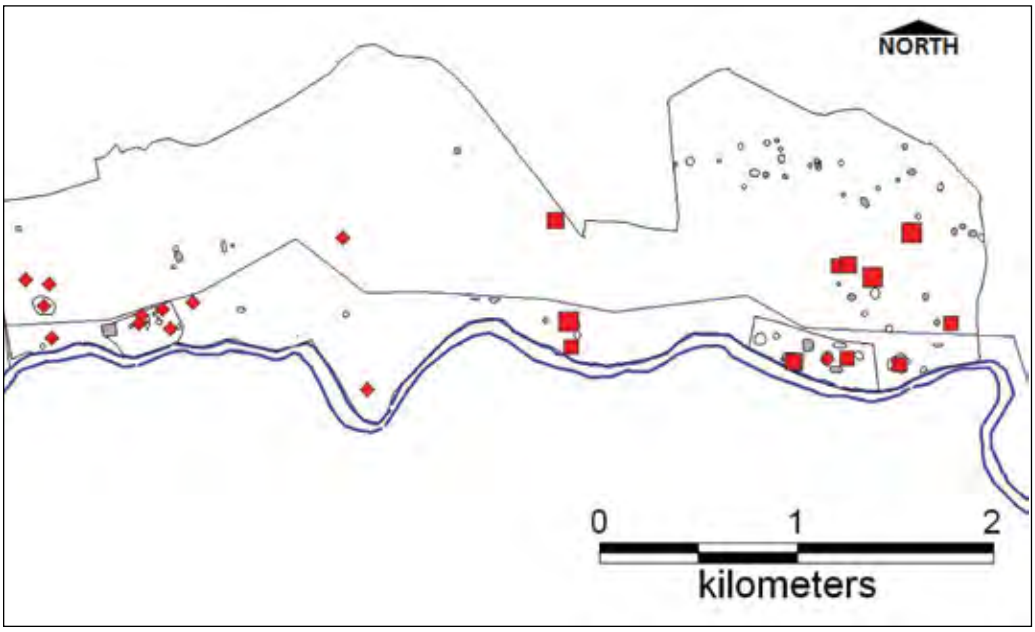

Figure 10.18. Eastern Upper Blanco, Classic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

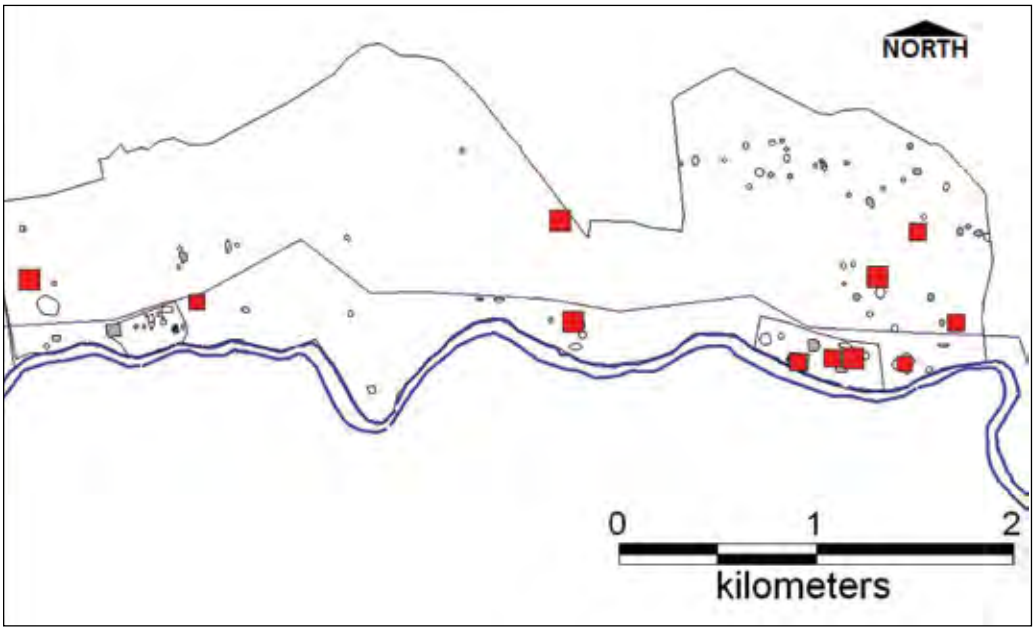

Figure 10.19. Eastern Upper Blanco, Early Classic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

Chronology

Madereros produced many sherds (1,900 total), but I examine the groups separately to determine if they exhibit chronological differences. The Southwest Plaza Group has the strongest representation of Preclassic remains among the groups. The Western Arroyo Line and other structures on the west side also have considerable Preclassic representation. On the east side of the arroyo only 6179 exhibits a strong percentage of Preclassic diagnostics in the Northeast Platform Group. Among the Eastern Arroyo Line, the ballcourt and the 6197 conical mound also show Preclassic diagnostics. It is likely that Preclassic occupation and construction were concentrated more on the western side of the arroyo, with the Southwest Plaza Group as a focus of public construction, although we cannot know if monumental structures were initiated then.

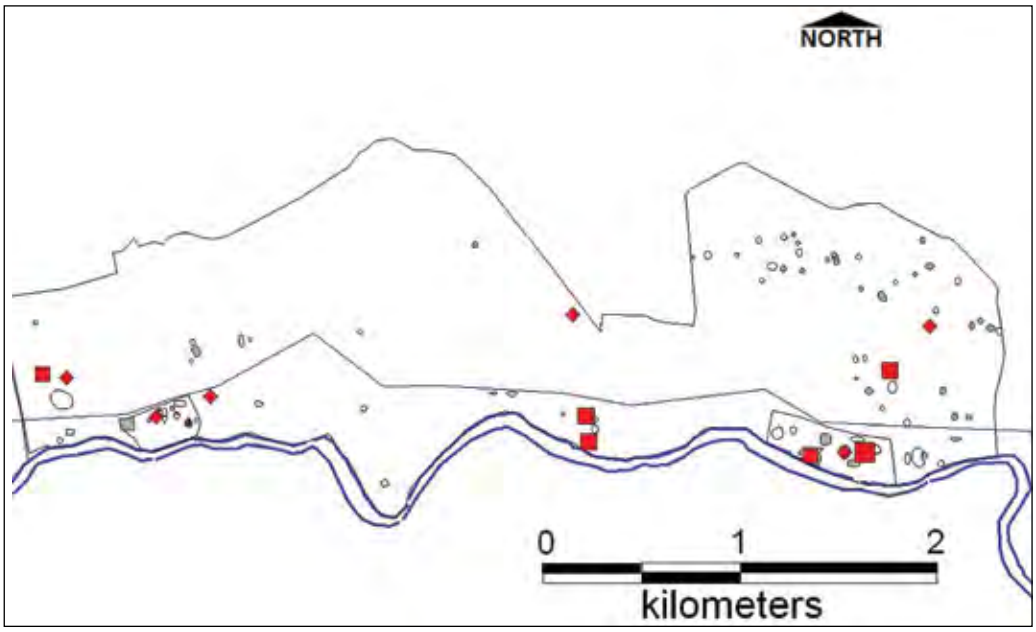

Figure 10.20. Eastern Upper Blanco, Early Classic Tendency diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

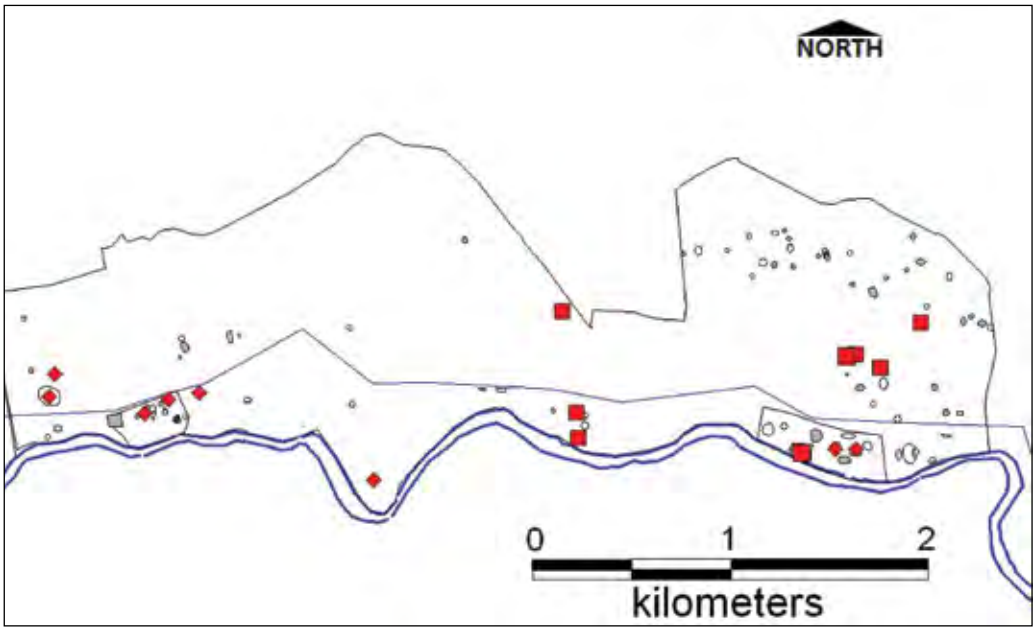

Figure 10.21. Eastern Upper Blanco, Late Classic diagnostic percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

At Madereros overall, Classic diagnostics are more abundant than Preclassic ones, despite the very strong Preclassic presence. Only in the Southwest Plaza Group do Preclassic diagnostics outnumber those from the Classic period. In all groups, the Late Classic (only 13 diagnostics) is far exceeded by the Early Classic and Early Classic Tendency in numbers of diagnostics.

The modest number of Postclassic diagnostics (11) is striking because the Late Postclassic center of Callejón del Horno is not far away to the east on the opposite bank of the Blanco. The Postclassic occurrences are mainly at the "Other" mounds and at one mound in the Western Arroyo Line, with a few sherds from the east side of the arroyo.

Among surrounding mounds Preclassic diagnostics are common and are relatively abundant, but the Postclassic is common only to the east in the direction of Callejón del Horno. More precise Postclassic

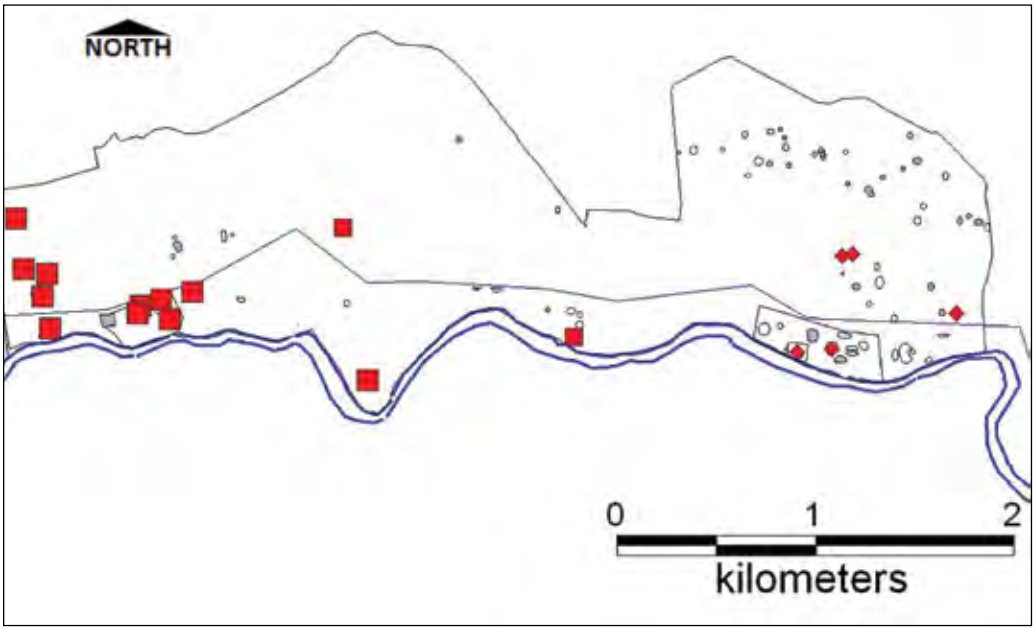

Figure 10.22. Eastern Upper Blanco, Postclassic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

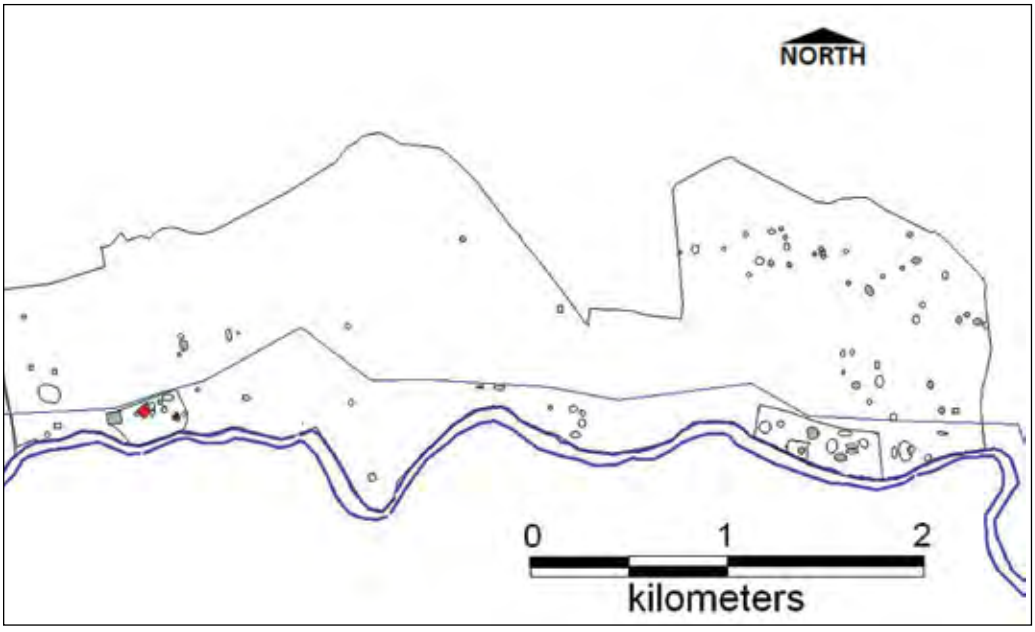

Figure 10.23. Eastern Upper Blanco, Middle Postclassic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

diagnostics are mainly Late Postclassic. For the Classic period, diagnostics are strongly Early Classic, with much scanter indications for Early Classic Tendency or Late Classic diagnostics. Thus the surrounding mounds concur with the evidence from the monumental complex in indicating that this complex had an inception in the Preclassic period and additional construction and activity mainly during the Early Classic period, with a much diminished Late Classic presence. The Postclassic indications are likely tied to the Late Postclassic. South bank occupation during the Postclassic is lighter than on the north bank.

Discussion of Madereros Complex

During the Early Classic period as well as the Preclassic, Madereros-Tilcampo is a good candidate for a secondary center to Cerro de las Mesas. It seems clear that by the Late Classic period Madereros was

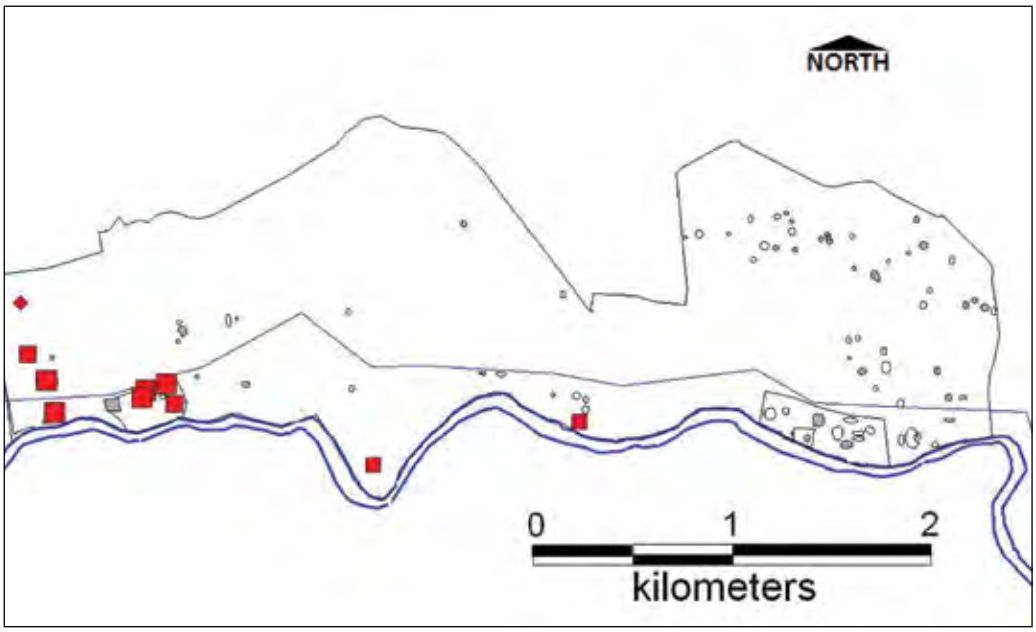

Figure 10.24. Eastern Upper Blanco, Late Postclassic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

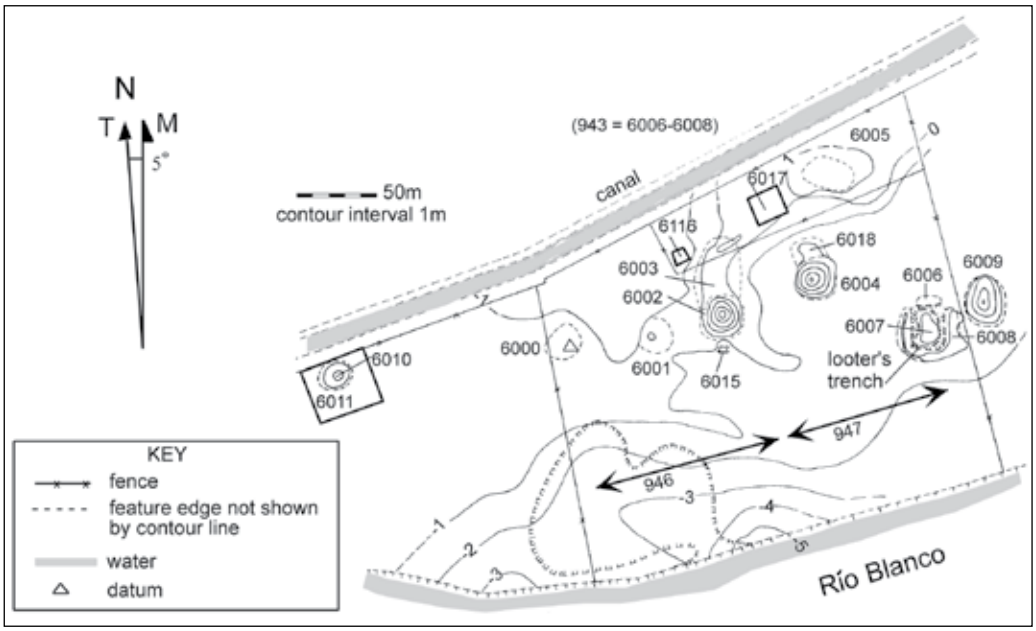

Figure 10.25. Callejón del Horno map shows feature numbers and contours, mapped with a theodolite. Features 6006, 6007, and 6008 are parts of what was a monumental platform cut through by several trenches (collection 943 represents all of them). The rough division of the field into east and west halves is indicated by arrows; the divisions were used for surface collecting following razing of the center.

not functioning as a monumental complex (or else only very briefly) even though some occupation continued. During the Late Classic period, at best we might view this pair of complexes, Tilcampo and Madereros, as a tertiary/quaternary center for Azuzules. Azuzules seems more likely as a primary center for this complex than Nopiloa because Azuzules is in the delta of the Blanco River. Riverine connections would favor communications with Azuzules.

Eastern Upper Blanco River Area

Two monumental complexes were located in the eastern portion of the Upper Blanco River survey: Callejón del Horno and Cerro de los Muertos (Figure 10.1). A series of maps shows the general chronological patterns on the basis of pottery diagnostic percentages. In Figure 10.17, Preclassic diagnostics are most abundant in a few collections from Cerro de los Muertos, with a light scattering elsewhere, including

the northeast quadrant of Callejón del Horno. Classic diagnostics occur more widely, but no longer indicate a concentration at Muertos (Figure 10.18).

When portions of the Classic period are examined separately, the Early Classic shows a concentration at and near Cerro de los Muertos (Figure 10.19). The same pattern holds for Early Classic Tendency diagnostics (Figure 10.20). The Late Classic shows a slightly diminished presence at Muertos (Figure 10.21).

Postclassic diagnostics are concentrated at Callejón del Horno and in its vicinity, with a light occurrence elsewhere, within about half a kilometer of the Blanco River (Figure 10.22). Consideration of the Middle Postclassic versus the Late Postclassic reveals that the Callejón del Horno concentration is due to Late Postclassic occupation, not Middle Postclassic (Figures 10.23 and 10.24).

In summary, a light Preclassic occupation suggests that the later center of Cerro de los Muertos may have begun earlier as a settlement node. Muertos was active in the Early Classic, but likely diminished during the Late Classic. Patterns changed dramatically in the Late Postclassic, when a community was active at Callejón del Horno.

Callejón del Horno Complex

Description

Callejón del Horno is situated on the north bank of the Blanco River (Figure 10.25). It represents the only Late Postclassic center located in our survey. Callejón del Horno appears to be the general location of Torres Guzmán's (1970:22–26) excavations in the *congregación* of Piedras Negras, where he excavated a mound near the river and suspended Comisión del Papaloapan leveling of another mound. The photographs of ceramics from the excavations include Choluteca Polychrome, Quiahuistlan (bowl with painted animal), and Fondo Sellado vessels (Torres Guzmán 1970:Fotos 39, 41, 42, 44). Postclassic figurines and large figures were recovered as well.

Several aspects of Callejón and Late Postclassic economy and settlement have been explored in other publications (e.g., Garraty and Stark 2002; Skoglund et al. 2006). The center itself has not yet been discussed in detail, however. The mapped area of Callejón includes only modest monumental construction, in this respect resembling an earlier Middle Postclassic center, Sauce, located in the Blanco delta. No Standard Plan is evident, including no lateral and no ballcourt. Two conical mounds have terraces attached (6002 and the 6003 terrace, plus 6004 and its 6018 terrace). At the time they were mapped, both were severely looted, and only remnants remained. A third conical mound lies at the east end of the array, 6009.

This last conical mound is adjacent to a structure so badly looted, with a trench cutting through it in a "U" shape, that it is difficult to know its original nature. The outer perimeter, however, is mostly intact and suggests a rectangular massive platform. Whether any mounds sat atop the platform is unknown. Collections were made from different segments of the remaining mound (6006, 6007, and 6008), with 943 designating the possible platform as a whole). Looters had been recently digging at this mound because we encountered burlap sacks and broken pieces of two incense burners on the south side. I presume they were abandoned because they were incomplete and broken. The trench itself must have been cut much earlier, possibly using machinery, as the trench walls were not freshly exposed.

In the intervening year after we mapped the center, it was almost entirely leveled with machinery, and only mounds 6009 and 6010 were spared, as they are located on parcels belonging to different owners than the central part of the site. The field, leveled for planting beans by the landowner, had been freshly plowed when the site destruction was observed, and we made two collections from the surface (946 and 947), representing approximately the west and east halves of the field, respectively, but the eastern 947 collection was truncated due to the need for crew personnel in other locations. Another monumental structure north of the canal and slightly west of the center (6081) may be part of it but was not included in the contour map because it is somewhat removed. In 1999 it was being mined for construction fill with heavy equipment in part because it sits at the intersection of two gravel roads and is readily accessible.

Surroundings

Only a light scatter of low mounds or surface concentrations is evident around Callejón del Horno, mainly within half a kilometer of the river. Some surface concentrations were detected in a plowed field immediately northwest of the center, but most of the adjacent fields were in pasture, preventing observation of surface materials. Vegetation clearing could reveal more residential remains signaled by surface concentrations.

Chronology

Callejón del Horno, with 57 Late Postclassic diagnostics, has the largest number by far of any complex. Only one diagnostic relates to the Middle Postclassic period.

Clearly there was earlier occupation in the vicinity predating the Postclassic period, as eight Preclassic diagnostics and 78 Classic diagnostics were collected. Some of this material likely was included in fill. No structure stands out for its percentage of Preclassic or Classic material, so it is not possible to pinpoint areas for either period. The arrangement of major mounds does not correspond to any Classic or Preclassic arrangement, so it is likely that earlier pottery was included in Postclassic structures as fill. The possible monumental platform (6006, 6007, and 6008), cut by a U-shaped looters' trench and collected together (943), does not show any elevated presence of Classic (or Preclassic) sherds, leading me to conclude it was not an earlier platform. Although we cannot be sure of its original morphology, it appears likely to have been a rectangular platform, like those common in the Classic period. Consequently, this type of structure may have been part of the Postclassic repertoire, even though the preponderance of evidence places them within the Classic period.

There is only one mound in the vicinity that yielded any Preclassic diagnostics, and the vicinity appears not to have had Preclassic occupation for the most part. A light representation of Classic materials is present, but the Postclassic is abundant, with all features contributing some sherds from this period. For the Classic period, the Early Classic is more common than the Early Classic Tendency or Late Classic, although it is not abundant. The Middle Postclassic is not represented in the surrounding area, but the Late Postclassic is strongly indicated. Overall, both the complex and its surroundings suggest a peak of occupation and activity in the Late Postclassic, with very light Preclassic and Classic presence.

Discussion of Callejón del Horno Complex

Because we did not locate any other Late Postclassic settlement during the survey apart from scattered residential mounds, it is difficult to assess Callejón del Horno in terms of settlement hierarchy. Colonial period documents attest to settlement to the east at Tlacotalpan, north at Tlalixcoyan, and west at Cuetlaxtlan (Cotaxtla), which was the head town of an Aztec province (Stark 1974, 1978). Analyses of ceramics and figurines suggest that Callejón was a subsidiary settlement under Cuetlaxtlan at the time of the Spanish conquest (Skoglund et al. 2006).

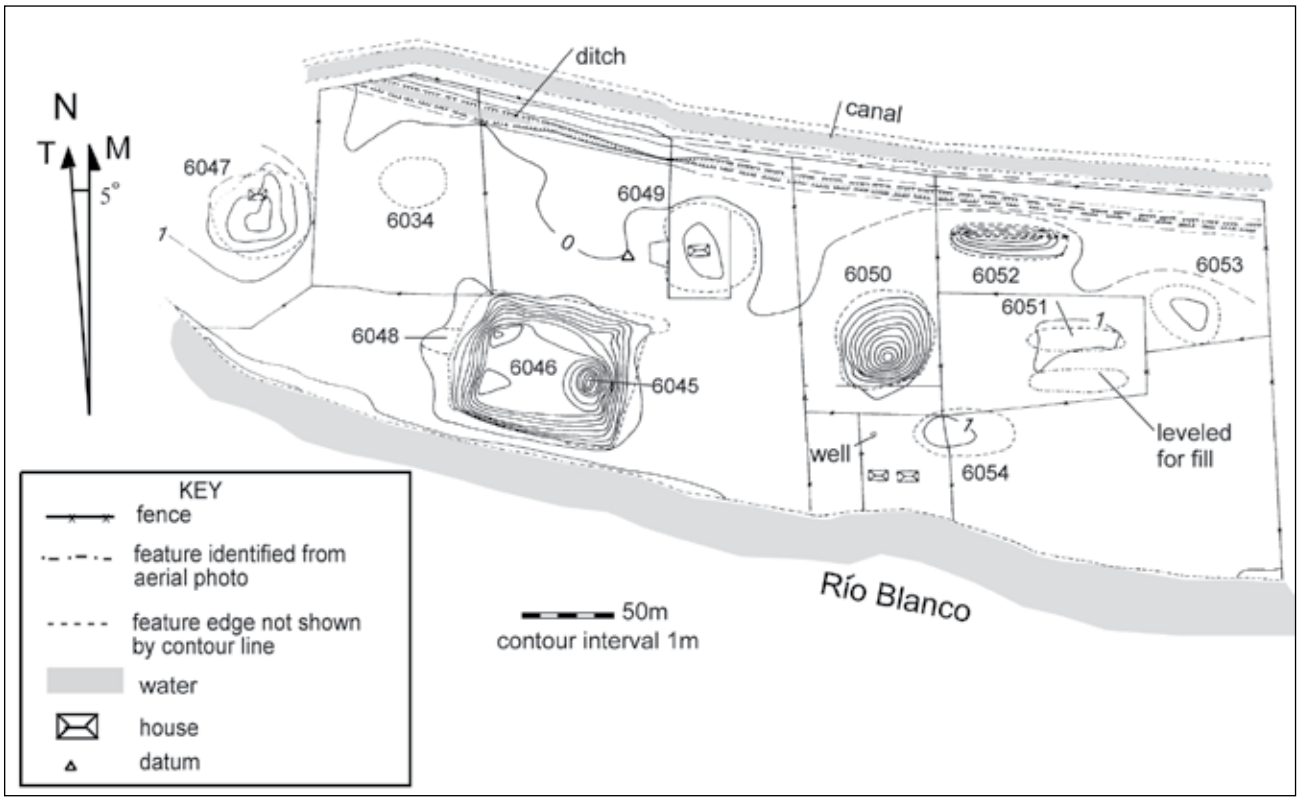

Figure 10.26. Cerro de los Muertos feature numbers and contours, mapped with a theodolite.

Cerro de los Muertos Complex

Description

Located adjacent to the Blanco River on the north bank near the confluence with a tributary stream, Cerro de los Muertos is a SPPG-2a with a conical mound (6050) at the west end of the plaza, one lateral (6052) on the north side, and a second very diminutive lateral (6054) on the south side—the most diminutive lateral in the survey, but possibly reduced by construction equipment (Figure 10.26). The conical mound had been heavily looted on top, with some pits as much as 2 m deep. The lateral mound had been looted with a trench 1–1.5 m wide running through the middle of the mound for its entire length. A ballcourt completes the plaza at the east end.

Part of the monumental plaza construction was razed, and fill was removed for the foundation of a local school. Aerial photographic mosaics clearly show the presence of a second ballcourt mound alongside 6051. Only a remnant of 6051 remained, but it was originally the north mound of the ballcourt. In the ballcourt area, there were many white lumps in the soil that may have been part of a whitewashed or plastered floor or wall. We were able to observe the approximate limits of 6051 in the scraped earth. West of the plaza a massive rectangular platform has a conical mound on top at its east end, facing west, away from the SPPG. The top and southwest corner of this platform have suffered extensive looting and nearly the entire surface is littered with holes. A prodigious looters' hole on the southwest corner of the platform was said to have produced a stone yoke by one local person, but this information could not be verified.

Torres Guzmán (1970:23–25) excavated at Ejido Santa Ana in the area of Piedras Negras during 1964. This site likely was Cerro de los Muertos. He dug three trenches in the south edge of one mound said to be 60 m from the river. There is a depressed area on the south edge of the conical mound 6050, shown by contours, which corresponds to this description. Torres Guzmán mentions elaborate offerings, some of them in a pit. Many of the offering materials appear to be Late Classic in date, for example, his Fotos 28 and 30 of Tuxtlas Polychrome. Nevertheless, some Fotos, such as 55 and 56, show Preclassic style figures, so the relationships of fill and cache materials remain unclear. A number of Classic period small, medium, and large ceramic figures are illustrated.

Surroundings

Residential remains in the vicinity occur mainly east and north, with another band of scattered mounds farther north approximately a kilometer away and not far from the bank of a tributary stream to the Blanco. Given the propensity for Upper Blanco residential remains to be situated near channels, the northern scatter may be part of the occupation linked to Cerro de los Muertos, but preferentially positioned along a nearby channel. Cerro de los Muertos is the largest complex in the vicinity. An area lacking residential remains (Gap 2) extends west of Muertos along the bank of the Blanco, with only occasional residential indications between Muertos and the Late Postclassic Callejón del Horno complex. If the more northerly band of occupation is related to Muertos, Muertos is the only complex along the upper Blanco on either bank that has any sizable accompaniment of nearby residential features. Lightly scattered residential features continue westward all along the Blanco after Gap 2.

Chronology

The Muertos complex yielded collections unevenly. Only the rectangular platform, conical mound, and 6051 ballcourt mound yielded collections above the median. Only the conical and ballcourt provide a strong Preclassic representation. Looting of the former created an enormous hole in the center that may have penetrated early construction levels. The grading of the ballcourt likewise provided disturbance of initial levels of construction (unless they are below the ambient ground level). Consequently, this SPPG may have begun in Preclassic times, although use of fill rich in Preclassic materials cannot be entirely ruled out.

The monumental platform does not provide a strong Preclassic signature, despite considerable disturbance. Backdirt from the southwest corner looters' pit appeared to largely represent clean fill, so at least some of the construction did not utilize materials from earlier occupations. The top of the platform, covered with holes, represents considerable disturbance of the uppermost levels of construction. Classic diagnostics predominate in the surface collection, with the Late Classic slightly exceeding the Early Classic, but present in about equal amounts if the Early Classic Tendency diagnostics are considered. Overall, this platform appears to represent mainly Classic period activity, perhaps with continuity between the Early and Late Classic periods.

The SPPG shows less Late Classic representation than the platform. There are fewer Classic diagnostics

than Preclassic ones, and among the Classic diagnostics the Early Classic and Early Classic Tendency categories are considerably more frequent than Late Classic ones, which suggests that, although the monumental platform may have continued in use from the Early to the Late Classic period, the SPPG was not an active focus of construction and activity by the Late Classic period, although some buildings may have continued in use. As with the Cerro Bartolo complex and the platform at Cerro Bartolo West, the platform may have represented rural estate headquarters during the Late Classic period.

Among surrounding mounds, the Preclassic is very lightly represented even though the complex itself has strong Preclassic indications in fill at two of the SPPG mounds. The Classic period is more abundantly represented, at least when the smaller collections are taken into account. The Postclassic rivals the Preclassic in scant representation. Within the Classic period, the Early Classic and Early Classic Tendency diagnostics provide more indications of occupation and activity than those from the Late Classic, some of which are concentrated in a cluster of mounds immediately north of the east end of the Muertos complex. Neither the Middle nor the Late Postclassic is specifically indicated among the scant Postclassic remains.

Discussion of Cerro de los Muertos Complex

Overall, the Muertos complex provides more signs of Preclassic occupation than the surrounding area (partly because of deep disturbance). During the Preclassic period Muertos may have been a settlement subsidiary to Cerro de las Mesas, perhaps of secondary rank, but we do not know the extent of public architecture, if any. Certainly during the Early Classic period Muertos was of secondary rank; the Early Classic is the most strongly represented period from both the complex and the surrounding areas. Although the monumental platform suggests continued importance in the Late Classic period, the occupation evidence overall is diminished for this period. During the Late Classic period, because the monumental platform was the main focus of activity, we can view Muertos as a tertiary/quaternary node under Azuzules, or perhaps an elite estate headquarters. Torres Guzmán's discovery of an offering or cache of Late Classic ceramics at the edge of the large conical mound is suggestive that ritual activities continued in the SPPG in the Late Classic, even if surface materials do not support the idea of activities on the same scale as the Early Classic period.

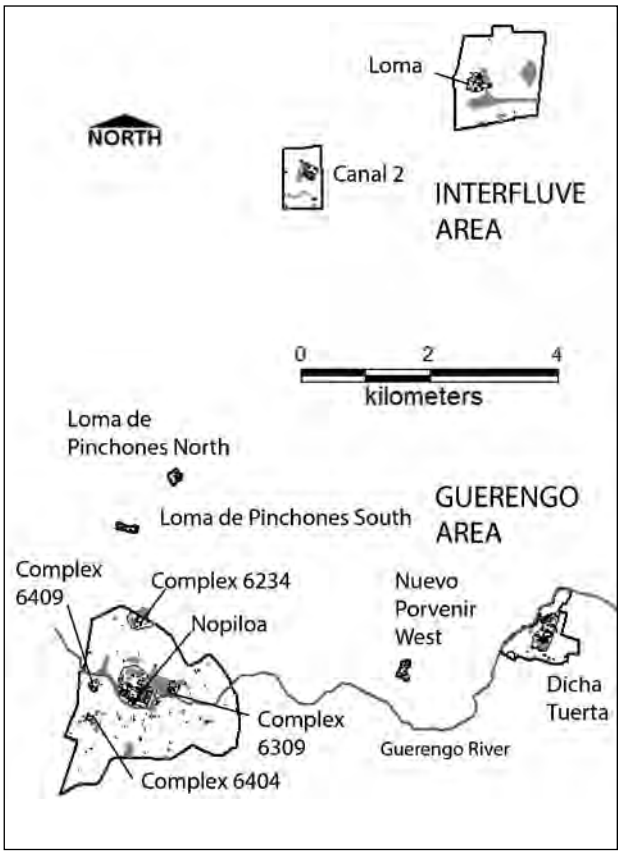

Figure 10.27. Guerengo River and interfluve monumental complexes.

Summary for the Upper Blanco Area

The Upper Blanco presents a good possibility that monumental complexes were launched in Preclassic times and continued to be important or expanded with additional structures during the Early Classic period at Muertos and in the Southwest Group at Madereros. Other complexes manifest no Preclassic activity or indications of only light occupation in their vicinity. During the Preclassic period, both Muertos and Madereros may have been secondary centers under Cerro de las Mesas.

Both Muertos and Madereros (with its extension across the river in Tilcampo) performed as secondary centers to Cerro de las Mesas during the Early Classic period, but the more modest array of construction at Cerro Bartolo, which is farther upriver, suggests it was a tertiary/quaternary center. Very tentatively, Cerro Coyote can be included as a tertiary/quaternary Early Classic center as well, but chronological evidence is scant.

Late Classic pottery suggests continued but lighter occupation in the Upper Blanco with less intensive activity at Madereros and Muertos particularly. With the exception of monumental platforms at Muertos

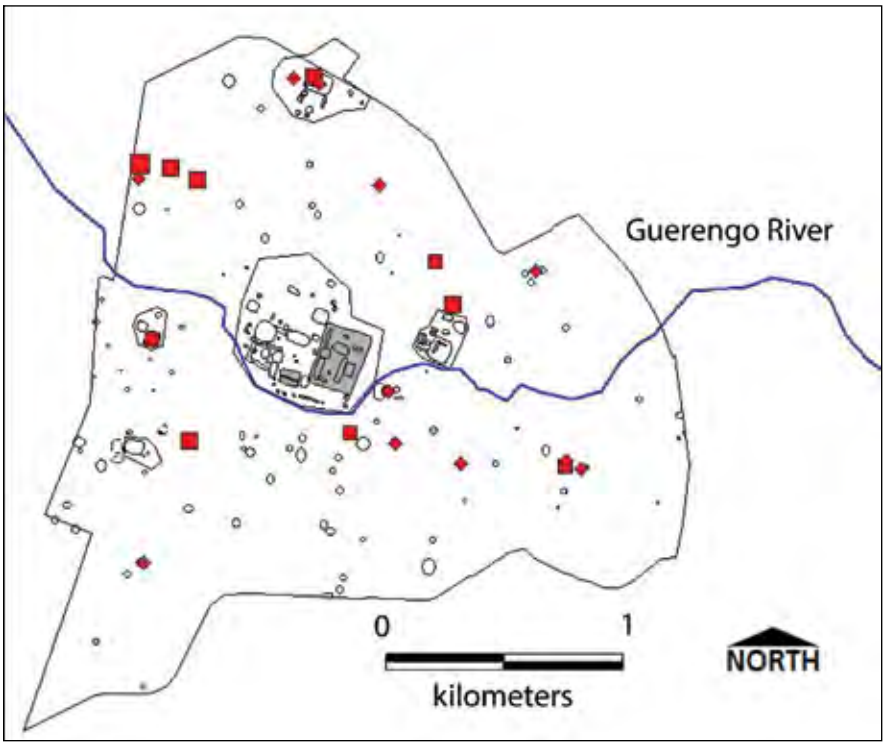

Figure 10.28. Nopiloa area, Preclassic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

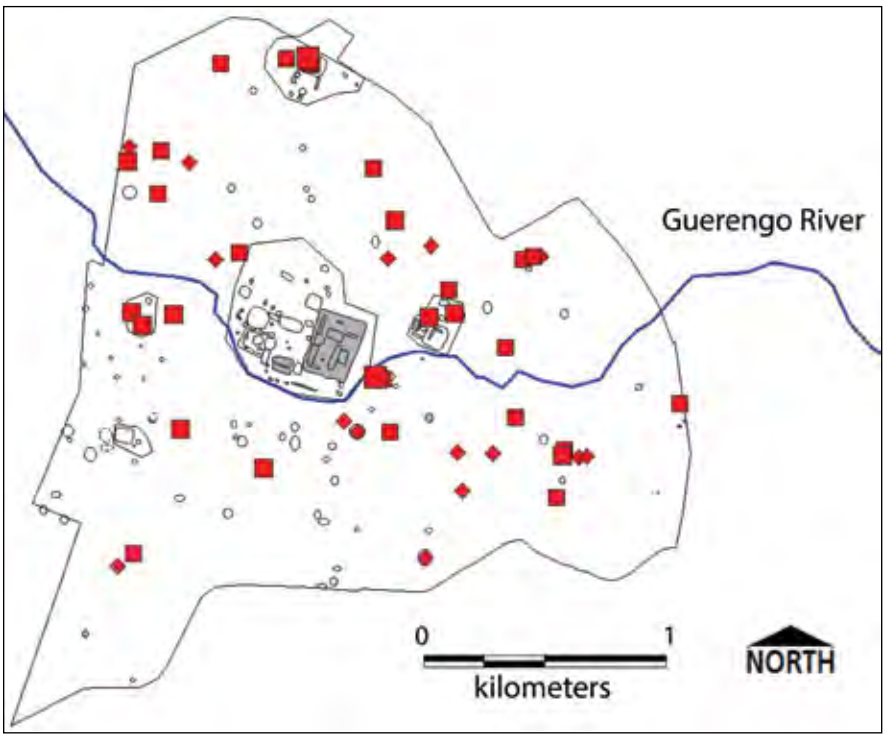

Figure 10.29. Nopiloa area, Classic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

and Cerro Bartolo West, construction or activity along the upper Blanco waned in the Late Classic period. The monumental platforms at Madereros and Tilcampo, for example, unlike those at Muertos and Bartolo West, do not exhibit strong ceramic indications for the Late Classic period. The latter two locations with monumental platforms have enough Late Classic material that they may have remained in use

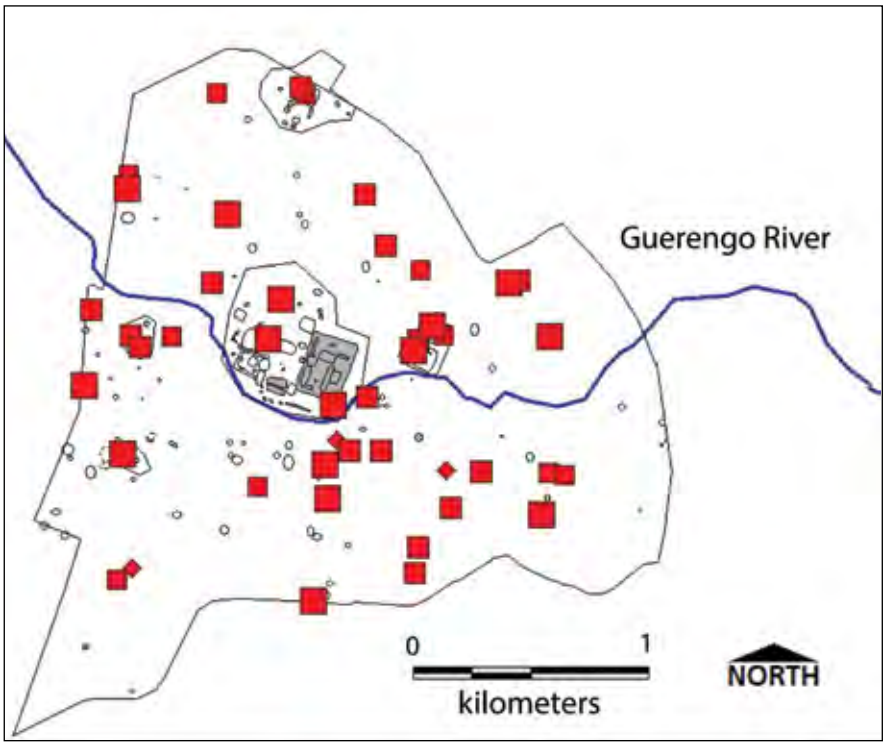

Figure 10.30a. Nopiloa area, Early Classic diagnostics, percent quartiles for all collections. Features that yielded no surface collection are gray.

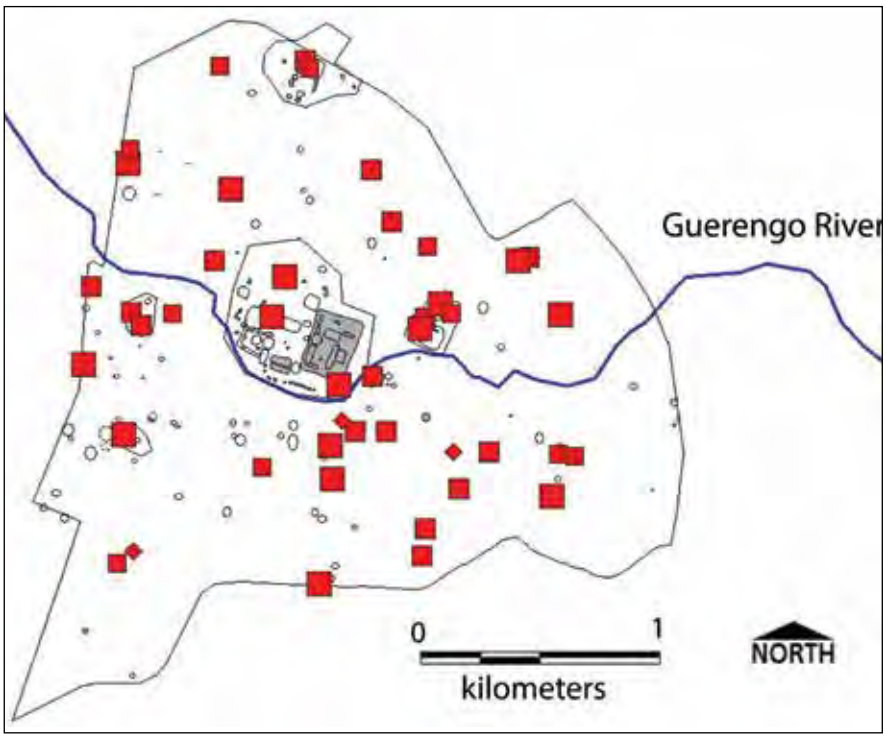

Figure 10.30b. Nopiloa area, Early Classic diagnostics for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

as palatial quarters. The upper Blanco area exhibits a striking and relatively consistent change by Late Classic times, with a continued scatter of residential mounds, but feeble indications that the Early Classic secondary centers continued their earlier roles to the same extent. Instead, individual palatial platforms may have continued in use. Madereros, Bartolo West, and Muertos can more safely be viewed as tertiary/

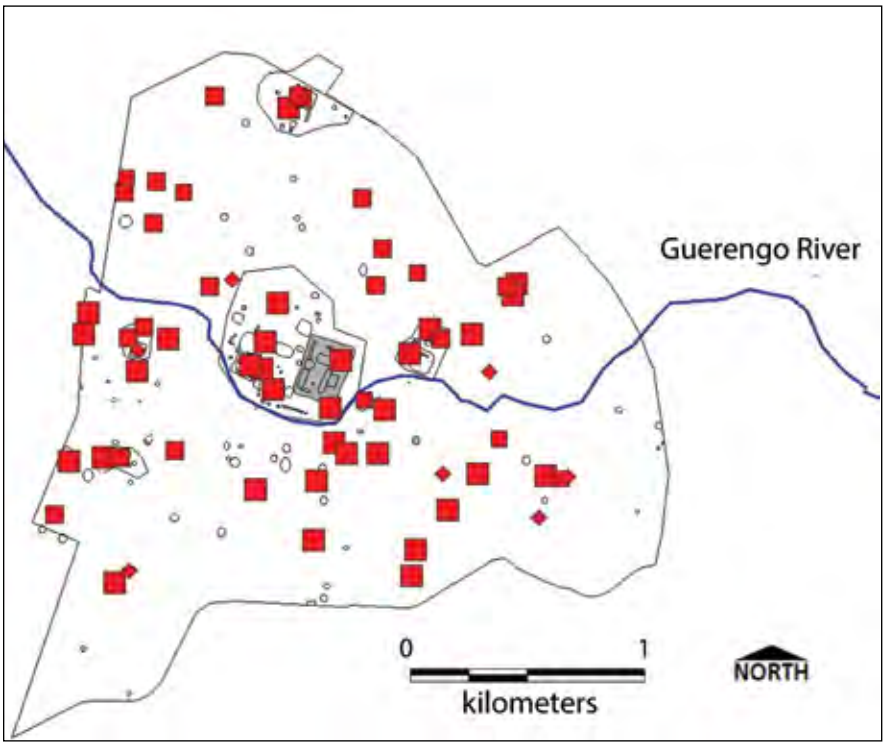

Figure 10.31a. Nopiloa area, Early Classic Tendency diagnostics, percent quartiles for all collections. Features that yielded no surface collection are gray.

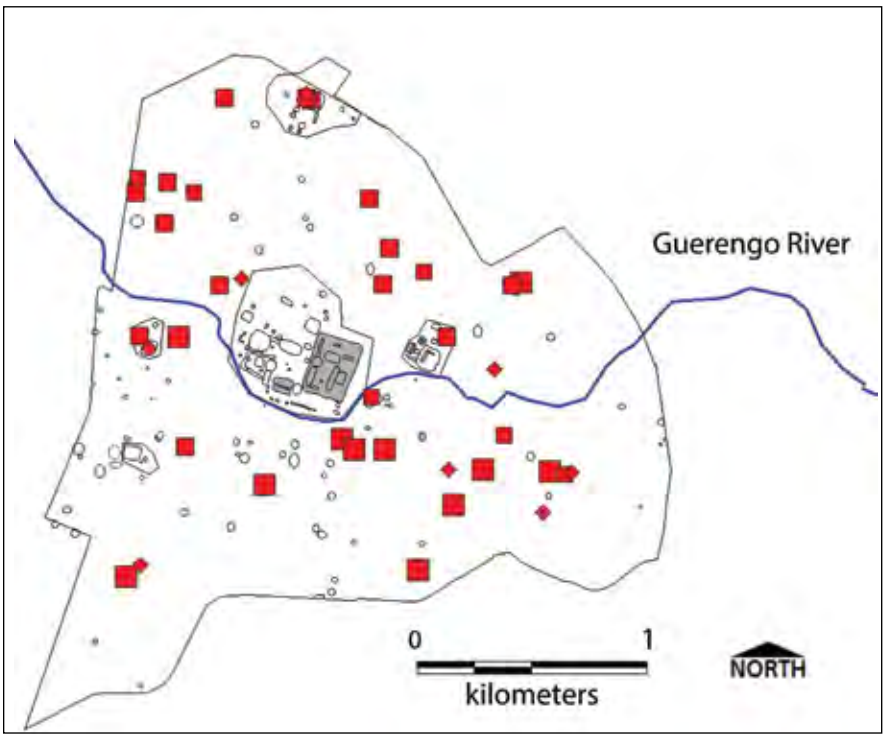

Figure 10.31b. Nopiloa area, Early Classic Tendency diagnostics for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

quaternary nodes under Azuzules than as secondary ones; some of the earlier monumental buildings may still have functioned to some extent or lent significance to the settlements.

Very little Middle Postclassic evidence was encountered, and the Upper Blanco had negligible occupation at that time. The Late Postclassic has one major settlement, Callejón del Horno, and residential occupation

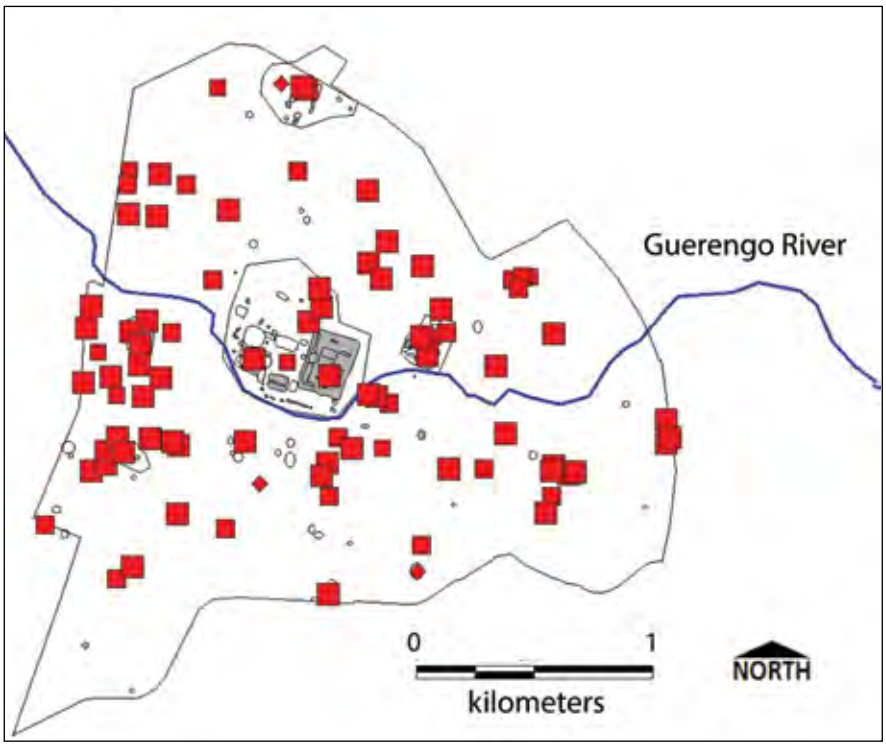

Figure 10.32a. Nopiloa area, Late Classic diagnostics, percent quartiles for all collections. Features that yielded no surface collection are gray.

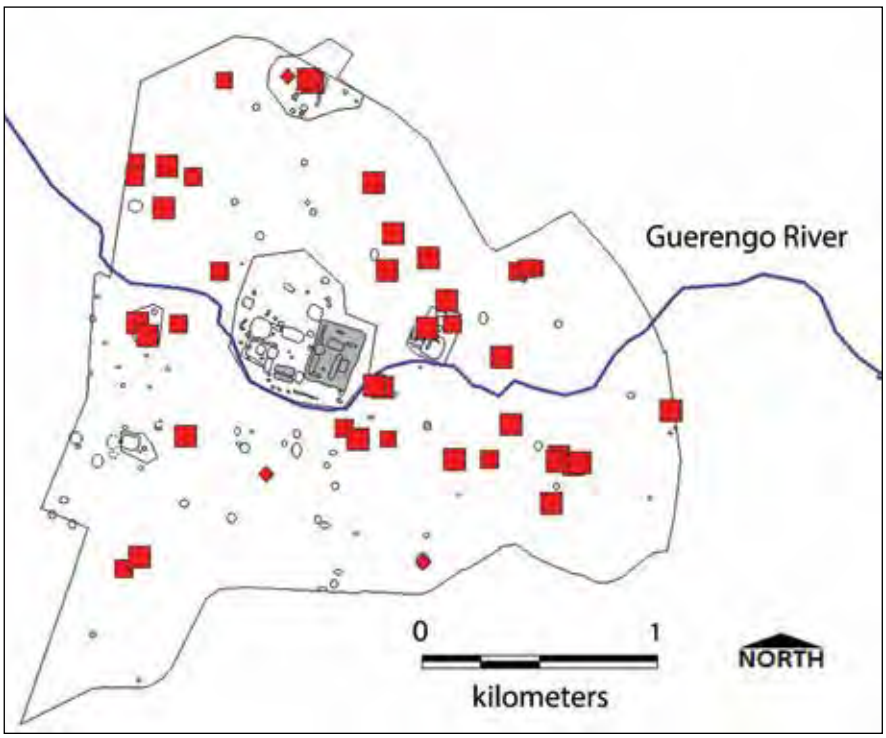

Figure 10.32b. Nopiloa area, Late Classic diagnostics for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

from that period tends to be within a couple of kilometers of that complex. Callejón del Horno, a newly founded complex, was inserted into an area that had been greatly reduced in population or abandoned for some centuries. Given the modest amount of monumental construction at Callejón del Horno, it was possibly subsidiary to Cuetlaxtlan (Cotaxtla), a head town reported in sixteenth-century documents.

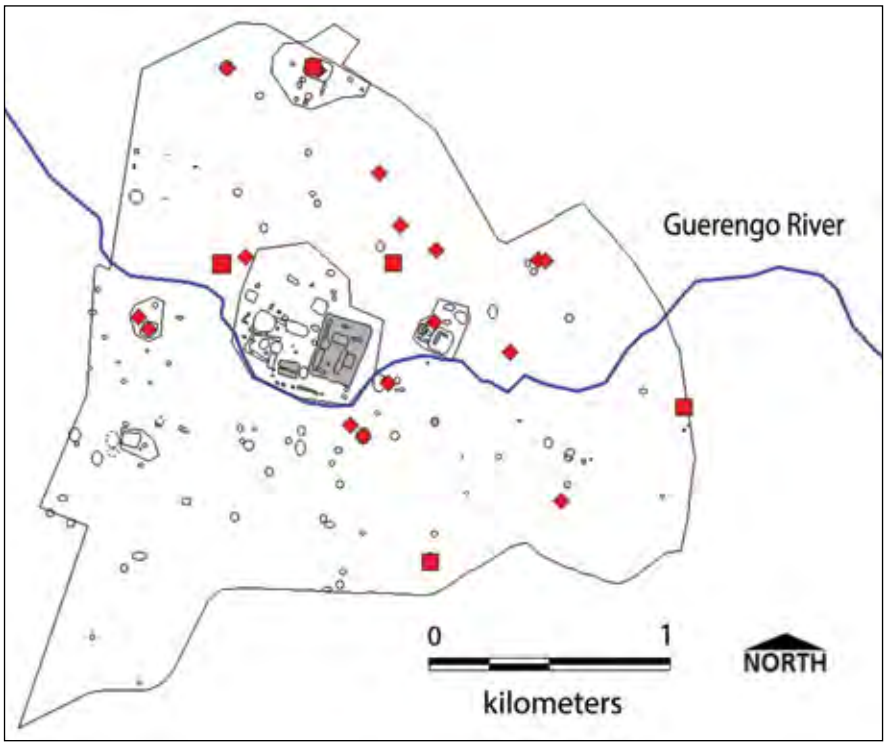

Figure 10.33. Nopiloa area, Postclassic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

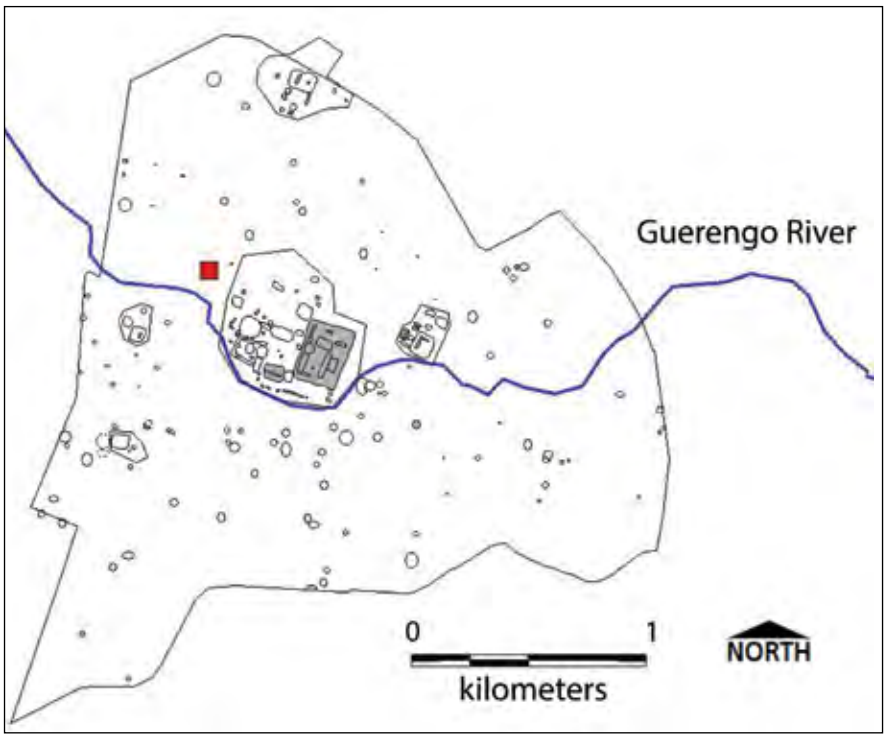

Figure 10.34. Nopiloa area, Late Postclassic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

During the Postclassic period, neither of the two survey centers (the other is Sauce for the Middle Postclassic in the Blanco delta) has great investments in monumental earthen mounds. Since all other survey remains are residential scatters during the Late Postclassic, clearly Callejón del Horno functioned as the dominant local center for much of the WLPB. Ethnohistoric documents place another center to the north at Tlalixcoyan,

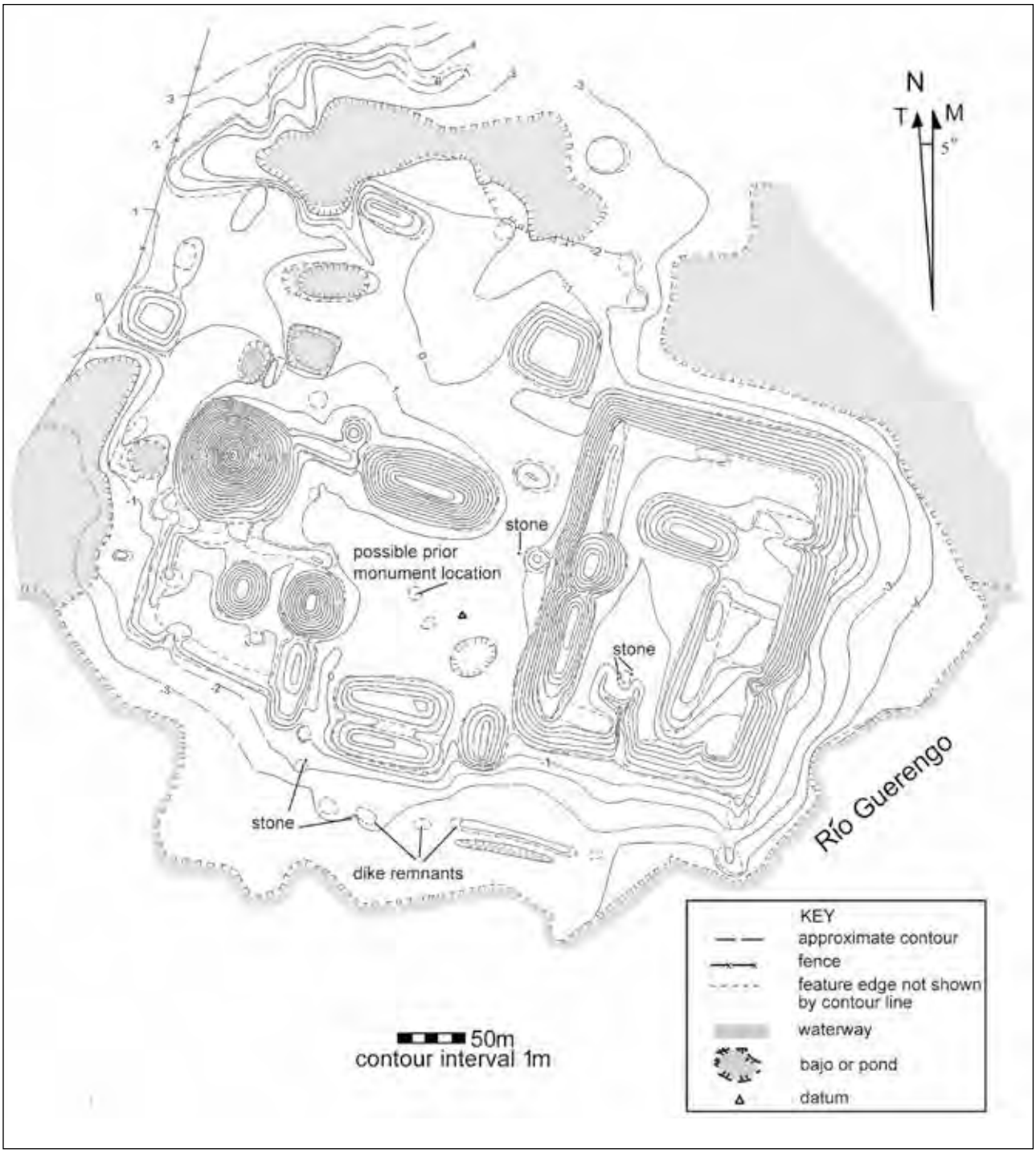

Figure 10.35. Nopiloa contour map, mapped with a theodolite and GPS.

but the area of the modern settlement of Tlalixcoyan examined by Alanna Ossa did not reveal marked Late Postclassic occupation. Nevertheless, settlement may have been nearby because Spanish authorities at times relocated native populations.

Guerengo Area

The Guerengo River runs eastward toward the Limón estuary and is situated south of the Blanco River. Nopiloa is the largest center we recorded along the Guerengo, and small blocks were surveyed to record smaller

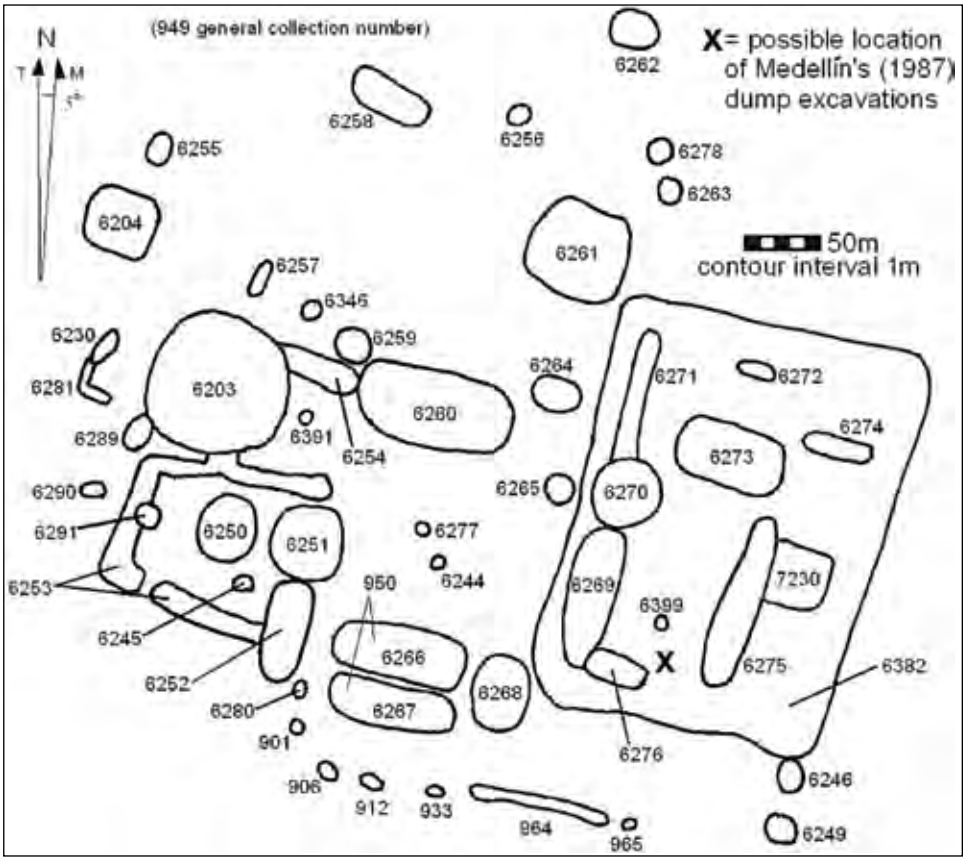

Figure 10.36. Feature numbers for Nopiloa (collection 950 derives from two features).

monumental complexes (Figure 10.27). Nopiloa was subject to salvage and other excavations by Medellín Zenil (1987). Another complex along the Guerengo, Dicha Tuerta, is a candidate for a secondary center to Nopiloa (mentioned by Medellín Zenil 1960:194–195). Not included in the PALM survey, but briefly visited, Los Cerros lies farther east in the Guerengo drainage, also a possible secondary center and also excavated by Medellín Zenil (1954; 1960:191–194).

Two small complexes are located north of Nopiloa (Loma de Pinchones South and Loma de Pinchones North) and another (Nuevo Porvenir West) lies northeast between Nopiloa and a secondary center, Dicha Tuerta. All of these complexes were mapped, but time did not allow expansion of coverage around the complexes except for some fields adjacent to Dicha Tuerta. Consequently, I lack adequate information concerning associated settlement for most of the complexes and cannot confirm a visual impression that each of these complexes is relatively isolated and not part of a nearly continuous array of occupational evidence, such as is observed in the Blanco delta. This visual impression is based on observation of surrounding fields.

Maps with percentages of chronological diagnostics provide a backdrop for the discussion of the monumental complexes. They are provided for three Guerengo localities separately, the Nopiloa area, the Pinchones complexes, and the Dicha Tuerta area, to provide better scales.

In the Nopiloa area collection sizes pose an obstacle to perceiving patterns using only collections at or above the median count of 76 sherds. Many collections fall below the median, especially in the core of Nopiloa. Reliance on the more robust collections obscures the indications from all collections of greater occupational evidence in the Late Classic compared to the Early Classic. Consequently, for these two periods, I also provide plots for all collections, and for other periods I comment on the degree of resemblance of plots of all sherds versus those from more robust collections.

Preclassic pottery is present at a light scatter of mainly residential mounds (Figure 10.28). Classic period diagnostics are more abundantly represented among robust collections than was the case for the Preclassic (Figure 10.29).

Compared to the Preclassic, the Early Classic diagnostics are more abundant in a plot for all sherds (Figure 10.30a), similar to the plot for robust collections (Figure 10.30b). Early Classic Tendency diagnostics for all collections show a more abundant distribution than the Early Classic (Figure 10.31a), but robust collections are similar in pattern to the Early Classic (Figure 10.31b). The plot for all collections is more abundant in Late Classic diagnostics than either Early Classic or Early Classic Tendency, particularly for the core of Nopiloa (Figure 10.32a), but for robust collections, the Late Classic distribution continues a similar pattern to the Early Classic Tendency and Early Classic (Figure 10.32b).

Postclassic diagnostics form a light scatter (Figure 10.33), but no Middle Postclassic diagnostics are present in any collections (no plot shown). A single robust collection contained Late Postclassic diagnostics (Figure 10.34), and two cases were represented among all collections (not shown). Consequently, Postclassic inhabitants were present in a more ephemeral pattern than during any segment of the Classic period.

Figure 10.37. Basalt block at east end of the Nopiloa plaza at the center base of Platform 6382 (PALM Photographic Archive 2517).

Figure 10.38. Stone block with round upper depression near the Guerengo River, inside the dike area (PALM Photographic Archive 2521).

Figure 10.39. A stone block atop platform 6382 at Nopiloa is located near the south upper edge of the platform, along with several smaller fragments. We could not decide if there was a shallow, crude face represented due to the roughness of the surface (PALM Photographic Archive 2513).

Figure 10.40. Stone block with a flattened top and shallow depression, near a home near Nopiloa (PALM Photographic Archive 2540).

Nopiloa Complex

Description

The complex is set off from the surrounding terrain by its position on a natural elevation and partial encirclement by the Guerengo River (Figures 10.35. 10.36). Nopiloa is apparently underlain by a more resistant substrate consisting of an ashy gravel conglomerate or indurated sand, like on similar exposures elsewhere along the Guerengo and Blanco rivers. Nopiloa was investigated by Medellín Zenil (1987) through salvage excavations. Medellín Zenil (1987:12) observed layers of sandy rock under the Guerengo riverbed when water ceased to flow in late fall. We observed possible bedrock surfaces exposed on two areas below mound 6271 along the edge of platform 6382. The area where mounds 6452 and 6453 are located appears to be partially a natural rise above the river because of a small area of possible bedrock exposure. Medellín Zenil (1987:13) also encountered bedrock when he excavated in the central plaza around Monument 1.

Land access to the complex is confined to the north and northwest, while from all other directions one encounters the Guerengo River and its floodplain. Access from the north and northwest is further constrained by artificial *bajos* and structures.

This complex is formally arranged along an east–west axis, comprising a central plaza and a variant of the SPPG. The layout most resembles SPPG-1a, except the ballcourt is offset laterally. A conical mound 6203, 22 m high, has two low projections on its eastern side extending toward the plaza and partly closing off the western end of the plaza; mound 6254 is the northern projection, and the southern one is part of an embankment, 6253, that surrounds an additional plaza on the south side of the conical mound. Such projections from conical mounds occur in the Guerengo area, but are atypical in the Blanco delta, where the closest resemblance can be seen at the principal conical mound at Cerro de las Mesas, which has two low rises at each eastern corner. The single lateral mound in the SPPG is 6260. Other mounds delineate the plaza area, principally 6251, followed by the ballcourt (mounds 6266 and 6267) on the south side. Thus, the ballcourt is in an unusual position alongside the plaza rather than at the end opposite the conical mound. The ballcourt is sizable, about 86 m long. To an unknown extent, the alteration of mound positions from typical SPPG may be conditioned by terrain constraints.

The east end of the main plaza is closed by a commanding rectangular platform, 6382, the most massive observed in the region. Because this monumental platform has not been excavated in a controlled fashion, it remains unclear to what extent its 7.4 m height is formed by an underlying higher surface. A natural rise under the platform may partially explain the atypical position of the platform and ballcourt. Atop the massive platform, three plazas are evident, one around which elongate mounds are placed, and two others behind the elongate mounds and leading to the edge of the platform on the north and east sides. Elongate mounds around a plaza are characteristic at one other complex, Pitos on the paleodunes. A mound to the north of the central plaza, 6261, had evidence of possible plaster flooring.

The presence of the Guerengo River along the margin of the center appears to be a factor in ancient constructions that I interpret as dikes that protected the earthen construction from river floods. Though now broken into several segments through erosion, and with only one elongate section remaining, these pieces of earthen construction form a line along the south side of the complex close to the river. Despite some ground exposure, we did not detect any sherds or other cultural material, and these mounds seem to be composed of clean fill, possibly maintained periodically by addition of new fill from the channel bank.

Nopiloa, until relatively recently, had a carved boulder sculpture in the main plaza, now moved to the Museo de Antropología de Xalapa. The sculpture depicts a crouching frog or felid (Medellín Zenil 1987:12). I refer to it as Monument 1. Because the removal occurred only a few years before we mapped the center, we could still see a depression in the plaza; this depression was in the approximate location where I recall the sculpture positioned when I previously visited. This location also matches Medellín Zenil's (1987:13) general description of the monument location.

We observed several volcanic stones (andesite or basalt) elsewhere at Nopiloa. One scarcely modified natural block of dense stone is located at the foot of the rectangular platform, 6382, at the east edge of the plaza (Figure 10.37). Two smaller stones with relatively flat tops were mapped just inside the dike remnants, one with a rounded depression on the top (Figure 10.38). Atop the massive rectangular platform, one large and several small broken volcanic fragments suggested a relatively recently smashed stone, possibly a location where a carving had been looted (Figure 10.39).

At a modern home located not far north of Nopiloa, a volcanic stone in a patio appeared to be an ancient artifact, with a slight depression on top of the block (Figure 10.40). It had been brought to the house and was used as a base for cracking items such as coyol nuts. Possibly it was transported from Nopiloa, since Nopiloa has several volcanic stones in place, including one behind the south dike with a similar upper surface. We did not observe stone blocks in the region except at monumental complexes (for example, the Loma complex has a block of stone also). The artifact could have served as a small offertory stone, as could the stone blocks near the dike. Thus, the sculptural inventory at Nopiloa is modest, but there also were natural or slightly modified blocks of basaltic stone brought to the center, perhaps for offertory purposes or as seats for presiding over ceremonies.

Medellín Zenil's Excavations

Medellín Zenil's (1987) report on rescue work at Nopiloa was published posthumously. His fieldwork

began in 1957, continuing in 1958, with the report written the following year. His work was initiated after the recovery of looted artifacts from the site (Medellín Zenil 1987:11). He describes Nopiloa briefly, noting a dominant mound approximately 18 m high at the west side, while on the east side there was a large *meseta* that was partially modified in order to erect four platforms and one conical mound, creating three vast elevated plazas. He remarks on the presence of a ballcourt at Nopiloa, also. Medellín Zenil refers to conical mounds as *montículos* but elongate range structures as *plataformas*. The plan of the site, although cited by Medellín Zenil (1987:15), was not available, apparently, for the posthumous publication. Some photographs cited in the text also are missing.

The monograph discusses the looted artifacts, derived from two locations which were then subjected to his excavations. One set of excavations involved first test pits and then additional excavations in an "artifact dump." The artifact dump may have been an offering, not a refuse dump. The second set involved trenching and excavations at a looted mound. Additionally, Medellín Zenil (1987:12) dug down 40 cm around Monument 1. This excavation encountered *tepetate* and recovered only a few sherds, described as Late Classic, as were most materials from Nopiloa (Medellín Zenil 1987:13).

The looted artifacts included 240 pieces, most from a mound, 6250, immediately south of the principal mound (6203). The location of the looted mound is clear from Medellin Zenil's description, and we observed numerous pits and evidence of past excavation there. A few looted items are said to have been taken from an extensive patio limited by three platforms. Among the looted items that were seized and retained by the Museo de Antropología de Xalapa (many were sold), most are small toys, 5–20 cm in size, half of them whistles. Although Medellín Zenil ascribes them all to the Late Classic period, Figures 25 and 26 depict what are stated to be black-slipped small jars with incision, and the vessels look Late Preclassic or Terminal Preclassic in style (Medellín Zenil 1987:44, 46–47). They appear to be exceptions to his generalization.

In addition to excavations at the looted mound 6250, Medellín Zenil excavated three test pits, the locations of which are difficult to place, even in general terms. Since the pits are discussed in the chapter on the dump or offering, and since the only plausible location for the extensive patio (plaza) mentioned above is on what he terms the *meseta*, or massive platform 6382, I assume that all three pits were placed in that patio (plaza). The extensive plaza would therefore be framed by mounds 6269, 6373, and 6275. No other plaza is framed by three major elongated mounds. His excavations are discussed in more detail in the next sections, one section devoted to the dump (or offering) excavations and one section to the presumed mound 6250 excavations.

Medellín Zenil's Dump or Offering Excavations

Three pits were dug to determine the stratigraphy of the site, placed in areas not disturbed by looters. Pits 1 and 2 reached 0.5 m and stopped at sterile, black,

Table 10.1. Burial accompaniments from secondary burials in the Nopiloa dump (offering).

Burial	Individuals	Fine Orange Vessel	Fine Gray Vessel	Fine White Vessel	Smiling Figurine	Other Vessels	Other Figurine	Tubular Ear Spools	Spindle Whorls
1	2	2				2			
2	1		1		4	1	1		
3	2	3					2		
4	3				1		2		
5	1	2				1			
6	1	3	1+	1	7	4 (3 miniature)		5	
7	1	3						1	
8	1	1							
9	1	2			3	7 miniature		2	8
TOTAL		16	2+	1	15	15	5		

compact clay (Medellín Zenil 1987:49). Since the excavation was not continued deeper, we cannot be sure that this black clay was not a fill deposit or surfacing of some kind. Pit 3 was dug to 3 m, where sterile *tepetate* was encountered. Because this deposit was so deep, the natural area of platform 6382 may have been quite uneven in elevation. Pit 3 revealed a dump or *vertedero* deposit, described as relatively homogeneous in sediments and containing artifacts and secondary burials. In view of other evidence, such as from Zapotal, of offertory piles of objects and burials, the dump is likely not a disposal pit but an offertory cache.

Although no definitive conclusion is possible, the general location of Pit 3 may have been on the south side of the rectangular platform 6382, near the edge. This location is noteworthy today because extensive erosion has collapsed the area, which forms an arroyo leading off the platform. Pit 3 apparently was expanded, exposing 400 sq m of the dump (approximately a 20 by 20 m area). If this excavation was near the edge of the platform and was not backfilled, or the backfill was poorly consolidated, it may have led to a collapse forming the erosional arroyo. According to Medellín Zenil (1987:15), the *residuario* or *vertedero* was used for items that had some defect and could not be used further or used in ritual. He never mentions what defects were observed, and this comment may have been speculative to account for breakage. The *vertedero* or dump also may have been a fill area to level off a natural elevation chosen for the monumental platform.

Because looting had occurred in the general location, the looters may have tapped the *vertedero* also. At the scant depth of 0.25 m, Medellín Zenil (1987:49) indicates that two Early Classic figurines were found, but I am not sufficiently confident of his figurine chronology to interpret this statement in light of the remarks that several fragments of Late Classic figurines were found, along with some Preclassic materials. The densest deposits were in the first meter, with the next 2 m yielding much scarcer materials still described as Classic period in date (Medellín Zenil 1987:52). Medellín Zenil also states that nowhere were any Preclassic or Archaic materials found at Nopiloa. Nine secondary burials were encountered in the *vertedero*. Since Burial no. 1 was at 1.6 m depth, clearly the dump was considered by Medellín Zenil as more than the first meter of denser deposit. The deepest burials (nos. 2, 6, and 9) were at 2 m depth. The materials described with them appear to be Classic period in date, mainly Late Classic (Medellín Zenil 1987:81).

The Dump (Offering) Secondary Burial Program

The secondary burials follow a rather consistent program, with grave goods that include smiling figurines and vessels (Table 10.1). Usually red pigment was placed on the bones. A large basin contained the human remains, and sometimes these basins were stacked so that there were two burials, with another vessel inverted as a lid. The varied depths indicate individual placements except for the stacked burials (which I assume constituted one event). The photographs (Medellín Zenil 1987:Figures 29–50) show mainly smiling-face female figures with enlarged extremities and other similarities to Jaina-style figurines. Smiling figurines, mainly in this style, outnumber other figurines approximately three to one. Burial 4 probably lacked these figurines, however. Burial 2 may have examples among those not illustrated.

The high frequency of fine pastes in orange, cream, or gray among the bowls or jars included as grave goods is noteworthy, reaching 50 percent or more of the vessels. This group of secondary burials, usually placed within a large basin with another vessel inverted over it, forms a highly consistent burial program. Three of the burials included blackened teeth (covered with *chapopote*, a bitumen and resin compound). The frequency of the "mayoid" or Jaina-like smiling-face figures and fine orange or fine gray vessels is far higher than the percentage from our survey collections, suggesting that the secondary burials either represented a population with very different access to such items or a specialized burial practice with preferential inclusion of such vessels. Other evidence suggests these ceramics were of considerable value compared to most vessels.

Medellín Zenil's Mound 6250 Excavations

Other excavations likely were in and around mound 6250. When mapped by a PALM crew, this mound was nearly obliterated by pot holes and, presumably, Medellín Zenil's trench excavations are among the surficial disturbances. After Medellín Zenil removed the looters' backdirt, he excavated a trench from the top of the mound. The trench reached 10 m depth. It seems unlikely the excavations were completely backfilled because 6250 had a 2 m deep depression from the summit eastward to the plaza level, likely the remnant of Medellín Zenil's trench. Looters' pit depressions were evident around the mound margins. Mound 6245 in the southern plaza and the banquette 6253 surrounding the plaza were dotted with looters' holes; mounds 6251 and 6252 along the east side of the southern plaza

also displayed looters' pits. Although many mounds at Nopiloa display looters' holes, there is an unusual concentration in the vicinity of mound 6250. I cannot determine if some or all of these pits reflect the original looting that led Medellín Zenil to Nopiloa or, instead, may represent subsequent looting inspired by his finds.

In Medellín Zenil's (1987:137) excavations, at 0.95 m black sediment gave way to a floor consisting of two layers of burned earth, each 10 cm thick. This description suggests these layers formed two floors. A wall made from adobes was observed near the floors (exact position not described). At 1.7 m a group of seven secondary burials and two empty small jars, suggesting collective reburials, had been placed together at the same time (Medellín Zenil 1987:138–140). Following a homogeneous layer with *tepetate* fragments (likely indurated gravel, sands, or indurated ashy deposits) and light yellow lumps, a thin black layer was observed at 2.35 m depth. Down to 5.4 m, another layer continued with indurated material and nodules of dark yellow clay (?). In both the thick layers, it appears likely that some of the natural underlying conglomerate was mined as fill, hence the *tepetate* inclusions.

The next stratigraphic observation involved a room or adoratory formed by walls of black adobes set with red-brown clay. This room was filled with the same conglomerate and dark yellow nodules. The room was 1.9 m wide, and its length was over 6 m. Its floor was composed of stamped light yellow indurated material. A black fill continued below the floor, with two fragmentary floors of burned earth at 6.8 and 7.11 m depth, the lower one presenting ash deposits on top. The black fill continued to 10 m, until reaching a sterile indurated layer of a dark yellow color.

This stratigraphic record suggests a series of floors and rebuilding enlargements of the mound, with one buried structure. To Medellín Zenil (1987:145), the materials associated with the burials at a depth of 1.7 m suggested two major periods, Early and Late Classic, with the latter represented by the upper 2.35 m of deposits.

The Trench Secondary Burial Program

The secondary burial program at mound 6250 is quite distinct from that in the dump/offertory already described. The secondary human burials all included marine shell, snails, and a jade bead, occasionally with other ornaments. In contrast to the dump program, no fine paste ceramics or figurines were present. At least seven, possibly eight, of the burials were placed at the same depth, in a collective action (although Medellín Zenil indicates seven secondary burials, eight are mentioned). With one exception they were placed within large cylindrical vessels with a flat lid or inverted bowl closing the vessel. Bones were very broken. Associated materials included shells of bivalves and univalves, coral fragments, stone beads, and a greenstone bead. Burial 1 also had small fish bones and rodent bones, small rocks, coral, and oysters. Burial 3 had a fossilized molar not otherwise described. Burial 7 was placed directly on the earth rather than in a vessel, with a small jar nearby that contained several snake vertebrae. Burial 8 was located by expanding the excavation, as was Burial 7. Burial 8 was placed in a similar vessel to the majority of the burials, but the vessel was unfired.

In addition to the grouped burials, others show a similar burial program. Deeper than the grouped burials, at 2.75 m and below a black earthen floor, Burial 9 consisted of a snake in a jar with an inverted bowl for a lid. The articulated snake could have been buried alive; there also were shells, snails, and fragments of coral.

Secondary Burial 10 at 3 m depth was human, highly broken, in a globular jar, with a shell necklace, marine shells, a jade bead, and a large fragment of a worked fossil. Fragments of a broken anthropomorphic sculpture (not illustrated) were associated, said to be Early Classic in date (Medellín Zenil 1987:144).

Yet deeper, Burials 11 (at 5.8 m) and 12 (at 6.1 m) were directly below the adoratory wall. Burial 13, at 6.8 m, was on a burned floor below the center of the adoratory. Materials illustrated for Burials 11 and 13 suggest an Early Classic date (Medellín Zenil 1987:Figures 91 and 92). Burial 11 was placed in a cylinder tripod vessel closed by a small bowl; the tripod contained bone bits, shells, marine univalves, and a jade bead. Burial 12 was inside a large basin with another vessel inverted; the basin contained bones, snails, and a marine shell. Burial 13 was inside a cylinder tripod vessel that contained bones and a shell pendant.

In general, the inclusion of marine organisms in several of the burials and the use of cylindrical vessels, tripod in one case, is reminiscent of burial and cache practices at Teotihuacan. The assignment of this burial program to the Early Classic period seems warranted.

Excavations below the Looters' Backdirt

Additional excavations were placed on the east side of the mound after removal of the looters' backdirt to excavate more of the superstructure of the mound; the upper sediments were formed by nodules and conglomerate of light yellow clay (?). Medellín Zenil (1987:149) found 9 groups of items and one secondary

burial. On the basis of the stratigraphic description, these caches and the burial date to the Late Classic period, but other finds derive from the black earth fill which is attributed to the Early Classic in the trench excavations. In the trench, this fill starts below the adoratory at 5.4 m. Thus, there is some confusion about the depth reached by Late Classic material, which in the trench went to 2.35 m where the transition to conglomerate and dark yellow (ocre) nodules occurred.

Some of the finds discussed for the excavations under the backdirt concern groups of offerings placed at 3.7 to 4.4 m depth, which would place them in the Early Classic deposit with indurated nodules and dark yellow nodules. Also, some of the ostensibly Late Classic materials described are Early Classic in style, such as the cylinder tripods in Group 14 at a depth of 3.5 m (Medellín Zenil 1987:152). The artifact offering groups are not described in individual detail, although the secondary burial is given more attention. One group (possibly Group 1?) apparently involves 42 anthropomorphic and zoomorphic whistles (Medellín Zenil 1987:149). Group 8 possibly consists of anthropomorphic figurines plus six wheeled felids and a puppy figurine. A granitic *hacha* related to the yoke-*palma-hacha* complex was recovered, also. Group 12 is not described. Group 4 was a large bowl and a utilitarian jar. Find 7 was an unusually tall (34 cm) male figurine whistle. No cache number is stated for a large anthropomorphic figurine, located at 4 m depth (Medellín Zenil 1987:Figure 97). Group 14 consisted of two tripod vases with simple incised decoration. Group 16 at 3.8 m included a small globular jar and a bowl. In sum, the information from the artifact offerings indicates placement of whistles and figurines (of differing sizes) and sometimes vessels in offering caches.

Secondary Burial 2, at 4.2 m depth, involved a small jar associated with snails and marine shells, three greenstone beads, a small bowl as a lid, a miniature *tecomate*, a tripod monkey effigy vase with a handle, a monkey head, another cylinder with a turkey handle, a fragment of a rattle, and a black ceramic ear spool. This inventory, with the marine shells, is similar to the secondary burials in the trench, but lacks placement in a basin and has several associated artifacts, unlike the trench secondary burials.

The lower black earth fill yielded more offerings and secondary Burial 1 (also cataloged as Group 15). Burial 1 is described separately below because it represents a distinct burial program from either the dump/offertory or the other mound 6250 excavations. In the black fill, Group 2 included fragments of three large, incomplete female figurines. Find 5 was a rudimentary calcareous stone sculpture representing an animal head, covered in red pigment. Group 11 was a large female figurine, very fragmented, and two incomplete male whistle figures. No find number is stated for a human ceramic face, recovered at 5.2 m. Finds 17 and 18 are not described in detail, but one included a large human face from a figurine, wearing a small black earplug similar to others recovered at Nopiloa.

A Uniquely Lavish Secondary Burial

Secondary Burial 1 in the excavation below the backdirt is described as the most important at Nopiloa, presumably because of the 140 associated items. At 5 m depth, a cylindrical vase contained bone dust. Associated items include: frying pan incense burners; incense burners in a cup shape with a pedestal support, sometimes with appliqués; stone sculptures; obsidian blades covered with red pigment; laurel-leaf-shaped obsidian bifaces; small jars; cylinder tripods; basins; large jars; domestic jars containing *chapopote*; greenstone beads; a shell ring; a water-worn stone; and six anthropomorphic sculptures covered with red pigment. One sculpture is made from serpentine, depicting a woman, and suggests a Teotihuacan style. A mask of alabaster or onyx also appears to be in Teotihuacan style. A figure sculpted in bone was preserved, also similar to some small figural sculptures at Teotihuacan. A seated green jadeite figure has Olmec stylistic resemblances. Another sculpture executed in a calcareous stone suggests a man kneeling, apparently wearing a wide belt (Medellín Zenil 1987:Figure 110), a possible ball game indicator. Ten anthropomorphic whistles were recovered associated with a figurine head in the Elliptical (Remojadas Superior I) style. Another group of 11 anthropomorphic figurines includes other examples of Remojadas Superior 1 figurines, mainly heads but also two torsos.

Other figurines were recovered as well, apart from these groups. Medellín Zenil interprets one as a warrior, but it looks more like a ballplayer due to the pads and belt (Medellín Zenil 1987:Figure 123). Additional items included in the burial offerings are discoidal water-worn rocks, greenstone and marble beads, black ceramic ear spools, perforated marine shells, a coyote mandible fragment, a fragment of a stalactite or stalagmite, and four pieces of worked pyrite. Clearly, ceramic sculptures of various sizes were an important element among the grave goods, along with whistles. Not all the items were complete. Also included were various aquatic creatures and exotic materials. Vessels, ornaments, and curiosities of various kinds were included.

The dating of Secondary Burial 1 is clearly Early Classic; the burial included what may have been imported items from Teotihuacan, along with a possible Olmec heirloom carving. This secondary burial combined the emphasis on figurines as seen in the dump/offertory burials with other ritual items such as knives and incense burners. Ornaments were included, as with the dump/offertory burials, and marine shells, a similar practice to the trench secondary burials; unfortunately, we do not know if the marine items were present in a similar abundance to the trench burials. The scale of the offerings is unique among the Nopiloa finds.

Surroundings

Quite close to the Nopiloa core, four massive rectangular platforms that likely supported palatial quarters are located north (Complex 6234), east (Complex 6309), southwest (Complex 6404), and west (Complex 6409; Figure 10.27). These complexes, discussed in the next sections, clearly pertain to the Nopiloa settlement and indicate that the core was accompanied by substantial buildings in the vicinity, along with modest residential mounds.

Chronology

Nopiloa provided scant surface materials for collection, yielding 288 sherds, despite ground exposure in several locations. We suspect that many of the structures visible today contain relatively clean fill. The Classic period predominates among diagnostic sherds, with only one Preclassic sherd and two Postclassic sherds. Nopiloa provides a strong indication that Postclassic occupation was more oriented to the Blanco drainage, where the only Postclassic centers have been detected. The six Late Classic diagnostics match Medellín Zenil's findings of Late Classic materials in the uppermost strata of mound 6250 and in the dump/offertory secondary burials. Few of the surface Classic diagnostics pertain securely to the Early Classic period (three sherds), but Medellín Zenil found Early Classic materials in the deeper strata of mound 6250. A single bowl rim with a distinctive pair of horizontal grooved and polished lines around the rim (code X11 PAIR) suggests occupation in the area close to the onset of the Classic period. My examination of several boxes of materials from Nopiloa stored in the Museo de Antropología de Xalapa revealed a number of such rims. The most likely source is deep levels of mound 6250. Overall, surface materials tend to echo the general picture from Medellín Zenil's work that Nopiloa is Classic period in date, but surface sherds from the Nopiloa core are inconclusive regarding a Late Classic apogee, which is more clearly attested by Medellín Zenil's excavations. Further information derives from the Nopiloa satellite monumental complexes.

Among surrounding residential mounds a light scattering displays Preclassic diagnostics. To the northwest edge of the Nopiloa monumental core, a small cluster of four collections may indicate a Preclassic village or residential group. Some of these collections were surface squares in an irrigated field. The light scatter of Preclassic occupation makes the occasional presence of Preclassic sherds in collections from the monumental complex understandable, as presumably such collections reflect garnering of fill from the vicinity.

Classic diagnostics are much more widespread in the surrounding area, although many collections have quantities below the median of 76 sherds. Within the Classic period, the Early Classic, Early Classic Tendency, and Late Classic are similarly represented in a moderate scatter throughout the surveyed area, but with the Late Classic somewhat more commonly present.

Postclassic diagnostics are present as a light scatter, with no distinct clustering. No collections yielded Middle Postclassic diagnostics, and only two had materials distinctive of the Late Postclassic period; most of the Postclassic diagnostics were not specific to either of the Postclassic segments.

Discussion of Nopiloa Complex

Nopiloa is one of the larger complexes we recorded, with a compact, formal layout. As noted, four monumental platforms are located in the near vicinity, and I treat them as part of the settlement. Nopiloa settlement boundaries remain uncertain due to the limits of surrounding survey and the encroachment of a canal and superhighway on the north side. All of the Nopiloa survey block would be included in the settlement, given the four massive platforms in the vicinity of the core and the scattered residential mounds and surface artifact concentrations.

The Preclassic period is extremely lightly represented in collections from the Nopiloa settlement, and Nopiloa does not present indications of continuity between Preclassic and Early Classic center activity that is evident for several other Early Classic complexes, such as Muertos. Generally such continuity is typical. Obviously people lived in the Nopiloa area during the Preclassic period, but it was not a location of concentrated occupation, nor, apparently, a center.

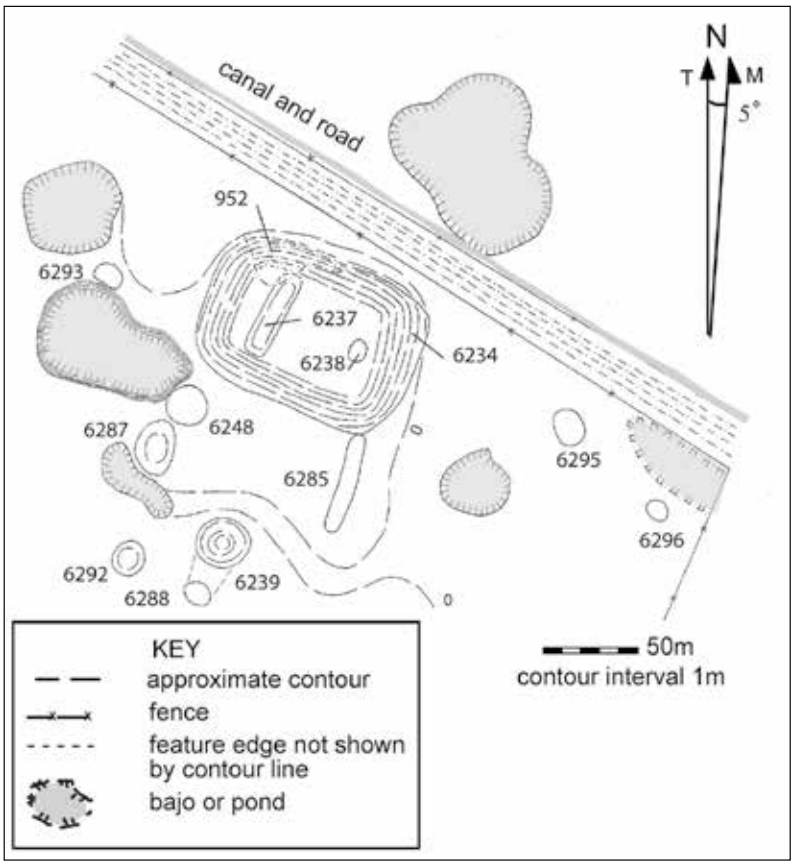

Figure 10.41. Complex 6234, mapped with GPS and Abney level (collection 952, from a disturbed area, derives from two features, 6237 and 6234).

During the Classic period the monumental platforms near the core provide a chronology similar to that of the central complex, although two monumental platforms (6404 and 6409) have a striking abundance of Late Classic diagnostics and may represent later activities than the other two. Platform 6309 has similar amounts of Early and Late Classic diagnostics suggestive of continuity in that instance. Chronological evidence and the results of Medellín Zenil's excavations suggest an apogee of occupation and construction during the Late Classic period, when all four of the surrounding monumental platforms were active locations.

Nopiloa, because of the size of its monumental architecture, surrounding palatial platforms, the Monument 1 carving and other stones, and Medellín Zenil's excavation information, was a primary capital during the Late Classic period. During the Early Classic period, however, it probably was a secondary center under Cerro de las Mesas, since we know that one monumental structure had Early Classic construction and offerings. One monumental platform, 6309, exhibits enough Early Classic pottery that we cannot rule out its construction and use during that period as well.

Possibly settlement continued along the Guerengo to the east and west of the surveyed block, but residential mounds decline in density away from the Guerengo. In the survey block, except for Complex 6234 to the north, residential remains decrease toward the northern border. Beyond the northern survey limit lie a gravel road, a canal, and a superhighway. Construction of the superhighway through the Nopiloa area has obliterated residential remains in its path, rendering fall-off of residential density immediately north of the mapped area moot. To the south, the southernmost extension of survey shows fewer residential mounds and hints that a much lighter density continues to the south. Our casual observation of the countryside supports this idea.

Complex 6234

Description

North of Nopiloa approximately 1 km, a massive palatial platform, 6234, has two mounds on top, the elongate 6237 and a small mound, 6238 (Figure 10.41). The

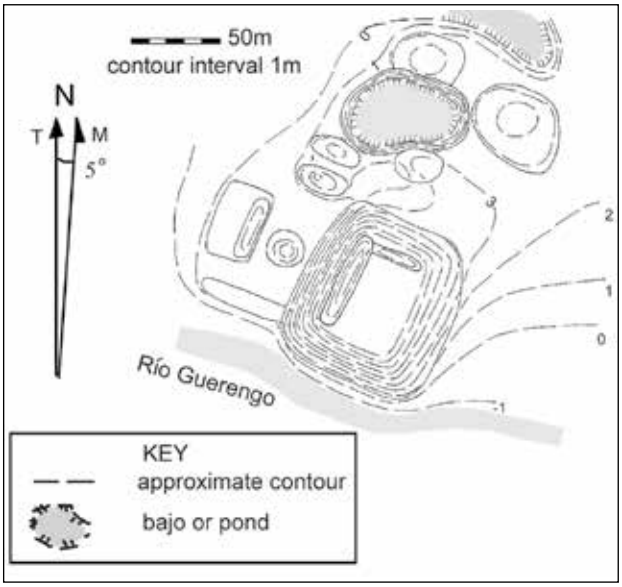

Figure 10.42. Complex 6309, mapped with GPS and Abney level.

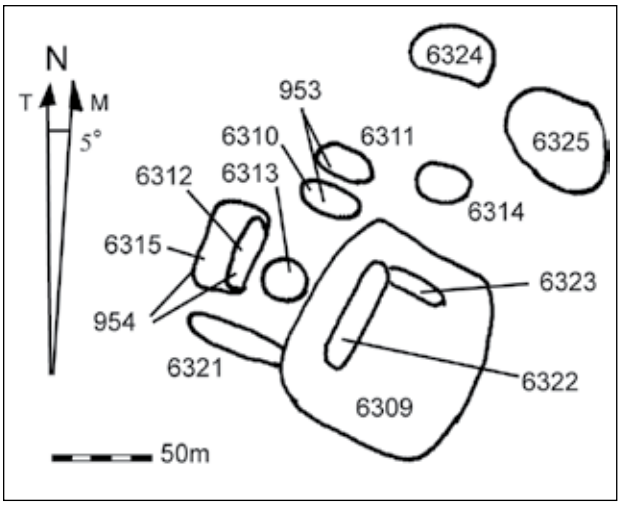

Figure 10.43. Features at Complex 6309, with collections 953 and 954 deriving from more than one feature.

platform is 6.5 m high, 114 by 81 m at the base. The northwest portion has been cut back by machinery for road fill. A very low elongate mound (6285) stretches south from the platform, and three other low mounds (6239, 6248, and 6287) form a plaza group immediately south of the platform. Mound 6239 is connected by a raised area to 6288, farther south. Four other mounds are situated in the near vicinity to the east, west, and south of the rectangular platform. This small grouping of residential mounds near the monumental platform is suggestive of client households to the residents of the palatial platform.

Four *bajos* lie near platform 6234, with two more that might be ancient but also might be borrow pits for modern road building. One of these *bajos* of uncertain origin lies immediately north of the canal and its flanking road along the north edge of the Nopiloa area, and the other lies alongside the canal road to the east.

Surroundings

Because this complex is part of the Nopiloa settlement, the surrounding mounds and their chronology are discussed with Nopiloa.

Chronology

This platform and associated mounds yielded a much larger number of sherds than the core of Nopiloa. A total of 843 sherds is unevenly distributed, however. Three collections from the platform or mounds on it are sizable (6237 on the platform has 119 sherds; 952 [from both the 6237 mound and part of the platform] yielded 123 sherds, with the platform collection the most sizable at 415 sherds). In the immediate area mound 6293 west of the platform also yielded a sizable collection, 155 sherds. Five other mounds ranged from 1 to 12 sherds. The chronological profile of collection 6293 is not substantially distinct from the platform-related collections. Consequently, it is reasonable to consider the combined chronological indications of all the collections.

Like the Nopiloa core, the 6234 complex has a very slight Late to Terminal Preclassic indication, and the Early Classic period is represented by only a few sherds compared to the Late Classic period. Classic diagnostics overall total 190 sherds, and the Late Classic is more strongly indicated than the Early Classic period, with Early Classic Tendency intermediate in amount. Postclassic sherds (23) derive from the platform and 6237. The Postclassic evidence may indicate a reoccupation, likely in the Late Postclassic, as Middle Postclassic evidence is otherwise concentrated in the Blanco delta. Information from surrounding mounds is discussed with Nopiloa.

Discussion of Feature 6234 Complex

This and other complexes with monumental platforms ringing Nopiloa provide one of the clearest warrants for considering nearby monumental structures to be part of the settlement (other palatial complexes include 6309, 6404, and 6409). Secondary settlements usually have a single platform, but such platforms are more prevalent in the vicinity of two of the Late Classic primary centers. Azuzules is the other example, with several segment platforms.

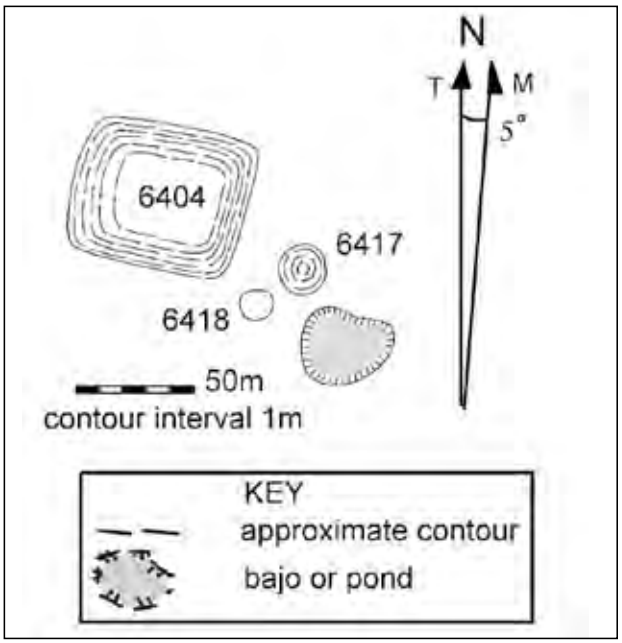

Figure 10.44. Complex 6404 contour map and feature numbers, mapped with GPS and Abney level.

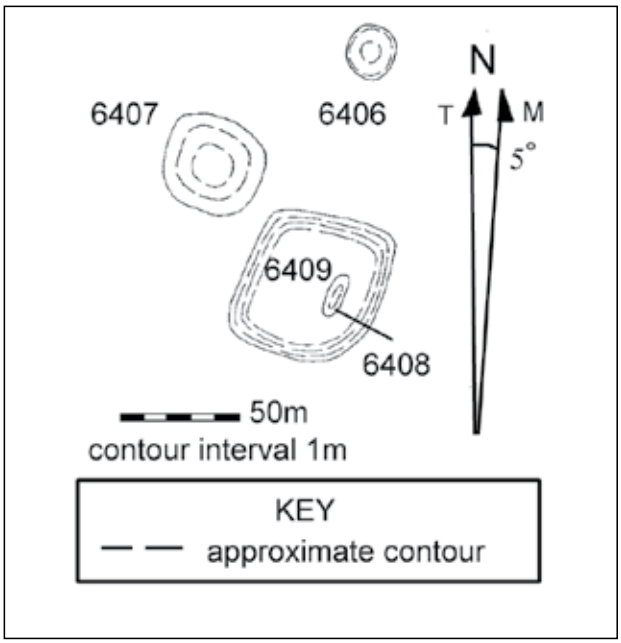

Figure 10.45. Complex 6409 contour map and feature numbers, mapped with GPS and Abney level.

Complex 6309

Description

East of the Nopiloa core and situated on the same side of the Guerengo River, a monumental platform, 6309, is 0.7 km from the core (measured from the conical mound to the palatial platform) (Figures 10.42, 10.43). The immediate setting appears to be at least partially on a natural rise. This rise is particularly evident for mounds 6324 and 6325 northeast of the platform. Land slopes away from the platform area to the east and west. This monumental platform (6309) has an L-shaped pair of elongate mounds on top (6323 and 6322), with a low projection on the west side, 6321, comparable to the projection from the 6234 monumental platform already discussed. The 6309 platform is 7.6 m high, 96 by 89 m at the base, nearly the same size as the 6234 platform base and a slightly greater height than the Nopiloa core palatial platform, 6382. Near the base of the platform on the west side, a low platform (6315) supports an elongate mound (6312), also possibly a palatial or administrative building because of the resemblance to the elongate mounds on monumental platforms, but at a lower height.

The most remarkable feature at the 6309 complex is a small ballcourt (mounds 6310 and 6311). This 30 m long court is one of the two smallest in the region (the Cerro Coyote court is also 30 m); in comparison, the small courts at Cerro de las Mesas associated with Partial SPPG (46 and 47, 27 and 28) have lengths of 55 and 50 m, respectively. Other comparably small courts probably existed at smaller complexes where a low mound is placed in the appropriate Standard Plan position, but recent land use likely has obliterated the double parallel mound signature (possible courts at Paso de las Mulas and Salto Norte are 30 and 27 m long, respectively). Four other mounds are closely clustered to the west and north of the 6309 platform, three of them and the ballcourt ringing a *bajo*.

Surroundings

Because this complex is part of the Nopiloa area, the surrounding mounds are discussed with Nopiloa.

Chronology

Collections from this complex are modest, totaling 448 sherds. Sherds derive from the ballcourt and the rectangular platform. No Preclassic diagnostics were recovered, and the Postclassic is scarce (seven sherds). The majority of diagnostics are Classic period (120 sherds). Fourteen are Late Classic in date, and six point to the Early Classic period, with nine Early Classic Tendency. Consequently, this platform complex appears to have been in a location occupied throughout the Classic period, although this does not establish that

all the structures visible today have such a long history. Surrounding mounds are discussed with Nopiloa.

Discussion of Complex 6309

See the discussion for Complex 6234.

Complex 6404

Description

Complex 6404 is located 0.7 km southwest of the Nopiloa core and includes a monumental platform, one with a less complicated arrangement than the two already discussed (Figure 10.44). This platform and adjacent mounds are probably on a natural rise. The platform was covered in thick growth, making it difficult to observe surface details, but several looters' holes were evident, including one at the east edge of the top of the platform that extended across the top of the platform in a shape equivalent to an elongate mound such as those that appear on many other monumental platforms. This pit was approximately 4 m deep, suggesting that if any superstructure had been present, it would have been obliterated by the large excavation. The platform, 6.2 m high and 65 by 54 m at its base, is on par with the others in size, but is unusual in lacking any observable mounds on top—possibly an effect of looting.

Only two of the low mounds nearby were mapped with the platform because there was no clear-cut set of mounds in association with it; Features 6416, 6453, and 6452 are just as close as the two shown in Figure 10.44 between the platform and the *bajo*. Two of these features, 6453 and 6452, seem to be on natural rises, but are possibly also mounds that had been plowed down; today these features are surface scatters of artifacts. All of the features mentioned are considered for dating of the complex, even though three are not shown on the contour map.

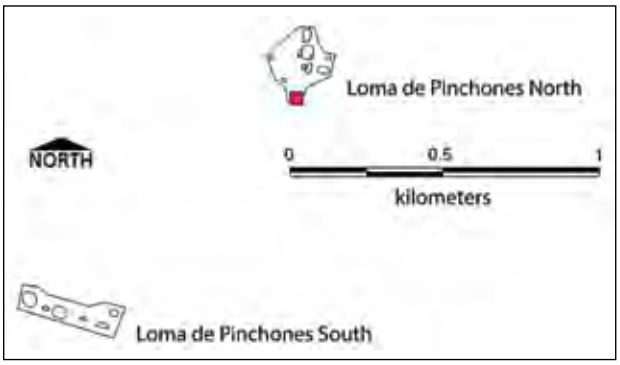

Figure 10.46. Pinchones area, Preclassic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

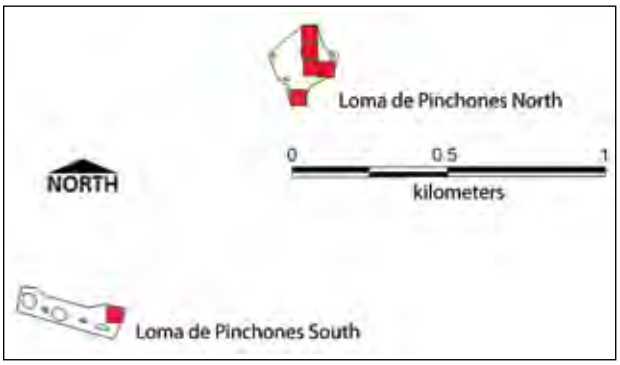

Figure 10.47. Pinchones area, Early Classic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

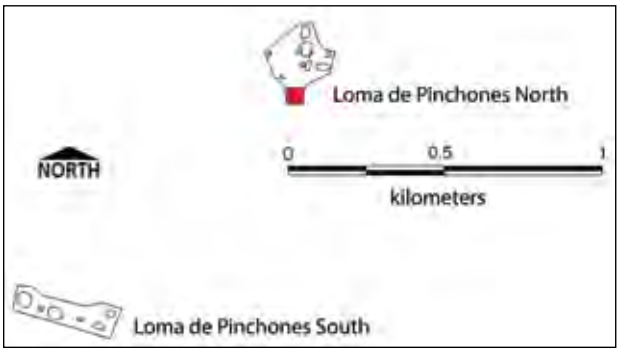

Figure 10.48. Pinchones area, Early Classic Tendency diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

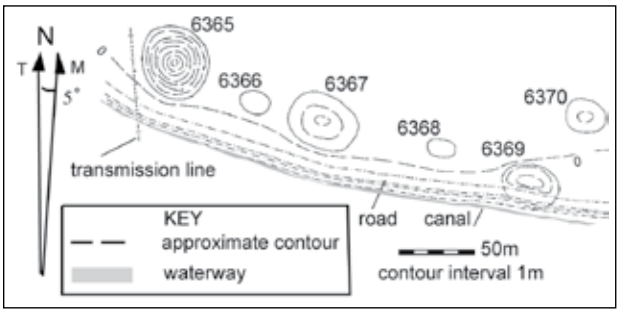

Figure 10.49. Loma de Pinchones South contour map and feature numbers, mapped with GPS and Abney level.

Surroundings

Because this complex is part of the Nopiloa area, the surrounding mounds are discussed with Nopiloa.

Chronology

Each feature yielded some sherds, but the combined total is only 155. Most are from the platform and the three nearby features that do not appear on the map, with the two low mounds shown adjacent to the platform yielding only eight sherds between them. No Preclassic or Postclassic diagnostics are present. Late Classic diagnostics are well represented (22 sherds) compared to the 51 Classic diagnostics. There is poor representation of the Early Classic period and only a few more sherds for Early Classic Tendency. Consequently, there is a strong Late Classic signature for the platform and its immediate area comparable to the next platform discussed, possibly indicating a late occupation or construction episode, without antecedents in the immediate locality. The chronology of surrounding mounds is discussed with Nopiloa.

Discussion of Complex 6404

See the discussion for Complex 6234.

Complex 6409

Description

This rectangular platform, approximately 0.4 km west of the Nopiloa core, is the smallest in volume of those surrounding the core, with 4.2 m height and a base 58.5 by 55.4 m (Figure 10.45). Atop the platform a small elongated mound is positioned on the east side, 6408. Two likely residential mounds are nearby, 6406 and 6407, with kaolin evident in a looters' hole on the latter mound, possibly indicating use of substrate material for fill because kaolin-like clay was observed in some locations (such as Dicha Tuerta) within the ashy conglomerate substrate common in this area.

Surroundings

Because this complex is part of the immediate Nopiloa area, the surrounding mounds are discussed with Nopiloa.

Chronology

Collections from all of the features yielded 447 sherds, with only mound 6408 a scarce contributor. Mound 6407 yielded the largest number of sherds, 269, but the platform produced 115. Two mounds (6409 and 6406) yielded a total of three Preclassic sherds, and three mounds yielded a total of five Postclassic sherds. Otherwise, 123 diagnostics represent the Classic period, and 70 of them pertain to the Late Classic, a very strong indication for that period. The Early Classic period (six sherds) and Early Classic Tendency (nine sherds), like the Preclassic, are only weakly indicated. Mound 6407 has an unusual amount of Blanco White (code 44), 13% of the rims, and is well supplied with Estrella Orange (code 33a), 4% of rims, and Mojarra Orange-gray (code 43), 5%, all of which are predominantly fine bowls. Because a monumental platform is present, the decorated serving vessels could be abundant due to feasting and social rank, but sponsored production is another possibility, especially for Blanco White. The chronology of surrounding mounds is discussed with Nopiloa.

Discussion of Complex 6409

See the discussion for Complex 6234.

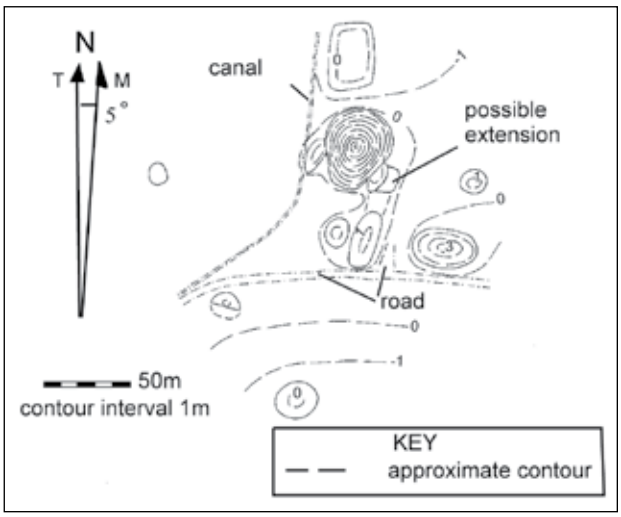

Figure 10.50. Loma de Pinchones North contours, mapped with GPS and Abney level.

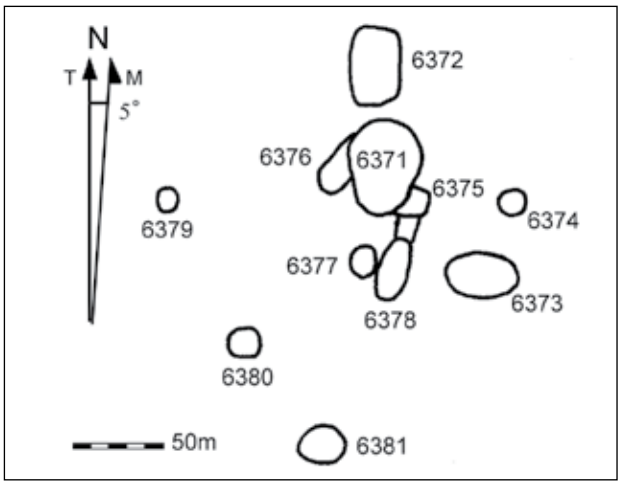

Figure 10.51. Loma de Pinchones North, feature labels.

Pinchones Area

The Pinchones area is not at a convenient distance to provide chronological maps from surface collections in combination with the Nopiloa area, so it is presented separately. The Pinchones area is north of Nopiloa. Preclassic pottery at or above the median percentage (Figure 10.46) shows little evidence of occupation (also the case if the median restriction is lifted). Classic pottery has exactly the same distribution pattern as the Preclassic.

For the Early Classic period, more diagnostics appear at Loma de Pinchones North, but few at Loma de Pinchones South (Figure 10.47). For Early Classic Tendency diagnostics, there is little indication of occupation or activity (Figure 10.48), and the Late Classic has an identical distributional pattern (not shown). No Postclassic diagnostics were recovered (no map included).

Loma de Pinchones South Complex

Description

The Loma de Pinchones South Complex is a Conical Mound Group located 2.5 km north of the Nopiloa core; it was detected during our trips to Nopiloa, and the presence of the conical mound led to the inclusion of a small survey block centered on the complex (Figure 10.49). This complex is strung along the north side of a large irrigation canal paralleled by an adjacent gravel road. It consists of a conical mound (6365) 8.7 m high, located at the west end of the complex, and five small mounds forming a line toward the east (6370 is slightly offset toward the north). It seems likely that the canal and road construction obliterated some additional low mounds; a linear arrangement of this sort is not duplicated in any other survey blocks. Nevertheless, beyond the canal and road to the south and in the surrounding fields on the north side of the complex we did not observe additional mounds (although these areas were not surveyed for a conclusive evaluation because of time limits). The Pinchones name derives from an *ejido* in the vicinity.

Surroundings

Lack of survey expansion precludes information on the surrounding area.

Chronology

Collections from this complex were exceptionally meager, with a total of 24 sherds. This is too small a sample to be reliable, but Classic period diagnostics predominate (seven) and no other period is attested except for one collection with a Preclassic sherd. Because only the complex was mapped and collected, without coverage of surrounding terrain, additional chronological information is not available.

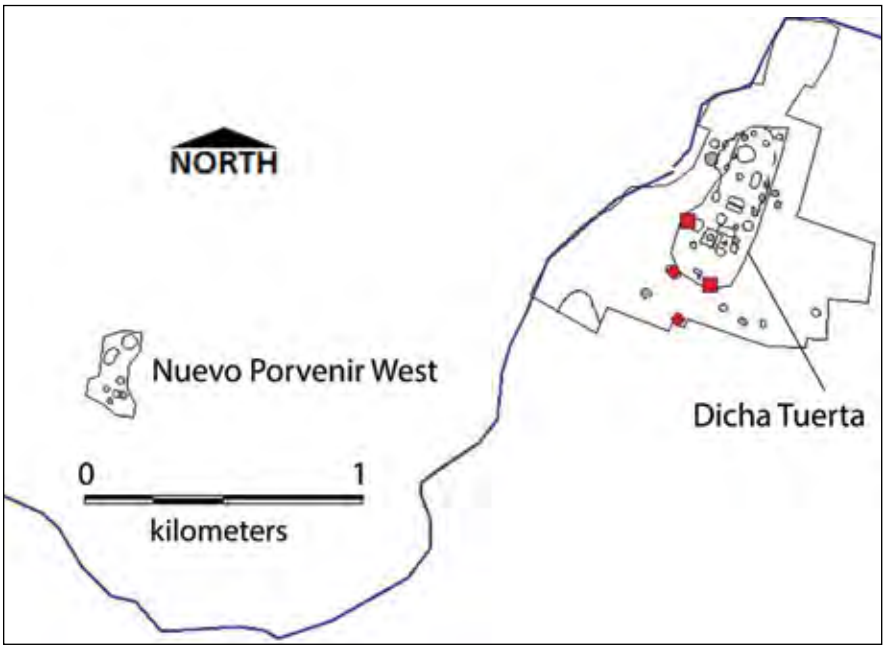

Figure 10.52. Dicha Tuerta area, Preclassic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

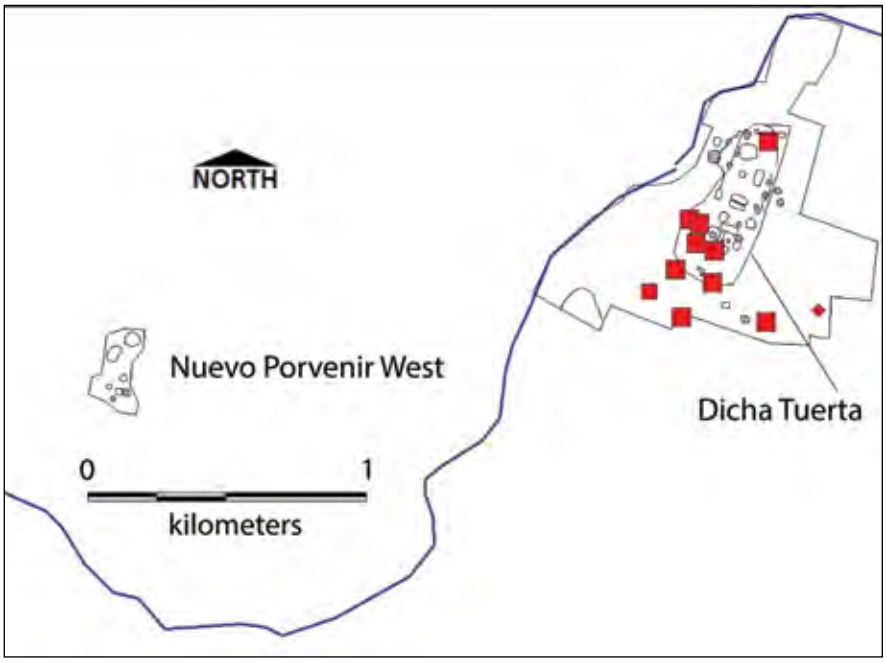

Figure 10.53. Dicha Tuerta area, Classic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

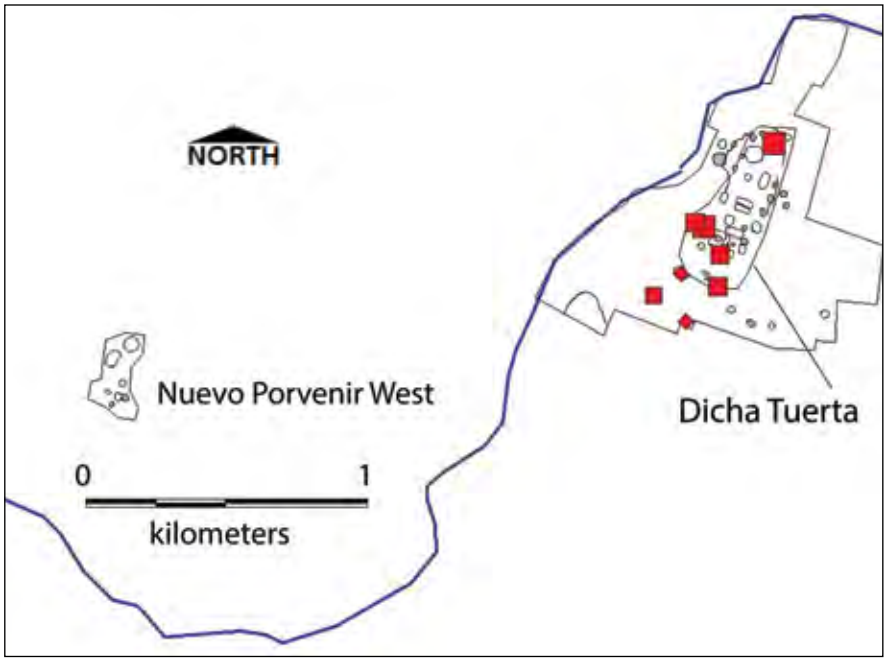

Figure 10.54. Dicha Tuerta area, Early Classic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

Discussion of Loma de Pinchones South Complex

Loma de Pinchones South could represent a segment complex within the outer extent of the Nopiloa center, which lies 2.5 km to the south. The indications of declining residential density at Nopiloa to the north and south argue against viewing Pinchones South as a segment or boundary complex, however, as Nopiloa may have had its settlement area elongated along the Guerengo River instead. I treat Loma de Pinchones South as a tertiary/quaternary center under Nopiloa. One comparable small complex dominated by a conical mound was mapped at Canal 2. In both Loma de Pinchones South and Canal 2, we have promising examples of Conical Mound Groups,

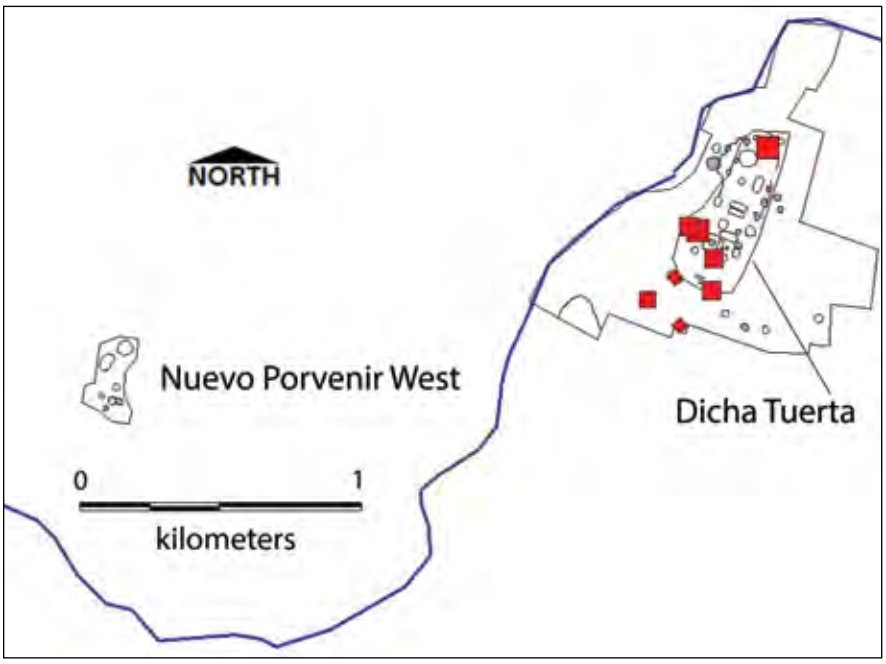

Figure 10.55. Dicha Tuerta area, Early Classic Tendency diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

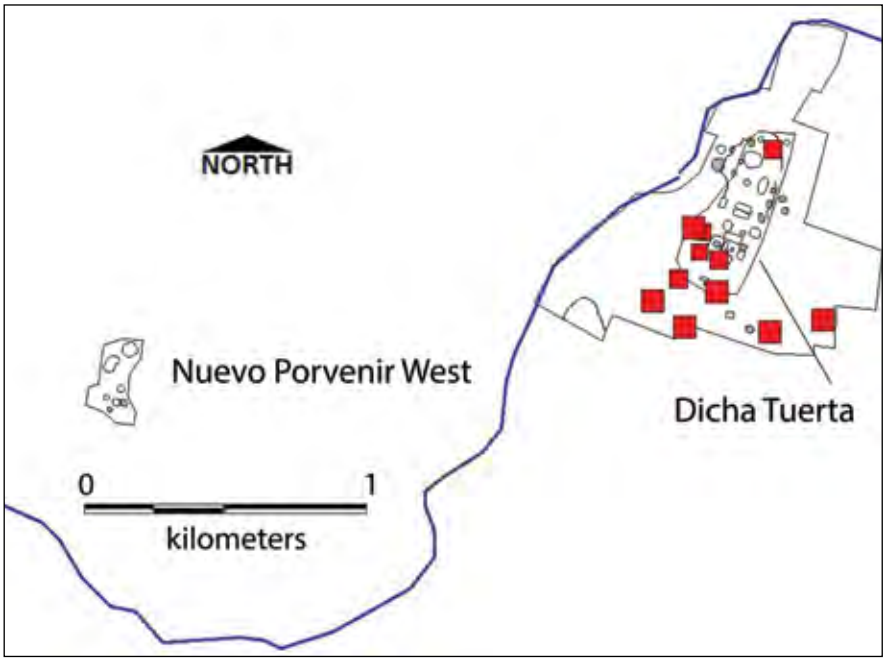

Figure 10.56. Dicha Tuerta area, Late Classic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

one of the smallest settlement units with monumental architecture, and candidates for the quaternary level more than the tertiary level.

Loma de Pinchones North Complex

Description

The Loma de Pinchones North complex was mentioned to us during a conversation with local inhabitants, which led to its survey (Figures 10.50, 10.51). It lies immediately north of the *ejido* center and 3.4 km north of the Nopiloa core. Pinchones North is a small Partial SPPG-B1 consisting of a conical mound (6371) 9.6 m high, with a single lateral (6378) connected to the conical mound by a slightly elevated area and also connecting to mound 6375. The conical mound has a southern projection that may represent a stair or ramp. Two low structures (6376, 6375)

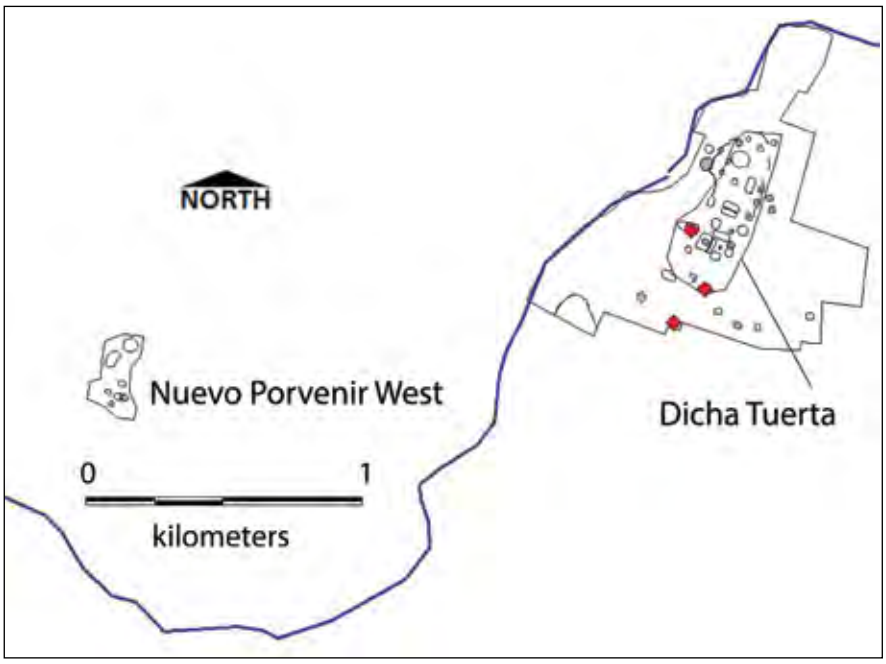

Figure 10.57. Dicha Tuerta area, Postclassic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

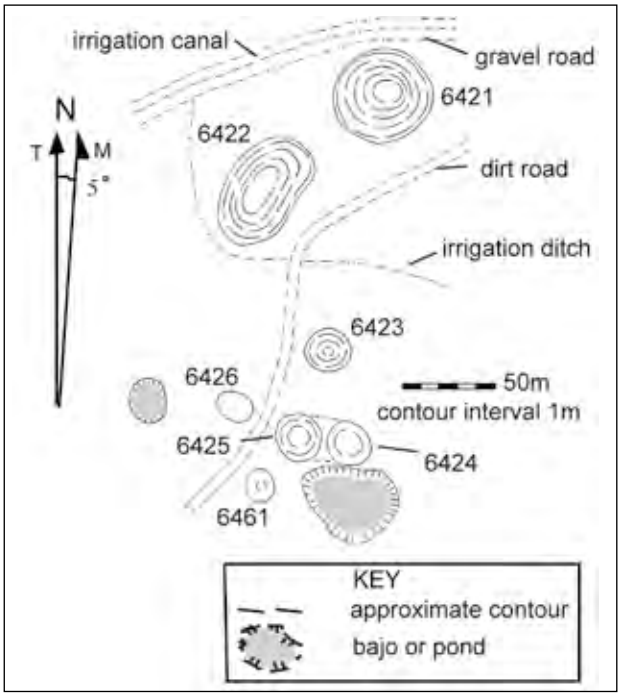

Figure 10.58. Nuevo Porvenir West, contours and feature labels, mapped with GPS and Abney level.

project southward, similar to those at the major conical mound at Nopiloa. The eastern projection, 6375, may have extended farther to the east, but its eastern edge is affected by a road and looting.

There is no indication of a ballcourt at this complex. Despite a dirt road that arcs near the southern end of the complex, the road does not appear to have intersected any structures or to have obliterated a ballcourt. A small mound (6377) is situated in the main plaza in front of the elongated lateral mound 6378, although the survey crew noted it may have been part of mound 6378 (possibly an attached platform?). A low rectangular platform to the north of the conical mound (6372) bears a resemblance in its shape to the monumental platforms that accompany some Standard Plan arrangements, but this structure is only 1.8 m high. It may be an example of a modest version of the large monumental platforms. The terrain descends slightly toward the south from Loma de Pinchones North; one small mound to the south (6380) is crossed by a fence and severely plowed down on its south side, and another mound (6381) is located still farther south and downslope.

Surroundings

Although we lacked time to survey a large block of terrain around the complex, the absence of obvious mounds in most of the surrounding fields suggests that this small group lacks a sizable concentration of residential mounds in its vicinity. Additional low mounds were evident toward the north, however.

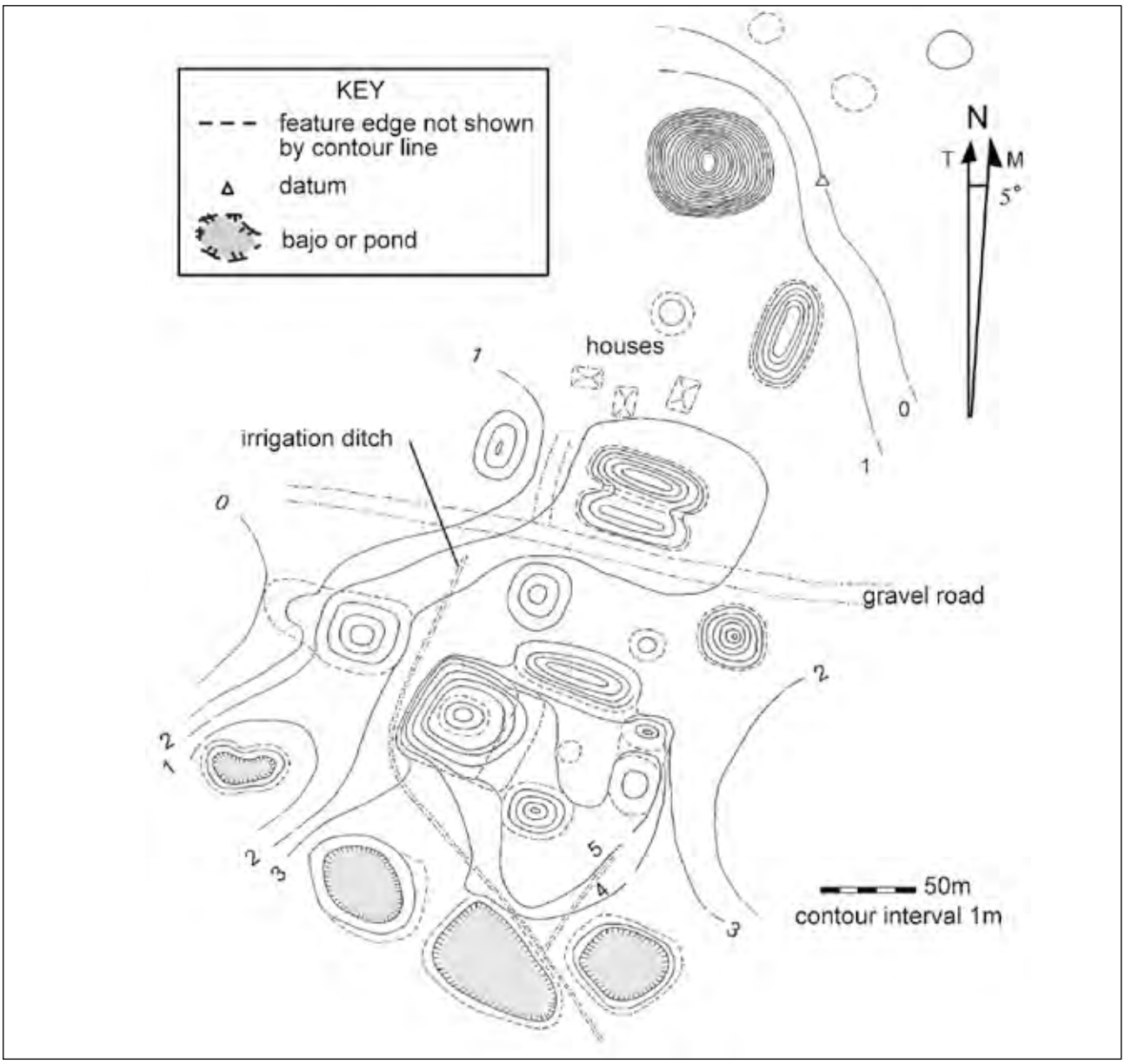

Figure 10.59. Dicha Tuerta, contours mapped with theodolite and GPS.

Chronology

Collections were meager at Loma de Pinchones North, with 153 sherds. Only one collection surpassed the median collection size—the southernmost low mound (6381). This mound and 6372 to the north were the main sources of a few Preclassic, Early Classic, and Late Classic diagnostics. Pinchones North appears similar to Nopiloa in the scant indication of Preclassic occupation. Overall, Classic diagnostics predominated, and both Early Classic and Early Classic Tendency diagnostics were slightly more abundant than Late Classic ones. Only the Postclassic is not represented by any diagnostic sherds. Because only the complex was mapped and collected, additional chronological information from the surrounding area is not available.

Discussion of Loma de Pinchones North Complex

This complex is a candidate for a tertiary/quaternary center in view of the absence of a ballcourt. It likely was subordinate to Nopiloa rather than any Blanco center because of the similarity of some architectural details,

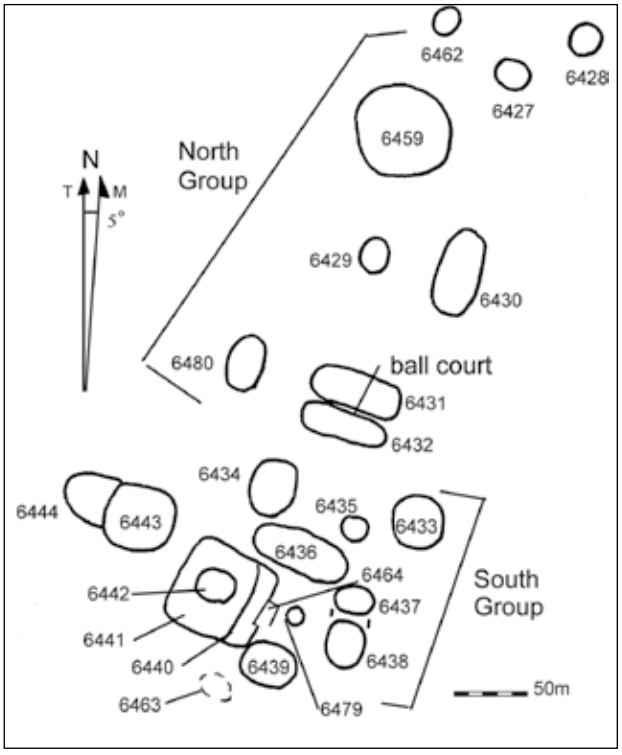

Figure 10.60. Dicha Tuerta, feature numbers.

such as the two low projections from the principal conical mound and the presence of a single lateral. Loma de Pinchones North is too far, 3.4 km distant, to be likely as a boundary group for Nopiloa, especially in view of the apparent sparseness of occupation in-between. The meager pottery sample favors the Early Classic more than the Late Classic, in contrast to Nopiloa, which seems to have been particularly prominent during the Late Classic period. Because Nopiloa also had Early Classic occupation, it seems reasonable to view Loma de Pinchones North as remaining subsidiary to Nopiloa during the Late Classic period and certainly during the Early Classic as well, when Nopiloa was a secondary center to the primary center of Cerro de las Mesas.

Dicha Tuerta Area

Southeast of Nopiloa, the lower part of the Guerengo does not fit at a convenient scale to show collection chronology for its two survey blocks and is presented separately. Preclassic pottery is scarce at Dicha Tuerta (Figure 10.52), but Nuevo Porvenir West has such sparse collections that it does not register for any of the periods. Classic pottery is better represented at Dicha Tuerta than the Preclassic (Figure 10.53). The same is the case for Early Classic diagnostics, Early Classic Tendency diagnostics, and Late Classic diagnostics, but the last are slightly more abundant (Figures 10.54, 10.55, 10.56), and the Late Classic is the best represented. The Postclassic presents a change, with few collections, low percentages, and no more specific diagnostics (Figure 10.57).

Nuevo Porvenir West Complex

Description

This complex was detected on the road to Dicha Tuerta and lies 4.4 km east of the Nopiloa core and 2.3 km west of Dicha Tuerta. Time allowed mapping the complex but not expansion around it. The name of the complex was assigned on the basis of the nearby *ejido* of Nuevo Porvenir (formerly the *ejido* Dicha Tuerta). Nuevo Porvenir West consists of a conical mound 5.6 m high and one elongated mound that is somewhat broader than most laterals (Figure 10.58). Its height is close to that of the conical mound, another anomalous trait. This pairing is a possible Partial SPPG-B1. No ballcourt is present, and the remainder of the complex consists of a cluster of five mounds to the south near two *bajos*. Thus, both Pinchones North and Nuevo Porvenir West have layouts lacking a ballcourt but, unlike Pinchones North, Nuevo Porvenir does not have a candidate for a nascent palatial platform.

Surroundings

Surrounding fields did not have obvious mounds, so this complex may be a relatively isolated cluster. Nevertheless, this observation should be solidified by additional survey.

Chronology

Collections were skimpy from this complex, with 57 sherds. General Classic diagnostics (17) are accompanied by a trace of Preclassic (one sherd) and Late Classic (two sherds). No other periods are represented. Because only the complex was mapped, without expansion to the surrounding area, no additional chronological information is available.

Discussion of Nuevo Porvenir West Complex

Like Pinchones North, Nuevo Porvenir West is a reasonable candidate for a tertiary/quaternary center, subordinate to Nopiloa and Dicha Tuerta, the latter a secondary center to Nopiloa during the Late Classic period, as discussed next. In view of the distances of Nuevo Porvenir from Nopiloa and Dicha Tuerta, and indications at Cerro de las Mesas and Azuzules that primary

centers may have included occupation out 2–3 km from the core, I cannot rule out the possibility that Nuevo Porvenir may have been a boundary complex, 2.3 km distant from Dicha Tuerta; nevertheless, this possibility is unlikely because Dicha Tuerta is a secondary complex, and its settlement area would be unlikely to have had the same extent proposed for primary centers in the Blanco delta. Thus, it seems reasonable to view Nuevo Porvenir as a separate tertiary/quaternary settlement.

Dicha Tuerta Complex

Description

Dicha Tuerta is the previous name of the *ejido* close to the complex, which renamed itself Nuevo Porvenir. This monumental complex is positioned alongside the Guerengo River 6.7 km east of the Nopiloa core (Figures 10.59, 10.60). The complex is organized in two groups, one in the north with Standard Plan principles, and another in the south with large structures around plazas.

North Group

The north portion consists of a SPPG-1b with a conical mound 16.2 m high and one lateral, 6430, with a transverse ballcourt at the south end (6431, 6432). Mound 6480 is west of the ballcourt—possibly defining the west end of the court, since it is aligned with the court. A mound positioned in the middle of the plaza, 6439, may constitute an altar. The lateral mound had chunks of *tepetate* in looters' backdirt. A bedrock *tepetate* and clay exposure on a dirt road near the southwest part of Dicha Tuerta suggests that the area is slightly higher due to this substrate. Three low mounds, likely residential, are located north of the conical mound.

South Group

A plaza of nearly square proportions is flanked by an elongated mound on the north, 6436; a massive rectangular platform, 6441, topped by a conical mound, 6442; and three other flanking mounds, 6439, 6438, and 6437. Similar to the SPPG in the North Group and unusual among other plazas in the region, a small mound is positioned like an altar in the plaza, 6479. West of the South Group plaza lies a relatively low rectangular platform, 6443, with a projecting terrace, 6444; field crews noted that the platform may have had another elongate structure on top, but looting prevented a determination. Just north of the main South Group plaza three additional mounds (6434, 6435, and 6433) partially define a subsidiary plaza.

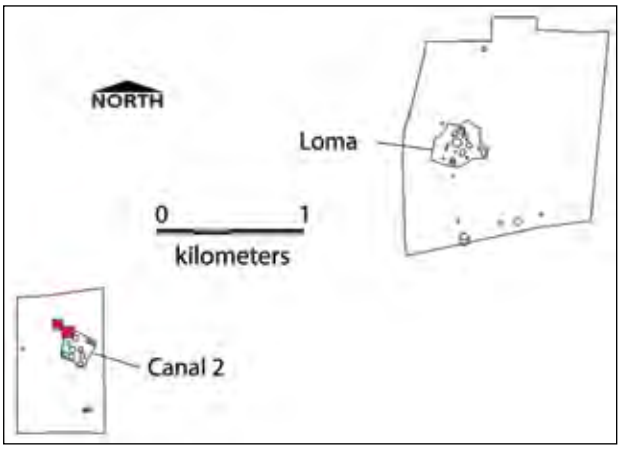

Figure 10.61. Interfluve area, Preclassic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

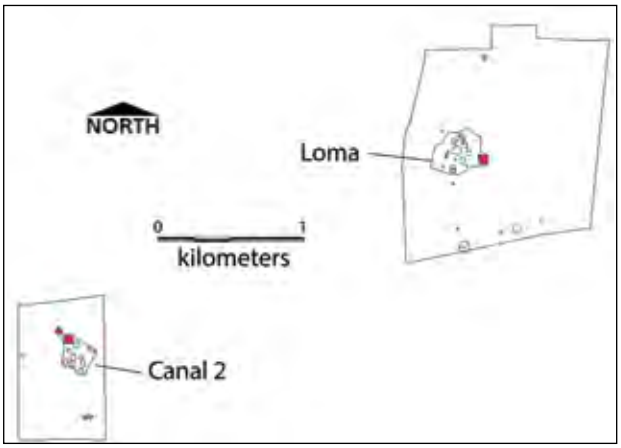

Figure 10.62. Interfluve area, Classic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

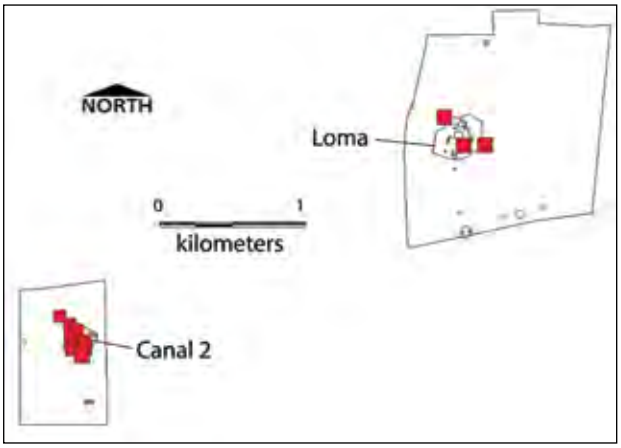

Figure 10.63. Interfluve area, Early Classic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

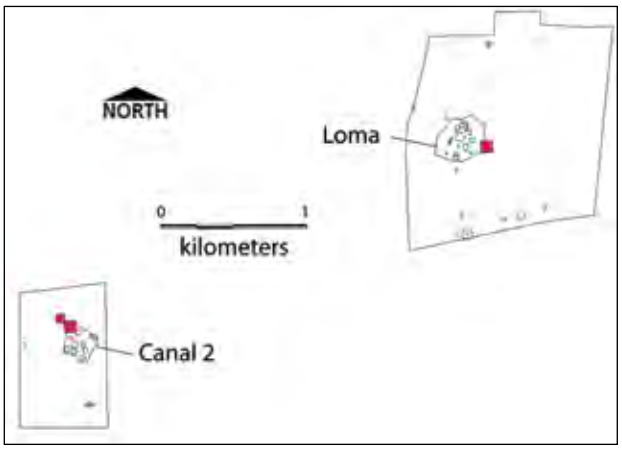

Figure 10.64. Interfluve area, Early Classic Tendency diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

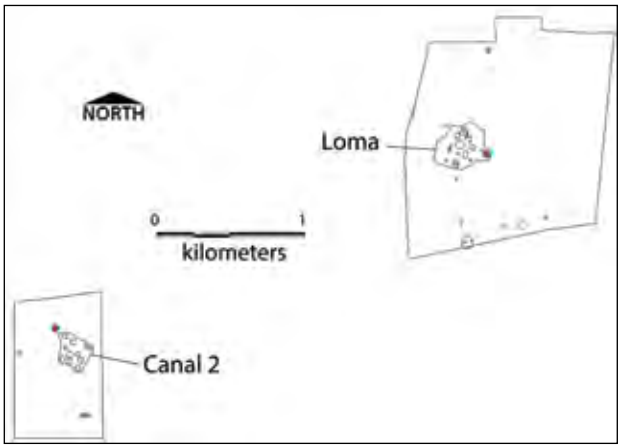

Figure 10.65. Interfluve area, Late Classic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features that yielded no surface collection are gray.

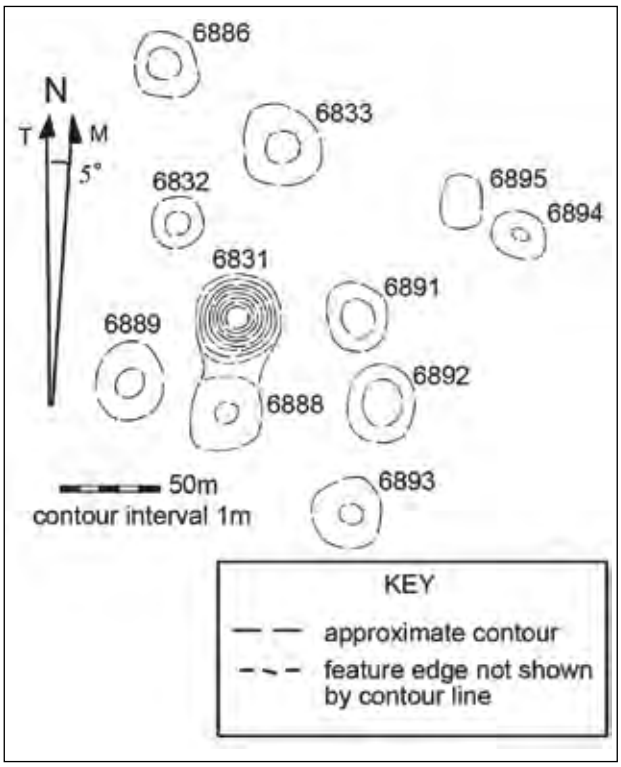

Figure 10.66. Canal 2, contours and feature numbers, mapped with GPS and Abney level.

The South Group main plaza mounds are heavily looted, making shape evaluations challenging. The northern SPPG, however, is relatively intact, suggesting differences in the activities of modern landowners. Four *bajos* form an east–west alignment across the south edge of the center. One surface collection (6463) was made in an indistinct disturbed area (many looters' holes) immediately southwest of 6439. Any underlying structure or surface concentration could not be delimited clearly.

Medellín Zenil (1960:194–195) excavated at Dicha Tuerta, opening an area 3 m in diameter into what he describes as a discard pit for ceramic ceremonial items, mainly figurines and larger figures. As was the case with Nopiloa, this may instead have been an offertory cache. The chronology of the pit is Early to Late Classic. Medellín Zenil remarks that the figurines and pottery from Dicha Tuerta, like those from nearby Los Cerros, include few of the diagnostics found farther west in the semi-arid zone of south-central Veracruz.

At Los Cerros, Medellín Zenil (1954; 1960:191–194) excavated a trench in one mound that had Classic period offerings and secondary burials in the upper 1.6 m of the trench. Below, Preclassic pottery became more prevalent. He also excavated pits in a ceramic dump (offertory?) that contained numerous figurines and Classic pottery, similar to Nopiloa. Near the surface, however, there were a few fragments of Postclassic vessels such as Fondo Sellado and an incense burner that may have been Texcoco Molded, to judge from his description.

Surroundings

Despite the lack of time to survey very far beyond the Dicha Tuerta Complex, the fields covered did not show many occupational remains. Residential remains were

observed mainly to the south of the complex, perhaps indicating a preference for higher ground slightly back from the river.

Chronology

The complex produced predominantly Classic period diagnostics. The five Preclassic diagnostics all derive from the South Group main plaza. Three of the four Postclassic diagnostics derive from mound 6480 west of the ballcourt in the North Group.

More than half of the 21 Late Classic diagnostics were recovered from mound 6443 and its terrace (6444). Early Classic and Early Classic Tendency diagnostics are somewhat more widely distributed, but several derive from this same mound and terrace that yielded Late Classic items, suggesting either fill or continuity at this structure. Mound 6427 is another example with diagnostics from both of these periods. The North Group has overall a weaker Late Classic ceramic profile than the South Group, and both Early Classic and Early Classic Tendency sherds outnumber the Late Classic ones. The South Group collections combined have mainly Early Classic Tendency and, more abundantly, Late Classic diagnostics. Because the South Group has several candidates for elite residential platforms, the chronological emphasis on the Late Classic period is in keeping with the palatial platforms around Nopiloa and with other indications along the Blanco that during the Late Classic, palatial residences continued in use even if Standard Plan groups waned in importance, as may have happened with the North Group at Dicha Tuerta.

We have only a small part of the area surrounding Dicha Tuerta mapped. We encountered residential mounds only to the west and south. As with Dicha Tuerta itself, Preclassic diagnostics are scant. The Classic period, however, is well represented, with the Late Classic more robustly present. The Postclassic, like the Preclassic, has only a scant representation, and without any signature for Middle versus Late Postclassic. The meager representation for the Preclassic and Postclassic periods is congruent with Nopiloa.

Discussion of Dicha Tuerta Complex

Dicha Tuerta is the only candidate for a Late Classic secondary center to Nopiloa that we mapped. The designation as a secondary center relies on the amount of construction and the presence of a Standard Plan arrangement, a ballcourt, and possible palatial residences. During the Early Classic period, Dicha Tuerta may also have been a secondary center to Cerro de las Mesas, but we cannot rule out a tertiary/quaternary role because we cannot gauge the extent of construction during the first versus last half of the Classic period. Los Cerros, farther east along the Guerengo, is likely an additional secondary center under Nopiloa.

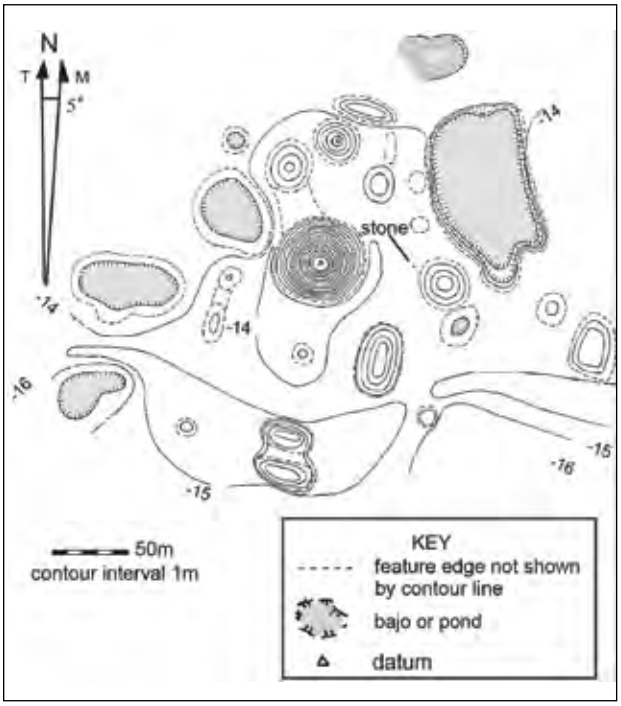

Figure 10.67. Loma contours, mapped by theodolite and GPS.

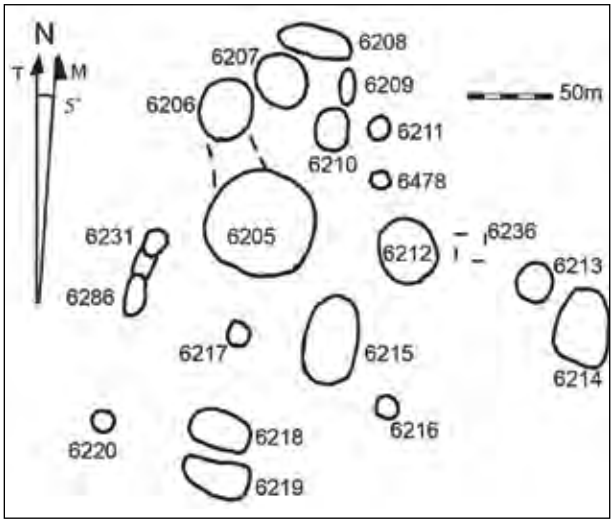

Figure 10.68. Loma feature numbers.

Guerengo Area Summary

The Preclassic period is only lightly represented at Nopiloa, Dicha Tuerta, and the smaller complexes. None of the locations appears to have enough Preclassic activity to have been a center of any level. Perhaps the Nopiloa area contained one or more small villages or rural homesteads.

During the Early Classic period, Nopiloa likely had a role as a secondary center to Cerro de las Mesas, as did Dicha Tuerta. At present, we have no basis to separate the two in size or importance during the Early Classic period, although Nopiloa clearly became much bigger than Dicha Tuerta during the Late Classic period. Perhaps it had a head start in the Early Classic, but only a program of excavations can determine the building sequence in each complex.

During the Late Classic period, the size of Nopiloa makes it a candidate as a primary center for the surrounding area. Dicha Tuerta is a good possibility for a secondary center due to the amount of construction and the presence of a Standard Plan arrangement with a ballcourt and multiple plaza groups. It is likely that Los Cerros, which we visited briefly, is another secondary center; it lies approximately 6 km southeast of Dicha Tuerta. Los Cerros has a SPPG and other associated construction.

Residential settlement is denser in the block around Nopiloa than around any of the mapped subsidiary complexes, but there are signs that the density of occupation declines with distance away from the core. Characteristic occupational densities between the Nopiloa core and farther areas remain to be determined, especially along the course of the Guerengo. Likewise, the densities between Dicha Tuerta and Nuevo Porvenir West are unknown. This will be essential information in future to determine the extents of these settlements.

Thus, this portion of the Guerengo River, including the parts we surveyed and other complexes we visited, did not yield any complex larger than Nopiloa, and there are indications of several secondary and tertiary/quaternary centers in the area. Nevertheless, information is not sufficiently complete to afford a clear picture of the extent of occupation around any of the centers, nor of the arrangement of centers—whether they followed the Guerengo and tributaries, or extended beyond the vicinity of watercourses.

The Guerengo area and the interfluve between the Guerengo and Blanco (discussed next) both suggest that occupation along the Blanco and especially in the Blanco delta is denser than elsewhere. Consequently, the areas of control for centers located away from the Blanco, like Nopiloa, would have to be more extensive to achieve an equivalent population. Settlement likely concentrated along drainages, and an elongation of territories along drainages is a possibility.

Interfluve Area

The interfluve lies between the Guerengo and Blanco rivers (Figure 10.27). It has seasonal streams fed by rainfall, but lacks surface water part of the year. Although we did not attempt to systematically investigate the interfluve area, two complexes were mapped that were evident in our trips from the field station to the Guerengo area. The area is not covered by aerial mosaics available to the project, which severely restricted our reconnaissance information. The two complexes were included in the survey to provide some idea of land use and settlement away from the major rivers and because they exhibited monumental construction.

Preclassic pottery diagnostics are confined to Canal 2, with none from the Loma area (Figure 10.61). Classic diagnostics are present at both locations, but not abundant (Figure 10.62).

When the Early Classic is considered, both locations are well represented (Figure 10.63), but Early Classic Tendency diagnostics are less abundant (Figure 10.64). Late Classic diagnostics are sparser at both locations (Figure 10.65).

The Postclassic (not shown) is present in low frequency in one Loma collection, with no sherds specific to the Middle or Late Postclassic. Many collections are too low in count to appear on the diagrams, but the plots of all sherd occurrences do not differ greatly in patterning.

Canal 2 Complex

Description

Canal 2 is located near a modern canal of that name. The complex is located on a natural rise, with a lower drainage to the west amid scattered large surface boulders. Another rise in this field occurs northwest of the complex on the other side of the seasonal drainage. This complex is a Conical Mound Group, with several low residential mounds clustered near a high (7.2 m) conical mound connected by a low elevated area to a low mound, 6888 (Figure 10.66).

Surroundings

This cluster is relatively nucleated and isolated compared to its immediate surroundings. Canal 2 is 3 km from Loma, a SPPG also in the interfluve area, and Canal 2 likely was a subsidiary village to Loma. Distances to other sizable monumental complexes are much larger, 6.3 km to Madereros along the Blanco River, and 8.5 km to Nopiloa along the Guerengo.

Chronology

This complex has a substantial representation of Preclassic diagnostics (64) among the 576 sherds. Classic diagnostics are more abundant, however, and Early Classic diagnostics far outnumber the Late Classic ones and are matched by Early Classic Tendency in numbers. Because there were extremely few mounds in the area surveyed around Canal 2, with only one of them yielding a collection, we cannot use the surroundings for further chronological information. Canal 2 is one of several complexes that indicate a substantial Preclassic presence that was antecedent to an Early Classic role. The indication of a Preclassic to Early Classic continuity is not shared with the other interfluve complex, Loma, nor by Guerengo complexes, which present extremely scarce Preclassic sherds or lack them entirely. Thus Canal 2 provides an intriguing indication that small pockets of Preclassic occupation occurred occasionally well away from major channels and the Blanco delta, where some of the most abundant Preclassic remains are located.

Discussion of Canal 2 Complex

This complex offers a glimpse of a settlement presumably at the bottom of the settlement hierarchy, akin to a small hamlet or village. Although not included in our survey due to lack of time, we visited another similar cluster with a conical mound northeast of Loma along the southern bank of the Blanco, and another in ranch land to the northeast. The Pinchones South complex in the Guerengo area is likely another example, as is Tiesto in the Blanco delta. Conceivably additional survey of areas away from the monumental complexes will encounter clusters of residential mounds lacking a conical mound and representing a still lower hierarchical level, with dispersed scattered residential mounds constituting rural "*rancherias*" or farmsteads. Examination of areas well away from monumental complexes will be required to attest the more extensive aspects of the settlement dispersal seen in surveyed areas.

Loma Complex

Description

Loma exhibits a SPPG-1b with a high conical mound (6205, 13.7 m), one lateral (6215), and a transverse ballcourt at the south end (6218, 6219; Figures 10.67, 10.68). Conceivably the two mounds, 6231 and 6286, connected by a slightly raised area, could have served as a second lateral, but there is no other instance of two connected mounds serving as a lateral, and it seems safer to assume these are simply two additional mounds partly framing the plaza. Artificial *bajos* ring the complex from the northeast to the southwest. Like the South Group at Dicha Tuerta, a small altar mound is situated in the plaza. No monumental platform is present.

A roughly shaped rectangular block of basalt sat near the base of mound 6212. Although larger than the shaped blocks at Nopiloa along the bank of the Guerengo River, this block is similar. The conical mound and several others were noted by the survey crew as appearing to have very clean fill. Mound 6236 displayed an eroded area where three levels of plaster floors were evident. Mound 6214 is relatively broad, with a sub-rectangular form. Possibly it is a modest version of a monumental palatial platform.

Surroundings

As with the nearby Conical Mound Group of Canal 2, Loma has very few low residential mounds in the surrounding terrain. Loma is 6.5 km from Madereros, which is located along the Blanco River, and 10.9 m from Nopiloa along the Guerengo River.

Chronology

Among the 391 sherds from Loma, none are Preclassic diagnostics and only one is Postclassic. The Classic period predominates, with about the same representation of Early and Late Classic sherds, but with Early Classic Tendency sherds in about equivalent amounts, suggesting a stronger Early than Late Classic emphasis. Collections are relatively unbalanced, with a large collection from mound 6214. Other relatively substantial collections tend to replicate the distribution of diagnostics characteristic in this large collection, however.

Among surrounding mounds, none produced Preclassic or Postclassic diagnostics, a pattern in keeping with the formal complex. Classic diagnostics are characteristic, and, within that period, the Late Classic is indicated, with the Early Classic Tendency represented in one collection. There are so few mounds in the

surrounding area, however, that this additional information is not a substantial addition to the chronological indications from the complex itself. The principal difference is whether the Late or Early Classic period is emphasized, and since both periods are indicated, Loma likely functioned during both periods.

Discussion of Loma Complex

Loma has diagnostic pottery for both the Early and Late Classic periods, with Canal 2 a likely subsidiary village during the Early Classic period, with perhaps a minor continuation of occupation at Canal 2 during the Late Classic. During the Early Classic, Loma would have been subsidiary to Cerro de las Mesas, conceivably a secondary center. Many tertiary/quaternary centers lack a ballcourt—for example, Cerro Bartolo—which suggests secondary-center status for Loma. Only excavation to determine construction chronologies will clarify its position under Cerro de las Mesas. Provisionally I treat it as a secondary center.

For the Late Classic period, the final form of Loma is consistent with the greater prevalence of single laterals during that period, seen at Nopiloa and Dicha Tuerta, as well as in the Nacastle-Patarata settlement in the mangrove swamp. Nevertheless, many tertiary/quaternary centers during the Early Classic period, such as Cerro Bartolo, had single laterals. I interpret Loma as a secondary center under Nopiloa during the Late Classic period, with abandonment in the Postclassic. It has less construction than Dicha Tuerta, the only mapped example of a secondary center for Nopiloa, but it does have a ballcourt. As with the Early Classic assessment, there is some ambiguity in the rank of Late Classic Loma.

The Loma location is unusual, as it does not have the advantage of a seasonal or permanent stream and would necessarily have relied only on seasonal rains. Its location may have responded to political considerations, such as maintaining an administrative presence and public services for rural residents in the interfluve, rather than agriculture or transport advantages. Lack of a surface water flow was compensated by excavation of ponds. We lack information on the water table depth in this area, but it likely was too deep to make wells practical, and the ponds probably served as seasonal impoundments.

Interfluve Area Summary

The two interfluve survey blocks confirm our visual impression from traversing parts of the interfluve on gravel and paved roads: low residential mounds are scarce. It appears that monumental complexes and their few associated residential mounds are relatively nucleated in comparison to the countryside. In no case did we observe a large cluster of residential mounds around monumental complexes. The patterning suggests that people in scattered rural households or those associated with Conical Mound Groups, like Canal 2, may have traveled to larger centers (such as Loma or others along river channels) for periodic governmental, economic, or ritual activities. Interfluve rotational agriculture with a higher ratio of land to people than in riverine alluvial areas likely characterized the interfluve. It may have served as a swidden reserve exploited by inhabitants located along the major rivers, who traveled to fields there. In the latter case, the density of settlement in relation to farmlands must accommodate the more densely settled inhabitants of riverine and delta locations, not just the immediate rural occupation in the interfluve. Additional survey is required to detect any surface scatters that might signal residences that were not on low mounds.

Of the two interfluve complexes, only Canal 2 has substantial indications of Preclassic occupation. During the Preclassic period it was a relatively isolated hamlet or village, but possibly one in which conical mound construction had begun. Loma was either a secondary or tertiary/quaternary center under Early Classic Cerro de las Mesas and then under Late Classic Nopiloa, a secondary role is more likely.

Chapter 11

Monumental Complexes in the Tlalixcoyan Drainage, Paleodunes, and Mangrove Swamp

The Tlalixcoyan drainage leads to extensive seasonal wetlands. The Blanco distributary wends northeastward to these wetlands also. The south slope of the paleodunes drains into the Pozuelos, a tributary of the lower Tlalixcoyan. The Tuzales survey area, located on a small southern tributary stream of the Tlalixcoyan River, is only a small portion of the fertile Tlalixcoyan alluvium that was densely occupied on the basis of aerial photographs. Monumental construction near the *ejido* of Tuzales was evident both on aerial photographs and from the highway between Tlalixcoyan and Piedras Negras.

The Tuzales complexes are spatially intermediate between the Blanco and Tlalixcoyan Rivers and conceivably could have related closely to settlements in either drainage, but the Tuzales monumental construction is closer to the Blanco complexes than those that lie along the Tlalixcoyan River. We visited several complexes along the Tlalixcoyan briefly to verify aerial photographic signatures. Regrettably, project time did not allow inclusion of survey blocks along the Tlalixcoyan River, although no centers were observed as large as Nopiloa, Azuzules, Cerro de las Mesas, or Ajitos-Pitos. It is difficult to assess the monumental construction within the town of Tlalixcoyan because of modern houses and considerable cannibalization of mounds for road fill. It was important to address primary centers in the region in order to make sense of overall settlement patterns, so with the dwindling field time, we turned to the paleodunes east of the highway, rather than additional Tlalixcoyan area survey, which was far too extensive to address adequately. Other complexes on the paleodunes west of the highway were recorded by Daneels (2016).

Some localities surveyed in the mangrove swamp east of the Blanco and Tlalixcoyan Rivers are grouped in this chapter. The mangrove survey revisited some of the locations examined earlier (Stark 1977), particularly the linear settlement that crosses Patarata Island. The Tlalixcoyan, paleodunes, and mangrove surveys documented 15 monumental complexes. The organization of sections for each monumental complex is described at the outset of Chapter 7. Table 7.1 presents the symbol key for chronological maps of survey localities.

Tuzales Area

The Tuzales area consists of three slightly separated groups that may represent an accumulation of constructions undertaken at different times and somewhat independently of each other (Figure 11.1). Tuzales North is only 0.4 km from Tuzales, and Tuzales South is 0.6 km from Tuzales. In the *ejido* of Recreo, 2.2 and 2.4 km to the southwest of Tuzales, two monumental platforms were observed, Recreo and Recreo South (they are 1.8

km from the monumental platform at Tuzales South). Tuzales is 8.3 km from Cerro de los Muertos and 10.5 km from Cerro de las Mesas. The distance to the paleodunes complex of Ajitos is 17.1 km.

Preclassic diagnostics are reasonably well represented (Figure 11.2), and display a similar pattern to general Classic diagnostics (Figure 11.3).

Early Classic diagnostics are the most abundant of any period (Figure 11.4), with Early Classic Tendency diagnostics somewhat less abundant (Figure 11.5), and Late Classic diagnostics scarcer yet (Figure 11.6).

Postclassic general diagnostics are scarce (Figure 11.7). Middle Postclassic diagnostics were recovered from only two collections, whether all collections or only the more robust ones are considered (Figure 11.8).

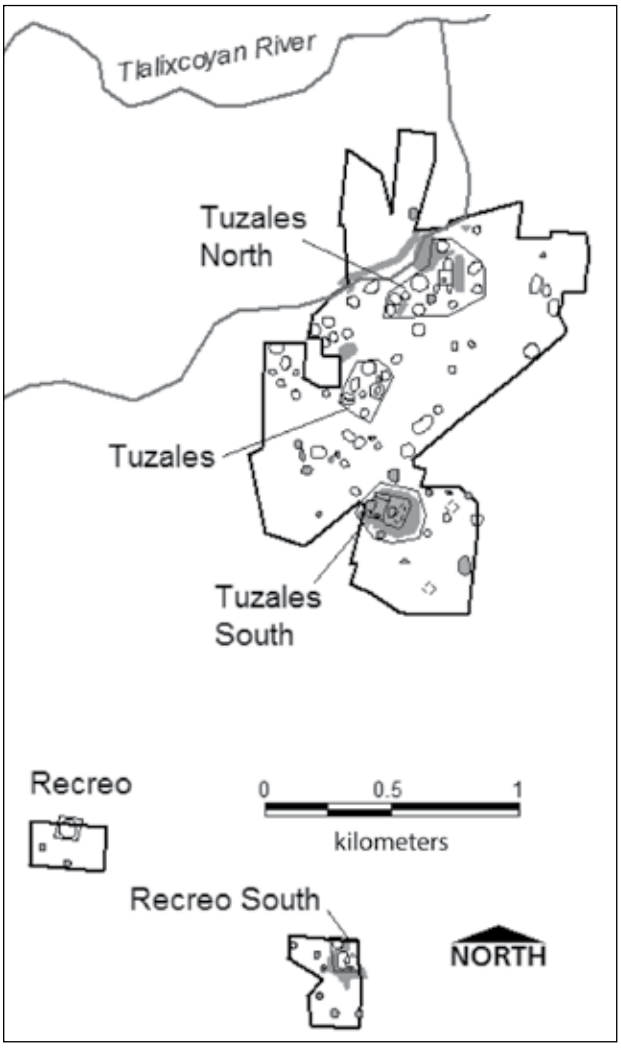

Figure 11.1. Locations of survey blocks in the Tuzales area, with bajos in gray along with features that were not collected.

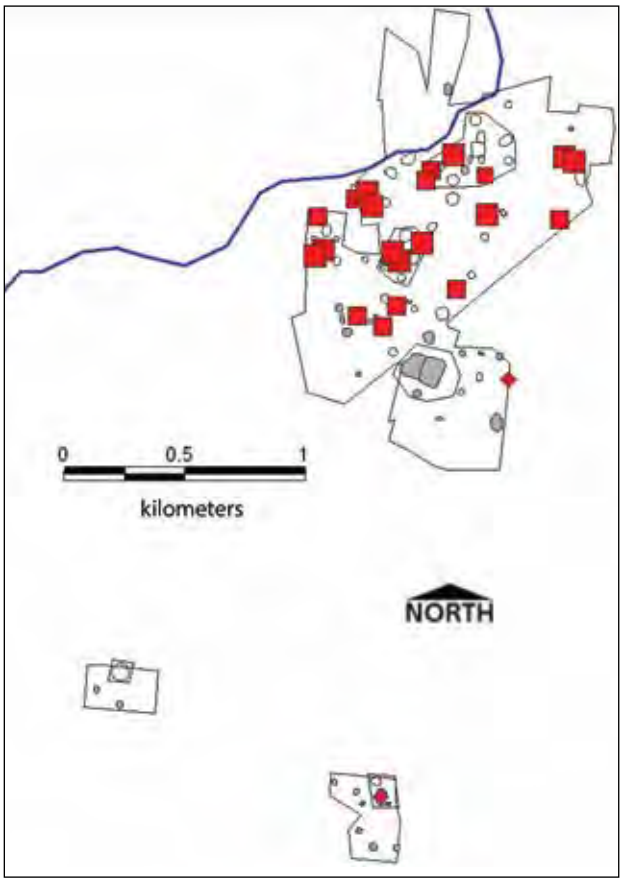

Figure 11.2. Tuzales area, Preclassic diagnostics, percent quartiles for collections at or above the median of 76 sherds (Table 7.1). Features not collected are shown in gray.

For the Late Postclassic, no diagnostics were recovered, whether from robust collections or from any collection.

Tuzales Complex

Description

Tuzales, located on the south side of a Tlalixcoyan tributary stream, does not conform exactly to any of the variant Standard Plans I have defined (Figures 5.14, 11.9). Tuzales consists of a conical mound (6854) and one lateral (6855), a SPPG-1b, with the ballcourt (6862 and 6863) positioned off to the side of the plaza, as occurs at Nopiloa, except in this case the ballcourt is transverse, an uncommon orientation. A rectangular platform (6857) faces the plaza on the east side, also atypical of Standard Plan arrangements. Also unusual, a second conical mound (6861) to the south is aligned with the main conical and plaza. Mound 6860 also is positioned intermediate to the conicals, but its height makes it questionable as an altar, and it may constitute

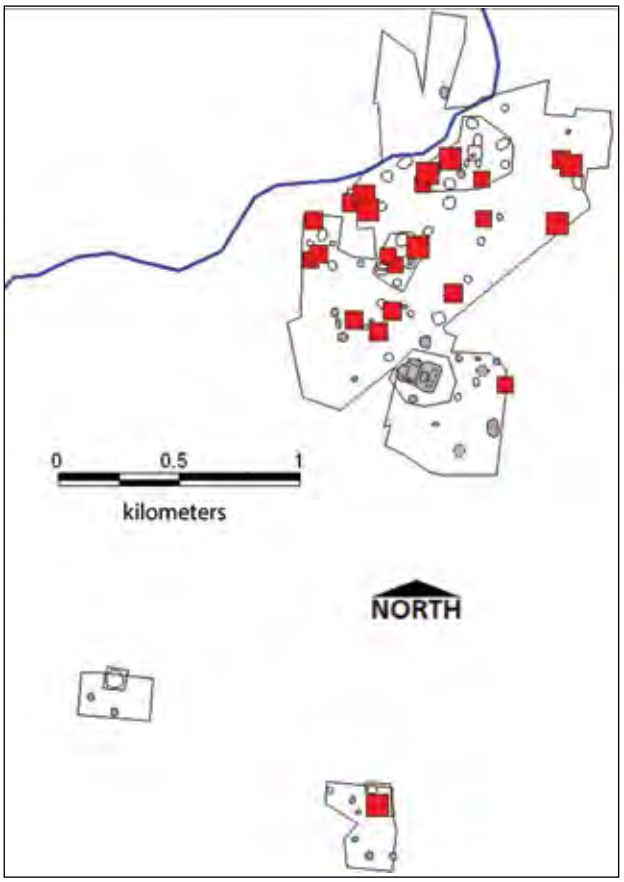

Figure 11.3. Tuzales area, Classic diagnostics, percent quartiles for collections at or above the median of 76 sherds (Table 7.1). Features not collected are shown in gray.

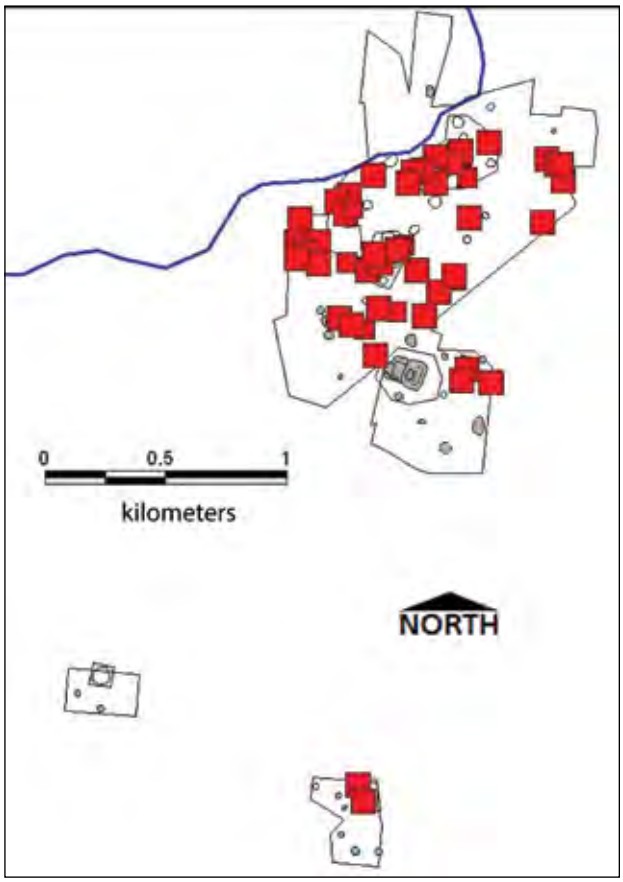

Figure 11.4. Tuzales area, Early Classic diagnostics, percent quartiles for collections at or above the median of 76 sherds (Table 7.1). Features not collected are shown in gray.

the southern mound of the main plaza (instead of 6861, with the latter establishing a secondary plaza to the south). The entire area east of 6857 and south of 6856 is extensively reduced by brick-making activity. If other mounds existed there, no trace remains.

Surroundings

Tuzales is accompanied by two nearby groups, Tuzales North (0.4 km distant) and Tuzales South (0.6 km away), both also located on the south side of the same Tlalixcoyan tributary. A scatter of residential mounds is present on the south side of the tributary, but only one mound was encountered in survey on the north side. North bank survey was undertaken to document our visual impression that a markedly lower incidence of mounds characterizes the land extending northward. Some of the scattered residential mounds south of the river tend to form small clumps, such as immediately south and west of Tuzales. We did not survey within the *ejido* settlement (an inset gap in the survey block), so it is difficult to evaluate the apparent clump of mounds on either side of the *ejido* northwest of Tuzales.

Chronology

Tuzales collections are substantial (446 sherds), in part due to disturbance. The Preclassic and Early Classic are noteworthy, but there is no trace of Late Classic materials nor of those from the Postclassic period. Early Classic Tendency diagnostics are about half as frequent as the Early Classic, suggesting declining activity. The configuration of diagnostics is quite similar to Tuzales North, except for the lack of Late Classic materials, which were present as a trace at Tuzales North.

The surrounding mounds display chronological patterns similar to Tuzales and Tuzales North. The Preclassic is well represented, with an even stronger indication for the Classic period, mainly at the same mounds where Preclassic diagnostics were

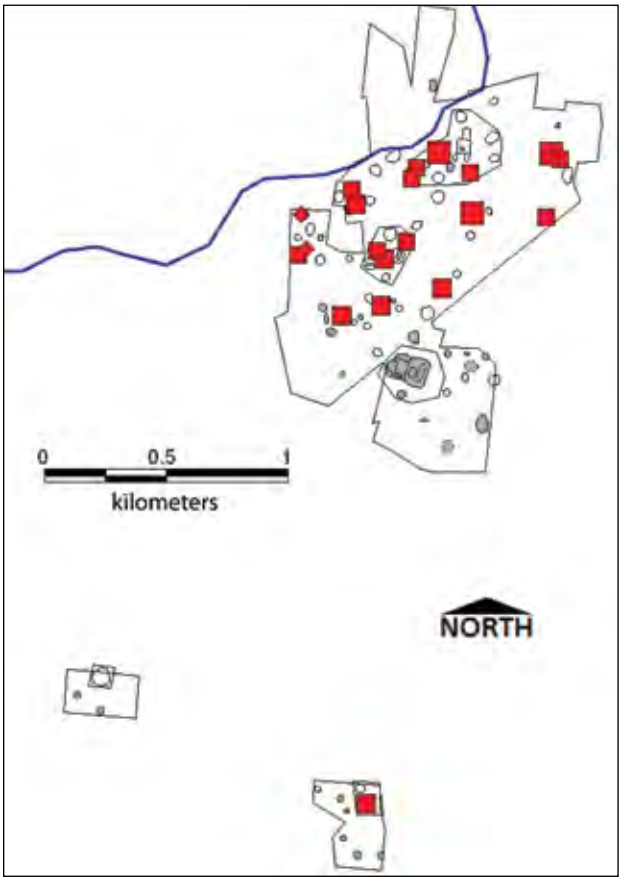

Figure 11.5. Tuzales area, Early Classic Tendency diagnostics, percent quartiles for collections at or above the median of 76 sherds (Table 7.1). Features not collected are shown in gray.

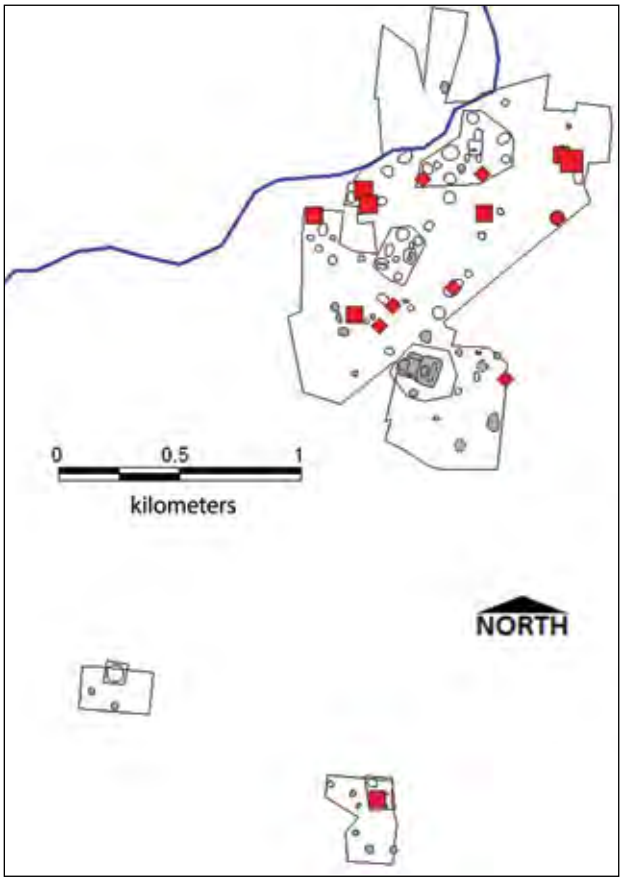

Figure 11.6. Tuzales area, Late Classic diagnostics, percent quartiles for collections at or above the median of 76 sherds (Table 7.1). Features not collected are shown in gray.

encountered. These two periods are prominently represented throughout the survey block. The Early Classic has a much more abundant representation than the Late Classic, which is lightly indicated. Early Classic Tendency sherds are intermediate between the Early and Late Classic in amount, suggestive of a process of decline in activity. Postclassic sherds form a very light scatter, without any definite indication of the Late Postclassic period and only one collection with material assignable to the Middle Postclassic period.

Discussion of Tuzales Complex

The geographic proximity of Tuzales, Tuzales North, and Tuzales South presents a situation similar to Madereros-Tilcampo along the upper Blanco, where clumps of construction occur without cohering around a single dominating group of buildings. Tuzales is one of the two major groups. The other is Tuzales North. Tuzales North has a SPPG revealed on aerial photographs taken prior to the destruction wrought by brick-making. Given its traditional arrangement, Tuzales North may have been the more prominent of the two politically, but Tuzales has two conical mounds, an additional investment.

Construction or rebuilding of different groups likely occurred across the occupation interval, with the presence of distinct groups signaling shifting local leadership and command of resources. Tuzales and Tuzales North are, in combination, a candidate for a secondary center under Cerro de las Mesas during the Early Classic period and either one alone would be comparable to other secondary centers. For the Late Classic period, the lower prevalence of diagnostic pottery suggests that people continued to live there but that both complexes had lost their role(s) as a secondary center, perhaps continuing as a focus of elite occupation and some public ceremonies, but at best a tertiary/quaternary center.

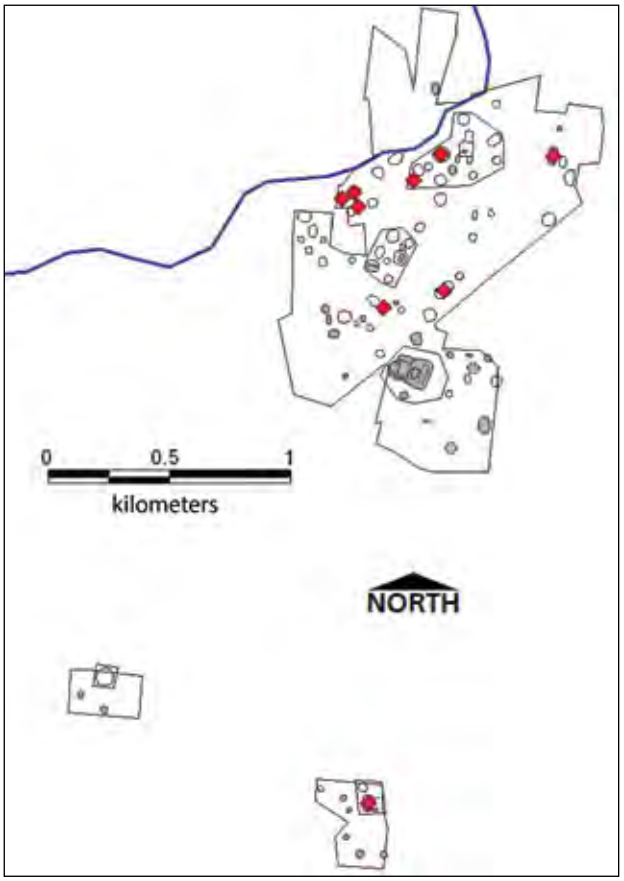

Figure 11.7. Tuzales area, Postclassic diagnostics, percent quartiles for collections at or above the median of 76 sherds (Table 7.1). Features not collected are shown in gray.

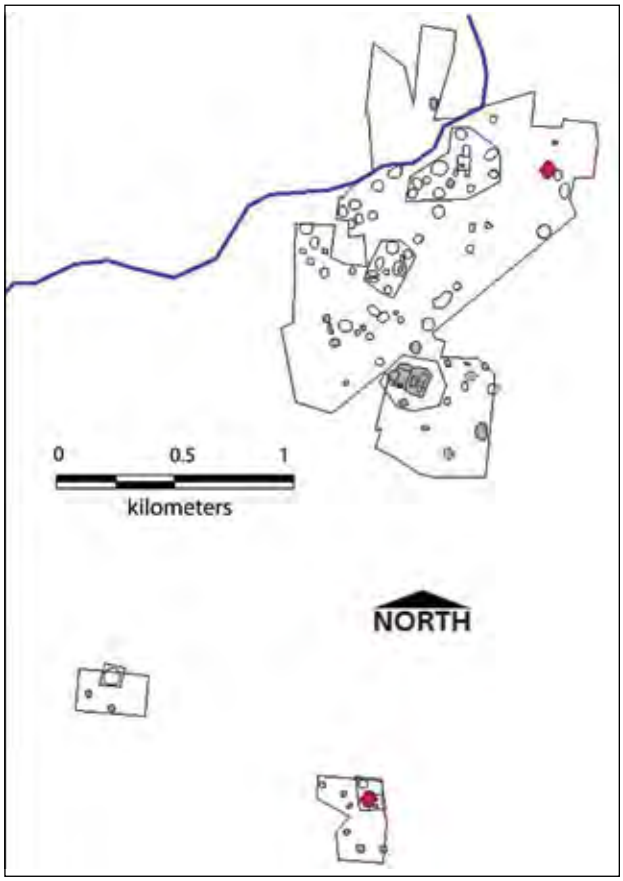

Figure 11.8. Tuzales area, Middle Postclassic diagnostics, percent quartiles for collections at or above the median of 76 sherds (Table 7.1). Features not collected are shown in gray.

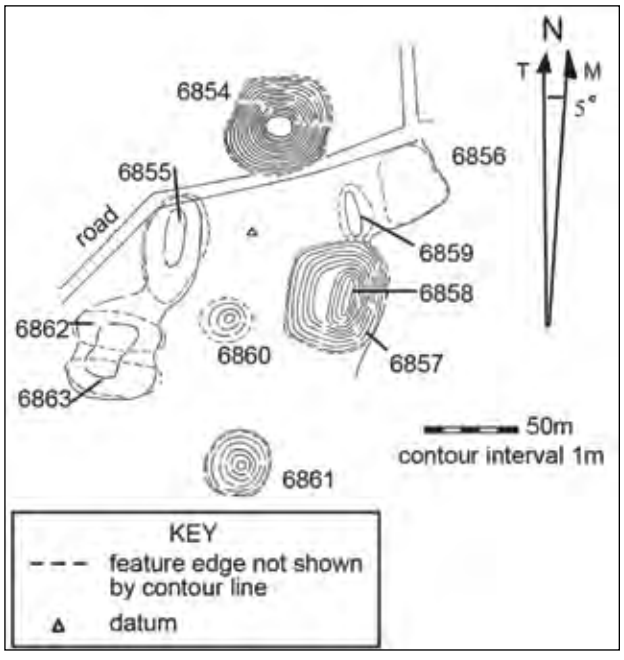

Figure 11.9. Tuzales feature numbers and contours, mapped with a theodolite and GPS.

Tuzales North Complex

Description

Tuzales North consists of a conical mound (6800) 14.6 m high, with a large rectangular platform (6848) adjacent on the east side (Figures 11.10, 11.11). The original characteristics of Tuzales North are in some doubt due to brick-making that has created a substantial depression to the south of the conical mound in approximately the position that a lateral mound might have occupied. The area to the south has an array of low mounds reminiscent of a Conical Mound Group, a misleading impression.

Consultation of the Compañía Mexicana de Aerofoto aerial mosaic that includes the Tuzales area shows clearly that Tuzales North had a SPPG-1a arrangement (Figure 11.12). Where a second, western lateral would be, the aerial image, like the contour map, indicates at least two mounds, possibly affected by brick-making. The east side lateral is clear, as is the ballcourt, neither of which was present during

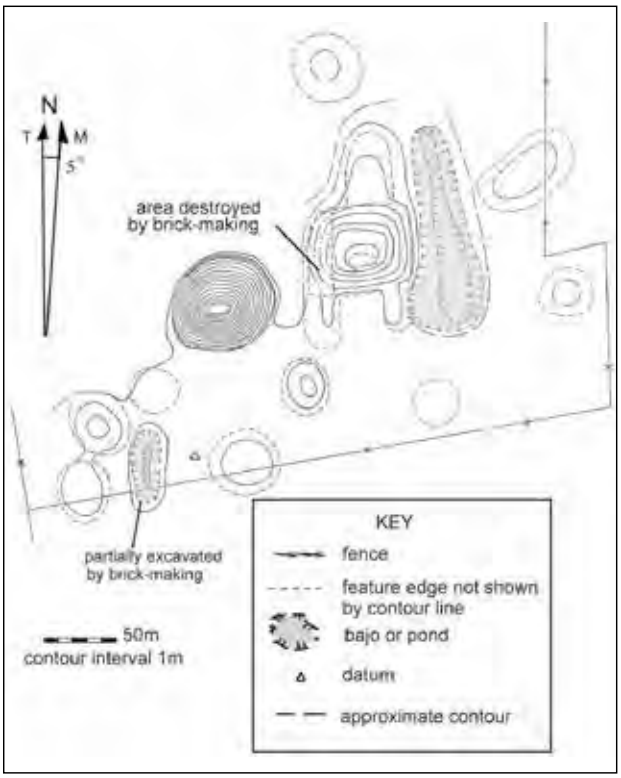

Figure 11.10. Tuzales North contours, mapped by theodolite and GPS.

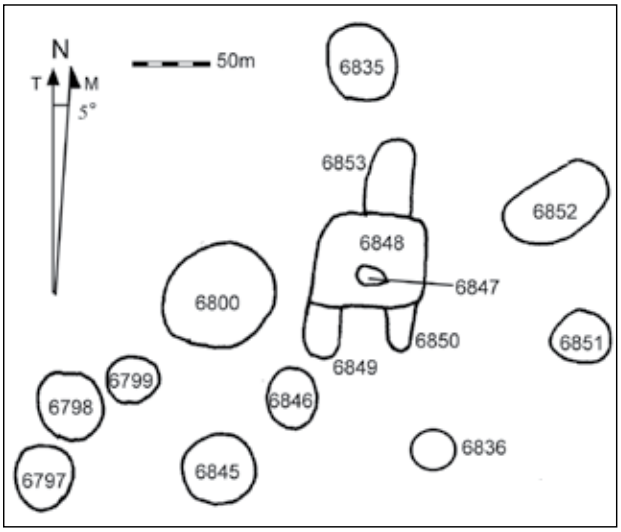

Figure 11.11. Tuzales North feature numbers.

mapping. Brick-making had so reduced mounds around the plaza that without the aerial image from 1969, the original arrangement would not have been evident. The proximity of the two complexes, Tuzales North and Tuzales, with major conical mounds within 0.4 km of each other, is unique in the survey area. Each has a monumental platform and a ballcourt, such as might be expected for two independent complexes, rather than paired complexes.

The massive platform at Tuzales North has two low extensions to the south, similar to those that sometimes accompany conical mounds in the Guerengo area, for example, at Nopiloa. No other rectangular platform has such extensions, but the platform at Recreo South (discussed below) has two low mounds in approximately the same relationship. The Tuzales North platform also has a terrace to the north. On the east side of the platform a substantial *bajo* could represent a borrow pit, but was also a pond at the complex. Several other low mounds complete the array.

Surroundings

The surrounding mounds are discussed in the section about Tuzales.

Chronology

Tuzales North produced substantial collections (854 sherds), in part because of brick-making disturbance that cut into the platform and the southeast corner of the conical mound. Although Classic diagnostics far exceed Preclassic ones, there is a substantial Preclassic representation. The Early Classic is particularly well represented compared to the Late Classic, which is present only as a trace, with the Early Classic Tendency diagnostics indicating a decline from the Early Classic. No Postclassic diagnostics were recovered.

Discussion of Tuzales North Complex

The Tuzales North complex originally formed a SPPG accompanied by a monumental platform. Like Tuzales, Tuzales North shows occupation began during the Preclassic period, and the Early Classic was the primary period of construction, with scant activity in the Late Classic period. With current chronological information, the two complexes cannot be separated in time and seem likely to have been partly contemporaneous. Nevertheless, they may have differed in the timing of construction and prime activity. During the Early Classic period, the Tuzales and Tuzales North complexes likely constituted a secondary center under Cerro de las Mesas but at best a tertiary/quaternary center during the Late Classic period under Azuzules. The pair of complexes is unique, however, because, on the basis of the layouts and amount of construction, each plaza group could itself constitute a secondary center.

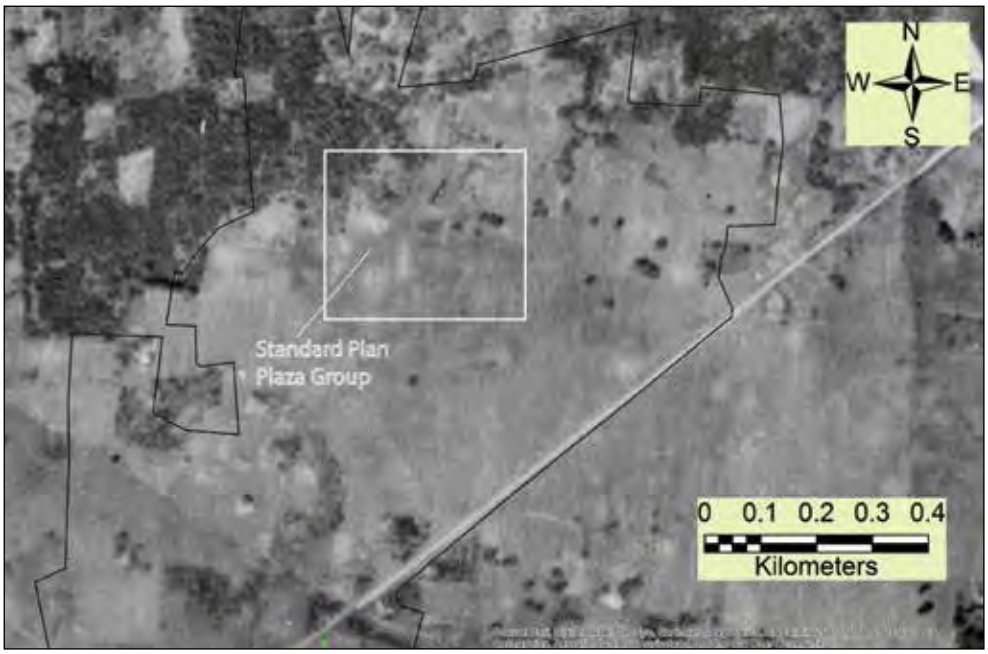

Figure 11.12. The Tuzales North contour mapped area falls approximately within the white box. The limits of survey are shown with a black line. A paved highway transects the map diagonally.

Tuzales South Complex

Description

Tuzales South is 0.6 km south of Tuzales, close enough to be part of the same settlement. Tuzales South is dominated by a massive conical-on-platform (7048 with 7181 on top; Figure 11.13). There appeared to be an elongate mound on top to the east, as the area is a little higher, but dense vegetation made confirmation of a structure impossible. Conicals on massive platforms are somewhat difficult to interpret. On the basis of the northern structures in the Chivo group at Cerro de las Mesas, they may constitute a transformation of a palatial platform with erection of a conical mound for a ritual building (see Chapter 5). On the west side of the platform, three mounds, one of them elongate (7047), form a plaza. A *bajo* surrounds the complex on three sides.

Conceivably we should view the conical mound atop the platform and the western elongate mound (7047) as part of a Partial SPPG-B1. Nevertheless, the complex does not conform to Standard Plan principles because the conical is on a high platform and may face east toward the possible low mound on the platform. As with Madereros-Tilcampo along the upper Blanco, variety characterizes the three Tuzales complexes.

Surroundings

Surrounding mounds are discussed in the section on Tuzales.

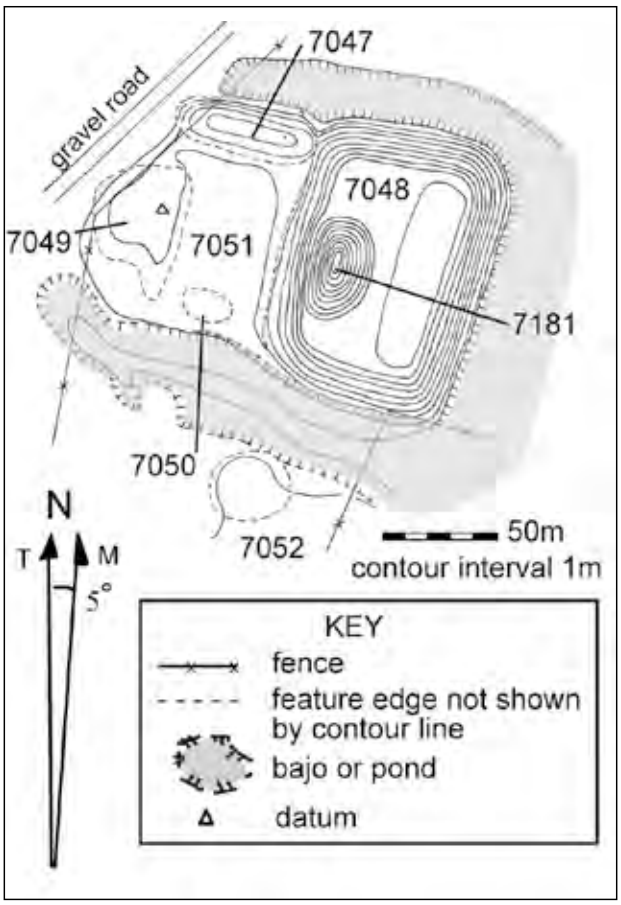

Figure 11.13. Tuzales South feature numbers and contours, mapped with theodolite and GPS.

Chronology

Due to dense vegetation on the platform and grass pasture and brush covering the rest of the complex, no sherds were recovered.

Discussion of Tuzales South Complex

Tuzales South lies within a radius from Tuzales comparable to that of monumental platforms interpreted as part of the Azuzules settlement in the Blanco delta. At 0.6 km from Tuzales, the complex is only slightly more distant than Tuzales North. It seems likely that Tuzales South dates similarly to Tuzales and Tuzales North, despite the lack of opportunities to collect surface sherds. I treat it as a segment complex of Tuzales-Tuzales North.

Recreo Complex

Description

The Recreo mound was cut by machinery on its east side, perhaps for road building because landowners in the region at times sell fill (Figure 11.14). Part of the mound on the northwest corner has been removed by erosion and a dirt road. The contours are somewhat impressionistic, and the mound originally may have had a more rectangular form than is evident today, with a more extensive upper surface. I classify it as a monumental platform even though it appears today somewhat more like a conical mound with a flattened top.

Surroundings

Only a small area around Receo was surveyed, with only two residential mounds encountered. Because of the limited coverage, it is difficult to assess whether the occupation is lighter than around Tuzales, but certainly there is no apparent residential concentration. The area to the north of Platform 7155 is disturbed by the *ejido* houses and streets, so our coverage lies only on the south side. Recreo is 2.2 km southwest of Tuzales, which is the closest substantial complex. Recreo is 1.2 km northwest of Recreo South, a monumental platform discussed next.

Chronology

No diagnostic sherds were recovered because the mound is mainly in grass pasture and the fill does not appear to have contained much trash. The two mounds in the vicinity of Recreo could not be surface collected due to pasture, so no additional chronological information is available.

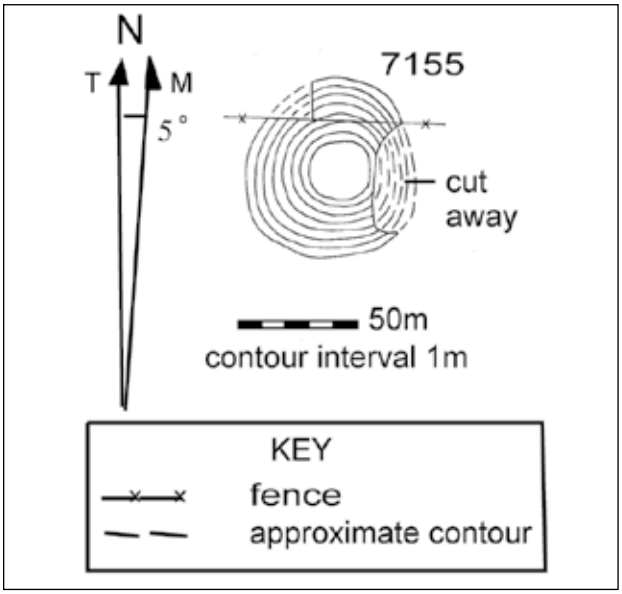

Figure 11.14. Recreo feature numbers and contours, mapped by GPS and Abney level.

Discussion of Recreo Complex

Recreo, like Recreo South (discussed next), presents the challenge of interpreting monumental platforms that are located at some distance from major complexes of monumental construction. At least two interpretations are possible. First, as discussed for the primary centers of Cerro de las Mesas, Azuzules, and Nopiloa, monumental platforms or other construction can occur at some distance from the central complex, indicating the extent of the settlement, up to 2.5 or 3 km away. However, I classify Greater Tuzales (including Tuzales North and Tuzales South) as a secondary center to Cerro de las Mesas during the Early Classic period. We might expect that a secondary center would have a smaller area than the primary centers. Perhaps Tuzales operated somewhat differently from other secondary centers under Cerro de las Mesas, with a more extensive area of settlement control. In comparison, along the Upper Blanco River, occupation diminishes about a half kilometer away from the river, which would suggest, instead, that Recreo is situated out in the countryside beyond the Tuzales and Tuzales North settlements. Recreo and Recreo South, like the pair of platforms Aguacate and Aguacate South that lie east of Azuzules, may represent rural estate headquarters of important landed elites or royals. I favor the rural estate interpretation because of their distances from Greater Tuzales.

Recreo South Complex

Description

This monumental platform (7064) probably faced east, where two low mounds (one of them graded off, but reported by local residents) flanked a plaza (Figure 11.15). The platform was covered by dense trees and bushes, but did not appear to have additional structures on top. The east side was cut away by heavy equipment to obtain road fill. A *bajo* circles the platform on three sides.

Surroundings

A modest area was surveyed around Recreo South, extending south and west, revealing a scattering of residential mounds. Recreo South lies 2.3 km south of Tuzales, the closest larger complex.

Chronology

Only one collection was substantial, that from the platform (7064). Classic diagnostics predominate, with only one Preclassic and one Postclassic sherd. Among Classic diagnostics, the Early Classic was much more prominent than diagnostics from Early Classic Tendency or the Late Classic period. In this respect, the Recreo South materials accord with other Tuzales area collections in general, but differ in the near absence of Preclassic diagnostics. Only one of the mounds in the surrounding area could be collected, and the small collection includes Classic diagnostics, but not Preclassic or Postclassic ones.

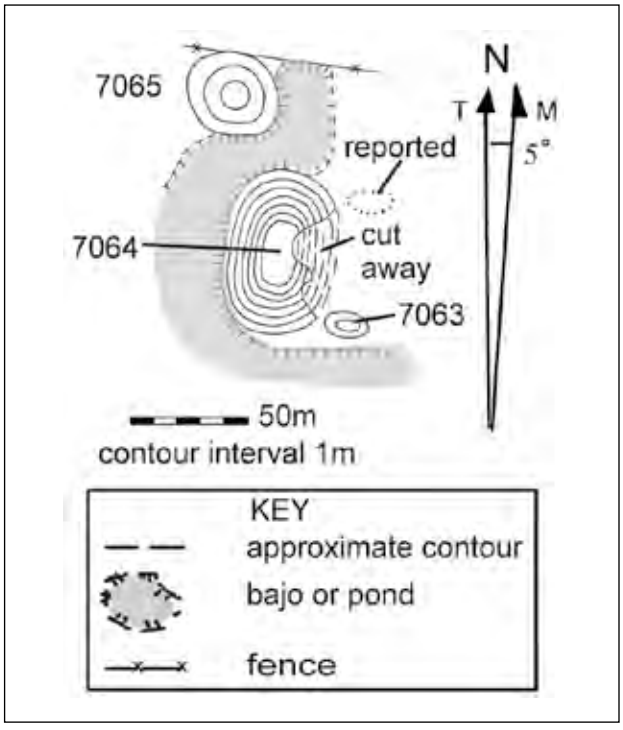

Figure 11.15. Recreo South feature numbers and contours, mapped by GPS and Abney level.

Discussion of Recreo South Complex

See discussion for Recreo.

Discussion of the Tuzales Area

The Tuzales survey yielded two complexes with Standard Plan principles (Tuzales North and Tuzales). All other monumental construction consisted of monumental platforms, sometimes accompanied by a scatter of other mounds. The monumental platforms in the Tuzales area may be part of the Tuzales settlement if the extent of a secondary center is as great as that suggested for two primary centers, but this is a dubious possibility. More likely, Recreo and Recreo South were countryside monumental platforms.

Except for Recreo South, all the chronological information points to a strong Preclassic occupation and continuation into the Early Classic period (Recreo provided no surface sherds). Although Recreo South lacks the Preclassic profile, it concurs with the other Tuzales groups in emphasizing the Early Classic more than the Late Classic. Late Classic activities continued at or near all the complexes for which we have data, but Tuzales may have been "coasting" on its previous construction, to judge from the more modest amount of Late Classic diagnostics. Unfortunately, we are not in a position to discriminate whether the substantial buildings continued to function in the Late Classic period.

The magnitude of Tuzales construction makes this location a good possibility for a secondary center to Cerro de las Mesas in the Early Classic period. During the Late Classic, Tuzales groups continued to be locations of lighter activity, but possibly without much continued monumental construction. It is probably safest to assume that Tuzales was still at least a tertiary/quaternary center, likely related to Azuzules, 17.7 km distant, rather than Nopiloa, 24.8 km distant, or possibly related to Ajitos-Pitos on the paleodunes, 17 km distant. Ajito-Pitos must have drawn upon some alluvial farmlands, since the paleodunes have a sandy substrate and only seasonal surface water. The lower Tlalixcoyan may have been part of its domain.

Paleodunes Area

The paleodunes have considerable monumental construction in groups that tend to extend northwest–southeast following the crest of the dunes, often situated just south of the crest, perhaps gaining some protection from northerly winds. All of the complexes have a north–south orientation to their layout, respecting both the panoramic vistas and the topography of southward salients in the dune created by northerly winds off the Gulf of Mexico (Figure 11.16). Dune promontories were generally employed as a base for construction and fill, and these salients create a north–south elongated sloping surface. Generally, the slope was built up to be level or it was terraced as part of the monumental construction. PALM recorded four monumental complexes, Vibora, Pitos, Ajitos, and Ajitos East.

The south side of the paleodunes drains toward the Pozuelos River, a tributary of the Tlalixcoyan, which traverses in an easterly direction along the base of the dunes. Daneels (2016) surveyed west of the highway leading to the town of Tlalixcoyan, covering sites on the paleodunes and continuing downward toward the Pozuelos River. At approximately the same crest elevation as the PALM paleodunes sites, she recorded El Castillo, a Standard Plan center with a ballcourt, two laterals, and two nearby monumental platforms. She defines the high part of the paleodunes as a capital zone, including both surveys (Daneels 2016:260–263), which seems appropriate in view of the closely spaced monumental complexes and indications of their changing prominence over time.

Collections in the paleodunes were difficult because of ground cover, and many features could not be surface collected or yielded modest collections. Sometimes collections could be made in tractor roads among pineapple plants.

Preclassic diagnostics are not represented among robust collections, and only one collection in Ajitos has Preclassic diagnostics when all collections are considered (not shown). Classic diagnostics are present in a few residential locations near Ajitos and Ajitos East (Figure 11.17). Early Classic diagnostics follow a similar pattern but include a few collections from Ajitos and Pitos (Figure 11.18). Fewer collections are indicated for Early Classic Tendency diagnostics (Figure 11.19). The Late Classic shows fewer collections (Figure 11.20) in a similar pattern to the distribution of Classic diagnostics. The Late Classic is the only period for which the distribution for *all* collections (not shown) has more occurrences than the more robust collections that meet

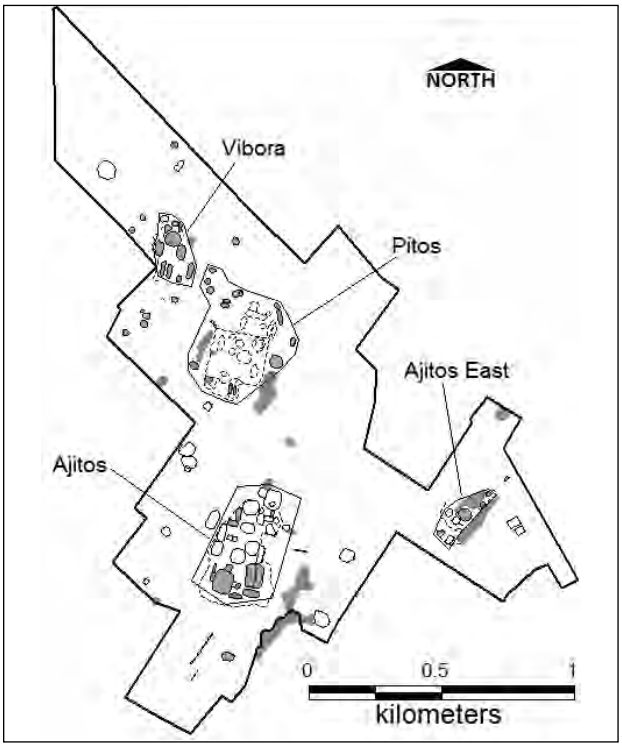

Figure 11.16. Survey block in the paleodunes, with features not surface collected in gray. Bajos are shown in gray.

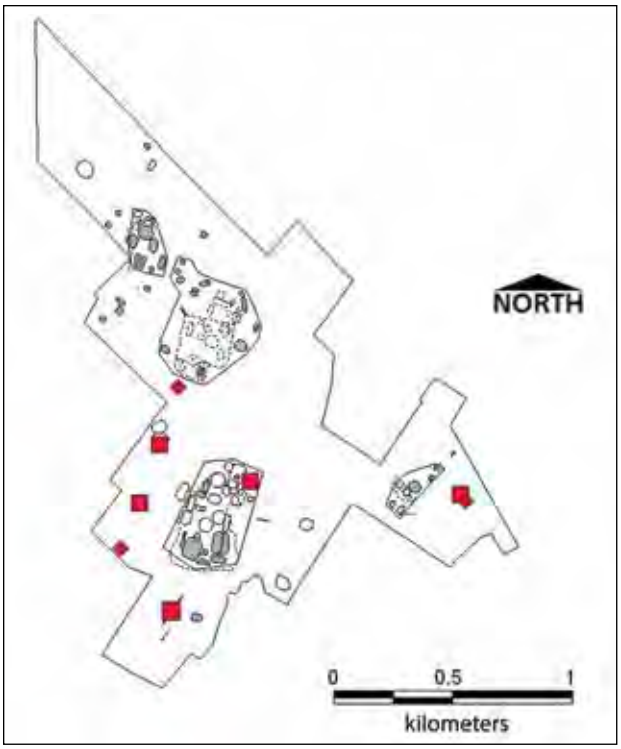

Figure 11.17. Paleodunes, Classic diagnostics, percent quartiles for collections at or above the median, 76 sherds (Table 7.1). Features not collected are shown in gray, as are bajos.

or exceed the median collection size. This contrast suggests that the Late Classic was a significant occupation for the paleodunes, but the poor surface conditions for artifact collection yielded few robust collections and many features that were not collected.

Postclassic diagnostics are indicated for only one robust collection (Figure 11.21), and only two cases when all collections are considered. No collections yielded Middle Postclassic or Late Postclassic diagnostics, including plots for all sherds (not shown). Consequently, the Classic predominates in occupation, and the Late Classic likely was the period of greatest occupational activity.

Ajitos Complex

Description

Ajitos is positioned on a southward dune salient, taking advantage of the natural elevation and enhancing it with a built-up and leveled extension above the surrounding terrain. The result is a center with a commanding vista and a steep access for much of its perimeter (Figure 11.22). Ajitos is the local name for the property on which most of the complex is located. The complex has multiple plazas. For purposes of analysis, I

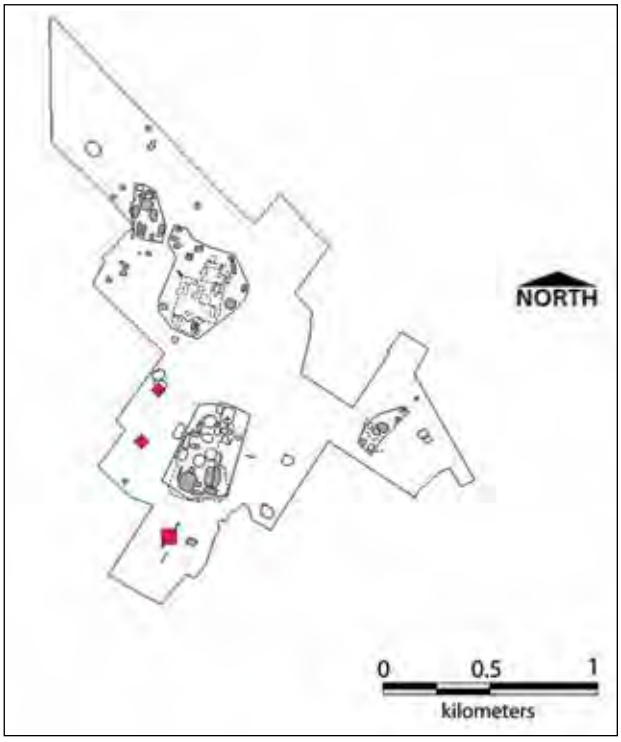

Figure 11.19. Paleodunes, Early Classic Tendency diagnostics, percent quartiles for collections at or above the median of 76 sherds (Table 7.1). Features not collected are shown in gray.

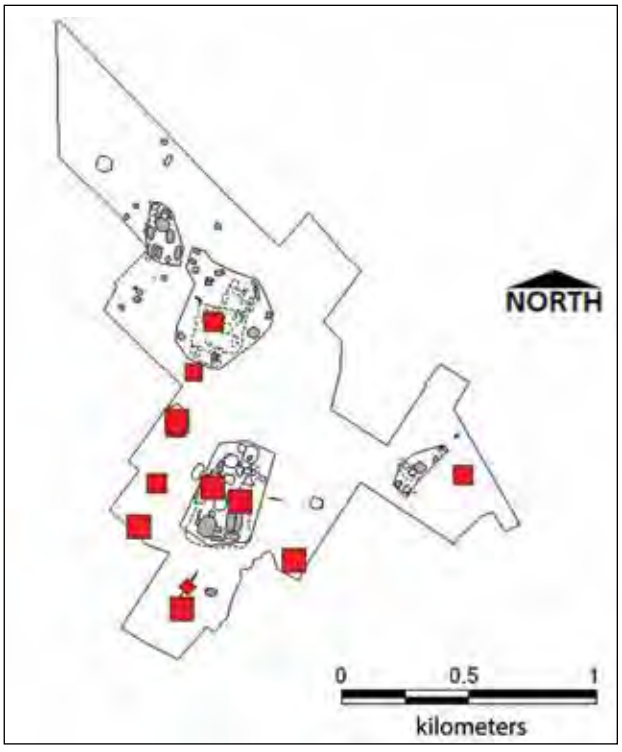

Figure 11.18. Paleodunes, Early Classic diagnostics, percent quartiles for collections at or above the median of 76 sherds (Table 7.1). Features not collected are shown in gray.

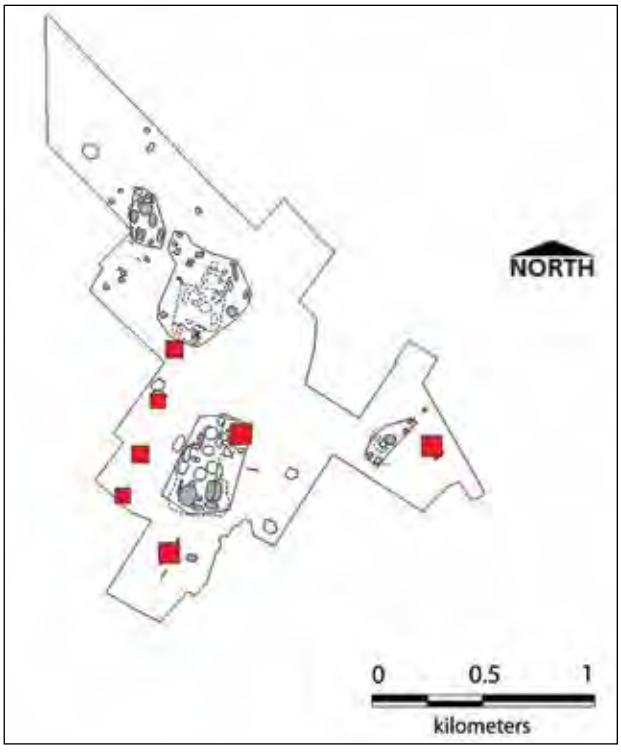

Figure 11.20. Paleodunes, Late Classic diagnostics, percent quartiles for collections at or above the median of 76 sherds (Table 7.1). Features not collected are shown in gray.

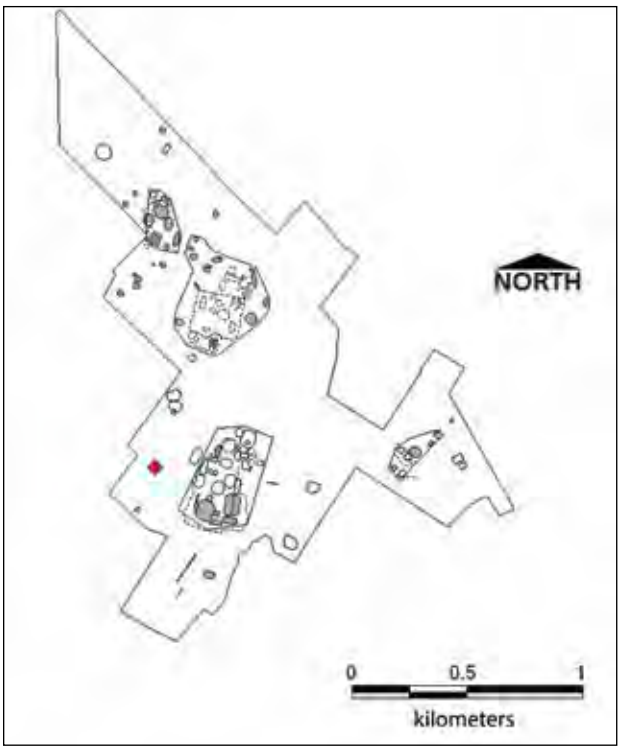

Figure 11.21. Paleodunes, Postclassic diagnostics, percent quartiles for collections at or above the median of 76 sherds (Table 7.1). Features not collected are shown in gray.

define a North Group and a South Group, although the construction is continuous and the division is arbitrary (Figure 11.23). The subdivisions distinguish the north area and its SPPG and associated monumental platform (along with a variety of closely positioned mounds) from the south area, which has a different configuration.

Ajitos North Group

At the north end of the North Group, 6873 is a conical mound with two laterals (6871 and 6874). One lateral, 6874, had a large looters' hole that exposed a clay layer, possibly a floor; this clay provided one of the clay samples for the region. The south end of the plaza does not today display a recognizable ballcourt, but mound 6872, located there, has been plowed and planted, so the evidence of a small ballcourt may have been obliterated. Treating 6872 as a possible ballcourt, I classify the group as either SPPG-2a or SPPG-2b, the former more likely. To the northeast, 6878 is a rectangular platform with one small mound on top, 6879. Additional mounds are positioned near the SPPG and the platform, some of them enclosing a small plaza to the south of the platform.

Ajitos South Group

In the South Group there are interlinked plazas. Three conical mounds (6866, 6880, and 6881) are positioned near a plaza area that contains two low mounds, and the area is further delimited by an elongate mound 6867 on the west edge of the complex. Farther south a massive conical mound 6935 has three projections. It sits at the south edge of the Ajitos complex. The south edge of Ajitos has a low embankment that curtails erosion off the plaza and protects the major conical mound, 6935.

To the east of the conical mound, two other sizable mounds are crowded into the south end of the complex, leaving only narrow plaza spaces among them. One of these southeastern mounds, 6931, is linear and sits atop a platform (6939), possibly a palatial platform . Ajitos is unusual in the close positioning of conical and elongated mounds in the South Group. The south end of the complex has very constrained space because of the limits of the dune salient. Looting holes are evident in the South Group, mainly at the southern extreme, which has a different landowner; the looting affects 6932 (looters' holes along base), 6933 (looters' holes on top), and 6935 (very large hole on the summit).

Bajos at Ajitos are quite modest in size. The north SPPG has a *bajo* at the extreme north end. A small *bajo* sits downslope on the east side of the SPPG. The south half of Ajitos is not served by *bajos* in the immediate area because it is so elevated, but off the ridge to the east today lies a deeply incised arroyo. Because other smaller complexes on the paleodunes still show signs of enclosed ponds that capture runoff headed south from the crest of the paleodune, it is possible that a *bajo* impoundment was originally situated southeast of Ajitos, but has been breached, captured, and obliterated by headward erosion of the arroyo. Between the 1969 Compañía Mexicana de Aerofoto mosaic and our contour mapping of Ajitos, the arroyo has advanced northward about 200 m. This striking rate of erosion likely reflects the clearing and plowing of land for pineapple cultivation. Pineapple was in production all around Ajitos and in the level plaza areas.

Surroundings

Although few residential traces were recorded in the vicinity of Ajitos (for example, between Ajitos and the complex to the northeast, Ajitos East, and northwest, toward Pitos), this scarcity is likely a reflection of the constrained surface visibility due to pasture to the north and pineapple cultivation in the other directions. A light residential scatter was recorded to the east,

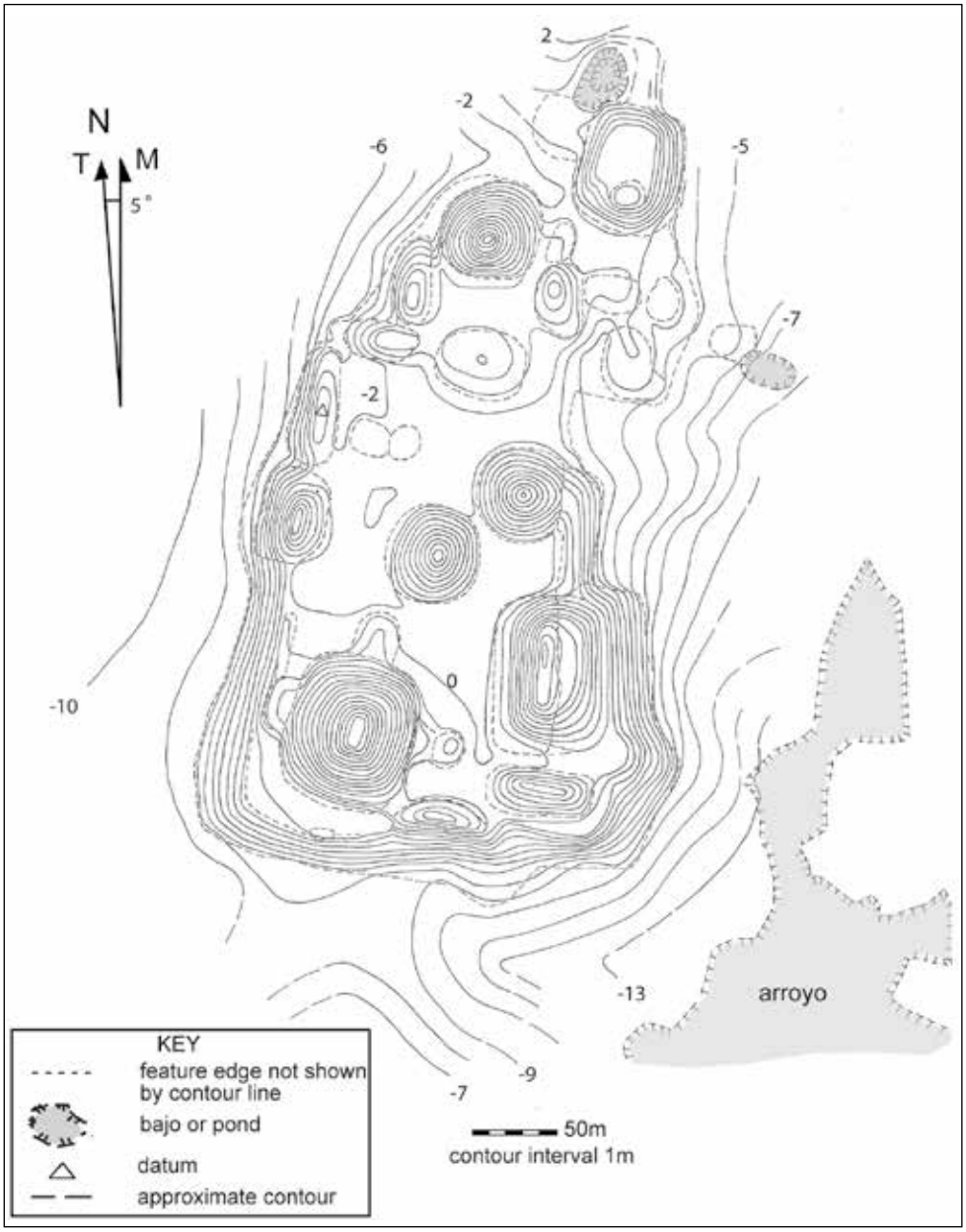

Figure 11.22. Ajitos contours, mapped by theodolite and GPS.

west, and south (some of it surface sherds along roads in pineapple fields); it is reasonable to assume there is at least a light residential scatter around this complex.

We are not in a position to determine if surrounding residential mounds have a comparable density to similarly sized centers, such as Azuzules and Nopiloa. The paleodunes landform makes earthen residential mounds less crucial for drainage, and settlement may be indicated more by artifact concentrations than by low mounds, in contrast to the Blanco delta. As will be discussed in the section about Pitos, Pitos and Ajitos may be paired complexes. Ajitos East may be a segment complex. The other complex mapped on the paleodunes is Vibora, but its relationship to Ajitos (and Pitos) cannot be determined due to insufficient chronological information.

Chronology

Ajitos yielded 328 sherds, but the collections were very small, and most structures could not be effectively surface collected. A single Preclassic diagnostic and no Postclassic diagnostics were encountered. Classic diagnostics predominate, and Late Classic diagnostics (10 sherds) are more abundant than those from the Early Classic (2 sherds; none from Early Classic Tendency).

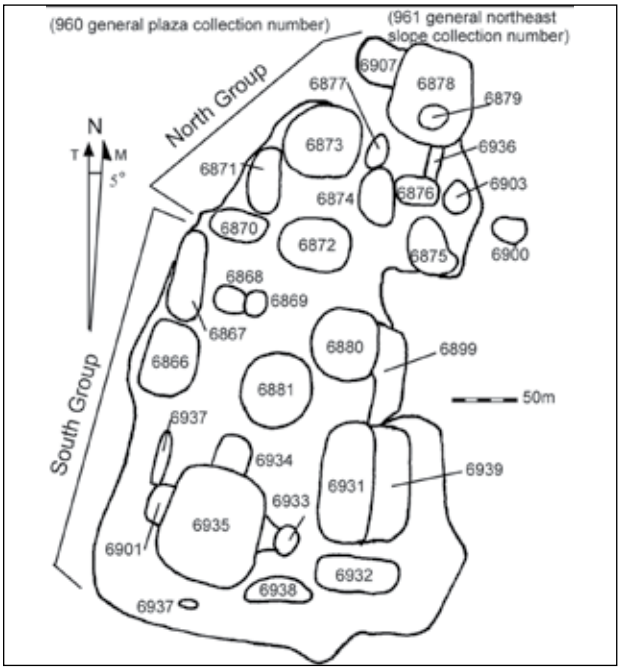

Figure 11.23. Ajitos feature numbers and arbitrary segments.

If we compare this slender evidence pointing to the Late Classic period for Ajitos with collections from the surrounding residential mounds, the latter concur in an absence of Preclassic diagnostics and in the presence of Classic diagnostics. Within the Classic period, the Early Classic is represented by scattered collections, with less evidence for Early Classic Tendency and the Late Classic period. Classic diagnostics are scattered among the various residential mounds and not concentrated in any locality. A single collection yielded Postclassic diagnostics in the Ajitos vicinity, but nothing distinctive of the Middle versus Late Postclassic. For the entire survey block, only one other collection (at Vibora) had any Postclassic material.

Discussion of the Ajitos Complex

Ajitos and Pitos, if they constituted a pair of complexes rather than independent ones, show complementary contents and arrangements. Ajitos has a concentration of large conical mounds (usually expected to have supported temples) plus a SPPG that probably included a ballcourt. Water impoundments may have been roughly comparable to Pitos if the modern arroyo captured a breached impoundment. Pitos, in contrast, has more ballcourts but they are located on the periphery of the complex, atypical of the Classic period, and Pitos contains only one large conical mound. Instead, quadrangles of elongated low mounds (residential?) predominate. Therefore, Ajitos seems likely to have had a stronger ritual role, and Ajitos a stronger residential role, perhaps for elites. Both manifest massive constructions that do not conform to Standard Plan principles except for the sole SPPG at Ajitos (dwarfed by the amount of non-Standard Plan construction).

Neither complex seems to have been an important locus of Preclassic occupation, but the area did have Early Classic occupation, and monumental construction may have begun at that date. Unfortunately, we are not in a position to detect which locations may have been involved, although it is tempting to suggest that the SPPG may have been built earlier than the large amount of construction that does not conform to those principles. If so, presumably during the Late Classic period important governmental personnel and inhabitants embarked on innovative construction.

West 1.17 km from Vibora, Daneels (2016) recorded a Standard Plan complex at El Castillo on the paleodunes, which she classifies as a primary center. Ajitos-Pitos provides the greatest amount of monumental construction, suggesting that during the Late Classic period, perhaps toward its close, the paired complexes became a primary center, perhaps following a situation during the Early Classic period when more than one roughly similar complex was located along the dune ridge, such as the north part of Ajitos, Vibora, and El Castillo. If so, El Castillo would be the most prominent among them because it has two monumental platforms.

Because we lack adequate information from the intervening Tlalixcoyan River area, we cannot be certain if the paleodunes remained independent from Cerro de las Mesas during the Early Classic period or if centers there fell under its suzerainty. Certainly it would have been in the interest of Cerro de las Mesas ruling groups to have controlled the paleodunes and the Tlalixcoyan drainage due to the ability to monitor or influence coastal trade from the paleodunes and benefit from the rich agricultural production along the lower Tlalixcoyan. In the Late Classic period, Ajitos-Pitos is on par with other coeval centers in the amount of monumental construction, such as Nopiloa and Azuzules. Consequently, I treat it as a primary center during the Late Classic period. As discussed in the next section, the aberrant architecture at Pitos suggests it may have been important very late during the Late Classic period when Standard Plan principles were falling out of use. The paleodunes area appears to have been largely abandoned by the Postclassic period.

Pitos Complex

Description

We named Pitos because the first surface artifact seen was a ceramic whistle fragment, and we did not discover a local name. Pitos is unlike any other major complex. Our information is quite incomplete because most of the site was in heavy brush and trees, and only a small portion could be mapped with GPS equipment. Surrounding mounds were recorded in pedestrian survey (Figure 11.24). Lynette Heller produced a sketch map of the overgrown structures where we could not get a GPS signal, but these structures were not given feature numbers because our information was impeded by poor visibility. With the exception of a conical mound, the overgrown structures seem to consist of small plaza groups, each with one or more elongated mounds.

Pitos has three ballcourts located on its periphery (7105 and 7104 in the GPS mapped area form one of the ballcourts), along with several low mounds and two water impoundments that would receive runoff from the higher dune crest to the north. Each impoundment is intact at the south end, where an embankment rises to delimit a shallow basin. These are certainly artificial ponds. Conceivably, the conical mound at the south end of Pitos, a nearby elongate mound to the south, and a ballcourt located at a lower level constituted a SPPG with an aberrant ballcourt position (SPPG-1a layout). Placement of the ballcourt at a markedly lower level might reflect an accommodation to the dune ridge topography on which Pitos is located. Quite recently, a resort and zip line have been carved into the Pitos complex. No assessment of the damage or findings from construction (which includes a swimming pool) has yet been made.

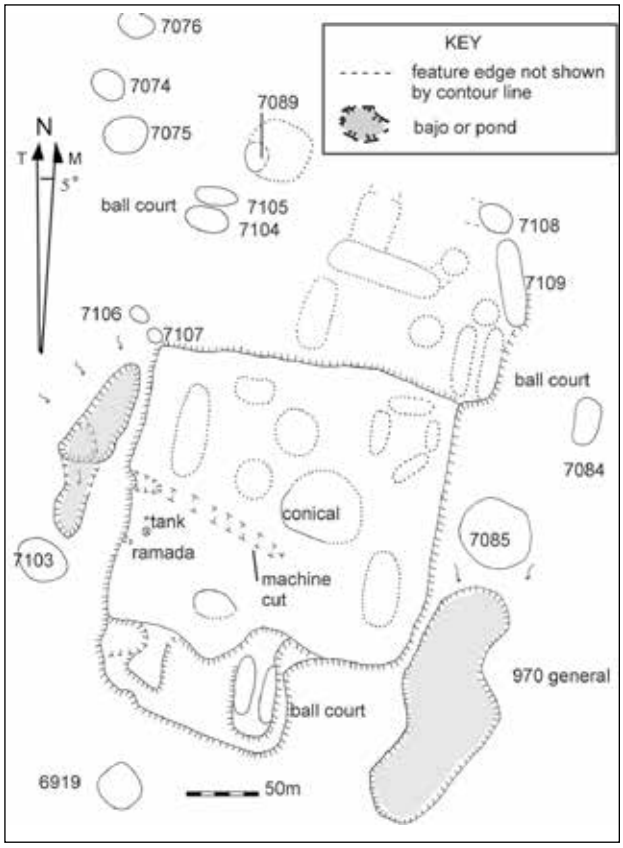

Figure 11.24. Pitos feature numbers in the part mapped by GPS and Abney level (solid lines) are accompanied by dotted lines to indicate approximate features based on reconnaissance. A general collection was made for the complex, collection 970.

Surroundings

Immediately around Pitos grass pasture and pineapple cultivation reduced surface visibility for artifact scatters, and residential mounds are scarce, mainly located to the west, where they pertain as much to the Vibora vicinity as to Pitos. Consequently, there is little indication of residential mound construction around Pitos, but because the elevated paleodunes have good drainage, there is a reduced incentive for residential platforms and surface scatters may signal occupation.

Chronology

No collections were obtained from Pitos due to the heavy grass cover in the fields immediately around it and overgrowth on the complex itself. The scarcity of surrounding features blocks ancillary chronological determinations; most of the mounds to the west also could not be collected.

Discussion of Pitos Complex

The proximity of Pitos and Ajitos (separated by 0.6 km at the margins, 0.8 km between the two major conical mounds) and the contrast in their constituent structures may imply they are two functionally distinct parts of a single center. Conceivably they shared the large pond impoundment that lies between them, but nearer to Pitos. Pitos has more residential low mounds and elongate range structures, plus three ballcourts and two water impoundments. Ajitos, in contrast, has an abundance of conical mounds, possibly one ballcourt, and a minimal array of ponds for water access (although, as noted, the arroyo may have destroyed an impoundment).

Both Pitos and Ajitos have a large footprint among the four complexes we mapped in the paleodunes. El Castillo, to the west, mapped by Daneels (2016), is comparable in its SPPG proportions to Vibora (discussed below), but it also has two monumental platforms. Pitos and Ajitos are the most extensive and sizable complexes in the paleodunes. Daneels (2016:602) dates El Castillo to the Middle Classic but with Late Classic dating for the two outlying monumental platforms.

Pitos is unusual among all the paleodunes complexes for its quadrangle arrangements of long, relatively low mounds. It is tempting to hypothesize that most of the Pitos construction was relatively late in the Late Classic period, representing use of architectural principles for important residences (around quadrangles) that were not typical earlier in the Classic period. From this perspective, parts of Ajitos (and possibly the conical and lateral at Pitos) would represent construction from an earlier time, either earlier in the Late Classic period or even in some cases during the Early Classic period.

The proximity of the Ajitos and Pitos complexes could be explained partly in terms of horizontal stratigraphy, but it seems likely that Ajitos continued as a sacred complex despite the possible lack of new major construction. The WLPB has several examples of complexes exhibiting multiple monumental groups (Madereros-Tilcampo, Tuzales), suggesting that some complexes spread out with multiple separated groups while others were contiguous (Cerro de las Mesas). Whether considered alone or as a paired set, Ajitos and Pitos constituted a primary center for the paleodunes. One or both also had smaller segment complexes nearby, discussed next.

Vibora Complex

Description

Vibora sits near the top of the paleodune ridge, facing southward across the rolling paleodunes and toward the interior coastal plain. Its name derives from the nearby *ejido*. The complex consists of a SPPG-2a with a conical mound (6926), two laterals (6924, 6925), and a ballcourt at the south end of the plaza (6922, 6923; Figure 11.25). Five other mounds cluster in the vicinity and 7082 forms an embankment that closes off a small plaza on the north side. Substantial looters' holes were observed on mounds 7082 and 7083. The outer mapped area of Vibora almost reaches the outer mapped area of Pitos (the principal conical mounds are 0.5 km apart).

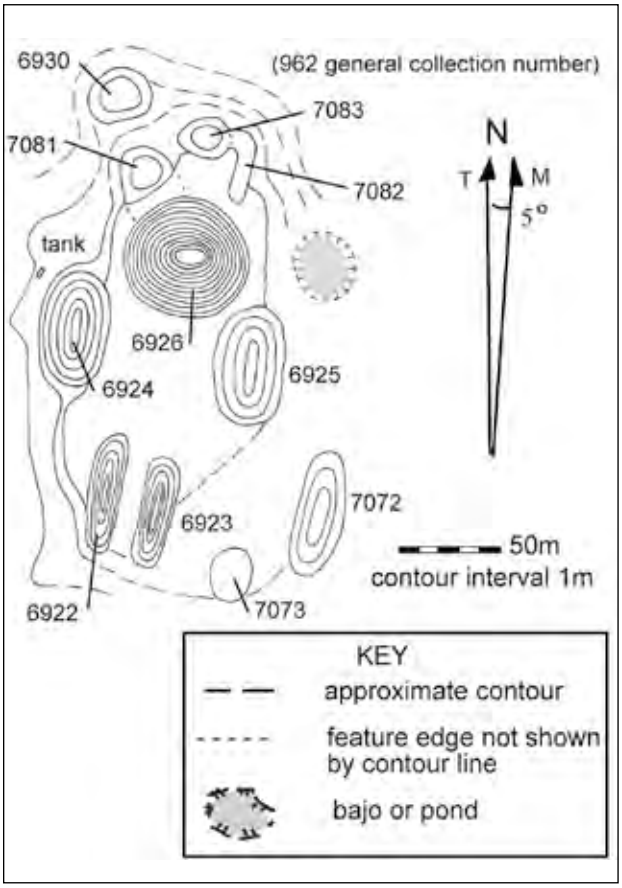

Figure 11.25. Vibora feature numbers and contours, mapped by GPS and Abney level.

Surroundings

A scattering of residential mounds is located around Vibora, although the proximity of Pitos to the east makes some of them candidates for supporting population for that complex as well. Very few of the surrounding mounds could be collected, with the result that no collections near Vibora provide diagnostic pottery.

Chronology

The presence of grass and weeds prevented surface collections at Vibora and from nearby mounds.

Discussion of Vibora Complex

Because of the lack of sherds from Vibora, its chronological placement and settlement roles remain in doubt. There is a possibility, in view of the spatial proximity of the larger complexes of Pitos and Ajitos, that Vibora (and all our mapped paleodunes complexes) were groups within a single center

during the Classic period. Although Ajitos and Pitos seem likely to have been most important during the Late Classic period, the north part of Ajitos, with a SPPG, may have been constructed and used in Early Classic times. By extension, such a history is possible for Vibora, eventually superseded by substantial Late Classic construction at Ajitos and Pitos, which became a primary center. During the Early Classic period, Vibora and the north portion of Ajitos may have been subsidiary to El Castillo.

The length of the Vibora ballcourt is more in keeping with the longer courts in the Late Classic period at Nopiloa and Azuzules than Early Classic courts at Cerro de las Mesas. The presence of a ballcourt points toward a secondary center role, but the absence of a palatial platform or obvious elite residence, such as a mound with a terrace, raises the possibility of a tertiary role. For the moment, a secondary Early Classic role seems most likely. Whether Vibora continued in use during the Late Classic period remains uncertain. In view of the proximity to Pitos and Ajitos, it may have been integrated in some fashion into those settlements as a separate clump of construction.

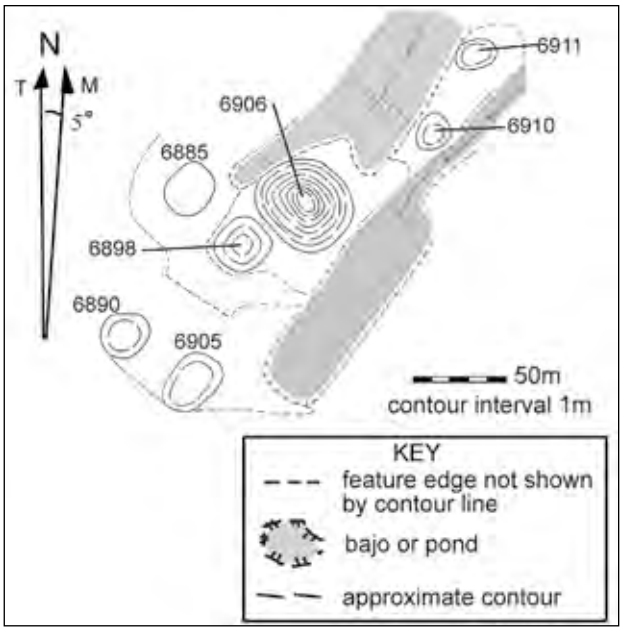

Figure 11.26. Ajitos East feature numbers and contours, mapped by GPS and Abney level, with short dashed lines to indicate terraces descending southwest.

Ajitos East Complex

Description

Ajitos East is 0.8 km from Ajitos, and it is situated on a dune ridge finger projecting southward. It consists of a conical mound (6906) and a small group of associated mounds, one of which (6898) is immediately south, almost touching the conical (Figure 11.26). Ajitos East is most akin to a Conical Plaza Group in my typology, but the plaza is segmented by a terrace. Ajitos East has an orderly set of terraces stepping down toward the southwest, with mounds on each terrace. Water impoundments cut into the surface on either side of the complex. Ajitos East has two of the clearest, most intact water impoundments of any of the paleodunes complexes.

Although we recorded the structures with GPS and measured structure heights with an Abney level, we were not able to use this information to produce an adequate contour map to show how the terrain and architecture interrelate. Dense grass limited Abney level records about the land surface. We hiked in with the theodolite in the subsequent year of survey, intent on contour mapping Ajitos East, only to find grass higher than it had been before. When our mapping surveyor entirely disappeared into the grass, we gave up and hiked back.

Surroundings

Three mounds were recorded near Ajitos East, located northeast of the complex. The prevalence of grass pastures and pineapple cultivation made observation of surface sherd concentrations impossible, and mounds were few, perhaps in part because of good drainage on the paleodunes that reduced the incentives for residential mound construction. We can view the Ajitos East surroundings as exhibiting at least a light residential scatter. It seems likely that the intervening space between Ajitos East and Ajitos contains a scatter of residential remains.

Chronology

Ajitos East produced no diagnostic sherds due to the dense grass cover. Surrounding mounds only produced Classic diagnostics, thus concurring with the predominant indications for the Ajitos area generally. Both Early and Late Classic diagnostics occur among the Classic materials, without either segment of the Classic better represented.

Discussion of Ajitos East Complex

In view of the close proximity to the much larger complex at Ajitos and the similarity in diagnostic pottery, Ajitos East is a candidate for a segment of the Ajitos-Pitos settlement.

Discussion of Paleodunes Complexes

Chronology of monumental complexes in the paleodunes and of surrounding settlement are both problematic, but all the evidence concurs that the Classic period was important for construction and occupation, with nearly equal indications for the Early and Late Classic, but with slightly more widespread signs of Late Classic occupation. The area lacks noteworthy Preclassic or Postclassic evidence. It seems likely that some portion of the construction, at least at Ajitos, was linked to the Early Classic period, but we are not in a position to gauge if it constituted a secondary center then, nor whether, for example, Vibora may have been a separate Early Classic center, since we cannot date Vibora.

For the Late Classic period, the Pitos complex raises the possibility of new construction and layout principles atypical of the WLPB during the earlier part of the Classic period. The SPPG, if there was one at Pitos, was not typical because of the ballcourt position, and additional ballcourts occupy peripheral positions. The South Group of the nearby Ajitos complex also deviates from Classic period patterns with its dense array of conical mounds at the south end. North Ajitos has the traditional SPPG (perhaps with a ballcourt). At some point in the Classic period, likely toward the end of the Late Classic, new architectural programs were enacted.

Particularly if Ajitos and Pitos were linked and have partly contemporary sets of mounds, they differ somewhat from other sprawling complexes, such as Madereros-Tilcampo, because they have complementary architectural programs. Even though Ajitos and Pitos appear individually compact and well separated by a modest intervening distance, the clear preference for locating monumental complexes on dune salients must be borne in mind to understand the pair. The leveling (and possibly partial buildup) of a dune salient constricts the area available for construction, particularly if runoff is channeled nearby to create a water impoundment.

An evaluation of the paleodunes complexes in terms of overall settlement pattern is tricky. During the Late Classic period, Ajitos and Pitos likely constituted a primary center. They may have had outlying segment construction at Ajitos East and Vibora, but the latter cannot be dated at present and may have had its inception during the Early Classic period. During the Early Classic period, people were living on the paleodunes, but the extent of occupation is unclear, along with whether any of the complexes were constructed at that time.

Daneels (2016) labels the array of paleodunes monumental complexes the El Castillo capital zone because the dune ridges were a continuing focus of construction (see Stark 1999b re capital zone concept). For the paleodunes, the timing of successive complexes and the nature of subsidiary centers is not well understood yet because the PALM survey east of the highway is not as extensive as that conducted by Daneels on the western side. Nevertheless, the capital zone concept seems applicable.

Mangrove Area

The mangrove survey was conducted under different conditions from the rest of the PALM work. The dense mangrove forest and generally inundated conditions rule out normal pedestrian survey. The areas surveyed are in the estuarine swamp, not far from the Alvarado Lagoon. Aerial photographs are remarkably effective at disclosing higher ground, and mounds on low levees are usually discernible (Bruder et al. 1975). Because of the east–west orientation of modern dune ridges along the Gulf coast, east–west alignments of landforms across the wetlands at the mouth of the Papaloapan River are suggestive of old dune ridges nearly buried under sedimentation and subsidence and possibly reduced by wind and water erosion. Other alignments follow levees of old distributaries.

Aerial mosaics were used to select three areas to investigate (Figure 11.27). Because of the scarcity of slightly higher, drier land in the mangrove swamp, the scant levees along distributary channels or along lagoon edges offer the chief opportunities for placement of houses or construction of public buildings. Figure 6.6 provides an aerial image of some of the larger levee settlements. One survey area is the extensive line of mounds that crosses Patarata Island extending east–west, which I have termed the Nacastle-Patarata settlement (Stark 1989). Nacastle and Patarata are local names for swamplands crossed by the settlement. Investigations on Patarata Island included excavations at Patarata 52 (Stark 1977) and test pitting of other mounds. Additional survey in the settlement was conducted by PALM teams, and Patarata mounds were revisited and mapped with GPS. In farmland areas to the west along the Blanco, dispersal of occupation makes interpretation of settlement organization challenging, but settlement in the mangrove swamp is confined to linear landforms, a factor that contributes to recognition of settlement organization.

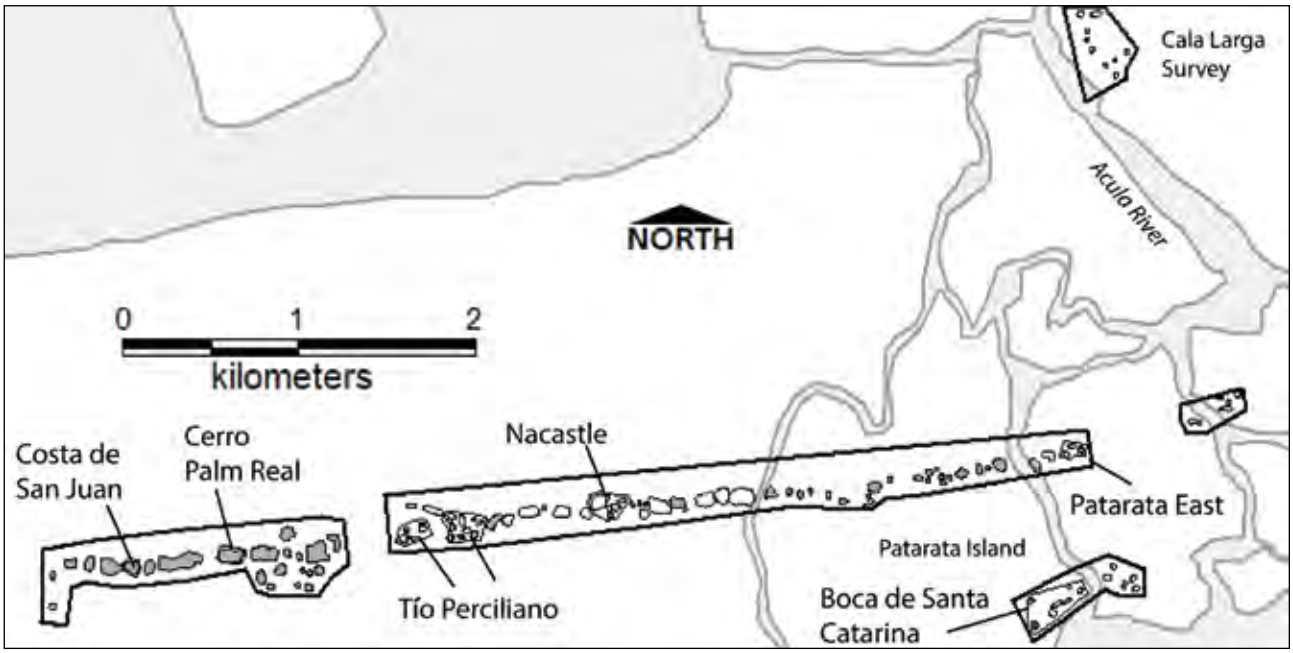

Figure 11.27. In mangrove survey areas the Nacastle-Patarata linear settlement extends in a band across the map. The Cala Larga area is located in the far northeast. Lagoons and waterways are gray. Uncollected features are gray.

Also on Patarata Island we investigated a site complex to the south of the Nacastle-Patarata settlement that may be part of another, shorter alignment, although we scarcely investigated it due to lack of time. The Boca de Santa Catarina complex is situated at the southeast corner of Patarata Island where the eastern arroyo (Patarata River) connects with the lagoon to the south. We also surveyed across that arroyo, where a group of small mounds is located, likely part of the Santa Catarina settlement.

The third mangrove locale is Cala Larga along the Acula River, a distributary of the Papaloapan River; at Cala Larga a small monumental complex is located on a bend of the Acula, along with numerous low residential mounds. The monumental complex was densely overgrown during our survey and could not be mapped, but we included coverage of the residential mounds that were accessible. Some of the residential mounds visible on the 1969 aerial photographs on the eastern side of the Cala Larga array appear to have been overtaken by mangrove growth and were not accessible.

Pottery diagnostics for the areas surveyed in the mangrove swamp are shown in a series of plots, but many collections did not reach the median collection size. Also, mangrove collections frequently present eroded sherds due to flooding. Mangrove collections, whether surface or excavated (Stark 1989), do not include the full repertoire of more elaborate decorated bowls encountered to the west in farmlands. Many of these decorated vessels contribute to the array of temporal diagnostics. Consequently, temporal discrimination of collections is hampered greatly.

Because of this situation, I deviate from the use of collections at or above the median of 76 sherds. Plots are provided using all collections, with the caveat that the percentages can be greatly influenced by small collection sizes. Many features on Patarata Island were not collected, but Stark (1977, 1989) provides additional information from excavation. Patarata 52 had Early and Late Classic occupation.

Only two collections yielded a Preclassic diagnostic (Figure 11.28). Scant Preclassic occupation could reflect an earlier geomorphological context in which the banks had not developed enough to attract permanent settlement, which may have been focused at upriver locations.

Classic diagnostics reveal a substantial increase in the number of collections with diagnostics at all of the localities (Figure 11.29). For Early Classic diagnostics, the Nacastle-Patarata linear settlement is occupied, along with the Boca de Santa Catarina area (Figure 11.30). Early Classic Tendency diagnostics add the Cala Larga area (Figure 11.31). Late Classic occupational evidence is more abundant at all locations, suggesting a "boom" of activity during that period (Figure 11.32).

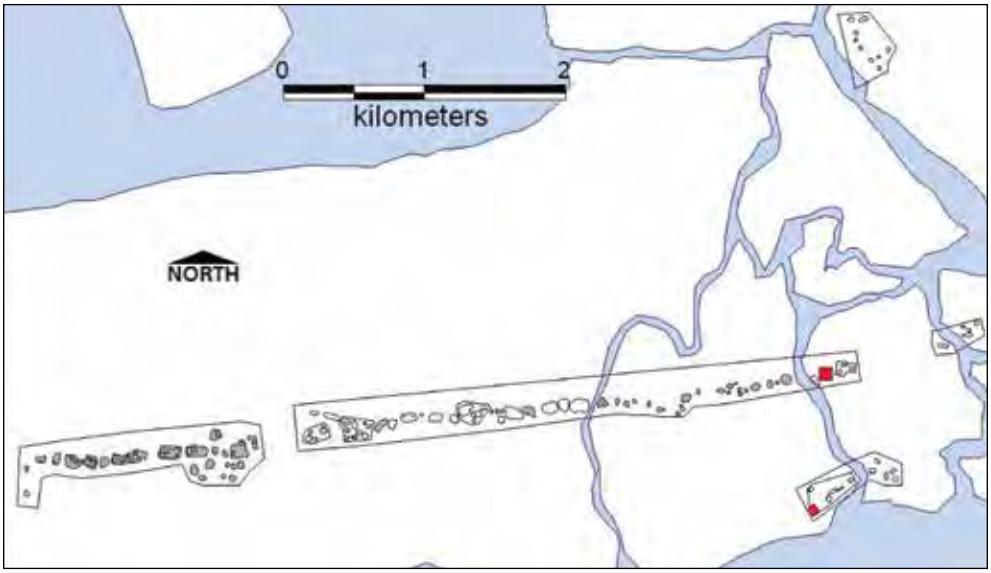

Figure 11.28. Mangrove area, Preclassic diagnostics, percent quartiles using all collections (Table 7.1). Features not collected are shown in gray.

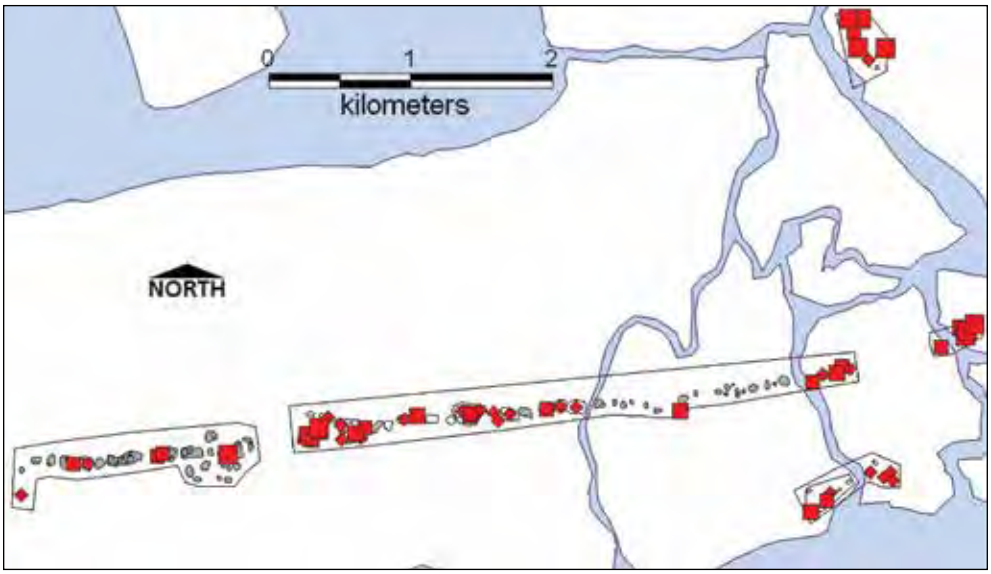

Figure 11.29. Mangrove area, Classic diagnostics, percent quartiles using all collections (Table 7.1). Features not collected are shown in gray.

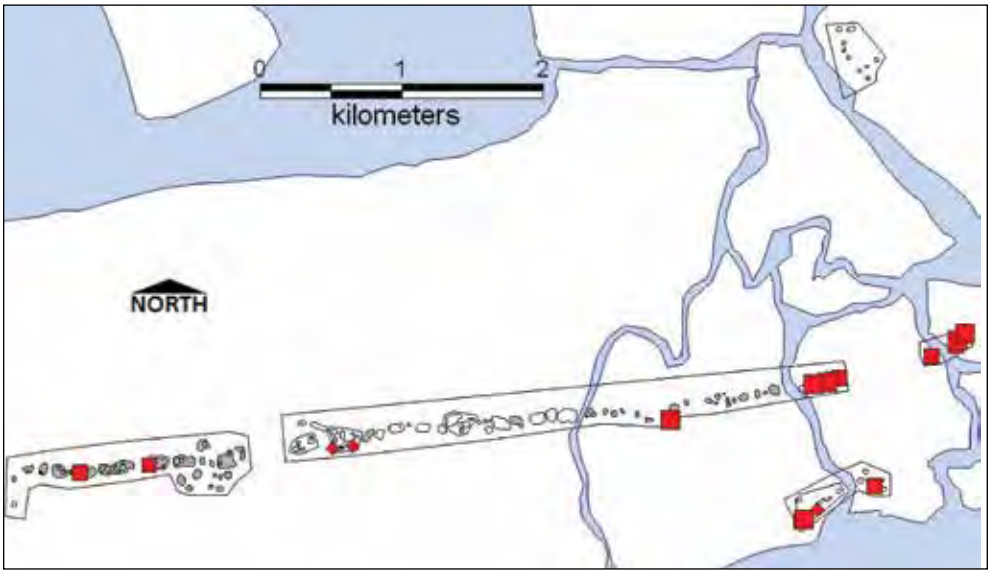

Figure 11.30. Mangrove area, Early Classic diagnostics, percent quartiles using all collections (Table 7.1). Features not collected are shown in gray.

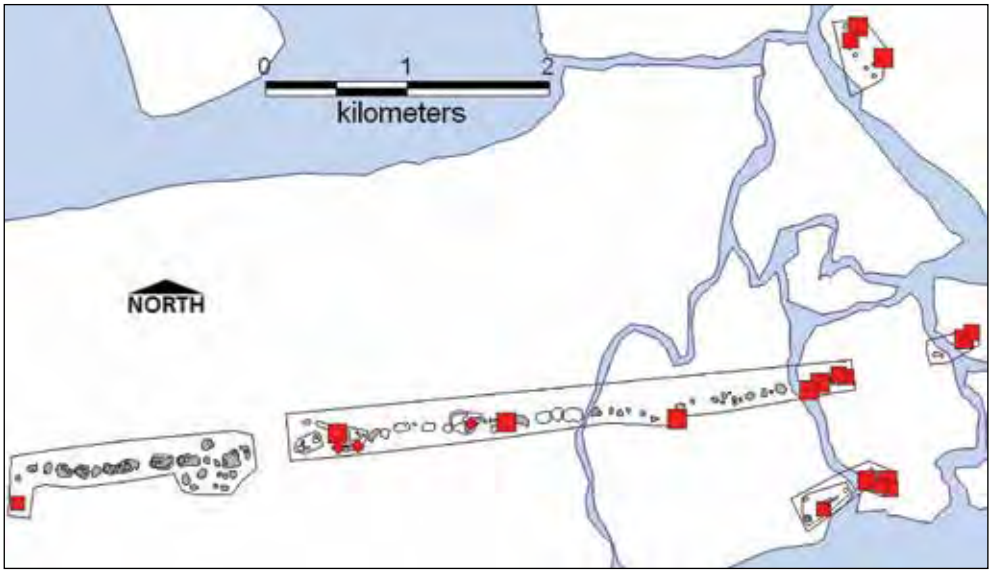

Figure 11.31. Mangrove area, Early Classic Tendency diagnostics, percent quartiles using all collections (Table 7.1). Features not collected are shown in gray.

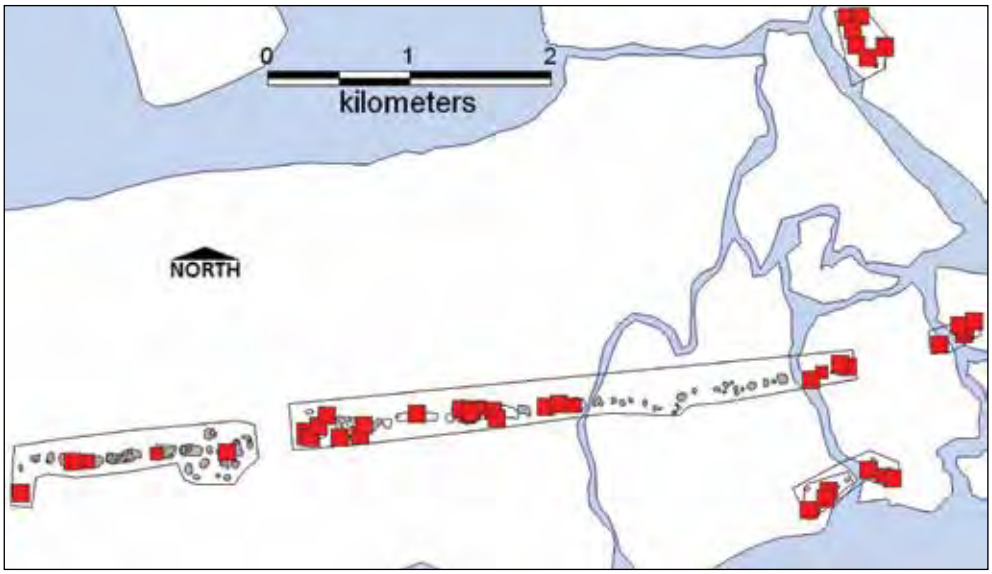

Figure 11.32. Mangrove area, Late Classic diagnostics, percent quartiles using all collections (Table 7.1). Features not collected are shown in gray.

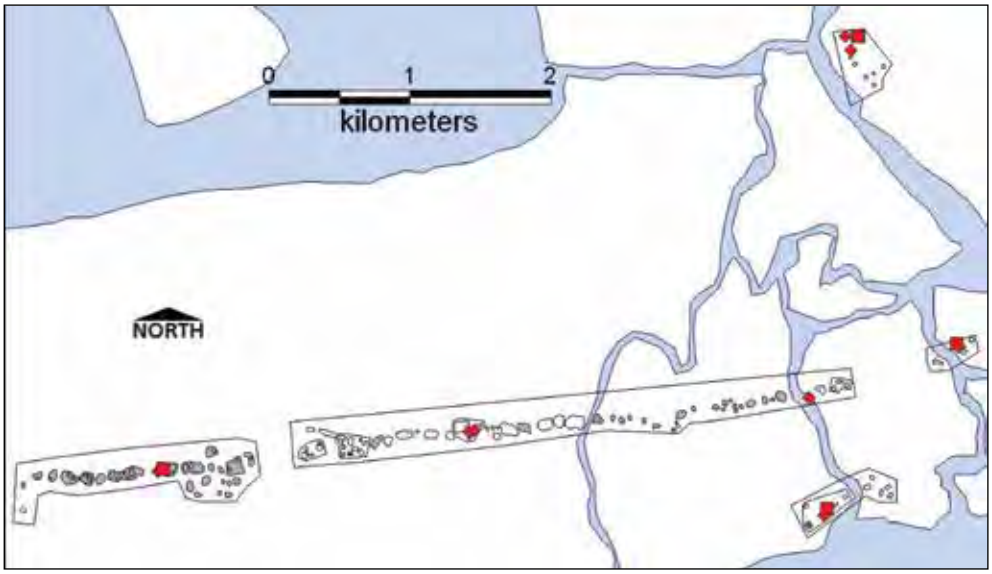

Figure 11.33. Mangrove area, Postclassic diagnostics, percent quartiles using all collections (Table 7.1). Features not collected are shown in gray.

Few collections produced Postclassic diagnostics (Figure 11.33), and none were specific to either the Middle or Late Postclassic. Occupation had clearly declined drastically from the Classic period, and the use of the mounds may have been seasonal. Local people commented that an empty house on the Nacastle-Patarata settlement line is used seasonally by the landlord's family if water levels rise sufficiently affecting their regular home; the ancient community mounds form particularly high ground.

In sum, despite the challenges of interpreting mangrove collections, it is evident that the areas surveyed were little used during Preclassic times, perhaps only seasonally, and underwent an expansion of occupation and construction during the Classic period, with the strongest indications during the Late Classic period. The Postclassic decline in occupation is striking, and some use of mounds may have been seasonal.

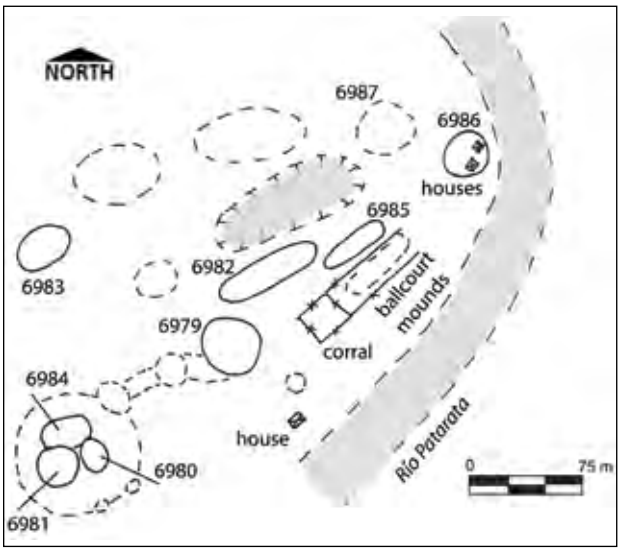

Figure 11.35. Sketch map of Boca de Santa Catarina, with dashed lines showing structures observed in 1969 that have been obliterated by grading.

Boca de Santa Catarina Complex

Description

Boca de Santa Catarina, located on Patarata Island, was visited in 1969 during survey (Stark 1977, 1989). Due to time constraints and standing water in several areas, PALM work concentrated on GPS mapping of the central complex (Figure 11.34). Other low mounds to the north and west were not investigated. No rectangular palatial platform is present at this

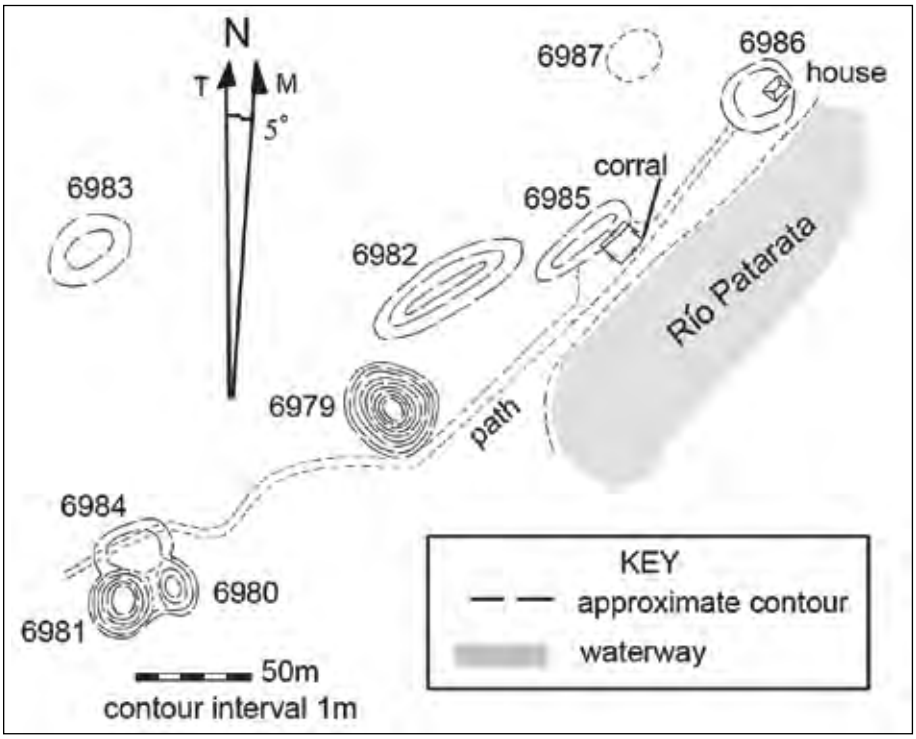

Figure 11.34. Boca de Santa Catarina contours were mapped with GPS and Abney level. Considerable mound destruction has occurred as indicated in the next figure.

complex, but a triplet of mounds to the west (6980, 6981, 6984) is much higher than the average residential mounds in the mangrove swamp and may constitute either a small ritual group or elite residential platforms.

At the time of my 1969 visit, Compañía Mexicana de Aerofoto aerial mosaics were not available. A sketch map was prepared, with annotations concerning estimated heights of mounds (Figure 11.35). This map shows that a ballcourt was present (6985 and a now-destroyed companion mound), completing a SPPG-1a. Mound 6979 is a conical mound with a single lateral, 6982. A failed government-sponsored commercial fishery experiment farther west of Boca de Santa Catarina led to the introduction of heavy equipment to grade a road to the fishery, and some mounds were leveled for fill. Additionally, the estuary currents seem to have eroded some of the shore line since my 1969 visit.

Surroundings

On the west bank of the Arroyo Patarata, only the Santa Catarina complex was mapped, but survey also included a small area on the east bank where several residential mounds occur. Mangrove inhabitants necessarily would have had canoes, so occupation across channels is not problematic. Boca de Santa Catarina is only 0.8 km from the nearest part of the Nacastle-Patarata linear settlement, situated to the north on Patarata Island. Each appears to be part of a separate linear array, however, which may reflect separate underlying landforms.

Chronology

Although some mounds at the complex were covered by grass, disturbance of other mounds yielded collections, even though only two produced sizable collections. A single Preclassic diagnostic and four Postclassic diagnostics are greatly outnumbered by Classic diagnostics (60). Among them, Late Classic sherds predominate by far, with only five Early Classic and Early Classic Tendency sherds.

In the residential cluster across the arroyo, the Preclassic period is not represented by sherds, but there are Classic diagnostics, both Early and Late Classic, with more mounds yielding the latter. No Postclassic diagnostics were recovered. Overall, the residential area echoes the complex itself, suggesting Classic occupation, with a greater emphasis on the Late Classic.

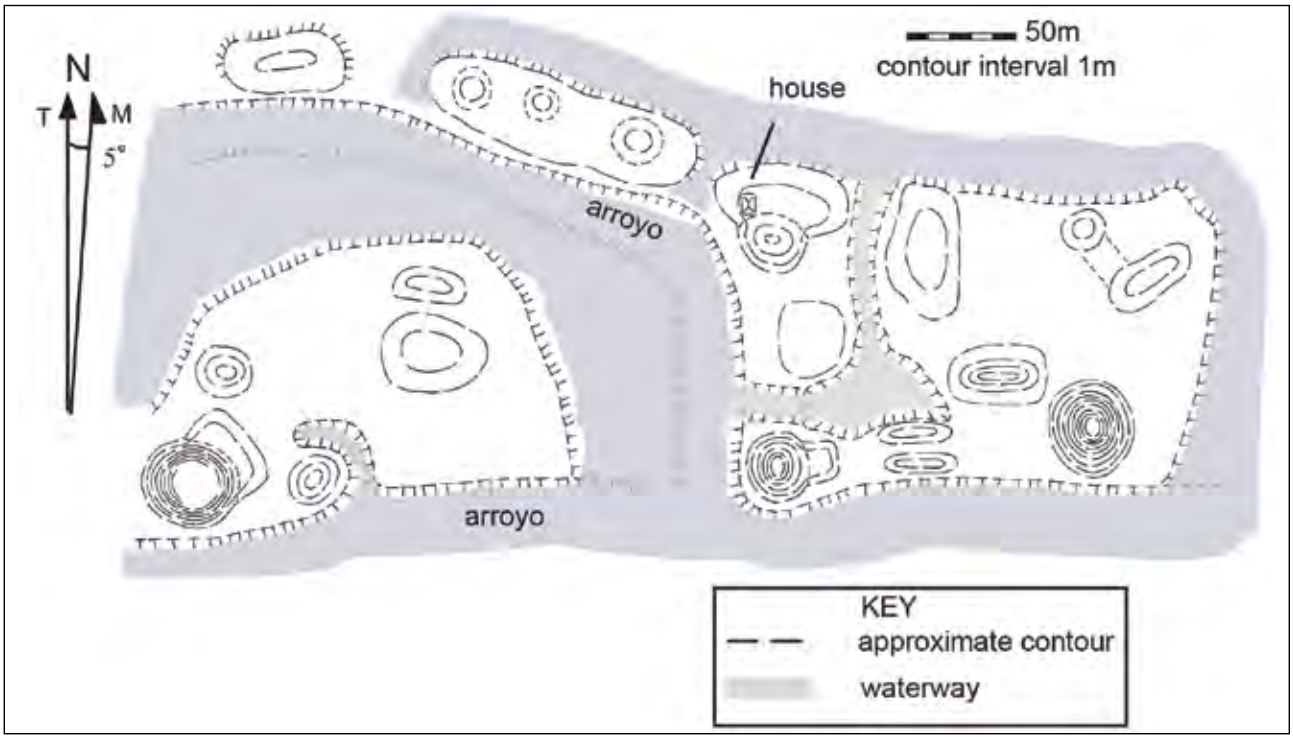

Figure 11.36. Tío Perciliano contours, mapped with GPS and Abney level. Bajos and arroyos are gray.

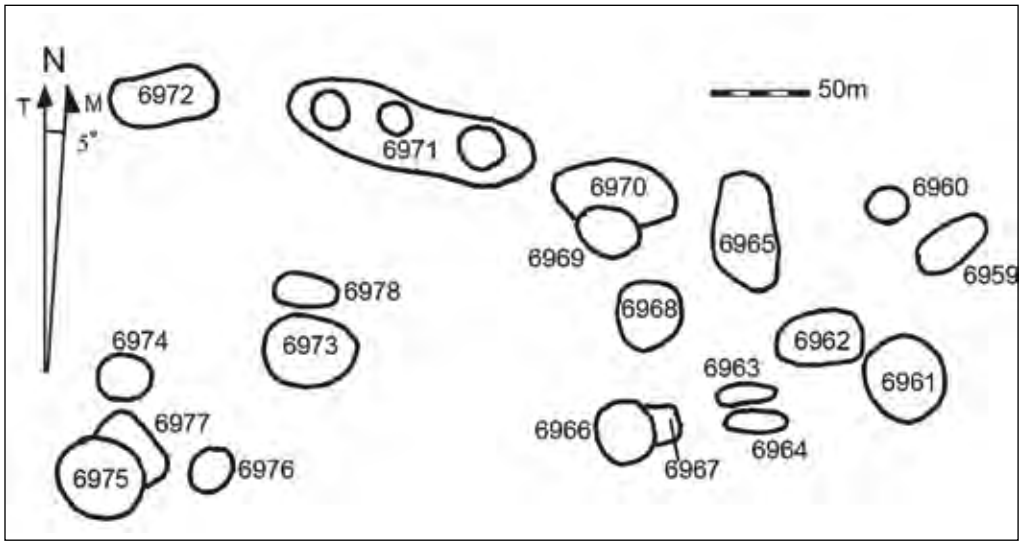

Figure 11.37. Tío Perciliano feature numbers.

Discussion of Boca de Santa Catarina Complex

The chief challenge to interpreting the settlement role of Boca de Santa Catarina is the proximity of a larger settlement, Nacatle-Patarata, 0.8 km to the north. Lagoon edges today form long east–west alignments, which probably reflect underlying eroded and buried dunes long antedating human occupation on the coast. Modern dunes constrain the flow of rivers, which, on the western side of the Papaloapan River, turn eastward and join the lagoons at the mouth of the river. The modern dunes block direct outward flow to the Gulf of Mexico except in the case of the biggest rivers. Given the geomorphology of the area, Boca de Santa Catarina is likely a separate settlement, with its proximity to Nacatle-Patarata a function of geomorphological conditions. It could also be a physically separated part of that settlement.

Because Boca de Santa Catarina dates to the same span as Nacatle-Patarata, it seems likely the two overlapped during the Early and Late Classic periods. By virtue of its size and SPPG, Boca de Santa Catarina can be classified as a secondary center, despite its proximity to the Nacatle-Patarata settlement (unless the two are considered a single settlement). Boca de Santa Catarina lacks the concentration of residential mounds associated with Nacatle-Patarata. Boca de Santa Catarina's linear extent as indicated by a Compañía Mexicana de Aerofoto mosaic is 4.14 km, but Nacatle-Patarata extends for approximately 8.8 km.

Tío Perciliano Complex

Description

Tío Perciliano is part of an east–west settlement along an arroyo that crosses Patarata Island, which I have termed the Nacatle-Patarata settlement (Stark 1989). The name of the monumental complex is based on local inhabitants' information. An arroyo to the south forms one edge of the complex and the north side exhibits a backslope with patches of wetland grasses and a gentle descent northward into the mangrove swamp.

Tío Perciliano is located approximately in the middle of the Nacatle-Patarata settlement and is the largest of its monumental complexes (Figures 11.36, 11.37). A SPPG-1a comprises a conical mound (6961), a single lateral (6962), and an axial ballcourt (6963 and 6964). Two additional mounds to the west have noteworthy elevations and attached terraces (6969 and 6966). No monumental platform is present, but these mound-terraces, along with 6975 across the arroyo, also with a terrace, may constitute elite residential mounds. Several additional low mounds complete the Tío Perciliano array.

Surroundings

Tío Perciliano forms part of a continuous string of mounds that form a settlement with several segment complexes. The surrounding mounds discussed for Tío Perciliano are pertinent for the segment complexes as well. Some apparent interruptions in the line

of mounds are due to nearly impenetrable vegetation that prevented obtaining a GPS signal. Otherwise the line of mounds would be continuous on the map. Aerial photographs indicate the entire settlement extends for 8.8 km. More mounds occur beyond the western end of the mapped array. As noted, the Boca de Santa Catarina Complex lies 0.8 km to the south.

Chronology

Tío Perciliano produced 535 sherds, although only a few collections are sizable. Classic diagnostics predominate, with no Preclassic or Postclassic sherds. Late Classic diagnostics far outnumber Early Classic and Early Classic Tendency ones.

The rest of the line of mounds forming the settlement produced only one collection with some Preclassic material. Classic period diagnostics predominate. Early and Late Classic diagnostics occur but with somewhat different patterning. Early Classic and Early Classic Tendency diagnostics are concentrated to the east beyond Patarata Island. Although Late Classic diagnostics occur there as well, they are more prevalent west of Patarata Island. Patarata Island itself, on the basis of test pits, has Late Classic deposits uppermost, with deeper levels near or below the water table pertaining to the Early Classic period. It appears likely that at least part of this settlement line has a deeply buried Early Classic component (except perhaps at the east end where there may be less dense Late Classic overburden), but the upper materials are Late Classic. Postclassic diagnostics are extremely scarce, suggestive of occasional visits, encampments, or short-term occupation. None of the Postclassic sherds is indicative of Middle versus Late Postclassic.

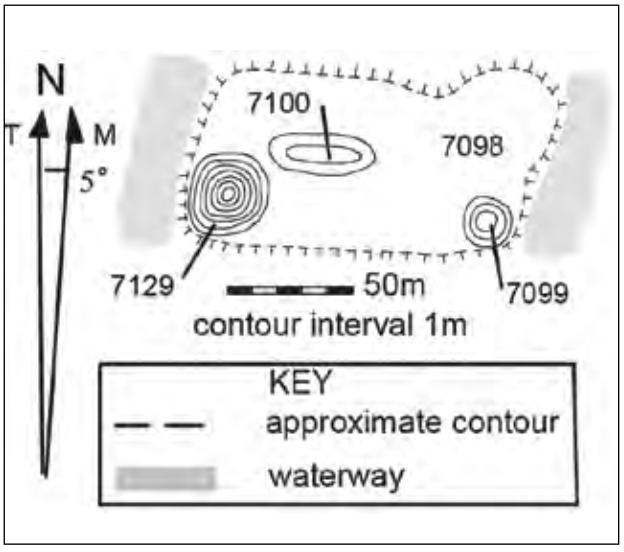

Figure 11.38. Cerro Palma Real feature numbers and contours, mapped with GPS and Abney level.

Discussion of Tío Perciliano Complex

The function of Tío Perciliano during the Early Classic period remains uncertain, but it likely was the main area of public construction at that time in view of the general tendency toward continuities in settlement patterns in the region during the Classic period. Tentatively I assume it was a second-ranked center under Cerro de las Mesas during the Early Classic period. During the Late Classic period, Tío Perciliano assumed its present size as the main complex for the Nacastle-Patarata line of mounds and possibly for the mangrove swamp in general. Even though Tío Perciliano is not as imposing in amount and sizes of public buildings as Azuzules, Nopiloa, and Ajitos-Pitos, it is large for its locale if we take into account the swamplands surrounding it and the consequent restrictions on farmland production and population.

I treat Tío Perciliano as the first-ranked main complex for the mangrove swamp in the Late Classic period. I use Nacastle-Patarata to refer to the settlement, rather than the name of the main complex, because Patarata has precedence in the literature (Stark 1977). Within the line of Nacastle-Patarata mounds, four small monumental complexes represent segments serving parts of the community, as discussed next. These subordinate complexes occur at intervals in the linear settlement, with two of them located east of Tío Perciliano and two located west. The axial orientation of the subordinate complexes (azimuth facing across the plaza from the conical mound) varies and does not accord consistently with Tío Perciliano. Boca de Santa Catarina, located nearby on Patarata Island, may be a secondary center fronting a different channel or possibly was a separated portion of the settlement.

Cerro Palma Real Complex

Description

Cerro Palma Real is one of four Partial SPPG-B1 within the Nacastle-Patarata settlement. It consists of a conical mound (7129) and a single lateral (7100; Figure 11.38). An additional low mound is positioned on the east side of the plaza (Figure 11.38). This complex, like each of the Nacastle-Patarata subsidiary groups, lacks a ballcourt.

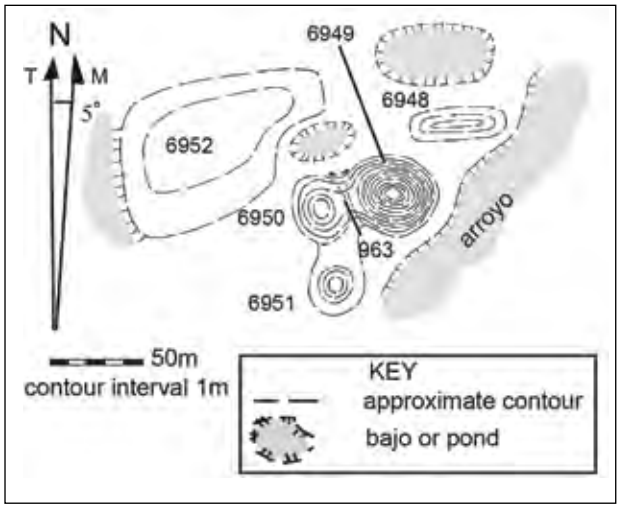

Figure 11.39. Nacastle feature numbers and contours, mapped with GPS and Abney level.

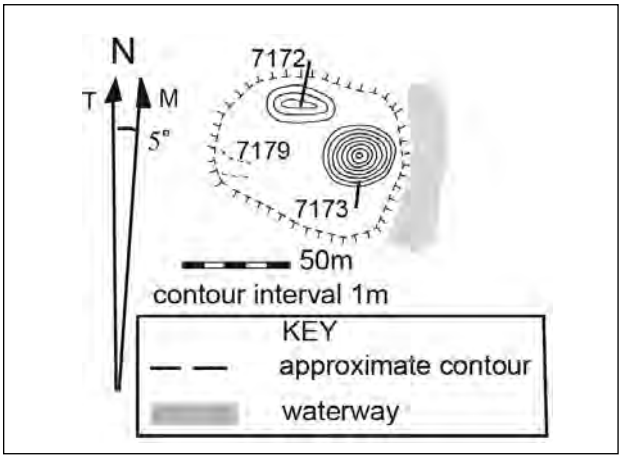

Figure 11.40. Costa de San Juan feature numbers and contours, mapped with GPS and Abney level (dashed lines indicate possible elevated access way).

Surroundings

See discussion with Tío Perciliano. The Palma Real complex is situated 1.4 km west of the main conical mound at Tío Perciliano.

Chronology

Cerro Palma Real yielded 117 sherds, with no Preclassic diagnostics and three Postclassic sherds. The majority of diagnostics are Classic, but few can be assigned to the Early versus Late Classic periods, each of which has a scant representation. Surrounding mounds are discussed above with Tío Perciliano.

Nacastle Complex

Description

Nacastle consists of a Partial SPPG-B1, like Cerro Palma Real, with a conical mound (6949) and a single lateral (6948), but also with two additional structures linked to the back of the conical mound (6950, 6951; Figure 11.39). One collection (963) derives from an eroded area with numerous sherds in the connecting area between 6949 and 6950. Two artificial *bajos* are positioned to the north of the conical mound, one of them behind the lateral mound. An additional broad low mound is part of the group (6952). The plaza area defined by the conical and lateral is presently largely occupied by a water channel, suggesting migration of the channel into the plaza area.

Surroundings

See discussion with Tío Percialiano. Nacastle is located 0.8 km east of Tío Perciliano.

Chronology

Nacastle produced substantial collections compared to most of the mangrove mounds (507 sherds). The diagnostic sherds are almost entirely Classic period, with no Preclassic sherds and two Postclassic sherds. Within the Classic period, the Early Classic and Early Classic Tendency are only tenuously represented, but a substantial number of diagnostics are ascribed to the Late Classic period. Chronology for surrounding mounds is discussed with Tío Perciliano.

Costa de San Juan Complex

Description

This small group consists of a Partial SPPG-B1, with a conical mound (7173) and a single lateral (Figure 11.40). A slightly raised area (7179) at the southwest corner of the higher area where the mounds are located may indicate an access way.

Surroundings

See discussion with Tío Percialiano. The complex is located 1.9 km west of Tío Perciliano, but only 0.5 km west of Palma Real.

Chronology

Sherds were obtained from only one mound, and the diagnostics are all Classic period, but with few that can be ascribed to the Early versus Late Classic. Chronology for surrounding mounds is discussed with Tío Perciliano.

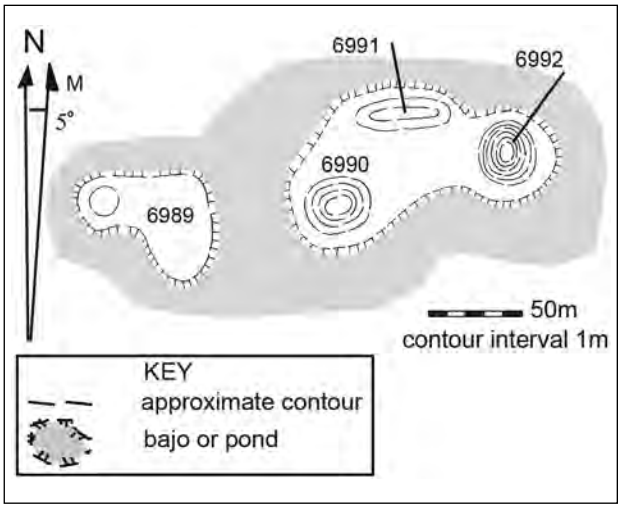

Figure 11.41. Patarata East feature numbers and contours, mapped with GPS and Abney level.

Patarata East Complex

Description

Patarata East is a Partial SPPG-B1, with a conical mound (6992) and a single lateral (6991), with a low mound closing the plaza on the west side (Figure 11.41). Nearby a low mound (6989) is slightly higher at its west end.

Surroundings

See discussion with Tío Percialiano above. The complex is positioned 3.5 km east of Tío Perciliano, and 2.7 km east of Nacastle.

Chronology

Patarata East produced collections from each mound (274 total), with a single Preclassic diagnostic and no Postclassic diagnostics. The majority of diagnostic sherds pertain to the Classic period, with the Late Classic predominating, although Early Classic and Early Classic Tendency diagnostics are present in a moderate amount. Surrounding mounds are discussed above with Tío Perciliano.

Discussion of Mangrove Area Complexes

The Nacastle-Patarata settlement extends for 8.8 km and is unique in the PALM survey area in having a compact, continuous linear array of residential mounds and monumental complexes. The largest monumental complex, Tío Perciliano, is located approximately in the middle of the settlement. Within the Nacastle-Patarata settlement four minor segment complexes occur at intervals from Tío Perciliano: Cerro Palma Real, Nacastle, Costa de San Juan, and Patarata East. These small complexes are spread out and appear to have served segments of the community in a neighborhood civic-ceremonial role. Nacastle-Patarata, because of its geomorphological constraint, provides a clearer example of settlement organization than is evident to the west in farmlands. The settlement shows that community segments or neighborhoods existed in settlement beyond the monumental core, signaled by smaller monumental groups. Intriguingly, these smaller complexes lacked ballcourts in addition to exhibiting smaller structures than Tío Perciliano. Consequently, monumental complexes without ballcourts that lie within a radius of up to approximately 3.5 km of a monumental core should be evaluated carefully as possible settlement segments rather than independent lower-order settlements.

In the case of Cerro de las Mesas, the unoccupied areas that possibly indicate a settlement boundary lie approximately 1 to 3 km away from the core, and those around Azuzules are at a comparable distance, 2 to 3 km. These distances are consonant with the extent of subordinate complexes in Nacastle-Patarata.

We were not able to map mounds at the easternmost and westernmost extremes of Nacastle-Patarata, nor one portion in the middle that was densely overgrown, but our coverage is relatively complete. Although the settlement is today strung along an overgrown east–west arroyo, it may be located where an east–west degraded dune ridge is aligned. In addition to the surface collections made during the PALM survey, test excavations on some mounds on Patarata Island provide a sequence from the Early to the Late Classic periods (Stark 1977, 1989). The mounds on Patarata Island were not collected again, but they were GPS mapped because earlier work included only sketch maps except for Patarata 52.

There is no obvious chronological difference between Nacatle-Patarata and the Boca de Santa Catarina complex. If the Nacastle-Patarata settlement was along a lagoon edge (where now an arroyo delimits the settlement), and progradation of sediments occurred southward into the lagoon edge, conceivably the community relocated to Boca de Santa Catarina. But if so, the settlement shrank dramatically. Aerial photographic indications of the Santa Catarina settlement are not as extensive, and the mounds do not appear to be as pronounced in elevation and size as the Nacastle-Patarata settlement. Because Boca de Santa Catarina also yielded some Early Classic sherds, like Nacatle-Patarata,

the idea of a settlement succession based on geomorphological change appears unfounded. The two settlement lines have parallel histories and likely coexisted.

One other area was surveyed, Cala Larga. The area recorded did not include a monumental complex, although one exists farther southeast as part of the settlement. Unfortunately it was overgrown, impeding GPS recording, although it is quite evident on aerial photographs (Bruder et al. 1975). It has a SPPG that is suggestive of Classic period construction. The residential mounds recorded at Cala Larga show no signs of Preclassic occupation, but the Classic period is well represented, and the Postclassic is moderately represented at the north end. No Early Classic diagnostics were detected, but Late Classic ones are present, suggesting that, like other mangrove occupation, this settlement had a peak of occupation in the Late Classic period. None of the Postclassic diagnostics is indicative of Middle versus Late Postclassic.

The Nacastle-Patarata settlement is the preeminent one recorded during the Late Classic period in the mangrove swamp, with Boca de Santa Catarina as a possible secondary settlement in view of its smaller overall extent and SPPG with a ballcourt. The same rank is likely for Cala Larga. Tío Perciliano is far smaller in overall construction than other Late Classic primary centers (Ajitos-Pitos, Azuzules, Nopiloa). In view of the extreme scarcity of agricultural land, and consequent population restrictions for the mangrove area, Tío Perciliano is substantial for its location. Other analyses suggest some economic and stylistic contrasts with occupation in the western farmlands during the Late Classic period, making it reasonable to treat Nacastle-Patarata and the mangrove area as politically independent and part of partially distinct economic networks.

In contrast, Early Classic ceramics excavated at Patarata 52 show more similarity with collections from farmlands to the west, raising the possibility this settlement was a subsidiary of Cerro de las Mesas during the Early Classic period; nevertheless, monumental construction in the Early Classic period is uncertain. During this period Nacastle-Patarata would have been a secondary or possibly a tertiary/quaternary center. Provisionally I treat it as a secondary center, on the assumption that many structures were initiated in that period.

Chapter 12

Settlement Hierarchy over Time

This chapter addresses settlement pattern change over time, especially the settlement hierarchy. The information consolidates the findings of previous chapters and underlies discussion of changing political principles in the next chapter. Settlement ranks outlined in Chapter 6 were based on the amount and arrangement of construction at complexes and their spatial separations, but that hierarchy has to be parsed across major periods. The examination of settlement hierarchy over time for the Late-Terminal Preclassic and Classic periods provides intelligible patterns based on the assignment of settlement ranks. The chronological decisions about centers are based on pottery diagnostics (Appendix 1).

I exclude the Postclassic from discussion because only one center has been identified as falling into the Middle Postclassic period and another into the Late Postclassic. In each case, the settlement likely was part of a larger regional settlement array, with a higher-order settlement outside the WLPB (e.g., Cuetlaxtlan along the Cotaxtla River during the Late Postclassic period, Ohnersorgen 2001, 2006).

Because of terminological variation among authors, I first clarify my usage of the concept of hierarchy in settlement. A hierarchy involves nested levels with a relationship of vertical subordination. The number of levels and whether there is specialization among them is a separate issue. The nature of hierarchical settlement relations may involve economic, political, and/or ritual-religious relationships.

Late and Terminal Preclassic Settlement Hierarchy

Figure 12.1 indicates one Preclassic primary center, Cerro de las Mesas, with secondary centers likely at Madereros, Palmas Cuatas, and Tuzales-Tuzales North (Figure 4.1). Preclassic construction at these centers cannot be assessed without excavation because of continuity of occupation and Classic period rebuilding. As mentioned in Chapter 6, it is striking that each of these secondary centers has two SPPGs or, in the case of Madereros, the paired complex of Tilcampo on the opposite side of the Blanco River, which includes a Conical Mound Group. Thus, the secondary centers tend to share the agglomerative quality of Cerro de las Mesas, the Preclassic primary center, which has multiple partial or complete SPPGs. In addition, the Palmas Cuatas secondary center has several conical mounds clustered around a pond, reminiscent of the north part of Cerro de las Mesas, where several conical mounds are situated north of a pond. This north part of Cerro de las Mesas has a noteworthy concentration of Preclassic pottery as well as some of the largest structures.

Scattered Preclassic occupation was widespread in the delta, but included areas near Nopiloa, Dicha Tuerta, Loma, Muertos, and Bartolo (Figure 6.2) as well. Some of the additional settlement likely indicates tertiary centers, but I cannot identify them with available data because Preclassic sherds may represent fill. The Late-Terminal Preclassic evidence does not display the proliferation of secondary centers that was to characterize the Classic period. Instead, it likely saw the start of segmentary agglomeration of Partial SPPG and SPPG that continued to characterize the same centers during the Early Classic period as the built space carried forward. Possibly because of their early roles, the secondary centers experienced growth and addition of monumental construction by the Early Classic period, as Cerro de las Mesas must have.

Daneels (2016:233–241) observed that Terminal Preclassic through Early Classic (AD 1–500) complexes in the Cotaxtla-Jamapa drainage display two to three similar-sized, separated conical mounds, which had more gently inclined slopes than Classic period conical mounds. These early centers had large open plazas (around 1 ha in area), with a large platform in the vicinity or up to 1500 m away. This arrangement she labeled "*plaza monumental*." She included Central Cerro de las Mesas in this category but recognized its later Classic construction. The north part of Cerro de las Mesas, with its noteworthy profusion of Preclassic pottery and the presence of three large conical mounds (90, 91, and 93) around a modest L-shaped plaza with another lower mound (1) is somewhat similar. Daneels (2016:312) includes the large plaza to the immediate west of the three conical mounds, along with the conical mound (38) on a platform (36) at the western edge of that large plaza. Collections from the western conical-on-platform include Classic pottery, however, making the three conicals north of the pond more promising for a degree of correspondence to the *plaza monumental* category. Conical mounds from the WLPB survey form a relatively continuous array on a plot of height versus basal area and

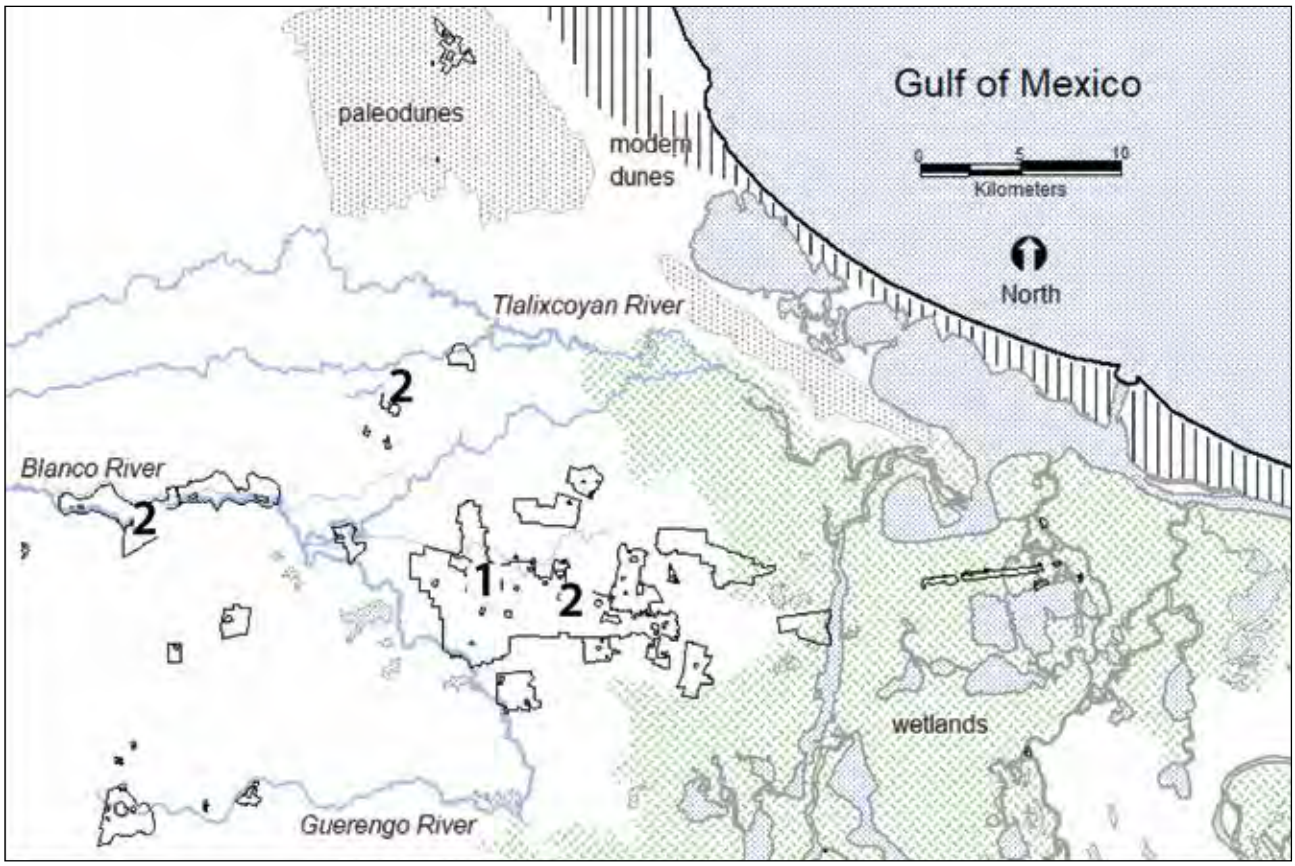

Figure 12.1. Preclassic settlement tiers are shown with numbers: 1 for the primary center of Cerro de las Mesas, and 2 for secondary centers. Tertiary/quaternary centers cannot be assessed effectively.

do not segregate a Preclassic difference in slopes (Figure 5.1), another indication of a spotty match at Cerro de las Mesas with the *plaza monumental* category.

Two massive platforms are located west of the Central Cerro de las Mesas conical mounds and on the far side of a large plaza. To the north, Platform 45 only yielded a collection from its terrace on the west side, and only Late Classic diagnostics were recovered, suggesting Platform 45 was a Late Classic structure. Platform 36, with abundant Preclassic diagnostics, has a substantial conical mound and a large elongated mound integrated alongside the platform. Collections from the platform and linear mound include Early Classic, Early Classic Tendency, and Late Classic diagnostics in addition to the plentiful Preclassic pottery characteristic of the Northern Group of Central Cerro de las Mesas. Platform 36 is a candidate for an early royal residence, perhaps on the elongated mound attached on its east side, but we do not know the initial timing of dynastic principles in governance. Such principles are attested in sculpture with Long-count dates showing a richly clad leader during the Terminal Preclassic period at La Mojarra and at Cerro de las Mesas during the Early Classic period (Winfield Capitaine 1988; Miller 1991; Stirling 1943). The only earlier clue about social inequality at Cerro de las Mesas is a Terminal Preclassic burial with elaborate grave goods and ball game paraphernalia near one of the northern conical mounds (Feature 91; Drucker 1943:79; Stirling 1941:283–287).

Around the early northern nucleus at Cerro de las Mesas, SPPG and Partial SPPG groups are arrayed at varying distances, nearly forming a peripheral oval centered on the central pond, but none is located directly to the north. Daneels (2016:216) places SPPG arrangements between AD 300 and 1000/1100. The Late-Terminal Preclassic pottery from SPPG and Partial SPPG at Cerro de las Mesas and from the three proposed secondary centers raises a strong possibility that these Standard Plan arrangements had their inception earlier, at least by the Terminal Preclassic period. No final judgment is possible without excavation of structures to evaluate their construction history, but the consistency with which Preclassic diagnostics are associated with them (always with continuity into the Classic period on the basis of later diagnostics) is suggestive that SPPG public facilities had Preclassic origins.

Comparative data are relevant to the dating of the earliest Standard Plan arrangements. At Terminal Preclassic Tres Zapotes (AD 1–300) in the eastern lower Papaloapan basin, a different plaza arrangement, the Tres Zapotes Plaza Group (TZPG), features a conical mound at the west end of an east–west oriented plaza, with an elongated lateral mound along the north side of the plaza, and a low mound (altar?) in the middle of the plaza (Pool 2008:128). Because of the presence of the conical and a lateral at Tres Zapotes, a plaza with a conical and one or two laterals would not be unexpected in the WLPB in the Late to Terminal Preclassic period.

The TZPGs lack ballcourts, but the Terminal Preclassic burial that Stirling and Drucker exposed in the north part of Cerro de las Mesas includes a yoke and skull (symbolic of the ball), suggesting a Terminal Preclassic role for the ball game (Daneels 2008a). Therefore, if the Standard Plan arrangement has a Terminal Preclassic inception at Cerro de las Mesas, a formal ballcourt already may have been part of it. Two Partial SPPGs that lack conical mounds are near the north part of Central Cerro de las Mesas and suggest that the complete SPPG package was suppressed in favor of the dominant conical mounds in the north sector. Conceivably these Partial SPPGs were an early beginning of the SPPG package of structures. The surrounding complement of SPPGs expresses the complete module (some of the ballcourts are possible, not certain).

Preclassic and Early Classic Cerro de las Mesas emphasized ritual integration because of the prominent conical mounds, with separate communities or groups represented by the multiple SPPGs and Partial SPPGs. This is an arrangement with relevant examples elsewhere. Multiple social factions united politically are a feature of Late to Terminal Preclassic Tres Zapotes, where four TZPG were mapped (Pool 2008:139). Blanton (1978:33–49) proposed a founding of Monte Albán, Oaxaca, around 500 BC, by unification of three separate groups represented in the initial site organization. Consequently, we have other examples of agglomerative segmental organization at major centers. Although diverse interests are signaled by the Cerro de las Mesas segmented core construction, the segments are arrayed with a strong central focus around the pond system and a northern nucleus of major ritual and palatial structures.

The Late to Terminal Preclassic Cotaxtla-Jamapa centers and others in Central Veracruz analyzed by Daneels (2016:233–241) suggest an early situation in which many polities had communal ritual structures with broad community access; leadership is attested by palatial platforms nearby. The WLPB appears

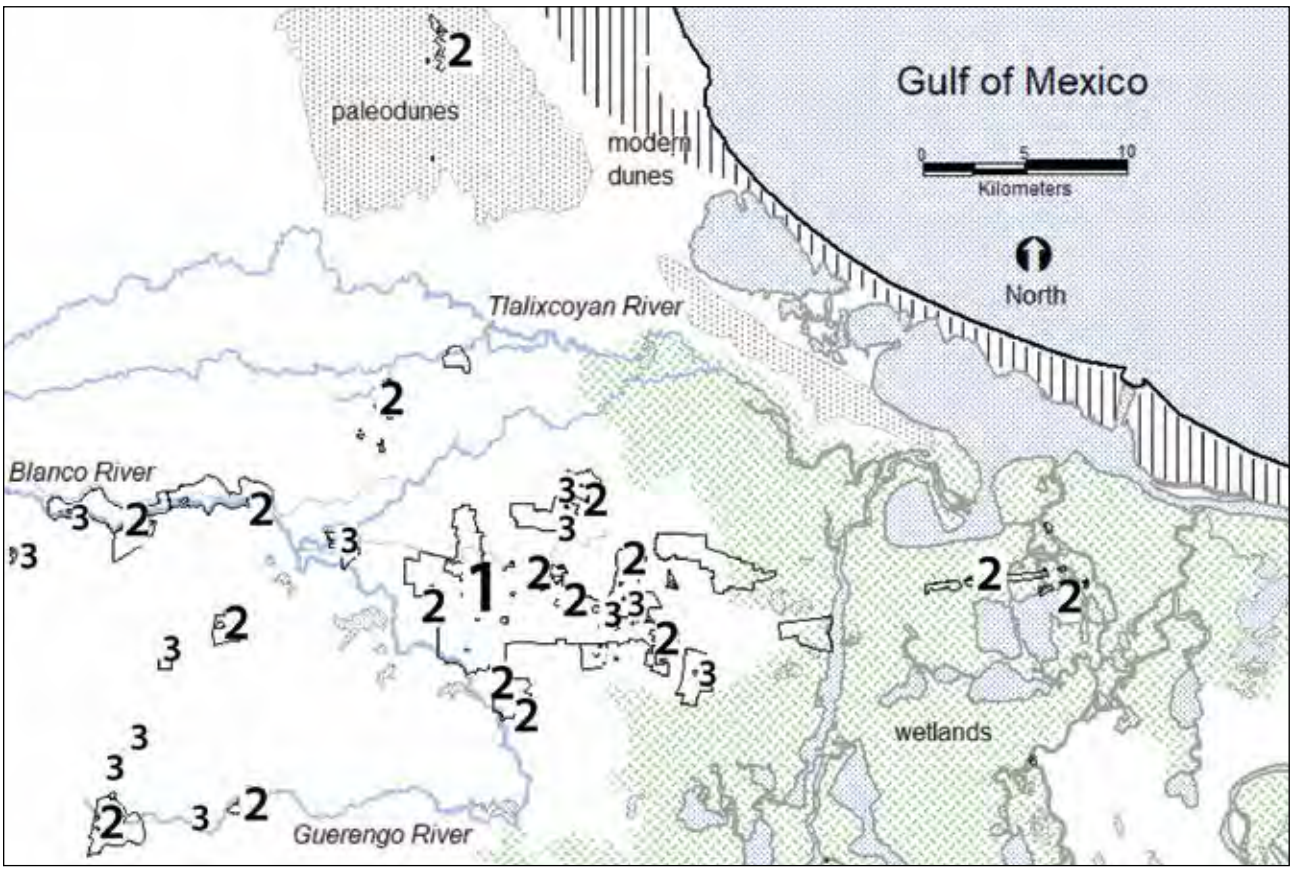

Figure 12.2. Early Classic settlement hierarchy numbers indicate settlement rank (Zapotal included as secondary, 3 indicates tertiary/quaternary). Cerro de las Mesas is the primary center (Zapotal, outside PALM survey, included as secondary).

to be precocious in the acceleration of differentiation and integration, with a single primary center and three secondary centers. In comparison, Daneels (2016:241) suggests three early Cotaxtla-Jamapa primary riverine centers and four secondary centers. The entire group of Cotaxtla-Jamapa centers exhibits approximately 5 km spacing, with 11 km between the possible primary-level cores. Cerro de las Mesas has three proposed secondary centers at distances of 10.4 km (Tuzales), 17.3 km (Madereros), and 4.4 km (Palmas Cuatas). This spacing suggests a more extensive Preclassic territory or influence for early Cerro de las Mesas.

Early Classic Settlement Hierarchy

The Early versus the Late Classic periods are particularly challenging in terms of defining a settlement hierarchy. Some settlements likely grew in their amount of construction and political importance, while others languished or declined in their hierarchical roles, even though already-built architecture remained imposing.

Figure 12.2 indicates an Early Classic settlement hierarchy headed by Cerro de las Mesas. The growth of Cerro de las Mesas could have resulted from two processes. From the Late Preclassic through the Early Classic period, a process of agglomeration may have unfolded as some communities were integrated into the Cerro de las Mesas core through construction of separate SPPGs. Over the centuries of growth of Cerro de las Mesas, some SPPGs slightly removed from the core may have physically merged into the array through construction of intervening buildings. In other words, urban growth of the core may have engulfed or joined nearby groups.

Whether through deliberate constructions at the core or through core growth and peripheral incorporation, multiple organized social segments were represented. A degree of collective action through these factions remains likely as an element of political organization, but counterbalanced by the sculptural indications of a ruling dynasty and the presence of a particularly large

monumental platform and adjacent linear mound in the north precinct. A strong central authority is also reflected in the exclusive concentration of carved sculpture at north Central Cerro de las Mesas.

Secondary centers are inferred at Azuzules, Nopiloa, Tío Perciliano, and Ajitos, which later became more important during the Late Classic period and may have undergone rebuilding or aquired new constructions. Other definite or possible secondary centers include Mixtequilla, Palmas Cuatas, Moral, the northern SPPG group at Zapotal (not in PALM survey), Rincón del Tigre Norte, Salto, Salto Norte, Tío Primo, Tuzales-Tuzales North, Cerro de los Muertos, Madereros-Tilcampo, Dicha Tuerta, Boca de Santa Catarina, Vibora, and Loma. The 19 secondary centers constitute the most abundant settlement level recorded.

Tertiary/quaternary centers are fewer and tend to occupy more distant positions from Cerro de las Mesas. They are not well represented by the survey, which was biased toward some of the more advantageous lands for farming, which have some of the densest and most sizable monumental architecture. Twelve tertiary/quaternary centers include Cerro Bartolo, Cerro Coyote, Canal 2, Loma de Pinchones South, Loma de Pinchones North, Nuevo Porvenir West, Sabaneta, Lobato, Paso de las Mulas, Rincón del Tigre, Tiesto, and Complex 5489. Those with some use of SPPG principles are more likely to have tertiary roles, with the Conical Mound Groups more likely to be quaternary centers. I have left these levels combined pending a larger, more definitive sample. Aside from the amount and size of construction, Table 12.1 summarizes the differences between secondary and tertiary/quaternary centers. Most secondary centers have both a ballcourt and monumental platform, seldom more than one monumental platform. Tertiary/quaternary centers with SPPG or Partial SPPG, except in two cases, lack monumental platforms. If they have a platform, then they lack a ballcourt. Four involve a Conical Group.

The Cerro de las Mesas realm may have extended farther, in view of the size of the center and other indications of its importance, such as carved monuments. I think extended suzerainty is likely, and some farther areas are included in Figure 12.2. The realm may have reached the settlement of Nacastle-Patarata in the mangrove swamp, along with Boca de Santa Catarina, and, on the paleodunes, Ajitos (perhaps the North Group SPPG) and La Vibora. Not far to the west of Ajitos in Daneels' (2016:155, 452, 602) survey area, El Castillo is another SPPG, with a suggested date of AD 300–500 (Clásico Medio I). Its two outlying monumental platforms, Extension Norte and Extension Sur, date, respectively, to AD 700–1000/1100 (Clásico Tardío), and AD 500–1000/1100 (Clásico Medio II through Clásico Tardío; Daneels 2016:155, 452, 602, 604, 632). El Castillo may have been another subsidiary of Cerro de las Mesas, but alternatively it may have been a dominant center over the paleodunes complexes. The later dates of the platforms versus the SPPG may signal the Late Classic ascendency of Ajitos-Pitos, however. I assume that Pitos, the complex paired with Ajitos, was mainly constructed during the Late Classic period due to its aberrant architecture.

Other secondary centers are present on the lands between the paleodunes and Cerro de las Mesas in unsurveyed areas along the lower Tlalixcoyan River (Stark and Stoner 2020). Whether the Cerro de las Mesas realm intruded into some of the lower Cotaxtla area remains unclear. As noted in Chapter 2, the ritual programs involving deposits of arranged Dioses Narigudos figurines have not been encountered in the WLPB, and the figurines themselves have not been recovered either. Consequently, much of the lower Cotaxtla area has some cultural practices distinct from the Cerro de las Mesas realm, although this does not rule out some political extension into the adjacent terrain. More likely, however, is inclusion of the Tlalixcoyan drainage.

The proliferation of secondary centers, normally with a ballcourt, temple platform, and lateral(s), accompanied by a monumental platform, suggests similarly constituted authorities to those represented at the Cerro de las Mesas core in the form of multiple SPPGs and Partial SPPGs. Secondary centers shared the positioning of a monumental platform near, but not on, the main plaza with the exception of Tuzales and Nopiloa. The latter has a monumental platform at one end of the main plaza, but some construction there may be later than the Early Classic. The Standard Plan plazas housed the key public facilities, including the laterals that likely represented corporate groups. These services were widely accessible.

Thus, the leaders at secondary centers, who, I presume, resided on monumental platforms, were part of communities that included corporate principles. The leaders seldom usurped customary layouts. These secondary centers appear promising as a check on central authority at Cerro de las Mesas and were spread out to access local lands and agricultural production. Their nearby lands would provide them economic support.

Table 12.1. Summary comparison of secondary versus tertiary/quaternary centers

	Assoc. Mon. Plat. Count*	Ballcourt Count	SPPG 1 Lateral	SPPG 2 Laterals	Partial SPPG	Conical Group
Secondary Centers						
Mixtequilla	1	1		1		
Moral	4	1		1		
Madereros-Tilcampo	2	1			(D) 1	(Plaza) 1
Rincón del Tigre Norte	1	1		1		
Tuzales-Tuzales North	3	2	2			
TÍo Primo	1	1		1		
Cerro de los Muertos	1	1		1		
Dicha Tuerta	1	1	1			
Loma		1	1			
Palmas Cuatas	1	1		1	(C) 1	
Salto		1		1		
Salto Norte				1		
Boca de Santa Catarina		1	1			
Vibora		1		1		
Tertiary/Quaternary Centers						
Bartolo	1				(B1) 1	
Lobato		1	1			
Sabaneta		1	1			
Cerro Coyote		1	1			
Rincón del Tigre		1	1			
Paso de las Mulas	1				(B1) 1	
Nuevo Porvenir West					(B1) 1	
Loma de Pinchones North					(B1) 1	
Loma de Pinchones South						1
Complex 5489						(Plaza) 1
Tiesto**						(Plaza) 1
Canal 2						1

* includes segment complexes
** ambiguous whether border segment or separate

The two secondary centers that later became primary centers during the Late Classic period differed from the others because they already had or developed nearby craft production: obsidian blade production at Nopiloa and orange bowl production near Azuzules (Stark 2007a). For the most part, secondary centers appear to have concentrated on agricultural production in nearby alluvial lands. Loma in the interfluve is an exception, with little surrounding occupation. It is better interpreted as a rural control point. Loma lacks a monumental platform, and public services (for a scattered rural population?) are the main architectural focus. The proliferation of secondary centers and their replication of architectural principles seen at the primary center suggests segmentary organization, as proposed by Daneels for the Cotaxtla-Jamapa area. I discuss organizational principles further in Chapter 13.

Late Classic Settlement Hierarchy

The Late Classic period ushers in an era of fractionation of the previous Cerro de las Mesas realm, with multiple independent capitals (Figure 12.3). The only realm that is well defined by settlement information is that of Azuzules, the major Late Classic center in the Blanco delta. During the Late Classic period, several prior secondary centers that were positioned in more distant locations from Azuzules yielded little or no indication of Late Classic activity in terms of diagnostic pottery, which suggests either that they lost their political and economic positions, or that activities shriveled to a tertiary or lower scale in the regional hierarchy. In part, these changes may owe to political changes as Nopiloa and Azuzules reached their peaks as possibly rivalrous primary centers. Competition may have made the existence of some distant secondary and tertiary centers precarious.

The areas that have marked declines in Late Classic evidence are mainly upriver along the Blanco and in the Tuzales locale, along a tributary to the Tlalixcoyan River. As discussed in Chapters 10 and 11, the monumental complexes that declined in activity include Madereros-Tilcampo, Bartolo, Cerro Coyote, Cerro de los Muertos (except for platform 6046), Canal 2, and Tuzales-Tuzales North. To the southwest in the delta, the prior secondary centers of Salto and Salto Norte declined in activity, as did Complex 5489 at the far west end of the delta. Azuzules' secondary centers include Palmas Cuatas, Moral, presumably the northern SPPG at Zapotal, Rincón del Tigre Norte, Tío Primo, and possibly Cerro de las Mesas, a total of five or six.

The interfluve secondary center of Loma is ambiguous, in part because of few collections, but Late Classic diagnostics are present, and I assume it continued to function, likely falling within the Nopiloa realm. Additional Nopiloa secondary centers include Dicha Tuerta and likely Los Cerros, outside the survey limits east of Dicha Tuerta. Others may exist as well in view of the limits of survey.

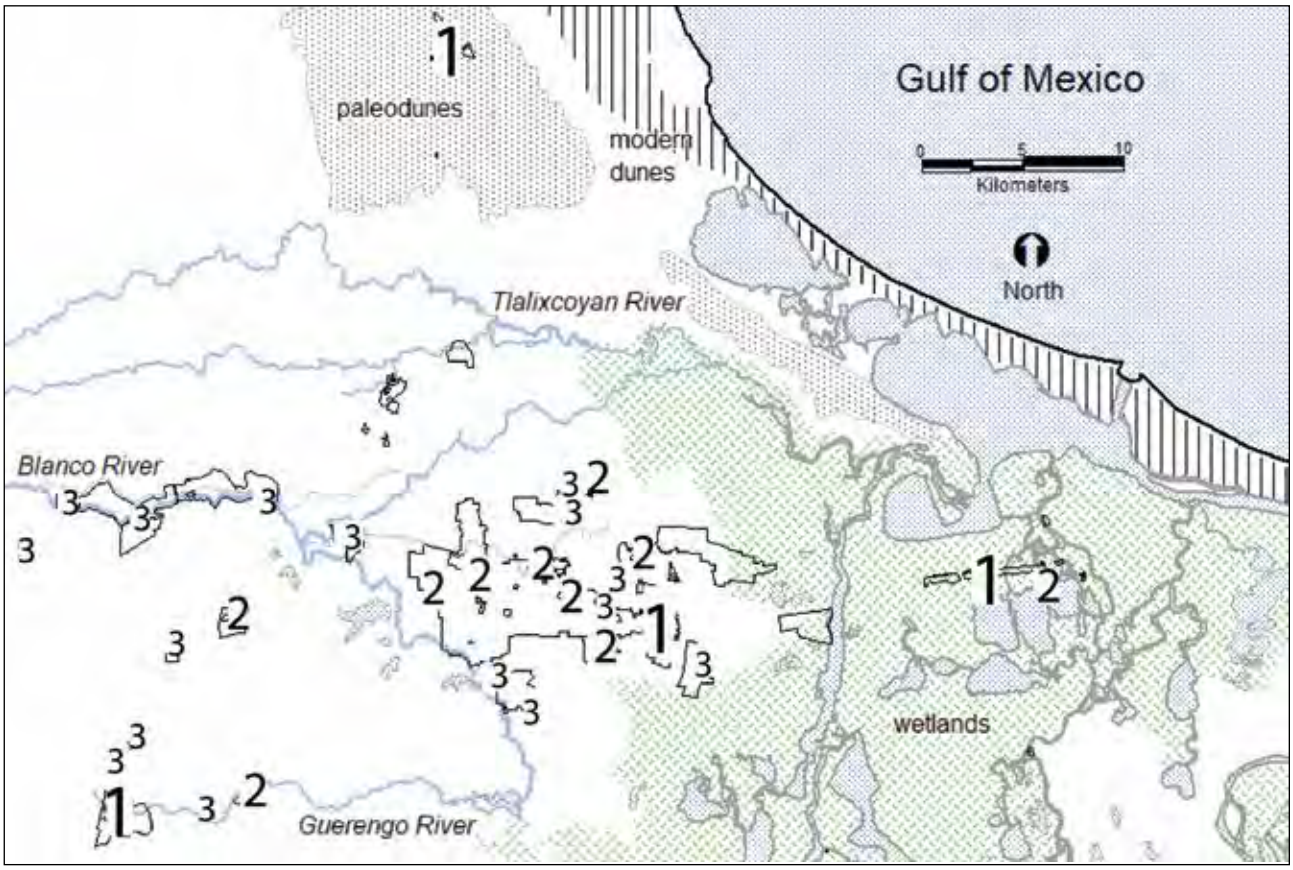

Figure 12.3. Late Classic settlement ranks are shown by numbers (3 indicates tertiary/quaternary; Zapotal, outside of survey, included as secondary center). Tio Perciliano, Azuzules, Nopiloa, and Ajitos-Pitos are capitals.

A decline in occupation is not detectable along the Guerengo in the Nopiloa realm, in most of the delta where Azuzules is located, nor in the mangrove swamp in the Nacastle-Patarata settlement. The paleodunes present mixed information. Ajitos-Pitos was a primary center, but subsidiary locations are ambiguous. Immediately west in Daneels' survey, the outlying monumental platforms of El Castillo have later diagnostic pottery (Late Classic) than El Castillo itself, but within the PALM survey we lack collections to assess Vibora, and those from Ajitos East are few.

Thus, for the most part, near where major Late Classic centers are situated, settlement is not markedly changed, but in more distant locales that may have fallen between political realms, settlement declines (but does not disappear). Occasionally monumental platforms are an exception, and palatial estates may have continued to be important even if a nearby SPPG was less active. The Cerro de los Muertos monumental platform 6046 and elite residences at Salto and Salto Norte are examples. As more distant secondary centers declined, smaller territories for Late Classic primary centers are implied compared to Early Classic Cerro de las Mesas.

A contrast between the Late and Early Classic periods concerns elite residences. In the next two subsections I investigate monumental palatial platforms and mounds with terraces (mound-terraces). The monumental platforms are obviously the most elaborate residences and are presumed to have had elite occupants (likely with attendants), but mound-terraces reflect a middle echelon of WLPB society. They are almost entirely restricted to the Blanco delta, where low-lying land made residential mound investments particularly valuable. Appendix 3 summarizes descriptive information about monumental platforms and integrates the collections from different component structures, such as mounds on top of a platform.

Monumental platforms proliferated during the Late Classic, not in center cores or necessarily associated with SPPG, yet within the settlement boundaries or extents of two of the primary centers, Nopiloa and Azuzules. The proliferation may have begun during the Early Classic period in view of the prevalence of both Early Classic and Late Classic diagnostics at outlying monumental platforms. Perhaps it contributed to the weakening of authority at Cerro de las Mesas. This interpretation assumes that monumental platforms for which no collection was made and that fall within the Azuzules settlement were occupied during the Late Classic period. Monumental platform occupants, who likely exercised some autocratic authority in their domains, were also potentially a check on central authority, as discussed further in Chapter 13. Because the chronological and spatial patterns of monumental platforms are particularly important for political and social interpretations, I address them in greater detail next.

Monumental Platforms in the Early versus Late Classic Periods

Most monumental platforms have low platforms atop the flat upper surface. These are the ones most likely to have been palatial platforms. Others are topped by a conical mound, and platform 924 in the Chivo group at Cerro de las Mesas is a combination of a conical on top with the front of the platform occupied by low platforms. What was once solely a residential platform may have been converted to support a conical temple platform—perhaps upon the death of a prominent person if conical mounds on a platform had a funerary function (see Coe 1956; Daneels and Ruvalcaba Sil 2012:86).

Other platforms are not clearly rectilinear, and are misshapen to a degree (e.g., Moral North, 6504). Perhaps some have been damaged by recent activities affecting their shape. Some may have been platforms remodeled to be more like a conical mound. The southern platform at Azuzules, 1195, is aberrant, with a low U-shaped platform atop it. Still others, such as monumental platform 6382, with multiple structures on top in the core of Nopiloa, had a combination of functions, with elite residential roles likely in the mix. Most of the conical mounds on platforms and the more amorphous or aberrant platforms are questionable for an elite residential function in their final form, but they are included in the analysis.

Monumental platforms pose many problems for analysis of the Early versus Late Classic periods. At several monumental platforms, no collection was possible or the collection was meager, or the collection provided almost no diagnostics that distinguish the Early and Late Classic periods (categorized as indeterminate within the Classic period). As Figure 12.4 shows, these problematic cases are not distributed uniformly. Many are concentrated at the east end of the Blanco delta where the Late Classic center of Azuzules was located. The lower eastern part of the delta had a higher incidence of grass pastures for cattle, and platforms often were difficult or impossible to surface collect. For analysis of the chronology of monumental platforms, I use the more robust collections at or above the median

for collections, but, given the modest sample size (35 cases), I also plot collections that fall below the median for all collections, but with at least 30 sherds (Figures 12.5, 12.6).

The use of massive fill and the continued use of platforms or reuse of them, along with the effects of superposition, lead to a situation in which all but three platforms have some Early Classic diagnostics, and all but two platforms have some Late Classic diagnostics (for the robust surface collections at or above the median collection size of 76 sherds). I assume, in view of the spatial concentration of the undated platforms within the Azuzules settlement area and the presence of some Late Classic diagnostics on almost all the platforms that were collected, that the undated cases pertain to Late Classic Azuzules.

Importantly, the presence of Late Classic diagnostics at almost all monumental platforms (even if these diagnostics are not in the majority) is an indication of activity during that period. In contrast, the Early Classic poses a different situation because incorporation of Early Classic fill cannot be factored out. Superposition and construction fill prevent reaching the same conclusions for each period. Almost all platforms with analyzable collections have some indication they functioned during the Late Classic period. Thus, by the Late Classic period, palatial platforms proliferated through both continued use and new construction, but not within the primary center cores; rather, most were located in the outlying settlement areas for Nopiloa and Azuzules, suggesting that important landholding groups proliferated internally in these societies. In view of the prevalence of Early Classic diagnostics, it is likely that some of the proliferation was underway during the Early Classic period. Identification of where the Early Classic and Late Classic diagnostics

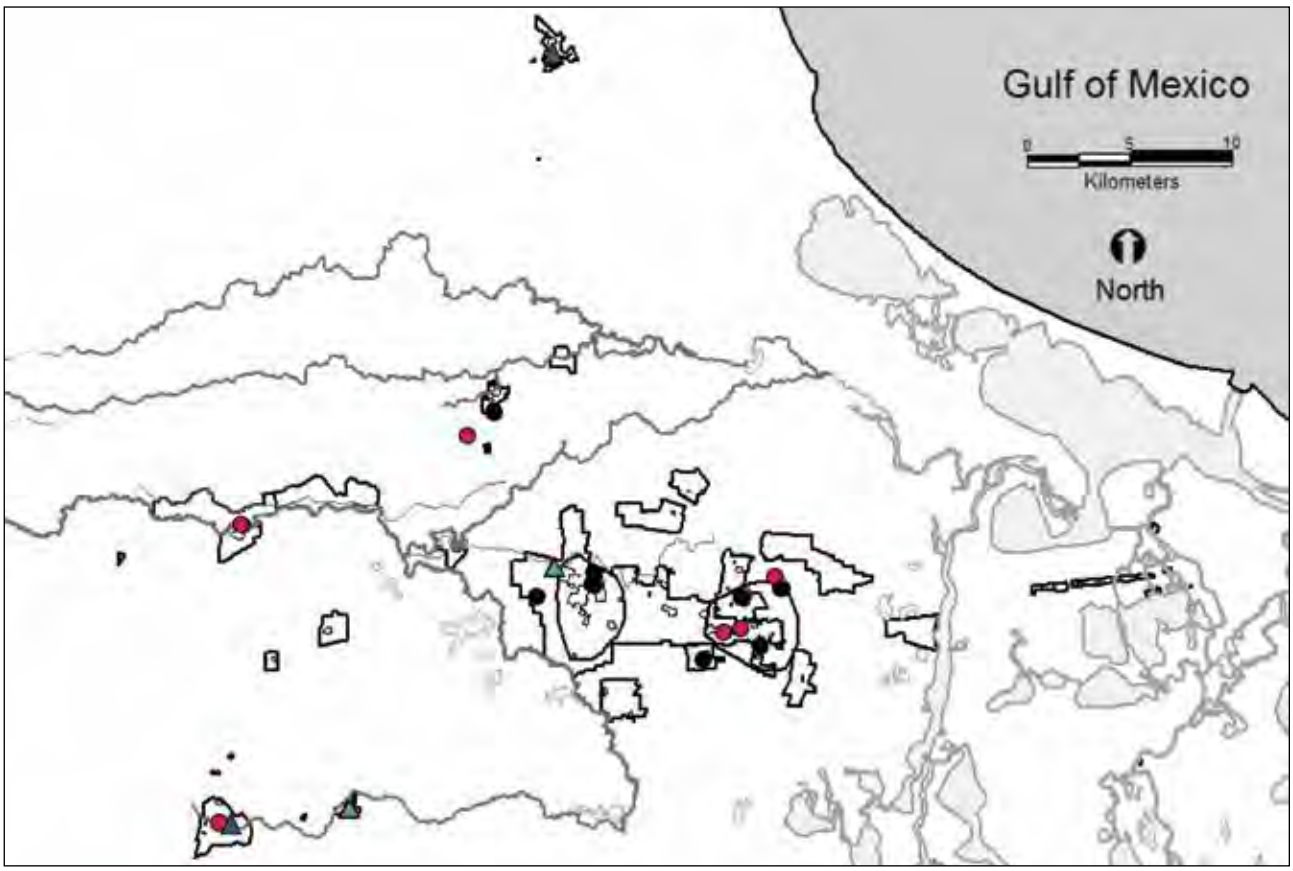

Figure 12.4. Monumental platforms that are not analyzed are shown: no collection (black circle), collections with total sherds less than 30 (red circle), collections with total sherds >30 but less than 76 and indeterminate in diagnostics from the Classic groups (blue triangle), and collections with total sherds >=76 but indeterminate in diagnostics from the Classic groups (green triangle). Irregular curved lines indicate proposed settlement boundaries for Cerro de las Mesas and Azuzules.

are particularly prominent, as well as cases in which they are about equal, can be examined to assess their roles in relation to centers.

First I note that a few monumental platforms are sufficiently removed from settlement cores that they are candidates for rural elite estate headquarters rather than elements of the core or segment complexes. Three cases are likely (Recreo North, Recreo South, and Aguacate North), but Aguacate South (a pair of platforms) is a possibility as well. Conceivably some of the earlier monumental platforms that show continued occupation in the Late Classic period became rural estate headquarters as their associated centers declined (e.g., the Muertos platform, 6046, and perhaps one at Madereros, 6178). At Tuzales and its environs, one rural estate platform, Recreo South, 7064, is also a possibility for a continuing role in the Late Classic period, as is Moral East, 6506, in the delta.

Within the Cerro de las Mesas settlement, all cases for which Early Classic diagnostics predominate or are about equal to the Late Classic ones occur within the contour mapped core except for one at the segment complex of Zapotal South (Figure 12.5). Additional Early Classic cases derive from secondary centers. Particularly in the case of the east end of the Blanco delta survey, it is noteworthy that several fall within what would become the Azuzules settlement. The area may have been a locus of monumental platform construction prior to the decline of Cerro de las Mesas when Azuzules was a secondary center, or perhaps as Cerro de las Mesas was declining. Conceivably the growing wealth and power of families in the east end of the delta was one factor in the decline of Cerro de las Mesas and the eventual rise of Azuzules from secondary to primary status.

For the Late Classic period, fewer platforms at which Late Classic diagnostics are predominant or

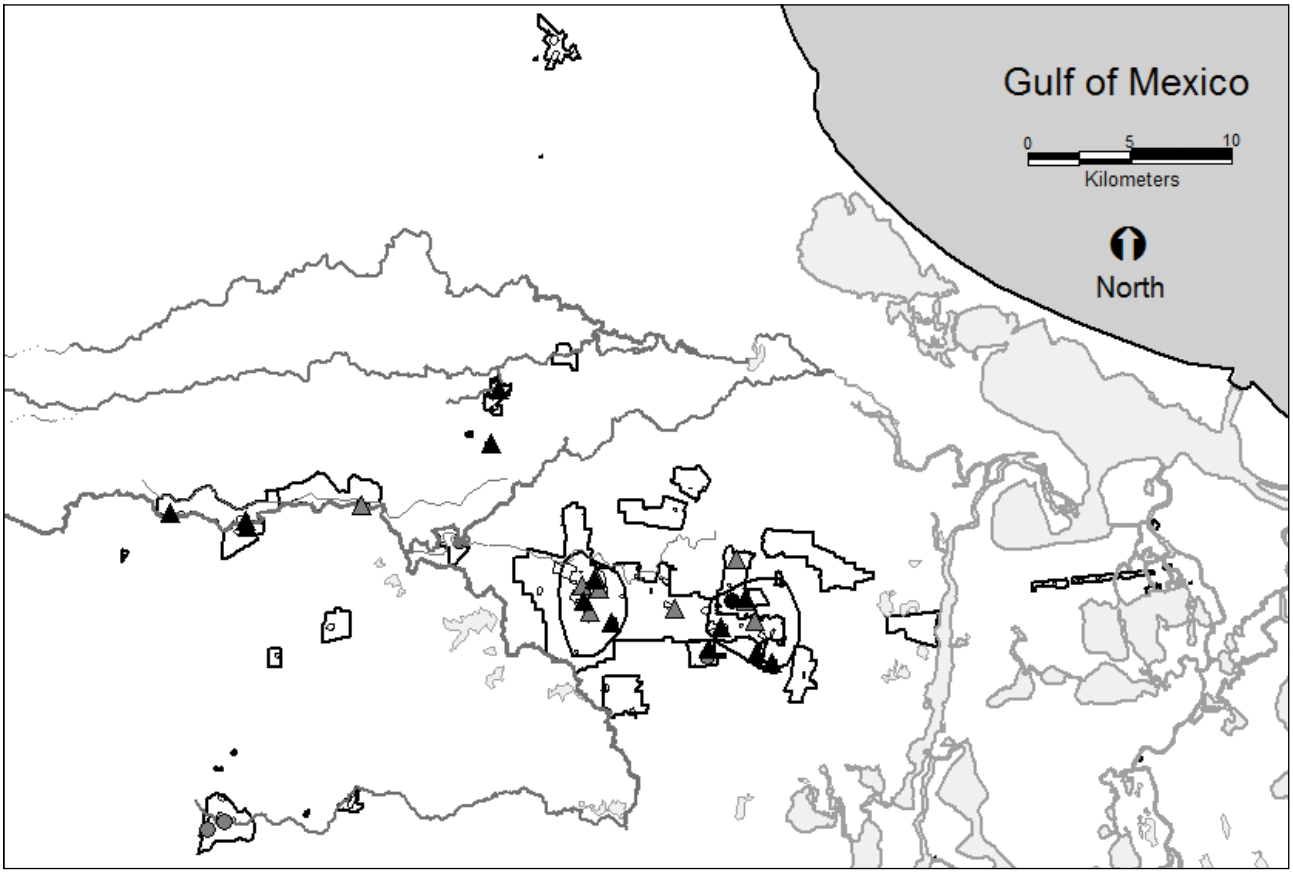

Figure 12.5. Monumental palatial platforms are shown for which Early Classic diagnostics predominate (black triangles) or for which Early and Late Classic diagnostics are about equal (gray triangles); all triangles are for collections at or above the median total sherd count of 76. Circles represent collections with total sherds >30 and <=76, with the same color coding as triangles. Irregular curved lines indicate settlement boundaries for Cerro de las Mesas and Azuzules.

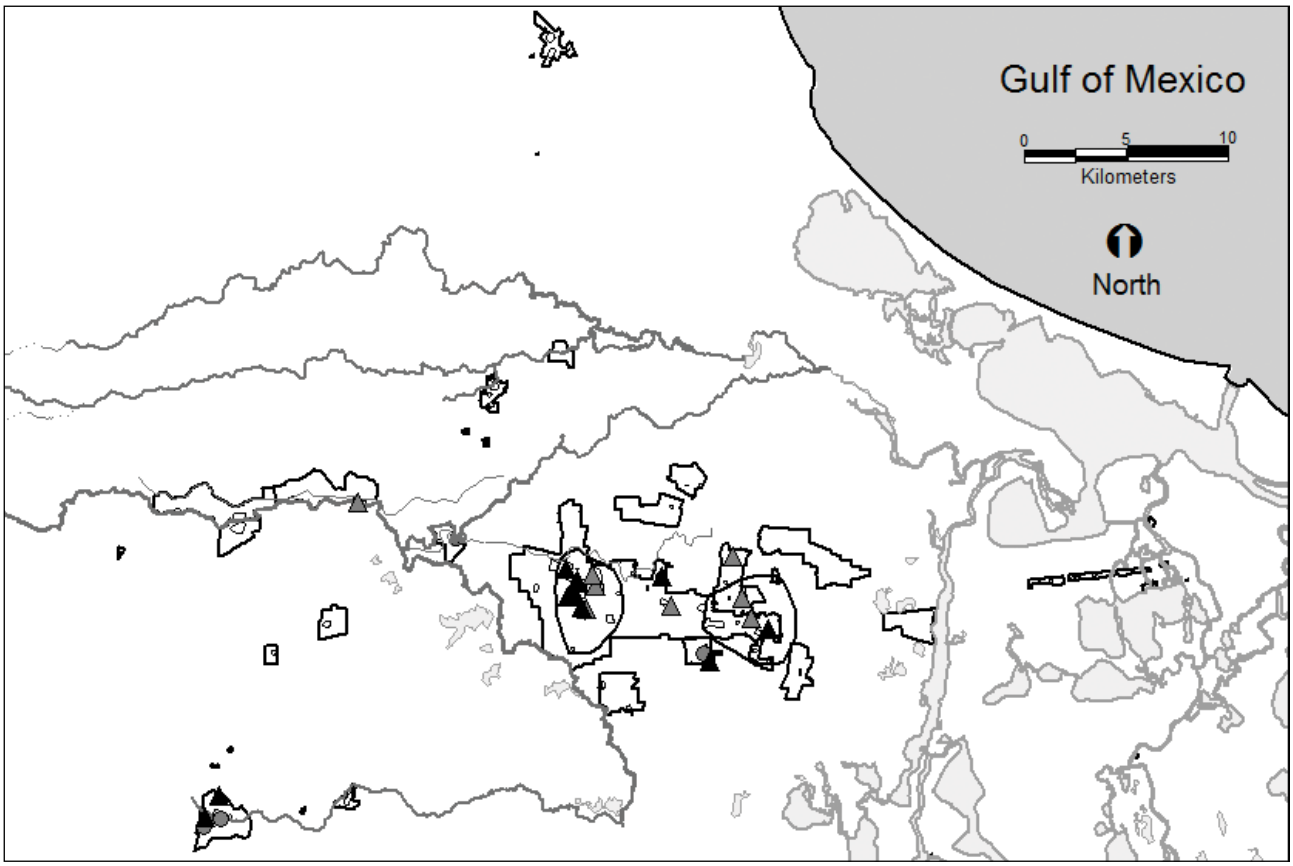

Figure 12.6. Monumental palatial platforms are shown for which Late Classic diagnostics predominate (black triangles) or for which Early and Late Classic diagnostics are about equal (gray triangles); all triangles are for collections at or above the median total sherd count of 76. Circles represent collections with total sherds >30 and <=76, with the same color coding as triangles. Irregular curved lines indicate settlement boundaries for Cerro de las Mesas and Azuzules.

about equal to Early Classic ones are present at what had been distant secondary centers (Figure 12.6), a change that is consonant with the multiple political realms that succeeded Cerro de las Mesas and the decline of distant secondary centers. The spatial extent of successor polities was reduced. At the Late Classic centers of Nopiloa and Azuzules, in addition to platforms for which Late Classic diagnostics are more abundant, some platforms have about equal Early Classic diagnostics, raising the possibility that some platform construction and use dates to the Early Classic or that fill included Early Classic material. Both Nopiloa and Azuzules were Early Classic secondary centers.

One contrast with Early Classic Cerro de las Mesas is indisputable. At both Nopiloa and Azuzules the majority of platforms are not amalgamated in their monumental cores, but lie outside the cores in the settlement extents or within proposed boundaries. In most cases, these platforms are not associated with SPPG (Table A3.1). This change suggests that wealthy, powerful families were not as closely linked to governance and ritual institutions that served the general populations as had been the case during the Early Classic period. At Cerro de las Mesas, several platforms have predominant Late Classic diagnostics, suggesting that those structures continued as foci of elite residence, even as Cerro de las Mesas declined as a center. One may have been largely constructed or rebuilt during the Late Classic (platform 98). The demise of Cerro de las Mesas did not diminish powerful families there. The "capital zone" concept applied to the Blanco delta was designed to accommodate shifts among centers that were not accompanied by complete abandonment of earlier centers. As discussed in Appendix 3, some Cerro de las Mesas platforms have Late Classic diagnostics concentrated on particular component structures, and in one case in a looted cache

on the top of the structure, suggesting a ritual function rather than a residential one.

Consequently, although Figure 12.6 suggests more platforms in Late Classic use at Cerro de las Mesas than at Azuzules, the distribution has to be adjusted by consideration of a mix of continued ritual use and occupation by important resident families. Also, as noted, the Azuzules settlement unfortunately has several platforms that could not be analyzed due to lack of collections. However, Late Classic occupation in general is abundant in the Azuzules area (Figures 4.8, 8.6).

There are exceptions to the Azuzules and Nopiloa patterns for the Late Classic period. At Ajitos-Pitos on the paleodunes, monumental platforms are scarce, with none evident in the near vicinity of the monumental core. The Late Classic mangrove settlements do not have palatial platforms (although mound-terraces in monumental complexes likely represent elite residences). Only one platform occurs in the vicinity of the Gallo group at Zapotal (Platform 1473), with one underlying the Gallo plaza group (not shown in Figure 12.6, and not in PALM survey). I have suggested in Chapter 8 that the Gallo group was a capital toward the close of the Late Classic period, discussed further below.

I conclude that, during the Late Classic period, monumental palatial platforms were largely tied to the most productive agricultural lands, where they proliferated, and a few still were associated with SPPG. It is likely that many represent residences of landed aristocratic families, likely not all of them royal collaterals. Royals may have had multiple palaces, and a succession of royals may imply construction of new palaces and consolidation of control over new estates. Nevertheless, because each primary center except Tío Perciliano in the Nacastle-Patarata mangrove settlement contains a monumental palatial platform in its core, likely linked to rulers, it seems unlikely that all the platforms outside the cores were the purview of royals. Any ruling dynasty would have a vested interest in close proximity to buildings in the core to sustain an association with key rituals and administrative functions.

If the Gallo group at Zapotal forms a late delta capital, as discussed below, the importance of palatial platforms near capitals declined at the close of the Classic period, both in the agriculturally rich delta and on the paleodunes, perhaps a harbinger of political dislocations before the Classic period collapse (Stark and Eschbach 2018). Because monumental platforms continued as large residential constructions between the Early and Late Classic periods, including in association with SPPG, an autocratic principle in governance continued to flourish. The increasingly numerous Late Classic landed families outside the settlement cores possibly participated in governance as part of an oligarchy, but they also likely provided some checks on leaders' authority.

Residential Mound-Terraces Outside of Monumental Complexes in the Early Versus Late Classic Periods

As a cross-check on the patterns detected with monumental platforms, I consider mound-terraces *outside* of monumental complexes/centers to determine if mound-terraces decreased or increased in frequency and use in the Late Classic period. In the latter instance, an increase could point to the same process of wealth concentration posited for monumental platforms. A decrease might indicate a loss of mid-level economic resources as wealth becomes more concentrated at the top of WLPB society. I consider only mound-terraces outside the cores of centers because those within the core are more likely to have had multiple functions. The residential information from both platforms and mound-terraces is related to social inequality, which can have an effect on governance because wealthy families may exert more political influence than ordinary families.

Appendix 3 provides descriptive and chronological data for the 55 robust cases of mound-terraces outside monumental complexes. Because of the larger sample compared to monumental platforms, I only examine the cases with collections at or above the median. For almost all the mound-terraces, occupational activity continued from the Early to Late Classic period. Figure 12.7 shows cases with more Early Classic diagnostics than Late Classic ones, and cases in which the number of diagnostics is about equal. The Early Classic collections are concentrated within the Cerro de las Mesas settlement and to a lesser extent within that of Azuzules, which was a secondary center.

In the Late Classic period, however, the pattern shifts (Figure 12.8). Substantial Late Classic activity was now concentrated in the Azuzules area. A dispersed scatter extends westward, partly overlapping the previous Cerro de las Mesas settlement boundary but not concentrated there. Only one case lies outside the Blanco delta for the Early Classic period, in the Tuzales area; Tuzales-Tuzales North declined politically with the fortunes of Cerro de las Mesas. Two Late Classic cases outside the delta are in the Nopiloa area, and Nopiloa was a primary Late Classic center.

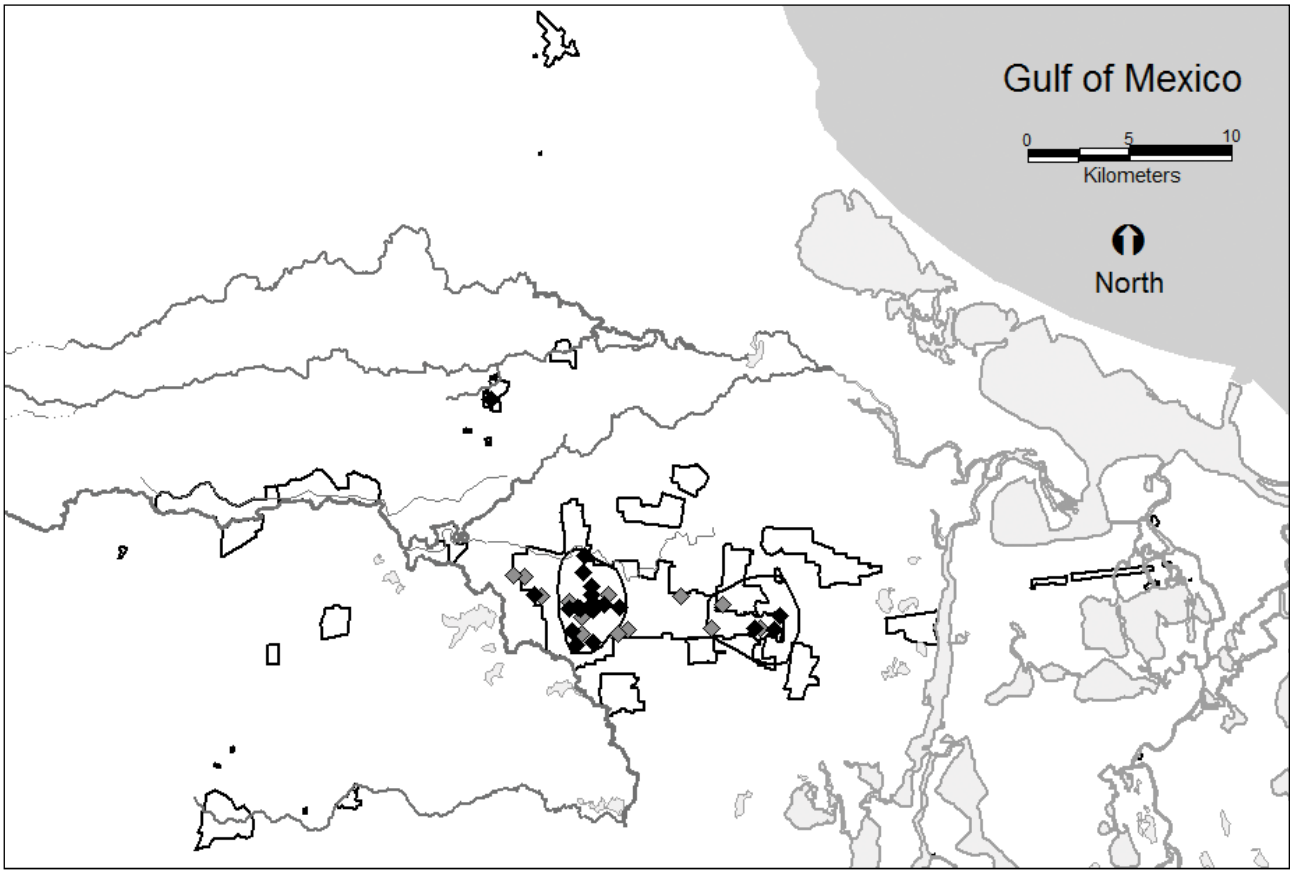

Figure 12.7. Mounds with terraces located outside of monumental complexes are shown if Early Classic diagnostics predominate (black diamonds) or are about equal between Early and Late Classic diagnostics (gray triangle). Only collections >= 76, the median for all collection sizes, are included. Irregular curved lines indicate settlement boundaries for Cerro de las Mesas and Azuzules.

Importantly, the contrast between Early and Late Classic spatial patterning argues against superposition as the sole explanation for the predominance of one or the other period among the diagnostics. Mound-terraces are not as susceptible as monumental platforms to distortions from fill because they are much smaller and likely garnered fill close to hand.

Despite the contrast between the two periods in regard to *where* occupation was concentrated, almost all the robust sample has diagnostics from both periods, indicating considerable continuity in occupation. As shown in Table A3.2, there are slightly more mound-terraces for which the Early Classic predominates but the difference is modest (four cases). No strong indication is present for a decline or increase in mound-terraces, despite the fact that the Early Classic Cerro de las Mesas realm was larger than that of Azuzules and might therefore be expected to generate more wealth near the capital and more mound-terraces. Mound-terraces seem to have held their own economically and socially despite the eventual proliferation of monumental platforms.

The Close of the Classic Period

Although highly speculative, I propose a change during the last part of the Late Classic period, AD 800–1000. I suggest that the Gallo group at Zapotal was a relatively late phenomenon, and I infer Zapotal-Gallo was a capital near the close of the Classic period after Azuzules (presumably) declined (Figure 12.9). Whether any of the prior secondary centers continued to function is unknown, as I lack ceramic diagnostics exclusive to the close of the Classic period. One indication of the Zapotal-Gallo capital role is high structures ringing Zapotal, some of them elite residences and others conical temple mounds, a deviation from previous Classic period patterns involving monumental platforms. Prior Late Classic riverine capitals exhibit monumental

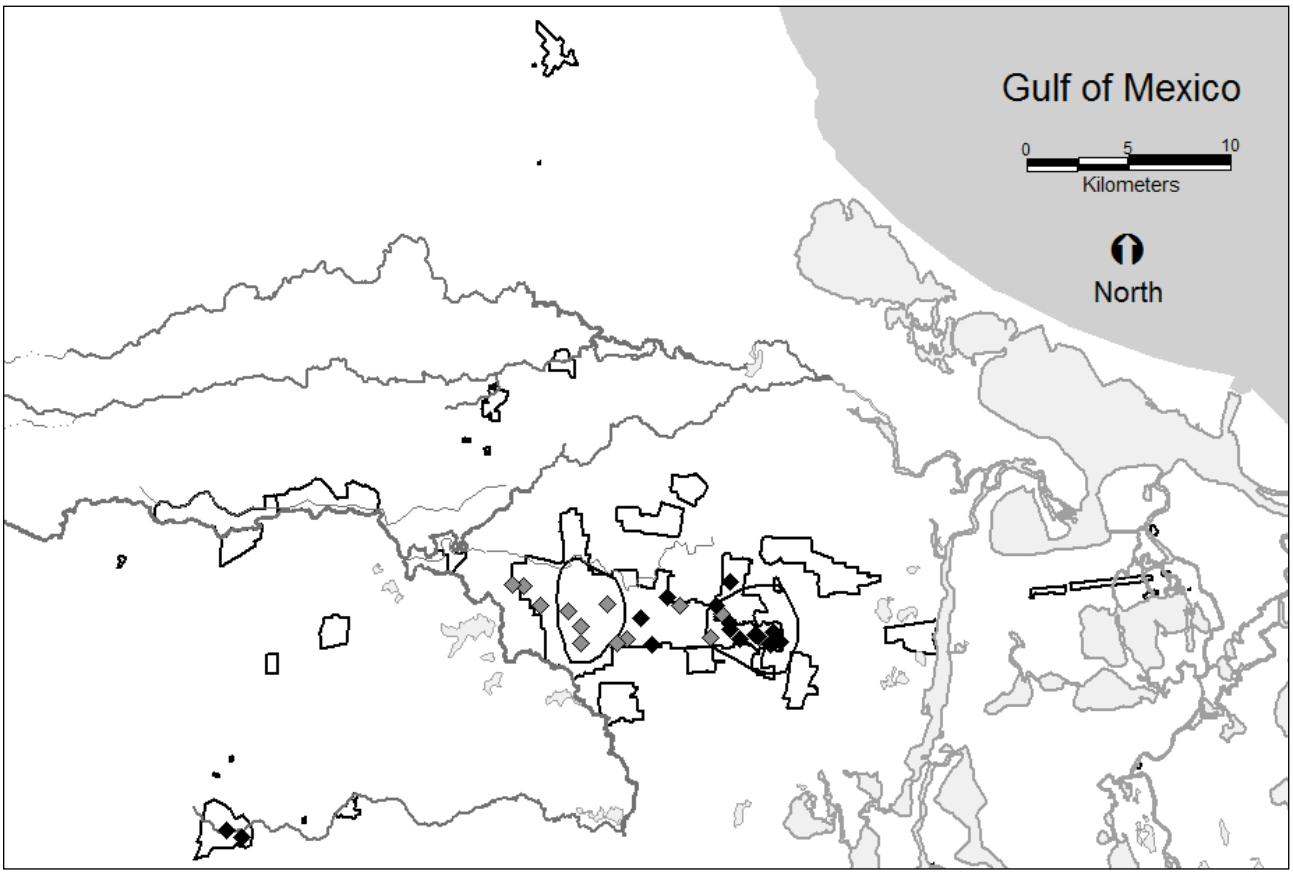

Figure 12.8. Mounds with terraces outside of monumental complexes are shown for which Late Classic diagnostics predominate (black diamonds) or are about equal in Early and Late Classic diagnostics (gray triangle). Only collections >= 76, the median for all collection sizes, are included. Irregular circles indicate proposed settlement boundaries for Cerro de las Mesas and Azuzules.

platforms around capitals (Azuzules and Nopiloa). Figure 6.5 shows a settlement extent for Zapotal based on the ringing structures. The inference that Zapotal was a capital is based in part on the massive construction at the conical mound named Cerro del Gallo and its underlying monumental platform. The plaza on the Gallo platform is unusually large for a Partial SPPG arrangement. The temporal placement at the end of the Classic period is based on Gallo group architectural deviations from Classic period traditions. On top of the platform, the arrangement of mounds is an uncommon Partial SPPG variant.

How did Zapotal-Gallo relate to Azuzules? In a few collections from Azuzules or its segment complexes, Early Classic Tending diagnostics were noteworthy compared to Early Classic diagnostics. Although as yet unproven, the Early Classic Tending diagnostics may correspond more to the middle of the Classic period. Any greater prominence of these ceramics in the Azuzules realm may indicate it thrived earlier during the Late Classic period, leaving open the possibility that the Zapotal Gallo group was a successor late in that period.

Even more aberrant than the Gallo group is the paleodunes Pitos complex, paired with Ajitos. The plazas formed by elongated low mounds at Pitos and the peripheral ballcourts do not conform to antecedent Classic period architectural practices. Plazas framed by elongated low mounds were particularly common during the Postclassic period in various parts of Mesoamerica as well as at some Cotaxtla-Jamapa Postclassic centers (Daneels 1997:246–247; Stark 2016). I tentatively place Pitos as a major transitional center late in the Late Classic period.

Due to limited survey coverage, Pitos' extent as a settlement remains unknown, as well as any segment complexes. Presumably both Ajitos and Pitos, whether singly or in combination, had control over some

subsidiary settlements in the vicinity. The proposed overall reduction implied with only two capitals at the end of the Classic period, Pitos and Zapotal-Gallo, is a harbinger of substantial population loss in the WLPB. Eventually, marked population reduction allowed Postclassic highland migrants to acquire lands and form new settlements in the WLPB as well as in the Cotaxtla-Jamapa drainage (Stark and Eschbach 2018).

Remote Sensing and Expansion of the Classic Period Settlement Array

A particularly striking trait of Early Classic settlement and, to a lesser degree, Late Classic settlement is the proliferation of secondary centers with SPPG arrangements. Remote sensing results (Figure 12.10) extend the regional settlement information beyond the PALM survey limits and further underscore this aspect of settlement patterns. Stark and Stoner (2017a; Stoner 2017) compared the Instituto Nacional de Estadística, Geografia, e Información (INEGI) Digital Elevation Module (DEM) results with PALM survey data and confirmed the high level of reliability for the identifications of large monumental complexes despite problems of low resolution and post-processing in the DEM. Initially, no additional primary center was identified within an arbitrary study polygon, but several additional secondary (or lower rank) centers with SPPGs were detected. Subsequently, Stoner et al. (2021) noted a possible primary center (Tlalixcoyan Monumental Complex) consisting of three large monumental platforms and ancillary structures around a large plaza near the confluence of the Tlalixcoyan and Pozuelos Rivers. Otherwise, most of the complexes are likely to be secondary centers (or lower). This inference warrants checking with ground survey, however. The SPPGs likely pertain to the Classic period, although we cannot assess chronological variation within the Classic period.

Overall, the combined survey and DEM results show few Classic period primary centers but an abundance

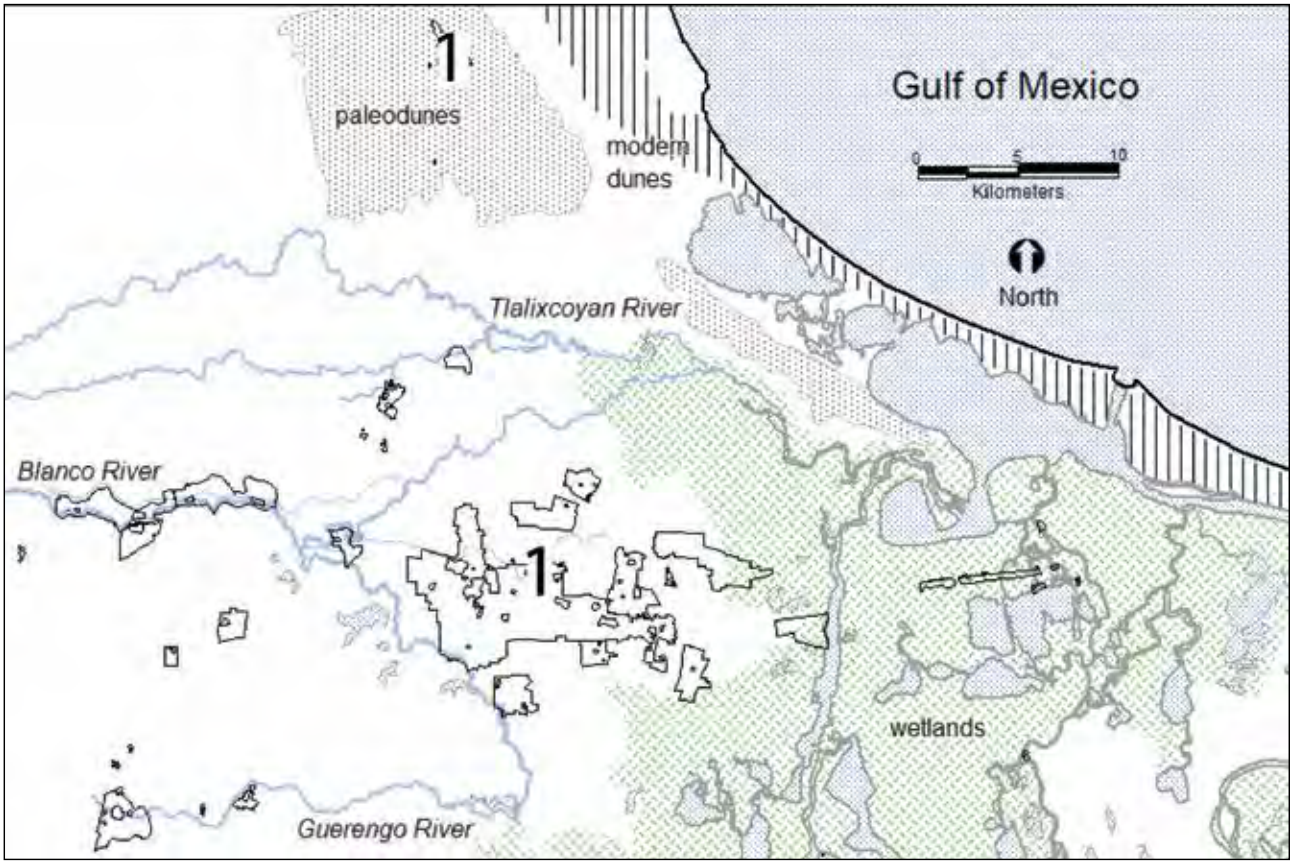

Figure 12.9. Possible capitals at the close of the Classic period are indicated. Subsidiary settlements cannot be identified but may have been present.

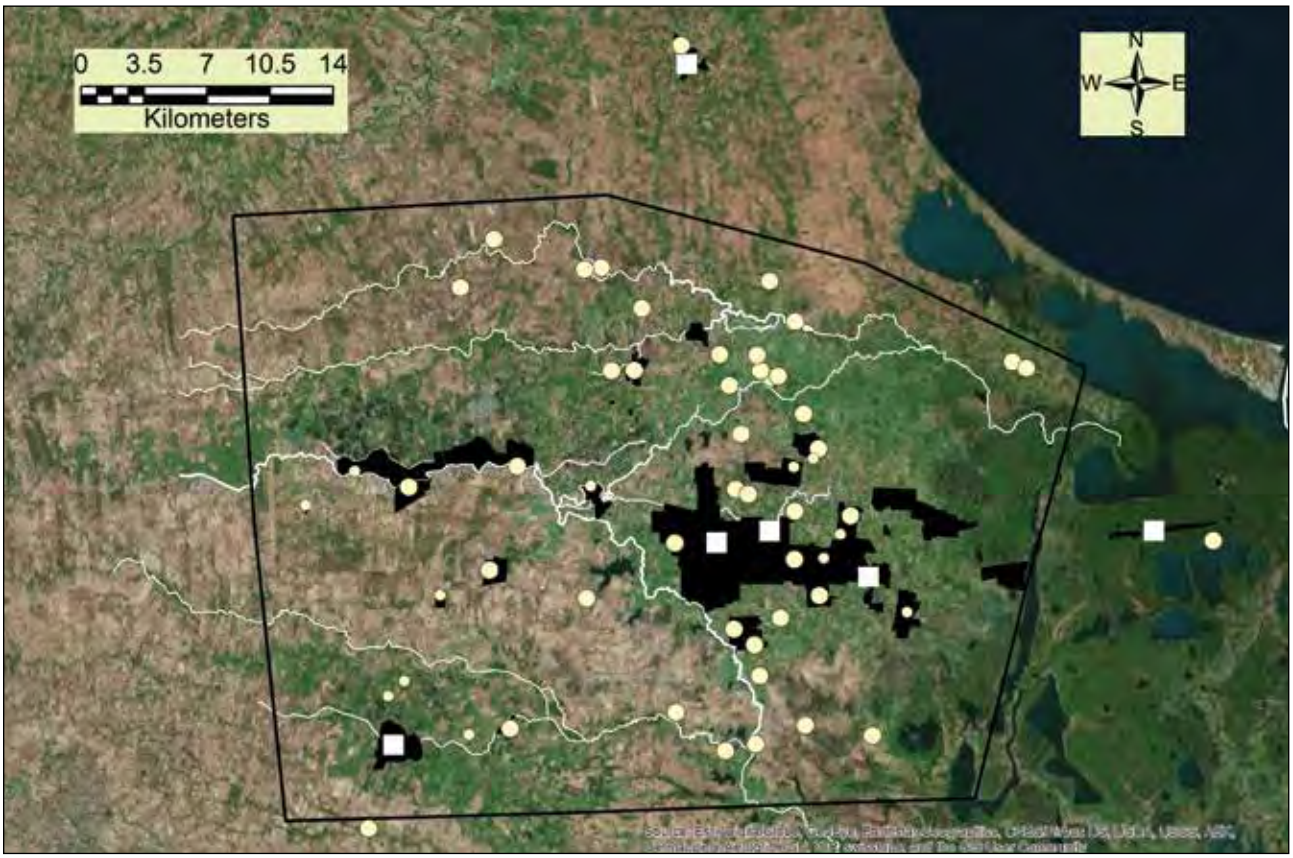

Figure 12.10. An extension of settlement pattern information uses an INEGI DEM (Stark and Stoner 2017a; black line indicates the DEM study polygon). Large white squares are primary centers at some point during the sequence of occupation, while medium white dots are secondary centers and small white dots are tertiary centers. The Tlalixcoyan Monumental Complex is not marked as a primary center, pending further investigation. Periods of center prominence are not distinguished in this figure.

of secondary centers. In part this densely populated landscape can be seen as a response to the highly productive alluvium and the aquatic resources of waterways and wetlands. This settlement reconstruction contrasts with the Cotaxtla-Jamapa area, which is interpreted by Daneels (2016) as a lattice of small territories associated with numerous primary centers.

Summary

The settlement hierarchy analysis yields intelligible patterns and changes over time. Greater packing of settlements is evident in the delta compared to locations upriver or in the interfluve. The region persistently displays low-density urbanism. Unfortunately, we have only partial information about settlement along the Guerengo, which shows as a green, well-watered valley in satellite imagery. The Nopiloa domain was likely elongated along the Guerengo and its tributaries. WLPB settlement hierarchies in riverine farmland areas have relatively abundant secondary centers compared to tertiary/quaternary centers, a reversal of the usual pyramidal relationship in which lower settlement ranks progressively are the most abundant. To some extent, this pattern is an artifact of the survey decisions, but it likely also has a foundation in the environment and agricultural potential, as well as in political organization.

A series of organizational changes characterized the WLPB societies over time. In particular, integrative emphases shift from ritual (the constellation of conical mounds at Cerro de las Mesas) to a prominent role for dynastic leaders during the Early Classic, combined with factional groups represented by the laterals and the abundance of secondary centers. During the Late Classic period, SPPGs and variants continued to dominate the settlement array, although single laterals became more common. Eventually there were more elite families when palatial platforms proliferated

during the Late Classic, signaling a growing role of an aristocracy and increased factionalism in the top tier of society, no longer checked by the prior regular association with SPPGs. This proliferation likely began as Cerro de las Mesas declined. The increased prominence of wealthy aristocratic families raises the issue of the sources of wealth, addressed next.

Western Lower Papaloapan Basin Settlement in Economic Perspective

In Chapter 2, I identified long-standing debates about the productivity and resource redundancy of the Gulf lowlands. Sanders (1953, 1971) proposed that agriculture relied mainly on rotational fallow systems, with the effect of undermining centralized political authority due to the dispersal of population and the degree of self-sufficiency of farmers in lands with adequate soils and rainfall. In contrast, Daneels (2016:89–112) posited double cropping for many Cotaxtla-Jamapa lands, especially along riverine alluvium, but agreed there was a considerable centrifugal political effect, concordant with low-density urbanism. She viewed the centrifugal tendency as counterbalanced by the role of the ball game in drawing farmers into the life of centers. Ritual deposits of arranged sets of ordinary figurines at major structures at Cotaxtla-Jamapa centers point to a degree of participation of communities in the activities of centers, in keeping with the integrative role of the ball game.

The economic information for the Classic period WLPB does not accord well with Sanders' view of a redundant subsistence economy coupled with elite sponsored crafts and prestations. The environmental variation in the WLPB is noteworthy. Its diverse environments include the delta, riverine alluvium, mangrove swamp, paleodunes, upriver areas, and interfluves. Interfluves were lightly occupied and seem likely to have produced only one rain-fed crop a year, possibly with fallowing. The delta can yield at least two crops a year, and in some locations, three, with rainy-season and recessional plantings, plus possible use of pot irrigation. Some of the low-lying areas, especially at the confluence of the Tlalixcoyan, Pozuelos, and Blanco Rivers, have extensive signatures of raised/drained fields (Stoner 2017), which could produce up to two dry-season crops in instances of extremely high rainy-season floods, but often up to three crops with both rainy-season and dry-season harvests as water levels drop. The paleodunes are likely to have produced rainy-season crops, but Daneels (2016:125) notes the harvests today are less than in riverine alluvium. WLPB raised fields are not concentrated in immediate proximity to primary centers, in contrast to the Cotaxtla-Jamapa area (Daneels 2016:288).

Within the environmental array, cotton was likely an important crop in addition to foods. Perennial forms could yield harvests in seasonal rainfall areas, like the interfluve or paleodunes, taking advantage of the need for dry conditions for boll ripening. Baron (2018) notes two instances of cotton pollen in Maya raised fields and proposes that annual cotton was grown in Maya raised/drained fields, which offer advantages in control of water to crops. Cotton is a possible crop in raised/drained fields in the WLPB, likely alternating with food crops, with cotton planted to allow boll ripening later during the dry season.

Cotton was a semi-perishable fiber prized in Mesoamerica, but it could not be grown in many demographically dense regions at high elevations. Raw carded cotton, thread, and textiles were value-added forms that offered opportunities not only in local display but also in exchange. The potential was high for prosperity and economic differentiation in the WLPB due to the production of a storable organic product. Accumulation of control over land and labor could concentrate wealth and power because cotton could be stored and drawn upon as economic and social opportunities and necessities dictated. Despite the potential of cotton to fuel a proliferation of elite estates, middle-tier and ordinary households continued to be abundant and may have been able to produce surplus cotton or textiles for exchange. The widespread potential to produce valuable tropical products, especially cotton, meant that resources of land and labor were not easily monopolized. Instead, a degree of prosperity seems to have been widespread. The proliferation of secondary centers was likely dependent on a degree of broad access to wealth.

Despite the potential complementarity of mangrove aquatic foods, the mangroves do not seem to have been a "fish basket" for the farmlands to the west, and wetland settlements may have played greater roles in coastal or riverine trade than as complementary protein providers exchanging with agriculturalists (Stark 2001a, cf. 1978). One reason is that numerous rivers and streams afforded freshwater aquatic environments for fishing as an alternative to the estuarine environment. To date, archaeofaunas do not indicate that brackish species were exchanged regularly to farmland households (see Chapter 2). Direct

procurement is also a possibility. Perhaps in the past, as is the case today, mangrove residents used abundant mangrove wood to produce charcoal for farmers' hearths. Burning shell to produce lime for plaster is another possibility.

Systematic collections showed that craft activities in pottery production and obsidian knapping were WLPB specialties initially at one secondary center and developing at two more centers when the three gained primary roles (Stark 2007a; Stark 1989:102–112; Stark 1992).

The WLPB pocket of land and water resources was not extensive. The general area from the Papaloapan to the approximate watershed of the lower Cotaxtla drainage, including the paleodunes but not the modern dunes, is approximately 2,000 sq km, but at least a third is wetlands or lagoons. Northwestward in south-central Veracruz, other areas were less diverse ecologically but nonetheless had areas with riverine alluvium, locations for raised/drained fields, coastal lagoons, and a climate suited to cotton (Daneels 2016:145–146). The contrast with the WLPB does not reside in exclusive differences but in the proximity and number of productive opportunities. The WLPB adds a further correction to Sanders' initial ideas and modifies those developed by Daneels because it contrasts with the Cotaxtla-Jamapa area in its greater degree of economic differentiation and in the size of capitals and political realms.

The WLPB and Its Neighbors

Daneels' (2016) survey in the adjacent Cotaxtla-Jamapa drainages provides particularly important comparative information. In Daneels' analysis, the polities described for the Classic period exhibited both segmentary and centralized organizations. Centralized polities were more characteristic along the river course, and segmentary polities were more evident in areas of settlement expansion, such as the paleodunes. Centralized polities had a few secondary centers close to their territorial boundaries. Segmentary polities had a few secondary centers within the territory, relatively evenly spread out. The inference was that they served the populace near them. Secondary centers near boundaries, in contrast, served a boundary function, with ball games as a mechanism for mediating relations with another polity.

Daneels (2016) also argued for capital zones for primary centers, each presenting several closely spaced monumental complexes. This adaptation of the capital zone concept handles instances of particularly close spacing of monumental complexes, but in many cases the relevant concept I applied in the WLPB is a settlement extent with segment complexes (or segment complexes within settlement boundaries). The regular spacing of Cotaxtla-Jamapa primary centers creates a lattice of small principalities or mini-states, spaced about 6–12 km between capitals. Primary centers there were identified by the heights of the principal conical mound and by the overall volume of construction, cross-checked with spacing and Thiessen polygons.

Daneels (2016) proposes the string of construction across the crest of the paleodunes as a capital zone. It is likely that some of Ajitos and later Pitos was constructed following a decline of El Castillo, and the paleodunes array is a good candidate for a capital zone. The key is a succession of construction at different spots in a locality; the succession has to be evaluated for historical links or independence. The Blanco delta capital zone has indications of historical continuity in many settlements including Cerro de las Mesas, even after its role as a capital declined. In the paleodunes crest, there are fewer complexes but they appear promising for some historical connections, with the possible exception of Pitos. While the Blanco delta was an agricultural magnet, the crest of the paleodunes appears likely to have attracted centers for another reason. The location has visibility toward the coast and inland and offers some defensive advantages from natural height. In the case of Ajitos, the construction built up a steep promontory toward the south. The paleodunes crest also is positioned close to raised fields near the Mandinga Lagoon (Heimo et al. 2004; Stoner 2017).

In contrast to the Cotaxtla-Jamapa area, the WLPB record shows larger but fewer primary centers and a substantial proliferation of secondary centers. Some of the secondary centers are similar in overall construction to primary centers in the Cotaxtla-Jamapa area. Primary centers were defined differently in the WLPB because the height of the main conical mound did not provide consistent interpretable results (Stark and Stoner 2017a). In the highly differentiated WLPB environment, the settlement pattern points to greater political and economic incorporation across a broad realm.

Cotaxtla-Jamapa versus WLPB settlement models suggest that the settlement hierarchy "flattens out" toward the northwest. León López (2015) and

Stoner (2017) both note sparser evidence of major monumental construction northwest beyond the Cotaxtla-Jamapa drainage based on NACAR 3D survey (Heredía Barrera 2007) and other sources. One important result is that polities such as Cerro de las Mesas or Azuzules did not face a major centralized authority westward. Eastward, the destructive course of the Papaloapan and extensive wetlands meant that there was no major population center until the foothills of the Tuxtla Mountains. The proliferation of Classic period WLPB population and secondary centers may have been partly enabled by a lack of especially powerful neighbors on the doorstep that could have been a coercive threat promoting greater centralization. The following chapter focuses directly on the political organization of the WLPB.

Chapter 13

Political Interpretation of Settlement Patterns

I now address political interpretations of settlement data. The focus is on governance principles (sometimes referred to as strategies for achieving and maintaining power) more than political organization itself. Political organization concerns the institutions of decision-making in society, according to which people formulate and carry out decisions with respect to civil order, resource allocations, and external affairs. The political organization of government could be summarized overly statically to indicate organizations, offices, and their responsibilities. Specifics of political organization are often opaque with archaeological data, such as the hierarchy of bureaucratic offices, recruitment to office, rules of succession, bases for taxation, an advisory council, or a ruling council.

With a shift of attention toward governance, which is a broader, somewhat protean term (Plattner 2013), several more dynamic topics are prominent: sources of power affecting decision-making, techniques of rule, and varied governmental actions contextualized with the actions and reactions of the governed (Feinman 2018:5; Scott 1985, 1990). Governance accommodates the "arts of government" (Clark 1997), that is, statecraft—the methods and techniques to acquire and maintain power, which may involve ritual and ideological efforts as well as economic ones or application of force. In the study of governance, for example, we find efforts to identify imperial strategies (e.g., Smith and Berdan 2003), and the counterbalancing strategies of provincials in empires (e.g., Stark and Chance 2012). Concern with governance principles is part of a wider movement to recognize agency in societies—the abilities of rational actors to create, shape, or react to their conditions of life, including government at various levels.

Several principles have been advanced to dissect governance, including a collective principle. In a recent review of collective action theory, DeMarrais and Earle (2017) note that power in governance is dynamic, with different "pathways," which leads to their recommendation that political economy approaches be welded into a combined theory with collective action. I concur; consideration of the political economy is essential to understand how governance principles operate and concatenate. Control of resources, including labor, is a process at work both within government and by individuals and groups at various levels in society as they seek to achieve or exert power for diverse purposes. In Levi's (1988) consideration of collective action in states, she proposed that the main source of revenue, whether internal (providing taxpayers with more leverage) or external (more readily monopolized by rulers) made a difference in the degree of collectivity. Comparative research by Blanton and Farger (2008) supported her argument.

Settlement pattern information can point to institutions and principles in governance, but it also can reveal resources and their possible roles in society, especially in respect to social inequality. In Chapter 2 the history of debates about Gulf societies showed that their organization and functioning have been subject to disagreement. Consequently, a fresh look at political principles is warranted. In this chapter I evaluate (1) collective versus autocratic principles, (2) corporate versus exclusionary (network) principles, and (3) segmentary versus specialization principles. I address these principles first from a conceptual standpoint and then in terms of evidence in the WLPB. I treat collective and corporate principles together, and autocratic and exclusionary (network) principles together, because they are related; segmentary and specialization principles are discussed together in terms of unspecialized versus specialized hierarchies. After consideration of the pros and cons of the different principles, I discuss how they likely functioned together as entangled principles in a dynamic tension. Subsequently, wealth differentials and low-density urbanism are addressed as part of the wider context of the political realm.

A critical issue is how to use archaeological data to identify principles and changes. Research to evaluate governance is substantially different for historically documented societies compared to those known only archaeologically. Blanton and Fargher (e.g., 2008, 2012, 2013) provide a rich body of cross-cultural coding of numerous variables for a sample of 30 pre-modern states with which they test expectations about collective versus autocratic governance. Most of the variables are not accessible for purely archaeological cases. They coded indicators of collective action in the four domains of revenue sources, public goods, bureaucratization, and control of principals (i.e., rulers or ruling groups). A few examples show the challenges of shifting to an archaeological dataset. For assessment of revenue, information on storage is needed to consider redistribution, plus evaluation of alternative distributive mechanisms, such as markets (e.g., Stark and Garraty 2010). Concerning public goods, public facilities may be evident, but their sponsorship may be opaque. In regard to a bureaucracy, although buildings, seals, depictions of officials, and sometimes inscriptions may help detect bureaucrats and related facilities in some archaeological cases, several variables, such as degree of tax farming and officeholder recruitment, are not suited to evaluation with archaeological data. Most variables for assessment of control of principals are only indirectly accessible, such as control of ideological resources. Others, such as the principal's standard of living and control of material resources, are more readily measurable. The key matters of an advisory council and its composition and functions are not easily revealed by archaeological data.

It is difficult to overestimate the impact of Blanton and Fargher's (2008) analysis of collective versus autocratic actions, yet moving forward to analyze archaeological cases is not easy. "Unfortunately, there is no recognized method for scoring polities known primarily from archaeology along Blanton and Fargher's autocratic-collective continuum—for categorizing regimes" (Kohler et al. 2018:303; cf. Smith and Novic 2012:18)—nor for other political principles. Here, I assess a variety of architectural and settlement pattern evidence to show that a mix of principles can be detected in the WLPB, including at different levels of the settlement hierarchy. Of particular interest is the indication of changing emphases over time, with signs of reduced collective action and increasingly decentralized elite wealth and power. Growing wealth inequities are a common crisis in ancient states, threatening collective action because of the potential for wealthy members of society to exert undue political influence favoring themselves. They may also challenge hereditary rulership (Savoia et al. 2010).

The WLPB investigation brings into focus a conceptual and tactical issue for political analysis in ancient states. Scholars have challenged the utility of treating ancient states as a monolith without considering (1) the interests and aims of diverse constituencies, (2) the resources and characteristics of institutions, and (3) how factions intersect with central authorities (for example, Brumfiel 1992; Brumfiel and Fox 1994; Yoffee 2005). States are subject to a multitude of internal negotiations and are only partially coherent due to conflicting aims among different groups. Consequently, a political assessment cannot operate without considering multiple scales of action and arenas of assessment.

Consider the influential Blanton and Fargher (2008) study and its tactic. Entire states were scaled according to the degree of collective versus autocratic principles in governance using a series of variables, with results combined into a summary score for each state, an important undertaking. Nevertheless, as noted in Chapter 2, such assessments from historical data are biased toward the capitals and upper echelons of society. In reaction to the challenge of how to assess ancient states, internal variation in governance has preoccupied

several recent investigators using archaeological evidence (for example, Campbell 2009; Murakami 2016) and combined historical and archaeological data (for example, Small 2009). In Mesoamerica, increasing attention to intermediate elites (Elson and Covey 2006) and commoners (Gonlin and Lohse 2007; Lohse and Valdez 2004) brings additional agency into the picture of governance, especially in the characterization of interest groups that may underwrite factionalism.

In another scoring endeavor, Feinman and Carballo (2018) coded 26 Mesoamerican cities using variables attuned to archaeology to score each case regarding political economy, governance, and architecture. While some of their categories still lack material operational terms, especially within the topic of political economy, the thrust of the assessment is material evidence, such as the prominence of palaces versus communal architecture (temples, plazas, access ways, or other public facilities). Political economy remains problematic because long-distance prestige goods may remain important in a class-based society even if important collective institutions are present. Control of staple goods through landholdings and taxation are challenging to pin down because land tenure and tax obligations are difficult to measure. Feinman and Carballo turn the focus to archaeological cities, but cities are not stand-ins for whole societies, even though some of the cases were city-states and thus come close to representing their realm. Others are capitals of regional states within which governance principles may vary. The relation between the city and its realm opens the possibility that important organizational variation is obscured. The character of city governance and city size and longevity are legitimate questions, but it is through a regional perspective that the complexity of state governance is best addressed.

A more elaborate set of traits related to collective versus autocratic governance advanced by Feinman (2018) is a further step toward elaborating archaeological correlates, including some that require a larger scale than a city, but the traits continue to be a mix of the materially observable, such as roads and defensive walls, and others that are unlikely to be addressed archaeologically, for example, public provisioning during stress episodes. Additional bridging arguments for public provisioning in a crisis might point to storage facilities; yet perhaps such facilities are for redistribution, perhaps for state functions. Neither possibility guarantees disbursement during a crisis, although they allow the possibility. Thus, we still face many challenges in creating an archaeological framework of evidence to assess political principles.

Unlike other studies, the analysis here is regional in scope, drawing on settlement pattern data, not a particular site. Like other studies, it considers variation according to contexts. The traits evaluated are ones pertaining to the settlement record in the WLPB, summarized in Table 13.1. The WLPB exhibits mixed principles according to different lines of evidence (which constitute arenas of action) and at different scales (settlement ranks). Is this heterogeneous mix a "mash-up" somehow blending principles together? No, because the mix has orderly properties according to settlement scale and institutions, such as rulership and corporate groups. A more appropriate characterization of the mix is "entanglement" of different governance principles, a phrase borrowed from Murakami (2016), who saw complex inter-threading of state level versus lower-level interests and actions on the basis of architecture and other evidence at Teotihuacan. I return to the overarching conceptual enterprise after considering each of the mentioned governance principles and WLPB evidence.

Throughout, an important caveat is that the information about archaeological features derives from survey, mapping, and surface collections. Problems abound, such as the effects of fills, repurposing of structures, collection sample sizes, and more. Nevertheless, the systematic data reveal a great deal. Those data underlie the determination of settlement boundaries and extents, which in turn underlie the picture of settlement hierarchies over time in the previous chapter. At the close of this chapter I return to the limits of current knowledge and the need for new studies, such as more detail concerning buildings and their histories. In the next sections, governance principles are discussed, then corresponding WLPB evidence, as summarized in Table 13.1.

Collective and Corporate Principles

Collective action has received increasing attention in Mesoamerican governance (Blanton with Fargher 2016; Blanton and Fargher 2008; Carballo 2013; Carballo and Feinman 2016; Carballo et al. 2014; see also Daneels and Gutiérrez Mendoza 2012), but often with much leeway in how the process is viewed. Collective action in ancient states is participation in governance by a broader base than leaders, who usually are a dynast and/or members of a hereditary aristocracy (oligarchy). In ancient states, collective action in governance involves cooperation among individuals and groups in the polity (definition adapted from Blanton and Fargher 2008:12). The

Table 13.1. Archaeological evidence for WLPB governance principles

Traits	WLPB Evidence
Collective principle/corporate	
Internal revenue	likely, highly productive agriculture, both food and cotton
Infrastructural investment	raised fields ambiguous in investment
	SPPG in lower settlement ranks may be local actions or a mix, not central authority investment (see below)
Physical access	SPPG access from various plaza corners (exceptions in 1st rank during Late Classic)
Corporate architecture	laterals in modular SPPG
	SPPG with laterals distributed at 1st-, 2nd-, and a few lower-ranked centers
	SPPG with laterals well distributed spatially in 2nd-ranked centers
Palaces	most palatial monumental platforms near but not within SPPG
	3 & 4 ranks almost no palaces, degree of local autonomy
	scant clustering of (client) households near monumental platforms, thus only weak indication of clientage
Restraints on leaders	2nd-rank proliferation, services similar to 1st rank (oligarchic power?)
Wealth access	middle-tier and ordinary residences with decorated vessels, also likely cotton production
Autocratic principle/network	
Leader imagery	Terminal Preclassic and Early Classic leader stelae
Lavish burials	one known, Terminal Preclassic, Cerro de las Mesas
Physical access	Late Classic, access to 1st-rank centers more restricted; but could be inspired defensively instead of socially
	access to any administrative or other services at monumental palatial platforms near SPPG is spatially restricted by height of the platform
Public services	ballcourt viewing restrictive compared to accommodation of people in plazas
	Late Classic one lateral in SPPG more prevalent, less corporate representation
Palaces	monumental palatial platforms near SPPG at 1st-, 2nd-, a few lower-ranked centers
	Late Classic monumental platforms increasingly separated from SPPG, less checked by representation at laterals
	a small degree of clustering of (client)households near some platforms
Unspecialized hierarchy, segmentary	
Replication of layout	SPPG at 1st-, 2nd-, and a few lower-ranked centers; monumental platforms nearby for 1st- and 2nd-ranked centers
Specialized hierarchy, non-segmentary	
Non-replication of layout	SPPG begins to break down at 3rd- & 4th-ranked centers
	1st-ranked centers have architectural forms not shared with lower ranks
Economic differentiation	1st-ranked centers have economic specializations (3 of the 4 centers) not shared with lower ranks

extent of involvement of ordinary members of a polity in decision-making is tricky and requires more than an argument that powerful rulers are not featured in artistic representations or that lavish tombs and residences are absent. Negative evidence should not form the entire argument because wealth and power differentials could have been suppressed in public displays to promote solidarity, even though vainglorious displays were very common in ancient states.

Despite some popularizing mentions of democracy (e.g., Wade 2017), collective action in ancient states seldom embraced individual enfranchisement. Instead, political representation commonly was through organized social segments—for example, kin-ordered groups such as lineages (e.g., Fox 1987), or "houses" (e.g., Joyce and Gillespie 2000), neighborhoods or other settlement groups (Arnauld et al. 2012; Prufer et al. 2017), religious organizations, or craft guilds. Commoners may control their local neighborhood, where cooperations may be forged or disputes resolved. Commoners may be independent in their rights to lands or other resources, giving them economic leverage. Public assembly or representative councils may be one mechanism in government at some organizational levels. Blanton and Fargher (2008:15) stress that collectivity versus domination will be apparent to varying degrees in all complex societies and will change over time in particular histories.

The challenge is to detect collective action at particular levels of government, especially the highest levels that may have the widest impact. Governance strategies may vary at different scales within a polity (Pool 2008:122); Blanton and Fargher (2013:102) note that the difficulties of forging cooperation vary from a small primary group, to larger groups with shared language and ritual, and even larger ones with heterogeneous populations. Of particular importance for the WLPB, architecture and settlement layouts can provide information at several levels in the settlement hierarchy.

A variety of studies provide guideposts for the WLPB. At the settlement of Tlaxcallan, Tlaxcala, in the Late Postclassic period, Fargher et al. (2010) used the separations of multiple assembly spaces (plazas) in the settlement and the spatial separation of an administrative complex as signs of a collective emphasis. Assembly for administration was in a separate, more neutral location with relatively open access and scant indication of a lavish palace. Tlaxcallan also was analyzed politically using ethnohistoric documents (Fargher et al. 2011), which underscored two conditions promoting a collective emphasis: (1) the continuing military threat from the Aztec Triple Alliance and (2) the absorption of migrants from disruptions in that empire. Military success in prehispanic Mesoamerica was dependent to a great extent on the size of military forces (Hassig 1988:101), and immigrants provided willing manpower if suitably integrated to engender loyalty. The degree of Tlaxcallan collective action in governance should be more marked under these conditions than in many Mesoamerican polities, including the WLPB. For my purposes, the Tlaxcallan example is useful because it points to the important role of architecture and settlement layout for identifying collective versus autocratic principles in governance. Material indicators are crucial for the WLPB, which lacks directly relevant ethnohistoric documentation.

Carballo's (2013:20–22) discussion of material indications of cooperation, a requisite of collective action, harkens to public ritual architecture and large plazas as contexts for promoting cooperation, with extensive artifact styles as another sign of interactions building trust and cooperation. Unfortunately, neither these architectural traits nor artifact styles are unambiguously related to cooperation or collective action. Public rituals and sacred precepts may be coopted by rulers, and public ceremonies may glorify rulers. The extent of artifact styles is not solely a sign of communication but is also sensitive to the nature of economic institutions, such as markets.

Testing ideas primarily drawn from Levi (1988), Blanton and Fargher (2008) showed that greater collective action was evident when state resources were primarily internal, with rulers dependent on revenue from the populace. Autocratic principles were more evident when revenue was external or localized apart from the general population in a way that could be controlled to leaders' benefit. Archaeologists often can identify likely sources of state revenues.

Another organizational feature can indicate collective principles. Earlier Blanton et al. (1996) posed a contrast between corporate and network governmental strategies, suggesting that both coexist but one or the other predominates at a particular time and place. The former emphasizes the roles of institutionalized groups (with rights and other property) in governance, while the latter emphasizes patron-client networks. Archaeologists potentially can identify corporate groups through architectural remains, thereby detecting a route for collective action that can represent more of the general population. At Teotihuacan, the

residential emphasis on apartment compounds housing corporate groups and the lack of any undisputed ruler's lavish residence or burial, or imagery emphasizing individual rulers, are among the bases for inferring a collective emphasis in governance (see Blanton 1998:168 concerning apartment compounds; see Blanton et al. 1996:9–10 for a summary regarding imagery). Note that a more complex picture of Teotihuacan is developed by Murakami (2016), not hinged on corporate versus exclusionary network conceptual poles.

One advantage of regional survey with adequate documentation of architectural data is its potential to reveal governance at different scales. Lower-order settlements in a regional hierarchy may display a different emphasis in principles than the highest level. Smaller settlements have local public facilities potentially more directly accessed by commoners and less directly under the gaze of elites. Conversely, they may show autocratic fiefdoms whose leaders participate in a collective council at a higher level.

Indications of Collective and Corporate Principles in the WLPB

Internal Revenue

Valuable WLPB agricultural lands suggest a strong possibility for internally generated wealth. So, too, does the potential for cotton fiber and cloth production. Nevertheless, the distribution of natural resources alone does not provide straightforward evidence of governance principles. For example, who controlled particular lands and their products? Was production taxed?

Infrastructural Investment

In the WLPB, particularly valuable alluvial lands are located in the Blanco delta and in the confluence of the Tlalixcoyan, Pozuelos, and Blanco rivers, where extensive raised fields have been identified (Stoner 2017). The raised fields are not necessarily an infrastructural investment organized by an overarching authority that responds to local needs because they can be constructed incrementally; however, Stoner et al. (2021) note that construction and maintenance of some canals and associated fields required organization above the household, perhaps coordinated through a nearby SPPG.

Physical Access

SPPGs and variants are an exceptionally common arrangement in the WLPB. The Standard Plan structures frame a plaza accessible from multiple points between structures, enhancing public access to the plaza.

Corporate Architecture

Laterals are a key element at SPPG plazas. In Chapter 5, analysis of the dimensions of laterals suggest that pairs were constructed independently from each other, but in keeping with the general proportionality of the SPPG. I have argued elsewhere that laterals likely represented separate corporate groups on the basis of comparisons among several Mesoamerican regions with respect to site layouts (Stark 2016). I argued that consistency in SPPG layout was a by-product of the vested interest of different parties in publicly visible representation in the site core. Highly repetitive site layouts elsewhere in Mesoamerica were associated with indications of corporate groups represented in architecture. For the Quiché Maya case, ethnohistoric documents recorded powerful corporate lineages. Repetitious layouts occur across multiple polities in south-central Veracruz and thus do not result from an imposition by a single government. The tendency of autocratic rulers to seek distinctions and grandeur encourages a degree of variety in buildings and layouts that is not evident in the WLPB, where the SPPG is a repeated layout. In the Maya lowlands, for example, primary centers display considerable spatial variation in architecture within general canons.

We do not know the extent to which the laterals served a residential function, versus a storage and administrative role, nor whether they had a kinship association, perhaps in ranked moieties, given the paired laterals of unequal heights. At Tres Zapotes TZPG laterals were associated with elite domestic refuse and considered residential/administrative (Pool 2008). Laterals in the WLPB could have had residents from corporate groups but also have served as periodic meeting and organizational hubs.

The SPPGs are distributed through the first two settlement ranks and more sporadically in the tertiary/quaternary ranks. Secondary centers are unusually abundant and widely distributed spatially. Both distributional patterns indicate that corporate principles were present widely, along with varied public services.

The lowest tiers of the settlement hierarchy were discussed in Chapter 6 (see also Table 12.1). Tertiary/quaternary centers encompass considerable variety. More likely to be tertiary centers are groups with Partial SPPG or SPPG. One implication of variety in the lowest settlement ranks is a degree of flexibility in architectural arrangements. Locals did not "toe the line" in reproducing the SPPG or in organizing Conical Mound Groups. In contrast, secondary centers

are rather consistent in reproducing Standard Plan forms. Palatial platforms are almost exclusively restricted to secondary and primary centers, suggesting that the most powerful elites were not proximate to and directly controlling the lowest settlement levels. Thus, collective action may have been most effective at the lowest settlement levels.

Palaces

At the upper two settlement levels, SPPG modules are coupled with palatial monumental platforms nearby. The palatial platforms are seldom located alongside the plaza, however. The focal organization of primary centers on a SPPG or, in the case of Cerro de las Mesas, a central pond with a group of temple mounds at the north end, keeps public facilities in the foreground, instead of a royal palace. One exception is Late Classic Nopiloa, which has a massive, multipurpose platform at the east end of the SPPG.

Restraints on Leaders

The proliferation of secondary centers has political implications. Secondary centers during the Classic period indicate local organizations with corporate elements yoked with powerful families residing at the monumental platforms, likely a landed nobility. Rulers at primary centers presumably contended with multiple aristocratic families, providing some checks and balances on rulers.

Politically this was a system of managed multiplicity in which many secondary centers thrived, but capitals succeeded (for a while) as well. The proliferation of SPPGs at secondary centers and perhaps tertiary ones cannot be safely assigned to state infrastructural penetration. As will be discussed with consideration of the segmentary principle, local actions may be strongly represented in secondary (or tertiary) centers through a mutual process of legitimization of local leaders, whether dynastic descendants or drawn from the local nobility. The sponsorship of service facilities (temples, ballcourts, laterals) is likely mixed (e.g., laterals) and cannot be assumed to be wholly a result of state sponsorship as opposed to local efforts.

Wealth Access

Just as services are well distributed, so too are wealth indicators. Residential mounds with terraces, likely linked to middle-tier households, are concentrated in the rich farmland of the delta, as noted in Chapter 3, suggesting that well-to-do commoner families had direct access to some of the best land. A wider base than the occupants of palatial platforms enjoyed reasonable prosperity and could have played a role in governmental affairs.

We need additional comparative research on the association of general economic prosperity with collective action, as suggested by Blanton with Fargher (2016:340–341) and Chase and Chase (2017:205, 214, 215), but it will likely prove to be associated. Although my study focuses on settlement patterns, not artifact evidence, Late Classic decorated bowls suggest wide access even if amounts were greater at higher-status residences. The PALM ceramic diagnostics used to distinguish the Early versus Late Classic periods are 86% decorated bowls. In Chapter 12, I showed that collections with these ceramics are widespread in the Blanco delta among middle echelon (mound-terraces) and upper elite (monumental palatial platforms) residences (see also Chapters 4, 7–11 for general settlement history).

Overview

The strongest indicators pointing to collective or corporate principles are (1) the consistent representation of laterals in the SPPGs, which have a proposed corporate role; (2) the typical separation of monumental palatial platforms from the SPPGs; and (3) the likelihood of primarily internal revenue. Additional research may bolster evidence regarding widespread wealth access and the power of secondary centers as a check on central rule, but these subjects currently have more preliminary information.

Autocratic and Exclusionary Network Principles

If commoners are dependent on aristocratically held lands or patronage, then any voice in governmental decision-making necessarily will be through their patron(s) or through patron-swapping (Adas 1981:227, 243; 1986:73; Alexander 2004:51, 155). Not uncommonly in ancient states, important families are represented in an advisory council that has an impact on public policy and actions. Can elites represent commoners effectively? Although hereditary aristocrats with resources (mainly landholdings) may provide a wider social input in government and act as a check on despotic autocracy, such elites tend toward a self-interested posture, and their commoner clients may benefit only occasionally, if at all. Without institutionalized checks on elite power, client commoners may be exploited, not aided. Consequently, I view the presence of

powerful elites as indicating only a meager possibility for collective action to represent commoners. They are likely to form part of a formal or de facto oligarchy and to support autocratic principles.

Dynastic rulers and powerful elites can be identified through the presence of palatial residences (Fargher et al. 2010; Flannery 1998). With a consideration of elaborate residential quarters, an important monitor of material wealth is at stake. Material wealth is transmissible between generations, and it is a key issue for social inequality in agrarian societies in comparison to embodied wealth (phenotypic traits) or relational wealth (social ties; Bowles et al. 2010:9; Smith et al. 2010). In some cases, material wealth has been shown to have a more complex distribution than social status or class designations in Mesoamerican societies, such as noble versus commoner (see Olson and Smith 2016; Steere and Kowalewski 2012). Wealth may provide political leverage (Savoia et al. 2010). Residential evidence can help disclose indications of a wealthy oligarchic class.

The positioning of palaces is relevant—whether they are part of the settlement core and associated with public facilities or more separated. Proximity to the main plaza is more likely to represent a strong governmental role in ancient states. Feinman (2018:21) notes that the "size, elaboration, and spatial centrality" of palaces are relevant, as well as the degree of contrast with other residences in labor investment. Imagery and inscriptions often are substantial investments to glorify rulers and powerful individuals, along with ostentatious burial and luxury crafts incorporating scarce raw material or highly skilled labor. All of these characteristics are well represented in the archaeology of the lowland Maya, for example. For the WLPB, I primarily concentrate on settlement data, which makes palaces and their locations of particular interest. We lack sufficient excavations in the WLPB to characterize elites and rulers through burials, artifacts, and art.

If commoners lack independent representation and depend on patron-client networks, such networks can be identified in part through exchanges that follow clientage (Ossa 2011, 2013). Exclusionary (patron-client) networks are best identified through examination of mechanisms of distribution of various luxury or high-value products in comparison to quotidian products. Such analyses require attention to alternative distribution mechanisms, such as markets. Artifact distributions are not a primary focus here, but some evidence is available. Also, client families can be expected, in part, to cluster near patrons, providing labor service and protection. This spatial indicator can be assessed in this study.

Indications of Autocratic and Exclusionary Network Principles in the WLPB

Leader Imagery and Lavish Burial

At Cerro de las Mesas, Stirling (1943) described a large array of carved stone monuments, including ones with inscriptions bearing Early Classic Long-count dates and showing important leaders, as was the case during the Terminal Preclassic for the La Mojarra stela along the Acula River (a distributary of the Papaloapan River; Winfield Capitaine 1988). A Terminal Preclassic burial of an important decapitated individual in the north part of Central Cerro de las Mesas contained elaborate items, such as jade ear spools, a carved turtle shell, stuccoed and painted vessels, and a yoke (Daneels 2008a:198). Other major centers that peaked after Cerro de las Mesas yielded only one or a few carved or shaped stone monuments or none. Especially in the context of Early Classic Cerro de las Mesas, dynasts or rulers seem prominent, with highly differential access to labor and resources.

The decline in carved monuments during the Late Classic period is ambiguous. Perhaps glorification of rulers declined, but the smaller states of the Late Classic may have been less able to procure appropriate raw material and transport it. Perhaps the plain stela(e) at Azuzules once were plastered and painted with imagery. Therefore, the later stone monuments are of uncertain utility in supporting the idea of weakened rulership. As discussed shortly, Late Classic proliferation of landed elites may have undermined central authority compared to the Early Classic period.

Physical Access

At Late Classic primary centers, unlike secondary centers, access to the center and central plazas is more controlled than during the Early Classic, usually by waterways or ponds (and by vertical promontories on the paleodunes). Nopiloa is partly surrounded by the Guerengo River and by artificial ponds. At Azuzules, artificial ponds surround most of the central complex. Access to two groups, the aberrant monumental platform 1195 at the end of a causeway and the plaza group framed by elongated mounds 1188, 1189, 1191, are highly restricted by the surrounding pond and by the closely spaced twin "gateway mounds" 1145 and 1188. Ajitos and Pitos are on nearly the highest part of

the paleodunes (just inland of the crest to ameliorate Gulf northerly winds), and they take advantage of dune promontories.

Also restrictive in their accommodation of people were the monumental palatial platforms. They likely provided both elite residential quarters and rooms and open space (plazas on top) where activities related to social obligations, elite land administration, or, in the case of monumental platforms associated with SPPGs, local judicial or other administrative duties took place. Occupants of palatial monumental platforms created considerable architectural variation in the structures associated with the platforms and how the structures were arranged (Appendix 1, Table A1.6). This variation suggests a degree of local independence of elites and contrasts with the consistency of SPPGs.

Public Services

An analysis of ball game viewership in formal architectural courts by Stark and Stoner (2017) showed that game viewers were many fewer than those who could assemble in the main plazas to witness public ceremonies connected with temples or other buildings. The restriction of viewership was sufficient that ball game viewing in formal courts was likely to have been mainly the purview of the upper echelons of society. Ancillary activities, such as processions, would have been more widely accessible. Thus, an important facility in centers did not accommodate the general population as well as multipurpose plazas, but it accommodated more than a narrow set of royals and nobles.

The proliferation of single laterals in many Late Classic contexts speaks to a diminished role of corporate groups, reducing their counterbalance to autocratic authority. During the Early Classic, twin laterals were more common in SPPG and Partial SPPG, but single laterals are prevalent in the Late Classic period (Stark 2016).

Palaces

The massive character of the platforms suggests mobilization of labor for construction, indicating segments of society that commanded resources and power. The monumental platforms far exceeded other residences in labor investment. Many monumental platforms are separated from the SPPG but close to it, with still others in an outlying position in the settlement and not associated with any SPPG, with the implication that they were less tied to governance. Multiple platforms are more characteristic of capitals, whereas usually only one platform can be found associated with secondary centers. Wealth and power represented by the palatial platforms are concentrated at the top of the settlement hierarchy. An abundance of monumental platforms in active use in the Late Classic period also means a growing concentration of wealth, since the platforms are the grandest residential units and likely represented families with large landholdings worked by client farmers.

A tendency toward residential dispersal is pervasive in the WLPB, making spatial propinquity of client families to palatial platforms difficult to assess. Nevertheless, residential mounds do not suggest a strong tendency toward client clustering around monumental palatial platforms (Chapters 7–11), so there is no strong spatial evidence for pervasive clientage. Within the lowest settlement rank at Conical Plaza Groups or Conical Mound Groups, the number of clustered residential mounds is low also. The principal structure in these groups is likely to have had a ritual role more amenable to direct community participation compared to the monumental palatial platforms. Authority over client households is not dependent on close spatial propinquity, however, and the modest clustering that we see may reflect only clients providing domestic services.

The landowning families associated with monumental platforms represent an array of powerful groups in Late Classic Azuzules and Nopiloa society, likely sapping central authority and forming an oligarchic check on it, at least within the most valuable alluvial lands. Outside of alluvial contexts, platforms were either absent or few (at Ajitos-Pitos, few, and at Nacastle-Patarata, none). Parts of WLPB society were becoming "crowded at the top," and corporate actions signaled by the laterals played a lesser role.

The political implications of the Late Classic activity at palatial platforms outside of settlement cores, and often apart from SPPGs, are striking. The presence of some Late Classic diagnostics at almost all monumental platforms documents a continuation of elite activities across the Blanco and Guerengo River areas. In Late Classic society, at two of the polities with some of the most productive lands, multiple powerful aristocratic interest groups were present, likely hereditary landed families, but most were not part of the core construction and were no longer affixed to the SPPG module. Presumably they had a voice in governance, in view of their prominence. Despite increased indications of autocratic governance, divided autocratic power probably grew at the expense of central authority. Future studies

of the distribution of artifacts hold promise to reveal the degree to which elite households were advantaged in access to valued items and maintained a more lavish lifestyle, as growing autocratic authority would suggest.

Overview

For a substantial portion of the Classic period, representations of important leaders on stone monuments and the presence of monumental palatial platforms attest to the likelihood of autocratic authority, although we lack sufficient data to document exclusionary clientage networks. As the Late Classic period advances, a proliferation of powerful elites at monumental platforms not in close association with a SPPG suggests a more oligarchic framework, with some decline in central autocracy.

A Segmentary Principle: Unspecialized versus Specialized Hierarchy

Apart from the issue of collective action versus autocracy, another governance principle is segmentary. The idea of a segmentary organization in ancient states originated with Southall's (1956) Alur research in the upper Nile Valley. Subsequently the concept was further explored in Southeast Asia, South India, and for the Inca and Maya in the New World (Chase and Chase 1996; Cohn 1977; Fox 1987; Fox, Cook, Chase, and Chase 1996; Fox, Cook, and Demarest 1996; Gose 1993; Southall 1988; Stein 1977; Stein 1994; Stein 1999; see also Borstein 2005 for southern Veracruz). These extended applications struggled with whether or how to adapt the concept. Debate about segmentary versus centralized states became mired in classifying cases rather than measuring governance principles. It is useful to recall that Southall was interested in the Alur as a dynamic case that showed chiefly authority extending through an incorporative and voluntary process dependent on the spread of ritual authority, along with descendants of royal lineages, who became lesser "chieflets." Later, Southall (1988:2) clarified that, in his concept of segmentary states, the political realm (core administered by a ruler) did not coincide with the more extensive realm of ritual authority over subordinates.

A lesson from Southall's (1956) discussion of the Alur is that a segmentary state is not a "type" but an instance of processes. In his terminology, these processes create "pyramidal" authority, not a "hierarchy" with specialized functions. Lower-order chieflets were not different in their functions from more renowned chiefs from whom they derived their authority—they were repetitions writ smaller, which points to the key issue, replication of functions. I take this as the starting point and do not assume that a segmentary capital has extensive authority only in ritual domains, as Southall discussed. The modalities of authority are pertinent, whether ritual, administrative, economic, or a mix, but the replication of a suite of functions is a defining trait.

Also, I shift to the terms "specialized and unspecialized hierarchies." Pyramidal authority is unspecialized. From an archaeological perspective, definition of a hierarchy in settlements posits a dependent vertical relationship, but its nature has to be determined. The degree of replication of public and governmental functions can vary—a hierarchy can vary in the extent to which it is unspecialized. Hence the expression of a segmentary principle is scalar. A scalar segmentary principle has a place analytically alongside collective, corporate, exclusionary, and autocratic principles in governance.

Blanton (1998:166–170) and Blanton and Fargher (2012:30–34) initiated discussion of a segmentary principle in governance as opposed to the notion of a segmentary state. Their contributions mix together two issues that are crucial to distinguish: semi-autonomy versus a shared code. Initially, Blanton (1998:166) drew upon systems terminology to consider the implications of "semi-autonomy in lower-order subsystems." He also viewed the promulgation of a corporate code of conduct as a commonality that sustained a more egalitarian emphasis in communities, potentially across broad regions that shared architecture and other material culture, without requiring strong centralization. A considerable degree of local autonomy did not erode centralized integration because of the extensive shared code.

Blanton and Fargher (2012:30) returned to the segmentary issue, referring to "more segmentary" states in their cross-cultural sample (Blanton and Fargher 2008), ones for which local-level segments were comparatively self-governing. Taking care of local affairs independently in a lower-order settlement is associated with lower collective action scores in their cross-cultural sample because it is an indication of diminished state infrastructural power. More collective states make investments in infrastructure as part of the provision of public goods, among other efforts.

Governmental functions can be accomplished at relatively autonomous lower-level settlements without all settlements expressing the same cultural code, however. Local autonomy does not necessarily imply replication of functions, institutions, or architecture found at a capital. As Blanton (1998) described initially, a

widespread cultural code may bolster a weakly centralized governmental hierarchy, that is, replication may be associated with a degree of local autonomy, but the reverse is not the case. A degree of local autonomy does not require a common code, which is more likely to be absent in larger, more heterogeneous states.

In sum, the degree of replication is crucial for identification of a segmentary principle. To what extent is the settlement hierarchy specialized or unspecialized, that is, for south-central Veracruz, to what extent is the SPPG replicated? This is a focused question specific to the segmentary principle. In contrast, Stein (1994) treated segmentary states as one end of a scale with three dimensions: integration, size, and complexity (adapted from Blanton et al. 1993 [1981]), but these characteristics do not address replication of functions. While I agree that greater segmentary organization means less state infrastructural power, it is still relevant to ask what degree of governmental collective action or autocracy is characteristic *at each level*.

Indications of a Segmentary Principle in the WLPB: Unspecialized versus Specialized Hierarchy

Replication of Layout

Daneels (2016:287) regards the replication of SPPG layouts at different levels of the Cotaxtla-Jamapa settlement hierarchy as pointing toward a segmentary principle. Ball games, temple rituals, and whatever occurred at laterals were found at both primary and secondary centers, even if the scope of activities differed. In both cases, at least one monumental platform attested to prominent leadership.[1] Replication of the SPPG between settlement levels in the WLPB indicates a segmentary principle.

Non-Replication of Layout

Replication is only partial in the WLPB. Replication is mainly between primary and secondary centers. At tertiary/quaternary centers ballcourts are often absent, as are monumental platforms (Table 12.1). Therefore, the segmentary principle breaks down.

Also deviating from the replication principle, primary centers have additional specialized architecture. Although primary centers have SPPGs (more than one in the case of Early Classic Cerro de las Mesas), additional construction or unusual construction at primary centers signals functions not replicated at secondary centers. Aside from the multiple Partial SPPGs and SPPGs, Cerro de las Mesas is unusual in its emphasis on ritual structures in the form of multiple conical mounds, a characteristic shared with Late-Terminal Preclassic centers described by Daneels (2016) for the lower Cotaxtla-Jamapa drainage. Cerro de las Mesas lacks some of the other kinds of unusual construction seen at later primary centers.

Later primary centers have some distinctive architecture. Late Classic Azuzules has unusual construction not seen elsewhere, for example, an enclosed small plaza framed by three elongated mounds (1188, 1189, 1191) with two plain stelae within the plaza. This plaza and structures are a candidate for administrative-residential activities apart from the monumental platform at Azuzules East. The same can be said for the aberrant monumental platform 1195 at the end of a short causeway, with its low U-shaped structure (1283) on top.

At Late Classic Nopiloa, the exceptionally large monumental platform (6382) at the east end of the main plaza is aberrant in its location, fronting the plaza. It has an array of low mounds on top, with multiple plazas. The complex appears promising for administrative functions as well as a leader's residence. It includes a small conical mound (6270) that implies more restricted ritual activities. At the west end of the SPPG, alongside the major conical mound, an embankment (6263) frames a small plaza containing a conical mound (6250). This construction also is unusual.

Late Classic Ajitos on the paleodunes has a constellation of conical mounds at its south end (6866, 6881, 6880, 6935). Nearby Pitos has additional plazas framed by low linear mounds that could have had administrative as well as residential functions. In contrast, Tío Perciliano in the Nacastle-Patarata mangrove settlement does not have specialized or aberrant architecture. The volume of construction there is less than at other Late Classic primary centers, likely affected by the specialized environment and challenges it presented for massive earthen fill.

Economic Differentiation

Economic differentiation also distinguishes the top of the settlement hierarchy during the Late Classic period. The settlements of Azuzules (orange bowls), Nopiloa (obsidian blades), and Tío Perciliano (fine orange pottery) each have a craft specialization. Other pottery specializations may have existed as well. I noted differential concentrations of Late Classic decorated bowls between the Blanco delta and the Guerengo area where Nopiloa is located (Stark 2008c:44). The Blanco area had more Tuxtlas Polychrome (perhaps imported),

reversed false negative bowls, and relief molded bowls, but the Nopiloa area had more Blanco White bowls.

Overview

Despite replication of the SPPG as an indicator of a segmentary principle, the replication is restricted to mainly the first and second order centers. Primary centers, except Tío Perciliano, have examples of extra structures and arrangements that are candidates for specialized activities, and they exhibit economic specialization (except Ajitos-Pitos). This aspect of primary centers is not duplicated at secondary centers, and only the SPPG is replicated. Why is the SPPG replicated? The set of buildings likely represented crucial community activities that made "places" and government itself legitimate. Daneels (2008a) argues effectively that the ball game provided a cross-cutting and integrative institution among south-central Veracruz centers. Plazas would be locations for public rituals and perhaps markets.

I suggest the SPPG architectural module was widely accepted and replicated because it provided some balance of participatory public services alongside autocratic leadership. Although collective and autocratic principles have dynamic tension, a degree of balancing offers an attractive community nucleus, combining local authority and public services. Some additional services likely are not registered unambiguously in the mapped architecture: markets and judicial activities, for example. Variation in agricultural practices (rainfall-based seasonal planting, recessional planting, and raised/drained fields) involved agricultural differentiation in timing of harvests and likely the range of products. Along with the unique structural groups at major centers, the economic information points to a settlement hierarchy that was not entirely unspecialized, the defining trait of segmentary organization.

Discussion of Governance Principles in the WLPB

To assess governance in the Cotaxtla-Jamapa and WLPB areas, several topics proved useful: commoner ritual items integrated into offerings at public buildings (Cotaxtla-Jamapa), palatial quarters, service facilities (such as ballcourts, temples, and plazas) and ease of access to them, sculptural imagery (WLPB), infrastructural investments (possibly the raised fields), degree of replication of facilities and layouts, corporate architecture, the quantities and locations of centers in different settlement ranks, agricultural productivity and land values, and access to valuable products.

The evidence of an autocratic principle (e.g., privileged rulers) yoked to a persistent corporate principle (e.g., the SPPG with its laterals) is not the most unique feature of WLPB political organization. It is that both were welded to a partially segmentary principle of replication of functions. Vertically replicated Standard Plan principles also imply a shared cultural code that balanced collective or corporate versus autocratic and exclusionary principles with segmentary replication. Further, this combination of principles was extremely long-lived and spatially extensive. The WLPB and south-central Veracruz are unusual in Mesoamerica because of the proliferation of the Standard Plan module of functions. In the WLPB, secondary centers eclipsed lower-order places in numbers. One factor is the agricultural wealth of the region, which seems to have acted as something of an equalizer among many secondary centers. Many communities mustered the resources to build and maintain secondary SPPGs. Primary centers captained this partially segmentary system and managed it to some extent, but the quantity of secondary centers within a modest distance implies that central power—whether economic, ritual, or political, or more likely a mix—did not overcome a centrifugal effect of local wealth generation and construction of secondary nodes.

The entangled principles of governance were remarkably durable, but the Late Classic period registers changes: a greater prominence of elite palaces, more restricted access to primary centers, and a decline in dual laterals in favor of single ones. Political realms were smaller and likely more competitive. Possibly the power of Late Classic rulers was curtailed to a greater extent than earlier, with considerable power shifting to wealthy families who may have had a role in political decisions. If so, we should expect greater elaboration of elite material culture in a competitive environment. The Late Classic proliferation of fine serving bowls may signal manufacture of social valuables (Stark 1998b, 1999a, 2008c). In my use of these vessels as temporal diagnostics, however, they do not appear to be unduly concentrated in elite hands. The opportunity to produce a valuable export (cotton) on many landforms (Stark 2020) may have exerted a strong check on the tendency to concentrate wealth.

With a segmentary principle, polities may be particularly vulnerable to internal political challenges because the delegations of authority are relatively complete. Higher-level authority is not bolstered by a great deal of specialized political dependency but, instead,

relies on a common body of practices. Economic variation in the WLPB was a factor promoting integrative specialization, however.

Segmentary organization is resilient, and the collapse of a primary center would be expected to leave secondary center organization intact. The decline of Cerro de las Mesas fits this expectation because most secondary centers continued and a few rose to prominence as primaries subsequently. The ones that rose to prominence in the riverine areas also had specialized crafts (Azuzules and Nopiloa) that Cerro de las Mesas lacked.

The "experiment" of the Classic period Standard Plan societies was long-lasting and successful in many respects. Relative durability is an interesting phenomenon in complex societies. The "big states" of the Classic period in the central and southern highlands (e.g., Teotihuacan and Monte Albán) show durability tied to centralized authority and concentrated power. The multiple states of the Mesoamerican tropical lowlands show another form of durability, one rooted in a multiplicity of polities across a region (e.g., Gulf and Maya lowlands). The regional framework is durable even if individual polities decline or gain power. Durability in the big centralized states is afforded by many factors, including internal factions or bureaucrats who have a stake in the state and create cross-balancing political and economic powers, but these internal divisions also are a source of conflict and weakness. Durability of the regional Standard Plan polities likely was fostered by the widely distributed segmentary principle in governance that used a common code. Durability through multiplicity in a regional network and durability through centralization are complex to analyze and compare because there are always many confounding factors. The WLPB case study calls attention to the two bases for a degree of regional stability in complex societies.

As noted by Daneels (2012b:363), the Gulf multiple polities do not exhibit the cycles of centralization and breakup proposed by Marcus (1993; 1998) as a common feature in the history of ancient states. There are declines, certainly, such as Cerro de las Mesas, but Gulf history is not easily described as a pattern of peaks of centralization with big states and troughs of decentralization with small states. Small states prevail. If cycles are to be more than the observation that states grow and decline, we would look for a history of cycles. Instead, we see a persistence, some decline of centers on some landforms, and a collapse. I suspect the resilience of segmentary organization accounts for some of the durability of polities in south-central Veracruz.

Nevertheless, segmentary organization does not help us understand the collapse of WLPB society at the close of the Classic period, despite its likely contribution to persistence of the Standard Plan. I would have predicted continuation of Late Classic secondary centers that operated under the aegis of Azuzules and Nopiloa. Instead, two centers with aberrant architectural characteristics likely were active near the end of the Classic period (Pitos and Zapotal-Gallo), until they also declined despite a highly productive WLPB environment. Organizational vulnerability may be tied to low-density urbanism, however.

A characteristic of low-density urbanism mentioned by Fletcher (2012:302) is homogeneity in spatial patterns over vast areas. The SPPG predominates in the Cotaxtla-Jamapa drainage (Daneels 2016), the WLPB, and occasionally appears (or elements of it) in the eastern lower Papaloapan basin (Stoner 2012). Although it is important not to overdo the idea of homogeneity when there are important variations, in a general sense there is a strong similarity in canons of content and arrangement of monumental structures in centers over an extensive area of south-central Veracruz, consonant with Fletcher's characterization of low-density urbanism.

Repetitive organizational principles, although robust in several respects and long-lived through the entire Classic period, point also to organizational vulnerability—a social-governmental version of a "panda effect." Giant pandas, beloved in news, zoos, video, and cinema, rely almost entirely on bamboo in their diet. This narrow niche is a vulnerability. The segmentary principle in the south-central Gulf lowlands was so spatially pervasive that it reduced the variety of governmental and social organizational schema in use through the Classic period. It was a relatively stable balance of autocratic, collective, and segmentary principles, although the balance eroded over time. Although environmental and interregional disruptions require investigation as contributors to the demise of the Classic period polities and accompanying depopulation (Stark and Eschbach 2018), lack of political variety may have constrained responses to any challenges.

In contrast, the Tuxtla Mountains, with a mix of SPPG, TZPG (Pool 2008), and Long Plaza arrangements among centers (Borstein 2001; Killion and Urcid 2001; Lunagómez Reyes 2002, 2011, 2014;

Symonds et al. 2002; Urcid and Killion 2018), had greater subtle political variety, along with an intrusive Teotihuacan-affiliated enclave at Matacapan (Santley 2007). Perhaps the indications of reorganization in the Postclassic Tuxtlas, not seen in south-central Veracruz, owe something to the Tuxtlas variety among Classic period centers.

The lack of immediate strong threats from neighbors reduced one powerful incentive for internal cooperation among WLPB factions, an issue warranting wider comparative attention. Another Classic polity, Teotihuacan, displays a relevant situation of a different sort. That capital was large and powerful, with a sizable Central Mexican territory and outposts or at least a presence widely in Mesoamerica (Cowgill 2015:195–203). Neighbors did not pose a major threat for most of its existence. Teotihuacan also presents strong internal divisions among corporate organizations centered at residential compounds that were established during "urban renewal" in the Tlamimilopa phase (Millon 1981:206).

Murakami (2016) argues for increasing bureaucratization in Teotihuacan during the Tlamimilolpa and Xolalpan phases, with more offices and representation of multiple interests in government, mainly intermediate elites. Some Teotihuacan apartment compounds housed people engaged in long-distance trade that could have been a source of growing wealth (e.g., Manzanilla 2009; Rattray 1989). The lack of nearby strong political competitors provided no check for any political factions arising from the proliferation of wealthy corporate groups in apartment compounds.

At Copán, a major Maya center on the east edge of the Maya lowlands, late in the Classic period some royal privileges became less exclusive and appeared with lower-level elites (Fash 1991:160–166, 175–176). Although Copán at one point fell victim to neighboring Quiriguá, it was only temporarily demoted politically. Its position at the edge of the Maya lowlands may have insulated it somewhat from the political rivalries of powerful states in the southern lowlands, such as Tikal, Calakmul, and Caracol. Possibly Copán's geographic position farther from powerful contentious polities abetted the growth of internal divisions that eroded the power of ruling dynasts. Unfortunately, we have not accumulated as much time-series information about internal divisions in Mesoamerican societies as would be needed to assess how and under what circumstances elites amassed power and wealth at the expense of commoners and central authorities alike.

Blanton and Fargher's (2008:15) view that collective versus domination governmental principles are present in all early states is borne out by WLPB research. I contend that a more thorough attention to all sectors or levels of society is likely to reveal multiple governance principles in more cases, including segmentary ones in some societies. We cannot appropriately characterize governance principles by considering only the top of the settlement hierarchy or leaders, elites, and data derived from them.

The presence of multiple principles in a highly durable form in the WLPB points to entangled institutions and settlements. Shifting the analytic focus from a city to a region and the settlement system does not alter the utility of Murakami's Teotihuacan entanglement concept, with its connotation of interdependence. Hodder's (2012:95) definition of entanglement of people and materiality characterizes entanglement as entwined, involved, dependent, and tied together. Different segments of society and interest groups pursue actions on the basis of varied goals, cultural values, and institutional contexts that are not entirely independent domains—they are entangled but susceptible to separate lines of activities and analysis. The concept of entanglement of institutions and political strategies is appropriate for an agentive view of complex societies and for analyses in which we do not presuppose that the top of the settlement hierarchy and the elites concentrated there are the only social drivers.

Wealth Differentials and the Political Realm

As remarked, political economy is important for understanding the operation of political principles. Wealth inequalities have political implications because wealthy landowning nobles have resources to challenge central authority and may act primarily in their own self-interest. The investigation of political principles in the WLPB points to growing social inequality in the Late Classic period compared to the Early Classic.

This change must have provided a lively situation of competition in marital alliances, and in attempts to hold and augment resources in land and labor and fend off rivals and royals. Political leaders, for their part, likely survived in part by playing off important elites against each other. This volatile tension with landed elites was a state process that Eisenstadt (1958:61) has remarked upon. A middle echelon of society (mound-terraces) maintained itself despite the increase in palatial monumental platforms and may have further complicated factionalism.

The WLPB is not alone in its indications of increasing wealth disparities through the Classic period. Two Maya studies provide a systematic assessment comparing the Early and Late Classic periods in an area also characterized by low-density urbanism and eventual collapse. In both cases, research methods assembled data from a cross section of society over time: (1) Rathje (1970) examined Maya burials between the Early and Late Classic period from the sites Barton Ramie, Belize, and Uaxactún, Guatemala, and (2) Prufer et al. (2017) compared survey and excavation data across the Classic period at the Belizean center of Uxbenká.

Rathje (1970) examined age of death, burial goods, and burial locations between the Early and Late Classic periods, observing that, by the Late Classic, burials of all ages and those with elaborate grave goods were concentrated in centers, in contrast to the Early Classic when examples of young adults with copious grave goods were found in outlying residences. He argued that a broader basis for wealth accumulation for access to office was replaced with a more restrictive, hereditary system at centers. Unfortunately, the two periods are represented by two different sites and do not track a particular realm.

Prufer et al. (2017) assessed two ecological models from a combination of survey and excavation in the Uxbenká settlement area. They document first a more open situation allowing settlement to concentrate on particularly favorable locations, followed by the effects of demographic increase and infilling. People in initial settlement locations maintained an advantage in seniority and elaboration of architecture and central services over time. Eventually outlying locations were more impoverished.

In archaeological, historic, and modern societies, increasing wealth inequality forms a complex and controversial subject (Borgerhoff Mulder et al. 2009; Bowles et al. 2010; Gurven et al. 2010; Kohler et al. 2017; Kohler et al. 2018; Shenk et al. 2010). Particularly in complex societies, inheritance practices play a role, with primogeniture or other controls on inheritance versus partitive inheritance affecting whether accumulated wealth remains concentrated or is dispersed (Savoia et al. 2010:146; Smith et al. 2010:91). For example, in Ming China, the partitioning of wealth among offspring acted as a strong factor in distributing wealth, along with an examination system for access to offices (He 1980). Consequently, wealth inequities are not a given, but, rather, sensitive to particular cultural contexts.

Nevertheless, wealth inequities and increasing wealth disparities are extremely prevalent in complex societies. WLPB cotton production yielded semi-perishable wealth that could be concentrated with a few families if they had control of sufficient landholdings to produce both foods and cotton. Enough labor to process cotton to yarn or yarn to textiles was crucial, not just land. It seems unlikely that control of labor would have been highly exploitative in this region, however, because of the potential for labor to "bleed out" through migration to other regions and polities in the Gulf lowlands. There were many Gulf polities, and even the largest were not geographically extremely extensive.

In my interpretation, the WLPB shows changes over time both in governmental emphases and in social inequality, with a process of wealth consolidation trending from many hands to fewer. To the extent this process undercut central authority, it would weaken coordinated responses to outside meddling, trade disruptions, or environmental changes, such as drought. For the Maya site of Copán, Fash (1991:175–176) suspected that elite competition led to the collapse of central authority, a process that may have affected the WLPB as well. Scholars have debated a wide range of factors as potentially contributing to the Classic period collapse in the Maya lowlands, however. This repertoire of causes requires future evaluation for the WLPB (Stark and Eschbach 2018).

The tensions among different interest groups and the balance of cooperation and competition in societies are age-old dilemmas, whether in explanations of the rise and demise of social complexity (Carneiro 1970; Fried 1967; Service 1962) or in the operation of societies over time (e.g., system-serving and self-serving actions, Flannery 1972). Brumfiel (1992) and Brumfiel and Fox (1994) positioned factionalism front and center for understanding the histories of complex societies. Political actions can restrain or fuel wealth consolidation, but social inequality and wealth differentials can be used to manipulate the political realm. The WLPB evidence, if I have assessed it accurately, provides a key example of a dynamic well known in modern times—not played out in capitalist processes, but in a parallel process in ancient agrarian states. Wealth accumulation in an elite tier of society was corrosive of mixed governance principles that had been prominent historically in the WLPB, as well as relatively stable for many centuries.

Implications for Low-Density Urbanism and Future Investigations

Low-density urbanism was a starting point for both the survey design and the analysis of settlements. Survey showed a distinct "module" of civic-religious facilities in a partially segmentary system. Although subject to a degree of shift that diminished corporate and collective principles, the proliferation of elite palatial platforms and their occupants likely supported autocratic governance while also undermining central authority through factionalism. The social and political changes in the WLPB show processes found in more densely populated and more nucleated ancient states. Teotihuacan, for example, exhibits similar internal trends to the WLPB with respect to the growing role of well-to-do social groups. If many of the political and economic processes in the WLPB are similar to those elsewhere in locations where low-density urbanism was not characteristic, what exactly are the implications for societies with low-density occupational sprawl? How different are these societies and in what ways?

My assessment sees a continuum, not contrastive types of settlement (see Feinman and Nicholas 2012). Low-density agrarian urbanism partakes of the same range of political and economic processes found in other complex societies. What is striking about Mesoamerican cases of low-density urbanism is their durability. In the southern Maya lowlands, as with south-central Veracruz, dispersed occupation persisted, and so did centers at a regional scale, albeit in both regions with waxing and waning of individual ones. In part this durability can be ascribed to the productive environments, with various possibilities for agricultural intensification. In part it can be ascribed to the multiplicity of centers, which created a mosaic of neighbors. Peer polity situations are not unique to early state formation, the context that Renfrew (1986) addressed. These Classic period societies, if competitive, also were interlocked in various respects that tended to sustain the array even if individual polities experienced varying histories.

The WLPB contribution to the study of low-density urbanism lies with the level of detail brought to bear from residential mounds to monumental complexes, the indications of three governance principles, and the documentation of change over time toward wealth accumulation and declining collective action. PALM data supported investigation of settlement boundaries and extents to establish a basis to construct a settlement hierarchy. The seemingly endless expanse of continuous WLPB occupation, with its challenges to understand individual settlements, became more manageable. The WLPB settlement record during the Classic period resonates with the arguments developed by Garrison et al. (2019) for the Maya El Zotz and Tikal areas in Guatemala. On the basis of lidar data they argued against a rural-urban dichotomy and favored a conurban perspective for El Zotz, with multiple centers and diversity in the agricultural system, including a "cash crop"—cacao in that case. The political system contrasts in several respects with the WLPB, but the "perfusion" of cultural and economic connectivities and centers across an extensively occupied landscape are shared properties that argue against an urban-rural dichotomy.

The Classic period "experiment" in complex society in south-central Veracruz points to strengths and weaknesses in political organization over time. As a regional system, it was highly durable. As a mix of political principles, it showed that strong, enduring corporate elements could coexist with autocratic ones, perhaps because wealth in landholdings and the ability to produce a valued product for export, cotton, were not easily monopolized, nor could excessive social exploitation readily retain the labor needed to produce food and fiber. The degree of homogeneity of a particular mix of political principles across south-central Veracruz may have been one factor that eventually contributed to collapse and inhibited reorganization by locals after collapse.

Despite advances in knowledge concerning WLPB settlement patterns and political principles, a staggering amount of research remains to be done. Among the future challenges, excavation-based understanding of the diverse functions and histories of monumental platforms, temple platforms, and laterals remains to be achieved. Household-based excavations to determine wealth variation will be crucial to understanding the economy and political strategies of the region. Perhaps more inscriptions will be found to clarify the script and its messages. The Late and Terminal Preclassic origins of Classic period centers may become clear with appropriate excavations. More discoveries and continued study of Late Classic Río Blanco style mold-impressed vessels with elaborate scenes may make imagery a stronger contributor to our understanding of ritual and political life in the region. Mangrove, Gulf coastal, and Papaloapan riverine sites with opportunities for aquatic travel may help us grasp how interregional exchange and communication affected south-central Veracruz. We now know that settlement is uneven in density and

attuned to different landforms; with additional survey we may be able to estimate WLPB population over time. Investigation of interfluves may reveal their roles in a complex settlement-subsistence system.

Many additional studies are possible with the fine-grained settlement pattern data already to hand, for example, analysis to detect residential clusters and other levels of patterning. Many artifact categories have only been studied initially for their distribution and associations. Excavations in a range of structures hold the promise of chronological refinements with chronometric dating to better establish contemporaneity and change.

Future environmental and agricultural studies can address the timing, extent, and functioning of intensification efforts in raised/drained fields as well as possible environmental and resource crises, which are one possible explanation for the collapse of the Classic tradition. Study of the proposed latest Classic centers (Pitos, Zapotal-Gallo) may help us understand the collapse and subsequent responses.

Postclassic centers hold the key to understanding the new order established after the collapse and how differently organized societies dealt with unstable Postclassic conditions and eventual expansion of the Aztec Triple Alliance. Despite the rich lands of the Gulf lowlands, Postclassic society in south-central Veracruz did not exhibit the density of occupation and elaboration of local cultural traditions seen during the Classic period. The Postclassic Mesoamerican World (Smith and Berdan 2003) did not benefit all regions equally nor much of the Gulf lowlands in particular.

Epilogue

I close on a personal note. Throughout the fieldwork and analysis to date, I have countless times been delighted to learn about WLPB society, but equally frustrated, wishing we could have done more and known more. I have been keenly aware of how often my own interpretations need questioning and may be overturned. And I have been grateful for the research and ideas of others that have enabled the effort here. I have wondered about the lives of the vanished people I study, and whether their sites will be destroyed before we can understand their past and, from it, the trajectories of complex societies.

Note

1 Note that the segmentary versus centralized contrast posited for the small states that Daneels (2016) analyzes in the Cotaxtla-Jamapa drainage blends two matters. The centralized polities with Standard Plan satellites on the borders still replicate the Standard Plan layout in secondary centers as part of a hierarchy, but the secondary centers are proposed for a specialized border function through their ballcourts. They are still segmentary in Southall's sense because they replicate the Standard Plan.

List of Acronyms for Monumental Complexes in Tables

Monumental Complexes in the Western Central Block of the Blanco Delta

- Cerro de las Mesas Complex
  - Central Cerro de las Mesas Complex (CM)
  - Cerro del Chivo Complex of Cerro de las Mesas (CV)
  - Ojochal Complex of Cerro de las Mesas (OJ)
- Tío Primo Complex (TP)
- Campana Complex (CC)
- Zapotal South Complex (ZS)
- Sauce Complex (ES)
- Pedestrian Survey Complexes with High Structures
  - Complex 847 (C847)
  - Complex 104 (C104)
  - Complex 422 (C422)

Monumental Complexes in the Eastern Central Block of the Blanco Delta

- Zapotal Complex (ZA)
- Pedestrian Survey Complexes with High Structures near Zapotal
  - Complex 1564 (C1564)
  - Complex 1613 (C1613)
  - Complex 1574 (C1574)
  - Complex 1377 (C1377)
  - Complex 1464 (C1464)
  - Platform 1473 Complex (EM)
- Palmas Cuatas Complex (PC)
- Tiesto Complex (ET)
- Villa Nueva Complex (VN)
- Complex 1094, Molina (MM)
- Fraternidad Complex (LF)
- Azuzules and Azuzules East Complexes (LA and AE)
- Pedestrian Survey Complex with a High Structure near Azuzules
  - Complex 1732 (C1732)

Central Block Additions

- Azuzules South Complex (AS)
- Azuzules Southeast Complex (ASE)
- Zacate Colorado II Complex (ZC)
- Zacate Colorado West Complex (ZCW)
- Sabaneta Complex (SAB)
- Mixtequilla Complex (MX)
- Mixtequilla North Complex (MXN)
- Moral Complex (MO)
- Moral North Complex (MON)
- Moral-Iglesia Complex (MOE)
- Aguacate North Complex (AGN)
- Aguacate South Complex (AG)

Blanco River Delta Blocks from Speaker's (2001b) Survey

- Complexes North of the Central Block in the Blanco Delta
  - Paso de las Mulas Complex (PM)

- Rincón del Tigre Complex (RT)
- Rincón del Tigre Norte Complex (RTN)
- Platform 5140 Complex (RTW)

Complexes Southeast of the Central Block in the Blanco Delta

- Lobato Complex (LB)

Complexes South and West of the Central Block in the Blanco Delta

- Salto Complex (SA)
- Salto Norte Complex (SAN)
- Complex 5489 (SS)

Monumental Complexes Upriver along the Blanco River, in the Guerengo Drainage, and in the Interfluve

Western Upper Blanco River Area

- Cerro Coyote Complex (CO)
- Cerro Bartolo West Complex (BW)
- Cerro Bartolo Complex (CB)
- Tilcampo Complex (TC)
- Madereros Complex (MA)

Eastern Upper Blanco Area

- Callejón del Horno Complex (CH)
- Cerro de los Muertos Complex (MU)

Guerengo Area

- Nopiloa Complex (NO)
- Complex 6234 (BE)
- Complex 6309 (TH)
- Complex 6404 (CR)
- Complex 6409 (KE)

Pinchones Area

- Loma de Pinchones South Complex (PS)
- Loma de Pinchones North Complex (PN)

Dicha Tuerta Area

- Nuevo Porvenir West Complex (PW)
- Dicha Tuerta Complex (PE)

Interfluve Area

- Canal 2 Complex (C2)
- Loma Complex (LL)

Monumental Complexes in the Tlalixcoyan Drainage, Paleodunes, and Mangrove Swamp

Tuzales Area

- Tuzales Complex (TS)
- Tuzales North Complex (TN)
- Tuzales South Complex (TFS)
- Recreo Complex (REN)
- Recreo South Complex (RES)

Paleodunes Area

- Ajitos Complex (AJ)
- Pitos Complex (PIT)
- Vibora Complex (LV)
- Ajitos East Complex (AJE)

Mangrove Area

- Boca de Santa Catarina Complex (SC)
- Tío Perciliano Complex (PER)
- Cerro Palma Real Complex (PR)
- Nacastle Complex (NA)
- Costa de San Juan Complex (SJ)
- Patarata East Complex (PAE)

Appendix 1

Pottery Categories, Chronological Diagnostics, and Monumental Complexes

Pottery Categories

Classification of pottery in PALM 1 began with a trial sorting in 1986 that elaborated the Stark (1977, 1989) typology for materials from Patarata Island. PALM 1 produced ceramics from more periods than were represented at Patarata 52 and also more variety in elaborately decorated pottery. The typology was subjected to further modifications in 1987 and 1988. The typology applied by Speaker (2001b) was based on the 1988 version.

Further typological changes were made following reanalysis of PALM I collections in 1989 and 1990, primarily through creation of subgroups within categories, especially incised decorations, but in some cases on the basis of form or surface treatment. Several of these subgroups provided useful chronological distinctions and were combined across types in "X" categories (so designated because they cross-cut types). The X categories were employed during PALM 2. PALM 2 also combined several type variants for a level of detail better suited to survey materials. For example, several variations in negative resist decorated bowls were lumped together for PALM 2. If possible, Speaker's types have been combined in the same fashion, but most of the X subgroups cannot be used because his collections have not been reanalyzed for subgroups (they were deposited in Centro INAH Veracruz storage and not readily available). It is important to recognize the coarser resolution for pottery from Speaker (2001b) in analysis.

The PALM 2 survey of the Late Postclassic center of Callejón del Horno during 1998–1999 led to definition of some new categories. The leveling of much of Callejón in 1999 allowed sizable collections in the plowed field where the center mounds had stood. These newly defined categories are not included in Speaker's analysis. The PALM 1 collections were not reanalyzed to look for them because the majority of the collections had gone to storage in San Juan de Úlua, with part of the collection earmarked for reburial.

Time diagnostics used here are based on seriation using multidimensional scaling of PALM 1 collections (Curet et al. 1994; Stark and Curet 1994), stratigraphic residential excavations (Stark, ed. 2001), and comparative materials. Kevin Johns (2003) created new seriations with correspondence analysis using both PALM 1 and 2 data that have been consulted also. Multivariate seriations place pottery categories according to their tendencies of association in collections, but seriation arrays do not guarantee an exclusive position in a period. Not all of Johns' chronological placements of types are

used here with the surface collections because excavations show that some categories are common across more than one period rather than indicative of a single period. Additionally, Christopher Garraty used regression analysis to detect unmixed Middle and Late Postclassic collections, which can be used for finer discrimination within the Postclassic period (Garraty and Stark 2002; Stark 2008a). Because of the limitations of seriations, Daneels (2006), for example, uses excavated materials in her review of ceramics in Veracruz.

The diagnostics employed here in settlement pattern distributional plots are ones that are strongly associated with a particular period. The Early Classic period poses special problems, however. Due to continuities in pottery, it has few diagnostics at the type level, and several "X" categories that isolate distinctive decorative modes. Unfortunately, these categories are not available for Speaker's data. To increase the discrimination of Early Classic occupation, several codes that tend to be more characteristic of the Early Classic period than the Late Classic can be consulted, but this measure is problematic. This group, "Early Classic Tendency," does not always correlate well with other Early Classic types for PALM 1 and 2 collections. The Early Classic Tendency codes may better represent a temporal span from the late part of the Early Classic period through the early part of the Late Classic period (that is, Middle Classic, AD 400–700). Alternatively, the groups may exhibit geographic bias, that is, the categories may be locally more abundant in one part of the survey area. Geographic bias is known for some Late Classic diagnostics (Stark 2008c). The Late Classic diagnostic group has numerous applicable codes so it is more reliable than the Early Classic Tendency group.

For the analysis of chronology at PALM 1 and 2 monumental complexes and their immediate vicinity, all sherds are employed rather than only rims, but Speaker only classified rims. The rim sherds provide a more consistent basis to sample all vessels than all sherds do for a variety of statistical analyses, but the pottery is used here to detect spatial chronological patterns. Nonrims were collected if a special form was represented (like a support, handle, or spout) or if the sherd was decorated. Therefore, nonrims "oversample" decorated vessels, but many of the decorated types are highly diagnostic of particular periods. Many decorated categories are relatively rare, so that inclusion of nonrims improves the chances of detecting different periods of occupation.

For the distributions around monumental complexes, percentages of each diagnostic temporal group are used. These plots provide the percentages of pottery for the following chronological categories: Preclassic, Classic, Late Classic, Postclassic, and Middle Postclassic. For PALM 1 and 2, additional maps include the Early Classic, Early Classic Tendency, and Late Postclassic groups. The last three groupings cannot be reliably provided for Speaker's zones due to differences in classification or sample size. Tables A1.1 and A1.2 provide descriptive statistics for the temporal groups.

Unless necessary to appreciate spatial patterns, only collections at or above the median of total sherds (n=76) are employed. For Speaker's (2001b) survey zones, the median is 54 rims. In rare instances, it proves useful to consult plots that show all collections, not just those at or above the median. The maps use different symbols to represent the percentages of chronological groups of types, divided according to quartiles. Larger symbols indicate the progressively higher quartiles.

The chronological diagnostics for major periods are listed below. For most of the categories, further information is provided in Stark (1989, 1995, ed. 2001). More detailed descriptions will be forthcoming in a ceramic monograph. Only a few categories are illustrated with photographs from the PALM Image Archive, but additional drawings are available in other publications (Stark 1989, 1995, 1997b, 1998b, 1999a, ed. 2001).

Each code has a number and, usually, a letter that in combination distinguish it from all other codes. For mnemonic purposes a 3–5 letter acronym also applies to each category. A short identifying phrase accompanies each code. The codes are grouped first into broad period groups (e.g., the Classic period, AD 300–900). Next, any subdivisions are indicated along with the constituent codes, such as the Early Classic period. Because of differences in the typologies, some periods or subdivisions have codes shared by Speaker's (2001b) typology and PALM 1 and 2, while other codes apply to PALM 1 and 2 but not Speaker's data.

Table A1.1. Descriptive statistics for PALM 1 and 2 pottery collections

Code Groupings (only collections with the respective code grouping present)									
Descriptive Statistics		Preclassic Period	Classic Period	Postclassic Period	Early Classic Period	Early Classic Tendency	Late Classic Period	Middle Postclassic Period	Late Postclassic Period
Number of collections	1946	948	1819	1341	842	1015	1258	608	142
Median	76	3	16	9	2	2	2.5	2	1
Mean	86.8	6.3	21.5	19.1	2.5	2.6	4.3	3.8	2
Lower quartile	30	1	7	3	1	1	1	1	1
Upper quartile	122	7	31	22	3	3	5	4	1
Minimum	1	1	1	1	1	1	1	1	1
Maximum	1237	212	210	939	33	26	108	55	38
Sum of sherds	169006	5946	39180	25666	2117	2639	5374	2282	290
Median period percent (for collections >= 76 sherds)		0.022	0.238	0.115	0.014	0.018	0.025	0.016	0.008
Lower quartile period percent (for collections >= 76 sherds)		0.01	0.161	0.048	0.009	0.01	0.013	0.009	0.006
Upper quartile period percent (for collections >= 76 sherds)		0.064	0.316	0.246	0.026	0.029	0.049	0.035	0.011

Table A1.2. Descriptive statistics for pottery collections from Speaker's (2001b) survey

Code Groupings*							
Descriptive Statistics		Preclassic Period	Classic Period	Late Classic Period	Postclassic Period	Middle Postclassic Period	Late Postclassic Period
Number of collections	287	119	276	165	176	54	2
Median rims	54	2	15.5	2	5	1	1.5
Mean Rims	79.9	3.4	23	4.7	11.2	2.2	1.5
Lower quartile rims	18	1	5	1	2	1	1
Upper quartile rims	138	4	36.5	6	15	2	2
Minimum rims	1	1	1	1	1	1	1
Maximum rims	310	36	97	41	105	13	2
Sum of rims	22944	407	6351	773	1969	118	3
Median period percent (for collections >= 54 rims)		1.83	29.3	2.99	7.5	0.01	0.01
Lower quartile period percent (for collections >= 54 rims)		1.17	21.39	1.67	2.56	0.01	0.00
Upper quartile period percent (for collections >= 54 rims)		3.76	34.69	6.07	15.89	0.02	0.01

* Only collections with the respective code grouping present.
Key to figures:
Gray feature means no collection. Less than lower quartile, 10 pt diamond;
greater than or = lower quartile and less than median, 10 pt square;
greater than or = median to less than upper quartile, 12 pt square;
greater than upper quartile, 14 pt square.

Preclassic Period Temporal Diagnostics, General

Categories for PALM I and II only:

X1. Zoned cord-impressed. ZOCO (Figure A1.1a)
X2. Rocker-stamped. ROCK (Figure A1.1b)
X3. Preclassic lips. PRELI
38q. Fine gray, with Preclassic forms or decoration. FGRY

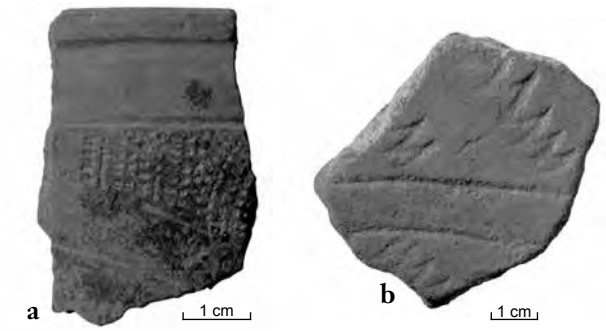

Figure A1.1. Exteriors. (a) X1, zoned cord-impressed, pottery code 16c, collection 167, PALM Image Archive 1470; (b) X2 rocker-stamping, pottery code 42g, collection 7, Palm Image Archive 185.

Categories for PALM 1 and 2 and Speaker (2001b) projects:

X4. Minute Incision Style. MINU (Figure A1.2)

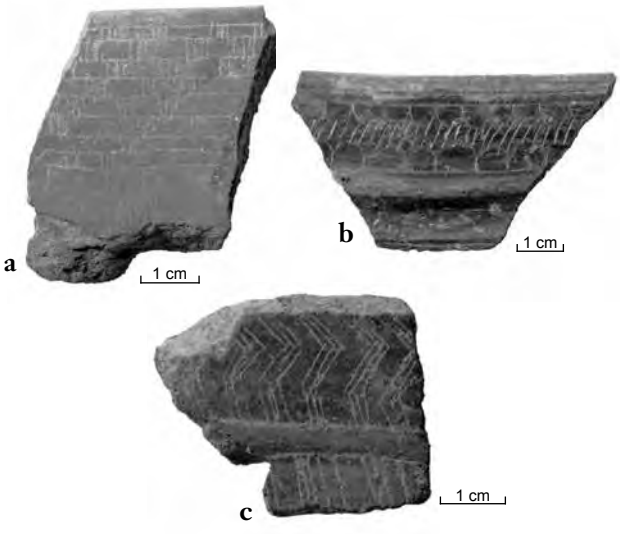

Figure A1.2. X11 Minute Incision Style, exteriors (a) rim, code 6p, collection 13, PALM Image Archive 280; (b) rim, code 5e, collection 295, PALM Image Archive 295; (c) body sherd, code 5e, collection 682, PALM Image Archive 540.

2a, b, d. Differential black-white. DIBW
2c. Differential black-white enhanced. DIBW (Figure A1.3b)
3a, b. Differential black-orange. DIBO (Figure A1.3a)

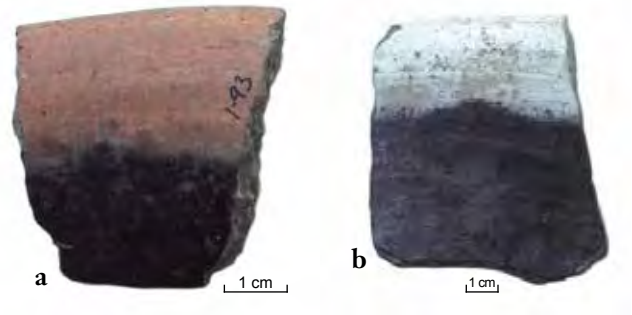

Figure A1.3. Rim exteriors (a) Differential black-orange code 3a, collection 93, PALM Image Archive 364; (b) Differential black-white, enhanced white, code 2c, collection 46, PALM Image Archive 363.

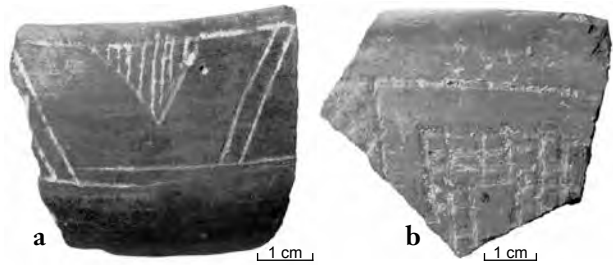

Figure A1.4. Pottery code 6p, coarse black, incised, exteriors. (a) collection 16, PALM Image Archive 281; (b) collection 97, PALM Image Archive 355.

3m, n. Differential black-orange, orange-slipped. DIBO
4. Differential black-red. DIBR
5b, 6o. Streaky or black with a carried-over polished band. PBAN
6m. Coarse textured black. CBLK
6n, b. Coarse textured black with pattern burnish. CBLK
6p. Coarse black, incised. CBLK (Figure A1.4)
37a. White slip, gray-brown paste. WHTS
37b. White slip, gray-brown paste, incised. WHTS (Figure A1.5)
51. Differentially fired, rare types. DIRA
60d, m-p. Red-on-black. RBL
47. Coarse incised. BURD

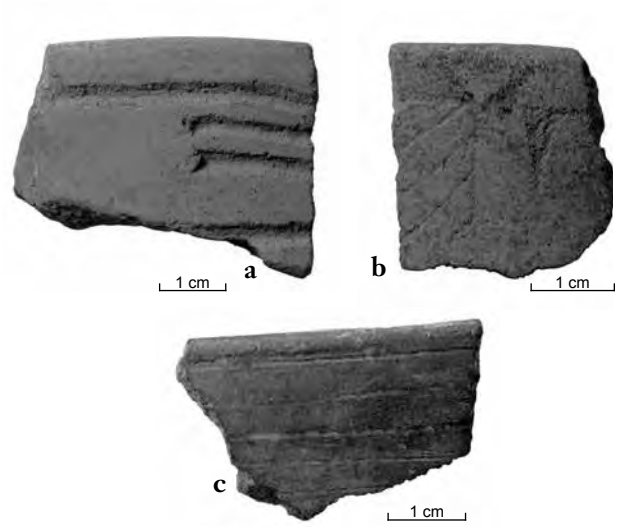

Figure A1.5. White slipped and incised, pottery code 37b, exteriors. (a) collection 184, PALM Image Archive 2925; (b) collection 610, PALM Image Archive 2923; (c) collection 665, PALM Image Archive 2922.

Middle Preclassic Temporal Diagnostics (Pozuelos complex)

This grouping is insufficiently robust to be used for most spatial distributions.

Categories for PALM 1 and 2 only:

X1. Zoned cord-impressed. ZOCO (Figure A1.1a)
X2. Rocker-stamped. ROCK (Figure A1.1b)

Categories for PALM 1 and 2 and Speaker (2001b) projects:

37b. White slip, gray-brown paste, incised. WHTS (Figure A1.5)

Four Figurine Categories: Figurine 1a, b, head with central punched eye; Figurine 1e, solid modeled body; Figurine 1f, solid modeled legs/feet; and Figurine 1g, head with trough eye (Figures A1.6, A1.7)

Figure A1.6. (a) Figurine code 1a, b, front and side views, collection 7027, PALM Image Archive 1558; (b) Figurine code 1a, b, Isolated Find 757, PALM Image Archive 1423.

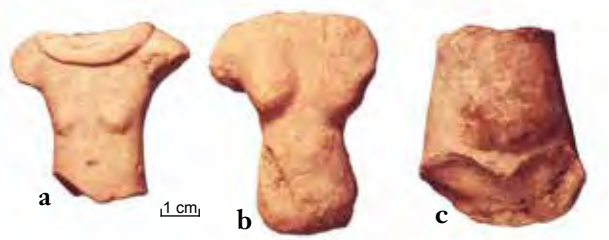

Figure A1.7. (a) Figurine 1e, solid bodies, PALM Image Archive 1080. (a) collection 64; (b) collection 329; (c) collection 90.

Late Preclassic Temporal Diagnostics (Pozas phase)

Code 37b also is listed here because it continues in the Pozas phase.

Categories for PALM 1 and 2 only:

X3. Preclassic lips. PRELI
38q. Fine gray, with Preclassic forms or decoration. FGRY

Categories for PALM 1 and 2 and Speaker (2001b) projects:

X4. Minute Incision Style. MINU (Figure A1.2)
2a, b, d. Differential black-white. DIBW
2c. Differential black-white enchanced. DIBW (Figure A1.3b)
3a, b. Differential black-orange. DIBO
3m, n. Differential black-orange, orange-slipped. DIBO (Figure A1.3a)
4. Differential black-red. DIBR
5b, 6o. Streaky or black with a carried-over polished band. PBAN
6m. Coarse textured black. CBLK
6n, b. Coarse textured black with pattern burnish. CBLK
6p. Coarse black, incised. CBLK (Figure A1.4)
37a. White slip, gray-brown paste. WHTS
37b. White slip, gray-brown paste, incised. WHTS (Figure A 1.5)
51. Differentially fired, rare types. DIRA 60d, m-p. Red-on-black. RBL
47. Coarse incised. BURD

Terminal Preclassic Temporal Diagnostics (Guerén Complex)

These categories may continue into the early part of the Early Classic period, but they are likely to have appeared during the Terminal Preclassic period. This grouping is insufficiently robust to be used for most spatial distributions.

Categories for PALM 1 and 2 only:

X11. Pair of grooves, dents, or incised lines, closely spaced, very near rim on exterior. PAIR (Figure A1.8a, b)

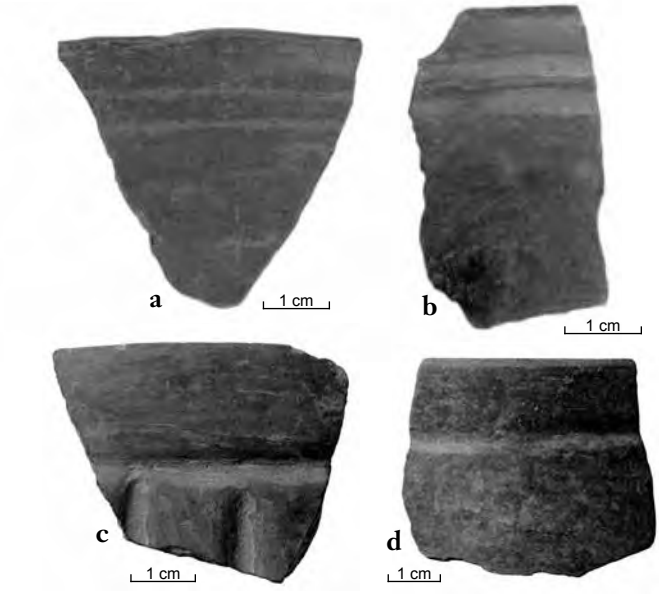

Figure A1.8. Rim exteriors. (a) X11, pair of groove-incised lines, code 17b, collection 6029, PALM Image Archive 35; (b) X11, pair of groove-incised lines, code 17b, collection 6029, PALM Image Archive 35; (c) X22, vertical grooving, code 5d, collection 582, PALM Image Archive 640; (d) X12, horizontal grooving, code 6d, collection 1128, PALM Image Archive 681.

X12. Smooth exterior grooving, horizontal, usually polished groove. HGROV (Figure A1.8d)

X22. Vertically grooved or incised. VGROV (Figure A1.8c)

Classic Period Temporal Diagnostics, General

See above concerning possible overlap of Terminal Preclassic categories, which are also listed here.

Categories for PALM 1 and 2 only:

X10. Glassy ultra-polish. UPOL

X11. Pair of grooves, dents, or incised lines, closely spaced, very near rim on exterior. PAIR (Figure A1.8a, b)

X12. Smooth exterior grooving, horizontal, usually polished groove. HGROV (Figure A1.8d)

X13. Scroll panel or scroll-dominated design. SCROL

X14. Incised lines on interior, just under lip. INTLIN (Figure A1.9b)

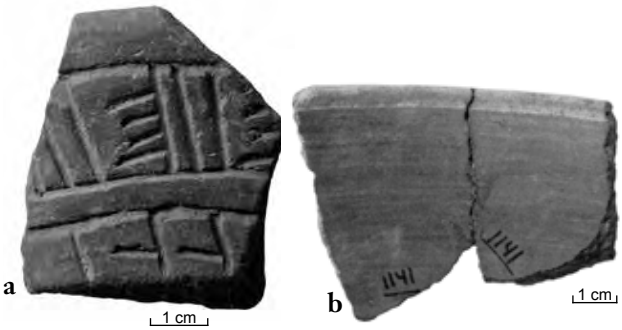

Figure A1.9. (a) exterior of X15 ARM, Armas Unpainted, Armas variant-like incision, code 6d, collection 198, PALM Image Archive 841; (b) interior of X14 INTLIN, interior incised line near top of rim, code 5d, collection 1141, PALM Image Archive 527.

Figure A1.10. X16 Impressed Prints, body sherd, code 30b, collection 1055-3018, PALM Image Archive 104.

Figure A1.11. Rim exteriors. (a) Reversed False Negative, code 33b, collection 65, PALM Image Archive 789; (b) Fine Gray, code 38a–f, and X17 MOLD, collection, PALM Image Archive 1136.

X15. Armas-like incision. ARM (Figure A1.9a)

X16. Impressed prints. PRIN (Figure A1.10)

X17. Molded design. MOLD (Figure A1.11b)

X18. Carved design. CARV (Figure A1.12b)

X20. Wedge band. WEDG

X21. Rainbow incision. RAIN

X22. Vertically grooved or incised. VGROV (Figure A1.8c)

X23. Metallic over-wash. META

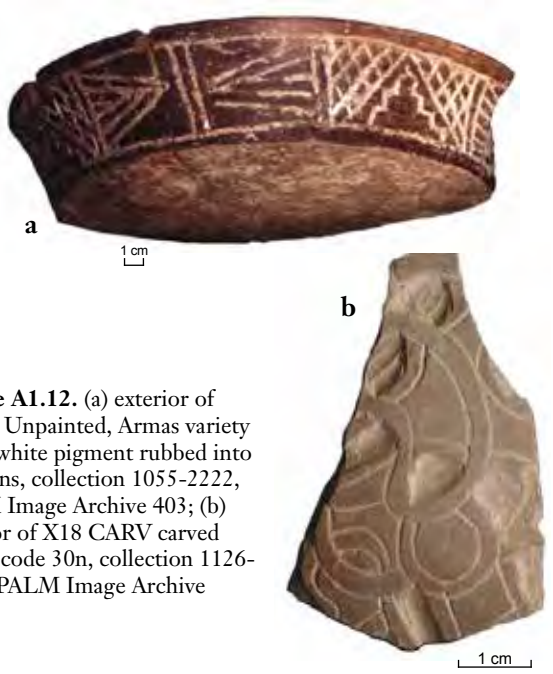

Figure A1.12. (a) exterior of Armas Unpainted, Armas variety bowl, white pigment rubbed into incisions, collection 1055-2222, PALM Image Archive 403; (b) exterior of X18 CARV carved sherd, code 30n, collection 1126-2557, PALM Image Archive 1141.

Categories for both PALM and Speaker (2001b) projects:

1m, n. Brown *comal*. COMA
5a. Streaky, blotchy, or brown-fired. STRK
5d. Streaky, blotchy, or brown-fired, with plastic decoration. STRK (Figure A1.13)
6a. Fine-medium textured black. BLAK
6d. Fine-medium textured black, with plastic decoration. BLAK (Figure A1.13)
6e, f, 53m. TEXT matte-, stippled-, or impressed-textured areas (was 6e, matte and polished areas [MAPO or MATPO], and 6f stippled black [STIP], and impressed textured [IMP], but in Speaker's dataset only 6e MATPO existed)
9l, m. Exterior banded or multi-banded red-on-buff, medium textured. RBU
10m. Medium textured red and orange bi-slips. RORS
11o, t. Red-on-orange, fine-medium texture, exterior banded or multi-banded. ROR
12a. Orange, tempered with white particles. ORT
15. Armas Unpainted, Armas variant. ARAR (Figure A1.12a)
16b. Red-orange slip, pattern burnish. PARO
16m. Pink or gray streaks, red-orange slip. PARO
17a. Acula Red-orange, Monochrome variant. ACMO
17b. Acula Red-orange, plastic decoration. ACMP
17d. Orange interior slip, exterior orange banded. ACBAN
18a. Acula Red-orange, Engraved variant. ACEN
20. Heavy, coarse-punched. HPUN
23a, b. Medium to coarse texture, red-on-white slip, rim band or misc. RWH
23d. Medium to coarse texture, red-and-white bi-slip. RWH
23m. Fine textured red-and-white bi-slip. RWH
25a. Metallic (false plumbate). MET
32a. Mojarra Coarse. MOCO
33a. Estrella Orange. NTP (Figure A1.14a)

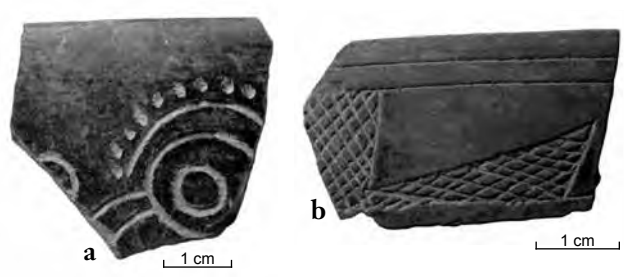

Figure A1.13. Rim exteriors (a) code 5d, streaky brown-black, red pigment in incisions, collection 880, PALM Image Archive 491; (b) code 6d, fine-medium black, collection 1036, PALM Image Archive 673.

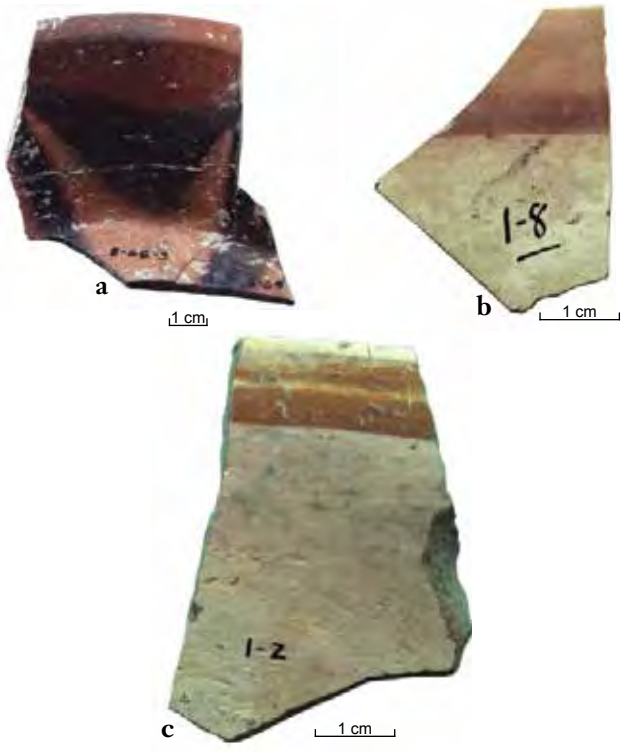

Figure A1.14. Rim interiors. (a) Estrella Orange, code 33a, collection 938, PALM Image Archive 378; (b) Blanco White, code 44, collection 8, PALM Image Archive 381; (c) Blanco White, code 44, collection 2, PALM Image Archive 381.

Figure A1.15. nterior upper, exterior lower, Tuxtlas Polychrome, code 45b, collection 1055-3019, PALM Image Archive 398.

33b. Curvilinear lines in rim band, reversed false negative. RFN (Figure A1.11a)
33c. Criss-crossed or dribbly lines, reversed false negative. RFN
36a-f. Red slip, orange slip, double slip, or bi-slip, negative resist. NEG
36e. White-slipped negative resist. NEG
36n. Rim band resist, with fine incision. NEG
37i. White slip, medium textured orange-to-buff paste, glossy slip. WHTS
38a-f. Fine gray. FGRY
40a. Orange-over-white double slip. SLSL
43 (and 34e). Mojarra Orange-gray. MOUN
44. Blanco White. CHIN (Figure A1.14b,c)
45b, l. Tuxtlas Polychrome. TUXT (Figure A1.15)
54a, b. False negative, muddy yellow slip. FNEG
54c-g. False negative orange slip or overslip. FNEG
54m. White-on-red combed. WR
55a. Bounding or filling incision with red and orange areas, double and triple slips. LACA
55b. Orange-over-white double slip with incision not bounding. LACA
60b. Fine textured, orange-over-white double slip. LACA
60e. Incised metallic. METIN
60g. White-on-red. WR

Early Classic Period Diagnostics, Camarón 1–3 phases)

See above concerning possible overlap of Terminal Preclassic categories, which are also listed here. This grouping is scarcely applicable to Speaker's (2001b) survey zones.

Categories for PALM 1 and 2 only:

X11. Pair of grooves, dents, or incised lines, closely spaced, very near rim on exterior. PAIR (Figure A1.8a, b)
X14. Incised lines on interior, just under lip. INTLIN (Figure A1.9b)
X15. Armas-like incision. ARM (Figure A1.9a)
X18. Carved design. CARV (Figure A1.12b)
X20 Wedge band. WEDG
X21. Rainbow incision. RAIN
X22. Vertically grooved or incised. VGROV (Figure A1.8c)

Category for both PALM and Speaker (2001b) projects:

15. Armas Unpainted, Armas variant. ARAR (Figure A1.12a)

Early Classic Tendency Temporal Diagnostics

Some evidence (Patarata 52 excavations, seriation) shows these codes more frequent in the Early Classic period but not exclusive to it; distributional data suggest that in some localities this group does not track the Early Classic well and it may capture a separate but partly overlapping block of time, perhaps late in the Early Classic period and partly in the early part of the Late Classic period.

Categories for PALM 1 and 2 only (not Speaker's [2001b] data):

X12. Smooth exterior grooving, horizontal, usually polished groove. HGROV (Figure A1.8d)
X13. Scroll panel or scroll-dominated design. SCROL
X16. Impressed prints. PRIN (Figure A1.10)

Categories for both PALM and Speaker (2001b) projects:

5d. Streaky, blotchy, or brown-fired, with plastic decoration. STRK
6d. Fine-medium textured black, with plastic decoration. BLAK (Figure A1.13)
42b. Coarse textured plain, with plastic decoration. PLP

Late Classic Period Temporal Diagnostics

Categories only for PALM 1 and 2 (not Speaker [2001b] project):

X17. Molded design. MOLD (Figure A1.11b)
X23. Metallic over-wash. META

Categories for both PALM and Speaker (2001b) projects:

1m, n. Brown *comal*. COMA
16m. Pink or gray streaks, red-orange slip. PARO
25a. Metallic (false plumbate). MET
33a. Estrella Orange. NTP (Figure A1.14a)
33b. Curvilinear lines in rim band, reversed false negative. RFN (Figure A1.11a)
33c. Criss-crossed or dribbly lines, reversed false negative. RFN
36n. Rim band resist, with fine incision. NEG
38a–f. Fine gray. FGRY
20. Heavy, coarse-punched. HPUN
43 (and 34e). Mojarra Orange-gray. MOUN
44. Blanco White. CHIN (Figure A1.14b, c)
45b, l. Tuxtlas Polychrome. TUXT (Figure A1.15)
54a, b. False negative, muddy yellow slip. FNEG
54c- g. False negative orange slip or overslip. FNEG
60e. Incised metallic. METIN

Postclassic Period Temporal Diagnostics, General

Categories only for PALM 1 and 2 (not Speaker [2001b] project):

9v. Interior crossed bands. RBU
11v. Red-on-orange, fine-medium textured, interi or crossed bands. ROR
38m. Fine gray with Postclassic forms or finish. FGRY
42x. Coarse plain with brushed exterior. PLBR
42y. Medium to fine textured plain with brushed exterior. PLBR
45k. Isla de Sacrificios Polychrome. ISLA
61a. Texcoco Fabric-Impressed. TEFI
70a. Coarse orange plain. COOR
70m. Medium-fine orange plain. COOR

Categories for both PALM 1 and 2 and Speaker (2001b) projects:

1a-g. Buff *comal*. COMA
7a- d, f, some 7e. Black-on-red. BLRD
7g, some e. Black-on-red incised. BLRD
7m-o. Coarse polychrome. LPOLY
7s. Complicated Polychrome, lacking white underslip. COMP
7t. Complicated Polychrome, with white underslip. COMP
7w. Miscellaneous for Complicated Polychrome, Black-on-red, Black-and-white-on-red, or Fondo Sellado with laca band. MISC
9n, o. Interior multi-banded red-on-buff. RBU
10n. Interior multi-banded red-on-orange, with red bi-slip. RORS
11p, u. Interior multi-banded red-on-orange. ROR
18b. Acula Red-on-orange, incised frieze motif. ACEN
19. Cream to black Escolleras Chalk. ESCO
21a-c, m, o, p. Fondo Sellado. SELL
21n. Extensive stamp Fondo Sellado. SELL
23n. Red-on-white, multi-banded both sides. RWH
24. White framing black-on-red polychrome. WBR
26. Splashy black-and-white-on-red. WBR
30o. Polished red incised with frieze motif. RFRI
35e, f. Quiahuistlan. QUIA
41a. Hard buff. BUFF
45a. Dull Buff Polychrome. DULL
45c. Miscellaneous polychromes. MPOL
45d. Tres Picos Polychrome. TPIC
45e Totonac Polychrome TOTO
45f. Cerro Montoso Polychrome. MONT
45g. Fugitive polychrome. FUG
45h, i. Banded polychrome. BAND
45j. Frieze polychrome. FRIS
53a. Texcoco Molded. TEXM
57a. Black-on-orange rim band only. BLOR
57b. Fugitive black-on-orange rim band and interior horizontal bands. BLOR
57c. Fugitive black-on-orange, complex designs. BLOR
57m. Aztec III-style black-on-orange. BLOR
58. Hard plain. HARD
60f. Incised buff. PINC
46g. Striated vessels. ESTR
(46a. ESTR This category is included only for Speaker's [2001b] data, involving a single rim. It was not reexamined to determine if a vessel, tubing, or *incensario* was a more likely classification because, like 46g, it may represent a vessel.)

Middle Postclassic Period Temporal Diagnostics

Categories for both PALM and Speaker (2001b) projects

7g, some e. Black-on-red incised. BLRD
24. White framing black-on-red polychrome. WBR
26. Splashy black-and-white-on-red. WBR
9n, o. Interior multi-banded red-on-buff. RBU
10n. Interior multi-banded red-on-orange, with red bi-slip. RORS
11p, u. Interior multi-banded red-on-orange. ROR
23n. Red-on-white, multi-banded both sides. RWH
45h, i. Banded polychrome. BAND
41a. Hard buff. BUFF
58. Hard plain. HARD
18b. Acula Red-on-orange, incised frieze motif. ACEN
30o. Polished red incised with frieze motif. RFRI
45j. Frieze polychrome. FRIS

Late Postclassic Period Diagnostic Codes

The Late Postclassic grouping is not robust. Many additional categories continue from the Middle Postclassic but are therefore not diagnostic of either one individually.

Categories for PALM 1 and 2 only (not Speaker 2001b data):

61a. Texcoco Fabric-Impressed. TEFI

Categories for both PALM and Speaker (2001b) projects:

53a. Texcoco Molded. TEXM
57m. Aztec III-style black-on-orange.

Pottery Diagnostics and Monumental Complexes

Dimensions of features from monumental complexes are presented in Table A1.3 for PALM 1 and 2 and Speaker's (2001b) survey. The grand height measurement refers to the height of the feature plus the height of the underlying platform (if any). Counts and percentages of diagnostic pottery are provided in Tables A1.4 (for PALM 1 and 2) and A1.5 (for Speaker's survey). Features that did not yield collections are omitted from Tables A1.4 and A1.5. Table A1.6 provides an inventory of monumental platforms, their dimensions, and structures on top of them or affixed to them.

Table A1.3. Dimensions of features in monumental complexes

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
CENTRAL BLOCK							
Central Cerro de las Mesas (CCM)							
CCM Northern Group							
1	64	52	4.9	4.9	CM	1	
2	57.6	16.1	0	0	CM	6	
3	26	13.6	0	0	CM	6	
4	35	30	1.5	1.5	CM	7	
5	70	20	5.5	5.5	CM	3	
6	40.7	40.7	0	0	CM	6	
7	30	30	1.5	4.6	CM	7	
8	38	30	0.9	4	CM	7	
9	md	md	3.1	3.1	CM	4	
10	md	md	0	0	CM	8	
11	md	md	md	md	CM	8	
12	md	md	0	0	CM	6	
13	45	15	2	2	CM	3	
14	64	40	9.6	9.6	CM	2	conical
15	39	33	0	0	CM	6	
16	37	29	4	4	CM	1	
17	43	30	1.8	1.8	CM	1	
19	40	18	0.6	0.6	CM	1	
31	35	35	0.7	0.7	CM	1	
32	132	38	6.8	6.8	CM	1	lateral ?
33	101.7	37.7	0	0	CM	6	
34	31	26	2.3	2.3	CM	7	
35	101	64	3.7	3.7	CM	1	
36	120	120	3.2	3.2	CM	4	platform with conical
37	50	28	0	0	CM	8	
38	66	60	15.7	18.9	CM	5	conical-on-platform
39	58	30	2.5	5.7	CM	7	
40	72	14.4	0	0	CM	8	
41	39	16.1	0	0	CM	6	
42	md	md	0	0	CM	6	
43	35	29	1	1	CM	1	
44	55.1	48.3	0	0	CM	6	
45	102	79	6.9	6.9	CM	4	platform
46	56	29	2.6	2.6	CM	1	ball court
47	54	29	2.4	2.4	CM	1	ball court
48	31	27	1.4	1.4	CM	1	
49	67	24	2	2	CM	7	
90	48	44	13.2	13.2	CM	1	conical
91	85	70	18.2	21.3	CM	5	conical
92	md	md	md	md	CM	7	
93	82	65	24	24	CM	2	conical
100	md	md	md	md	CM	8	
349	42.5	36	1.6	1.6	CM	7	
904	52	43	1.7	1.7	CM	1	
905	64	56	9.7	9.7	CM	1	

Table A1.3. Dimensions of features in monumental complexes *(continued)*

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
907	43	30	1.8	1.8	CM	8	
919	67	31	3.4	3.4	CM	1	
920	41	35	1.1	1.1	CM	1	
921	43	39	4.7	4.7	CM	1	
922	30.5	29	0.8	0.8	CM	1	
923	45	32	3.6	3.6	CM	1	
931	50	18	1.3	8.2	CM	5	
951	35	15	0.7	0.7	CM	1	
CCM Western Group							
95	90	30.5	4.3	11.2	CM	5	
96	26	22	1.2	8.1	CM	5	
97	48	33	1.7	8.6	CM	5	
98	168	141	6.9	6.9	CM	4	platform
99	59	27	0	0	CM	8	
233	42	37	1.9	1.9	CM	1	
234	82	55	3.7	3.7	CM	1	
300	50	50	5.8	5.8	CM	7	ball court ?
301	40	40	1.5	1.5	CM	1	
302	36	34	5.2	5.2	CM	7	ball court ?
303	45	35	3.3	3.3	CM	7	
304	80	67	5.2	5.2	CM	7	
305	42	36	2.7	2.7	CM	1	
306	65	45	2.4	2.4	CM	1	ball court ?
307	80	30	1.5	1.5	CM	1	lateral
308	65	65	7.8	7.8	CM	1	conical
309	44.2	33.3	1.1	1.1	CM	1	
310	33.3	29.2	0.7	0.7	CM	1	
311	17.5	15.8	0.5	0.5	CM	1	altar ?
312	md	42	4	4	CM	1	lateral
313	40	22	1.3	1.3	CM	1	
314	md	md	md	md	CM	1	
315	37	28	0.6	2	CM	5	
316	34	30	1.4	1.4	CM	4	
317	35	25	1.9	1.9	CM	1	
917	25	17	0.2	0.2	CM	1	
1233	33.5	27.5	0.6	0.6	CM	1	
1235	44.4	14.8	0.5	0.5	CM	1	
1236	41.2	16.8	0.5	0.5	CM	3	
1237	33.8	33.8	0.8	0.8	CM	2	
1238	40.7	13.7	0.4	0.4	CM	1	
1239	39.7	36.5	0.5	0.5	CM	1	
CCM Eastern Group							
18	62.5	34.5	4	4	CM	1	lateral
20	61	23.5	0	0	CM	6	
21	47	29	1	1	CM	1	
22	55	39	1	1	CM	1	
23	31	27	0.7	0.7	CM	1	
24	58	49	1.5	1.5	CM	1	

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
25	46	30	1.2	1.2	CM	1	
26	61	50.8	0	0	CM	6	
27	50	25	3.2	3.2	CM	7	ball court
28	50	28	3.3	3.3	CM	7	ball court
29	48.3	34.8	0	0	CM	6	
30	61.2	12.5	0	0	CM	6	
50	48	40	1.5	1.5	CM	1	conical
51	md	md	0.9	0.9	CM	4	
52	md	md	0	0	CM	8	
53	53	28	0.8	1.7	CM	5	
54	md	md	0	0	CM	8	
55	36	34	0	0	CM	6	
56	57	41	0	0	CM	6	
57	100	36.4	0	0	CM	6	
58	35	15	1.3	1.3	CM	7	
59	80	65	2.8	2.8	CM	4	platform
60	52	43	2.1	2.1	CM	1	
61	48.3	43.2	0	0	CM	6	
62	74	40	4.7	7.5	CM	5	
94	63	32	6.4	6.4	CM	1	lateral
318	45	30	4.2	4.2	CM	1	
382	30	20	0	0	CM	6	
908	49	47	8.7	8.7	CM	1	conical
918	44	39	0.7	0.7	CM	1	
986	46	30	1.2	1.2	CM	8	
1234	58.2	50.8	0.9	0.9	CM	1	
CCM Platform 64 Group							
63	52	41	1.8	1.8	CM	1	
64	91	73	5.3	5.3	CM	4	platform with conical
65	29	22	1.6	6.3	CM	5	conical-on-platform
66	68.6	31.8	0	0	CM	6	
67	50	32	2.6	2.6	CM	3	
68	50	47	2	2	CM	1	
911	60	53	2.3	2.3	CM	1	
938	29	22	0	0	CM	8	
CCM Feature 71 Group							
69	45	43	1.2	1.2	CM	1	
70	md	md	0	0	CM	6	
71	61	54	4.4	4.4	CM	2	platform ?
72	56.8	35.6	0	0	CM	6	
73	105.1	35.6	0	0	CM	6	
74	49	47	2.2	2.2	CM	1	
75	39	38	1.2	1.2	CM	1	
76	50	45	0.8	0.8	CM	3	
9069	md	md	md	md	CM	11	
Other CCM Features							
320	60	50	2.4	2.4	CM	2	
367	24.6	18.7	0.5	0.5	CM	1	

Table A1.3. Dimensions of features in monumental complexes *(continued)*

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
370	18.6	17.8	0.5	0.5	CM	1	
371	23.7	16.1	0.5	0.5	CM	1	
372	22.5	15	0.8	0.8	CM	1	
373	25.8	20.8	0.6	0.6	CM	1	
374	53.2	43.3	2.2	2.2	CM	1	
377	26.7	17.5	0.5	0.5	CM	1	
378	35.8	25	1.3	1.3	CM	3	
379	41.7	29.2	0.7	0.7	CM	1	
909	53	37	2.3	2.3	CM	1	
910	40	29.5	0.7	0.7	CM	2	
934	md	md	md	md	CM	7	
942	20	md	md	md	CM	3	
9086	md	md	md	md	CM	11	
Cerro del Chivo Complex							
Cerro del Chivo Group							
77	53	44	5.4	7	CV	5	conical-on-platform
78	40	22	1.7	4.3	CV	5	
79	25	25	1.8	4.4	CV	5	
80	51	33	1.2	1.2	CV	1	
81	32	31	1.5	1.5	CV	1	
82	48	25	0.6	0.6	CV	1	
83	49.5	42	13.8	13.8	CV	1	conical
84	66	27	4.1	4.1	CV	1	lateral
85	67.5	27.5	4	4	CV	1	lateral
86	80	22.4	0	0	CV	6	
87	54.4	46.9	0	0	CV	6	
88	44	23	1.8	1.8	CV	7	ball court
89	44	23	1.8	1.8	CV	7	ball court
924	116	64	2.6	2.6	CV	4	platform with conical
925	27	10	0.2	2.8	CV	5	
926	52	37	5.8	5.8	CV	1	
927	40	35	0.6	0.6	CV	1	
928	25	25	0.5	0.5	CV	1	
Ojochal Complex							
Ojochal Southern Group							
569	59	41	2.8	2.8	OJ	2	
570	31	7	0.9	0.9	OJ	7	
571	28	22	0.7	0.7	OJ	7	
572	39.5	23	0.2	0.2	OJ	1	
573	45	38	1.6	1.6	OJ	2	
574	18	12	0.9	0.9	OJ	3	
575	47	41	1	1	OJ	1	
576	54	43	0.7	0.7	OJ	1	
577	34	28.5	1.3	1.3	OJ	2	
578	35	30	0.5	0.5	OJ	3	
579	40	28	1.4	1.4	OJ	1	
580	44.1	36.4	1.9	1.9	OJ	1	
613	60	47	1.6	1.6	OJ	1	

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
Ojochal Eastern Group							
581	62	53	2	2	OJ	1	
582	38	37	1.3	1.3	OJ	1	
583	41	40	0.7	0.7	OJ	1	
584	48	37	1.2	1.2	OJ	1	
585	54	45	2.3	2.3	OJ	2	
586	35	35	1.2	1.2	OJ	3	
588	101	84	2.9	2.9	OJ	1	platform
589	69	45	1.5	1.5	OJ	1	
590	49	41	2.8	2.8	OJ	1	
591	27	22	0.8	0.8	OJ	1	
594	45	45	4.3	4.3	OJ	1	
595	46	43	1.8	1.8	OJ	2	
596	45	12	1	1	OJ	3	
597	50	45	12	12	OJ	2	conical
598	28	21	0.6	0.6	OJ	1	
801	27	20	0.7	0.7	OJ	3	
804	48	36	1.5	1.5	OJ	1	lateral
805	51	23.5	1.9	1.9	OJ	3	ball court ?
806	60	23.5	3.5	3.5	OJ	2	ball court (?)
807	55	23	1.2	1.2	OJ	1	lateral
Ojochal Western Group							
365	43.3	40.9	3.4	3.4	OJ	1	
712	162	133	5.8	5.8	OJ	4	platform with conical
713	55	48	6	10.8	OJ	5	conical-on-platform
714	22	20	0.6	5.6	OJ	5	
715	109	91	5.9	5.9	OJ	1	platform
716	99	63	4.6	4.6	OJ	1	platform
717	38	29	0.5	0.5	OJ	1	
718	25	22	0.4	0.4	OJ	1	
719	38	31	0.9	0.9	OJ	1	
802	15	15	0	0	OJ	8	
803	20	15	0	0	OJ	6	
Ojochal Northern Group							
811	53	50	1.2	1.2	OJ	1	
812	49	45	1	1	OJ	1	
813	89	33	3.8	3.8	OJ	1	lateral
814	65	60	15	15	OJ	1	conical
815	51	48	2	2	OJ	1	ball court
816	76	31	0.2	0.2	OJ	1	lateral
817	38	37	0.3	0.3	OJ	1	
818	73	65	1.7	1.7	OJ	7	
819	23.8	23.5	0.5	0.5	OJ	1	
820	40.5	33.1	0.8	0.8	OJ	1	
821	25	22	1.3	4	OJ	5	
822	37	20	0.3	3	OJ	5	
823	74	65	2.7	2.7	OJ	4	platform
824	55	45	2.3	2.3	OJ	2	

Table A1.3. Dimensions of features in monumental complexes *(continued)*

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
825	46	46	0.9	0.9	OJ	3	
826	38	32	0.7	0.7	OJ	3	
827	42.1	38.6	0.4	0.4	OJ	1	
896	89	33	3.8	3.8	OJ	8	
Other Ojochal Features							
566	24.6	20.3	0.9	0.9	OJ	1	
587	27.5	18	0.3	0.3	OJ	1	
592	43	40	0.8	0.8	OJ	1	
593	58	38	1.5	1.5	OJ	1	
599	53	41	2	2	OJ	2	
800	37	20	0.7	0.7	OJ	3	
808	22	21	0.7	0.7	OJ	1	
809	17.5	15.8	0.4	0.4	OJ	1	
810	18.3	17.5	0.8	0.8	OJ	1	
Tío Primo Complex							
972	md	md	0	0	TP	8	
973	md	md	0	0	TP	8	
4032	42	24	0.4	0.4	TP	1	
4034	29.9	23.8	0.7	0.7	TP	1	
4040	64	60	17.2	17.2	TP	1	conical
4041	78	35	4.3	4.3	TP	1	lateral
4042	58	50	2.7	2.7	TP	1	ball court (?)
4043	87	32	1.7	1.7	TP	1	lateral
4044	32	25	0.7	0.7	TP	1	
4045	27	25	0.7	0.7	TP	1	
4046	96	96	2.7	2.7	TP	4	platform
4047	md	md	1.5	4.1	TP	5	
4048	28	24	2.3	5	TP	5	
4049	45	30	3.2	5.9	TP	5	
Campana Complex							
636	67.6	39.4	2.4	2.4	CC	1	
637	31.6	23.7	0.6	0.6	CC	1	
638	54.3	51.7	14.8	14.8	CC	1	conical
902	54.3	51.7	14.8	14.8	CC	8	
1345	75	48	2	2	CC	1	
1346	18	12	0.5	0.5	CC	1	
1347	55	25	2.9	2.9	CC	1	
1348	27	12	2.1	2.1	CC	1	
1349	48	43	5	5	CC	1	
1350	27	20	3.3	3.3	CC	1	
1351	24	15	0.6	0.6	CC	1	
1352	40.8	40.4	4.5	4.5	CC	1	
Zapotal South Complex							
389	106	88	2.9	2.9	ZS	4	platform
390	55	50	1.8	1.8	ZS	1	
391	88	32	1.6	4.5	ZS	5	
392	86	63	2.5	5.4	ZS	5	
393	42.5	35	2.3	2.3	ZS	1	

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
394	44.5	32	3	3	ZS	1	
395	22	20	2.1	2.1	ZS	1	
396	32.5	31.5	2.7	2.7	ZS	1	
397	28	25	2	2	ZS	1	
398	45	25	2.5	2.5	ZS	1	lateral
399	61.5	53	3	3	ZS	1	lateral
700	53	43	10.1	10.1	ZS	2	conical
701	44	29	0.9	0.9	ZS	3	
702	38.3	29.2	0	0	ZS	6	
709	43	32.5	0.6	0.6	ZS	1	
710	md	22	md	md	ZS	1	
932	10	8.3	0	0	ZS	6	altar ?
Sauce Complex							
110	68.6	47.1	1	1	ES	2	
111	68.6	44.9	0.8	0.8	ES	3	
112	11	5	0.4	0.4	ES	1	
116	53	47.5	2	2	ES	1	
117	14	8.5	0.7	0.7	ES	1	
118	83	52.8	1.6	1.6	ES	1	
119	98	65	3.5	3.5	ES	4	platform
120	20	17	0.3	3.8	ES	5	
121	24	12	0.6	4.1	ES	5	
122	12.3	8.8	0	0	ES	6	
123	26.3	24.6	1.9	1.9	ES	1	
124	42.1	41.2	1.4	1.4	ES	1	
125	59.6	35	1.1	1.1	ES	1	
126	30	25	md	md	ES	1	
127	62	50	1.5	1.5	ES	1	
128	23.3	23.3	1.9	1.9	ES	1	
129	32.5	28.3	1	1	ES	1	
130	44.5	35	0.4	0.4	ES	1	
131	33.3	25.8	1	1	ES	1	
132	50.9	41.2	1.8	1.8	ES	1	
133	52.9	37.8	0.8	0.8	ES	1	
135	37.3	34.3	1.6	1.6	ES	1	
136	48.7	md	1.1	1.1	ES	1	
138	62.5	47.5	1.8	1.8	ES	1	
148	58.3	37.5	0.8	0.8	ES	1	
149	30	16.7	0.9	0.9	ES	1	
169	55	37	0.6	0.6	ES	1	
209	79	40	1.8	1.8	ES	1	
210	36	25.3	1	1	ES	1	
211	40	39	1.3	1.3	ES	1	
212	52.5	48	2.4	2.4	ES	1	
213	30.6	30	0.3	0.3	ES	1	
214	20	20	0	0	ES	6	
215	20	10	0	0	ES	6	
216	28	19	0.6	0.6	ES	7	

Table A1.3. Dimensions of features in monumental complexes *(continued)*

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
217	80	58	2.1	2.1	ES	1	
218	28	22	1.6	1.6	ES	1	
219	70	44	0.9	0.9	ES	7	
220	24	21	0.6	0.6	ES	1	
221	32	32	0.4	0.4	ES	1	
222	53.5	49.1	1.3	1.3	ES	1	
223	53	38	0.4	0.4	ES	1	
224	85	50	2.1	2.1	ES	1	
225	60	43	2.2	2.2	ES	1	
711	40	25	0.5	0.5	ES	1	
981	15	15	0	0	ES	7	
982	15	15	0	0	ES	7	
983	md	md	5.6	5.6	ES	1	
1152	44.1	35.6	1.1	1.1	ES	2	
1153	39.8	10.2	md	md	ES	3	
1172	35	35	1.1	1.1	ES	1	
1173	19	18	0.6	0.6	ES	1	
1175	33.9	33.1	1.2	1.2	ES	2	
1176	25.4	14.4	0.8	0.8	ES	3	
1750	25.7	24.7	0.8	1.9	ES	1	
1751	49.1	46.9	1.3	1.3	ES	2	
1752	23	16.8	1	1	ES	3	
1753	md	63.6	1.1	1.1	ES	4	
1754	38	24.7	1.7	1.7	ES	1	
1755	49.4	42.8	0.9	0.9	ES	1	
1756	43.7	36.1	0.8	0.8	ES	1	
1762	21	19.3	0.6	0.6	ES	1	
1763	41.8	40.9	0.9	0.9	ES	1	
1818	72.2	51.3	2	2	ES	1	
4006	40.5	md	1	1	ES	1	
4007	md	md	1	1	ES	1	
4008	md	md	0.8	0.8	ES	1	
4009	md	md	0.8	0.8	ES	1	
4010	27.4	md	0.5	0.5	ES	1	
4011	36.5	md	0.7	0.7	ES	1	
4012	40.5	md	0.7	0.7	ES	1	
4013	md	md	1.5	1.5	ES	1	
4014	md	md	0.5	0.5	ES	1	
4015	md	md	1	1	ES	1	
4016	36.5	md	1	1	ES	1	
4017	md	25.9	3	3	ES	1	
4018	md	md	2	2	ES	1	
4019	32	md	1	1	ES	1	
4020	md	md	2.5	2.5	ES	1	
4021	md	md	md	md	ES	1	
4022	100	65	4.4	4.4	ES	7	platform
4024	md	md	0.5	0.5	ES	1	
4025	md	md	0.8	0.8	ES	1	

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
4026	md	md	1.5	1.5	ES	1	
4027	md	md	0.5	0.5	ES	1	
4028	md	md	1	1	ES	1	
4029	md	md	0.4	0.4	ES	1	
Complex 1473							
1412	44.5	44.5	1.6	3	EM	2	
1413	40	md	1.1	1.1	EM	3	
1414	40	21.5	0.8	0.8	EM	3	
1415	28.6	22.6	0.5	2.1	EM	5	
1416	58	21	0.9	1.7	EM	5	
1418	74.8	50.2	1.6	1.6	EM	4	
1443	37.6	35.7	1.8	1.8	EM	1	
1444	24.5	24.5	0.5	0.5	EM	1	
1445	31	26	0.5	1.7	EM	5	
1446	md	md	1.2	1.2	EM	4	
1467	43	34	0.8	0.8	EM	1	
1468	74.2	67.8	4.8	4.8	EM	2	
1469	41	40	2.6	2.6	EM	3	
1470	41.4	35	0.3	0.3	EM	1	
1473	70	41.6	5.3	6.5	EM	7	platform
1474	32	27	0.4	2.3	EM	5	
1478	25	23.5	0.2	1.4	EM	5	
1703	22.5	21	0.1	0.1	EM	1	
Palmas Cuatas Complex							
Palmas Cuatas Eastern Group							
1575	md	21	0.9	2.4	PC	5	ball court (?)
1576	md	38	1.6	1.6	PC	4	ball court (?)
1578	69	26	4.2	4.2	PC	1	lateral
1579	70	64	17.3	17.3	PC	1	conical
1580	md	28	1	1	PC	1	lateral
1581	106	77	5.6	5.6	PC	7	platform
1584	43	37	2.3	2.3	PC	2	
1585	23	12	0.8	0.8	PC	3	
1586	62	43	1.2	1.2	PC	1	
1587	31	28	1.7	1.7	PC	1	
1588	52	39	1.1	1.1	PC	1	
1589	47	25	0.7	0.7	PC	1	
1590	24	21	0.2	0.2	PC	1	
1591	24	20	0.5	0.5	PC	1	
1628	53.3	42	2.8	2.8	PC	2	
1643	42.8	22.7	1.5	1.5	PC	3	
1646	24.4	22.6	0.5	0.5	PC	1	
Palmas Cuatas Western Group							
1577	36	23	1.4	1.4	PC	1	
1582	45	36	7.2	7.2	PC	1	conical
1583	44	39	8.7	8.7	PC	1	conical
1592	42	40	8.1	8.1	PC	1	conical
1593	27	20	0.3	0.3	PC	1	

Table A1.3. Dimensions of features in monumental complexes *(continued)*

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
1594	20	20	0.3	0.3	PC	1	
1595	19	15	0.8	0.8	PC	1	
1596	18	13	0.5	0.5	PC	1	
1597	28	24	3	3	PC	1	
1598	31	27	1.4	1.4	PC	1	lateral
1599	33	26	6.9	6.9	PC	1	conical
1630	31	28	1.5	1.5	PC	1	lateral
1637	23.4	22.6	0.2	0.2	PC	1	
1638	21.1	20.3	0.4	0.4	PC	1	
1641	40.9	34.2	0.4	0.4	PC	1	
1644	md	md	0	0	PC	6	
1645	30	23	0.9	0.9	PC	1	
1649	22	20	0.2	0.2	PC	1	
1650	21	19	0.5	0.5	PC	1	
1651	28	25	1.1	1.1	PC	1	
1652	22	19	0.2	0.2	PC	1	
1653	31	24	0.9	0.9	PC	7	
1654	19	18	0.4	0.4	PC	1	
1655	59	36	7.5	7.5	PC	1	conical
1656	35	30	5.2	5.2	PC	1	
Tiesto Complex							
1668	45	30	1.3	1.3	ET	1	
1669	18	16	0.1	0.1	ET	1	
1670	38.8	25.1	0.5	0.5	ET	1	
1673	38.8	30.8	0.5	0.5	ET	1	
1735	45	37	9.8	9.8	ET	1	conical
1736	30	25	1.6	1.6	ET	1	
1737	36	35	1.8	1.8	ET	1	
1738	45	30	1.8	1.8	ET	3	
1739	19	18	0.4	0.4	ET	1	
1740	21	18	0.2	0.2	ET	1	
1741	38	38	1.7	1.7	ET	1	
1742	27	21	0.5	0.5	ET	1	
1743	23	21	0.7	0.7	ET	1	
1744	40	37	1.6	1.6	ET	1	
1745	35	30	0.5	0.5	ET	1	
1746	41	30	1.9	1.9	ET	2	
Villa Nueva Complex							
Villa Nueva Eastern Group							
755	41	38	5	5	VN	7	
756	90	50	8.4	8.4	VN	4	platform
757	85	30	2.4	10.3	VN	7	
758	18	17	0.3	8.7	VN	5	
778	55	28	1.1	1.1	VN	1	
779	60	34	0.4	0.4	VN	1	
798	32	25	0.5	3.5	VN	5	
984	42	28	md	md	VN	1	

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
1089	23	13	0.6	0.6	VN	1	
1090	85	63	3	3	VN	4	platform
1091	40	30	1.4	1.4	VN	1	
1092	30	21	0.4	0.4	VN	1	
Villa Nueva Northwestern Group							
890	39	29	0.8	0.8	VN	1	
891	43	25	1.5	1.5	VN	3	
892	42	25	1.9	1.9	VN	2	
894	29	21	0.7	0.7	VN	1	
895	32	20	0.5	0.5	VN	1	
889	38	34	1.6	1.6	VN	1	
Villa Nueva Southwestern Group							
770	27	25	0.4	0.4	VN	1	
771	36	33	1	1	VN	1	
772	27	23	0.3	0.3	VN	1	
767	70	35	1	1.8	VN	5	
768	47	33	2.3	3.1	VN	5	
769	18	18	0.7	1.5	VN	3	
987	123	70	0.8	0.8	VN	4	
Villa Nueva Other Features							
754	58	42	2.9	2.9	VN	1	
765	82.5	82	1.9	1.9	VN	1	
766	38	26	0.4	0.4	VN	1	
773	60	50	1.5	1.5	VN	2	
774	30	28	0.4	0.4	VN	3	
780	55	34	0.2	0.2	VN	1	
897	29	25	0.2	0.2	VN	1	
Platform 1094 Complex (Molina Complex)							
914	14	11	0.9	9.9	MM	5	
915	22	13	0.9	9.9	MM	5	
916	22	17	1.1	10.1	MM	5	
1094	100	83	9	9	MM	4	platform
1124	40	40	0.7	0.7	MM	1	
Fraternidad Complex							
1150	45	25	1	1	LF	1	
1151	40	13	0.8	4.9	LF	5	
1154	18	16	0.4	4.4	LF	5	
1155	63	23	1.2	1.8	LF	5	
1156	90	62	4.1	4.1	LF	4	platform
1157	100	50	0.6	0.6	LF	7	
1158	47.5	40.7	2.8	2.8	LF	1	
1159	79.8	68.1	2.4	2.4	LF	1	
1160	34	20	0.5	0.5	LF	1	
1161	40.4	39.5	1.8	1.8	LF	1	
1162	54.2	23.7	0.3	0.3	LF	1	
1163	33.9	26.2	2.4	2.4	LF	1	
1164	46.6	40.9	1.2	1.2	LF	1	
1455	17	15	1.6	1.6	LF	7	

Table A1.3. Dimensions of features in monumental complexes *(continued)*

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
Azuzules and Azuzules East Complex							
Azuzules Central Group							
1138	79	79	23	23	LA	1	conical
1139	30	23	1.1	1.1	LA	3	
1140	41	25	4.6	4.6	LA	2	
1141	73	19	5.2	5.2	LA	1	ball court
1142	70	24	4.2	4.2	LA	1	ball court
1143	57	35	8.2	8.2	LA	1	
1144	md	md	md	md	LA	8	
1147	84	32	3.8	3.8	LA	1	lateral
1148	110	29	9.7	9.7	LA	1	lateral
1167	45	35	4.4	4.4	LA	1	
1168	30	23	1.1	1.1	LA	1	
1171	15	10	0	0	LA	6	
1201	40	25	0	0	LA	6	
Azuzules Central Extension							
1145	51	28	4.9	4.9	LA	1	
1146	16	11	0.5	0.5	LA	1	
1149	25	18	1	1	LA	1	
1169	28	23	0.4	0.4	LA	1	
1170	130	35	0	0	LA	7	
1188	51	32	6	6	LA	7	
1189	34	21	3.3	3.3	LA	7	
1190	20	20	0	0	LA	6	
1191	52	43	5.4	5.4	LA	7	
1192	32	9	2	2	LA	7	
1193	20	18	1.1	1.1	LA	1	
1194	24	20	1.5	1.5	LA	3	
1195	63	38	7.4	7.4	LA	4	platform
1200	12	10	0.7	0.7	LA	1	
1202	17	14	0.5	0.5	LA	7	
1203	21	17	1.3	1.3	LA	3	
1263	md	md	1	8.4	LA	5	
Azuzules Additional Features							
1207	21	17	0.5	0.5	LA	1	
1208	33	20	0.6	0.6	LA	1	
Azuzules East							
935	22	10	0.8	7.6	AE	5	
1209	61	59	2.8	2.8	AE	4	
1210	9	5	1.7	4.5	AE	5	
1211	42	35	1.5	1.5	AE	1	
1212	25	15	0.4	0.4	AE	1	
1213	97	79	6.7	6.7	AE	4	platform
1214	52	13	0.8	7.6	AE	5	
1215	16	10	0.6	7.4	AE	5	
1216	md	md	0.3	0.3	AE	3	
1217	67	25	3.5	3.5	AE	7	
1218	35	30.1	0.9	0.9	AE	2	
1303	29.4	18.9	0.7	0.7	AE	3	

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
CENTRAL BLOCK ADDITIONS							
Azuzules South							
957	md	md	md	md	AS	8	
958	md	md	md	md	AS	8	
6661	44	39.6	1.5	1.5	AS	1	
6662	27	25	1	1	AS	1	
6746	33	22	3	10.4	AS	5	
6747	25	24	1.2	8.6	AS	5	
6748	92	90	7.4	7.4	AS	4	platform
6749	36	21	0.8	0.8	AS	1	
6750	30.9	25.2	0.7	0.7	AS	1	
6751	42.4	37	3.5	3.5	AS	1	
6753	22	18	2.2	9.6	AS	5	
6754	50	34	4	4	AS	3	
6768	67.6	37	1.2	1.2	AS	1	
Azuzules Southeast							
6638	71	62	6	6	ASE	4	platform
6639	22	19	0.9	6.9	ASE	5	
6769	59	19	2.7	2.7	ASE	3	
6770	52	46	2	2	ASE	1	
6793	42	34	1.4	1.4	ASE	1	
6794	43	37	0.5	0.5	ASE	1	
6795	68.6	68	0.8	0.8	ASE	1	
6928	16	9	0.8	0.8	ASE	7	
6929	22	21	0.3	0.3	ASE	1	
Zacate Colorado II							
6651	55	23	5.1	10.3	ZC	5	
6652	32	31.1	2.6	2.6	ZC	1	
6653	26.6	24.9	1.2	1.2	ZC	1	
6654	61.2	50.9	1.8	1.8	ZC	1	
6655	39.6	27	1.7	1.7	ZC	3	
6656	54	43.2	4.3	4.3	ZC	2	platform ?
6670	30.5	23.5	1.1	1.1	ZC	1	
6671	43.8	31.7	0.8	0.8	ZC	1	
6672	34.9	21	0.6	0.6	ZC	1	
6673	52.6	52	5.2	5.2	ZC	1	platform ?
6674	35.3	34.1	1.2	1.2	ZC	1	
6675	66.6	41.1	5.2	5.2	ZC	2	platform ?
6676	29	24	3.2	3.2	ZC	3	
6677	42	26	1.8	1.8	ZC	3	
6678	112	87	5.2	5.2	ZC	4	platform
6679	27	23	1.4	6.6	ZC	5	
6686	26	24	1.1	1.1	ZC	1	
6687	24.4	19.7	0.6	0.6	ZC	1	
6688	26	23	1	1	ZC	1	
6723	46.4	40.1	0.9	0.9	ZC	1	
Zacate Colorado II West							
6689	35	20	4.5	8.4	ZCW	5	

Table A1.3. Dimensions of features in monumental complexes *(continued)*

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
6690	70	61	4.7	4.7	ZCW	4	platform
6691	16	15	0.5	5.2	ZCW	5	
6692	18	12	0.4	0.4	ZCW	7	
6693	20	20	0.4	0.4	ZCW	1	
Sabaneta							
6563	44	40	8.8	8.8	SAB	1	conical
6603	64	34	2	2	SAB	1	lateral
6636	61.8	56.2	0.8	0.8	SAB	1	
6637	42	40	0.9	0.9	SAB	1	ball court ?
Mixtequilla							
6554	34.4	md	0.3	0.3	MX	1	
6555	44.6	38.1	1.5	1.5	MX	1	
6567	56	48	13.2	13.2	MX	1	conical
6568	119	38	6.8	6.8	MX	1	lateral
6569	20	14	0.8	0.8	MX	7	
6585	50	16	2.1	3.3	MX	1	ball court
6586	52	22	2.8	2.8	MX	1	ball court
6587	78	38	3.6	3.6	MX	1	lateral
6588	50	50	1.9	1.9	MX	1	
6589	22	11	0.7	0.7	MX	1	
6598	md	32	0.9	0.9	MX	1	
6599	20	12	0.4	0.4	MX	1	
Mixtequilla North							
6535	98	92	6.2	6.2	MXN	4	platform with conical
6562	46	36	9.9	16.1	MXN	5	conical-on-platform
6564	md	md	md	md	MXN	5	
Moral							
6483	44	8	1.1	1.1	MO	7	ball court
6484	md	md	0.4	5.1	MO	5	
6485	66	64	md	md	MO	1	conical
6486	88	38	7	7	MO	1	lateral
6487	52	20	2.9	2.9	MO	1	
6488	52	md	md	md	MO	1	ball court
6489	md	md	md	md	MO	1	platform
6490	md	md	md	md	MO	1	
6491	44	36	2.6	2.6	MO	1	
6492	66	24	4.7	4.7	MO	4	lateral
6493	44	44	5.2	5.2	MO	7	platform
6495	md	md	0	0	MO	6	
Moral North							
6504	96.8	75.7	5.5	5.5	MON	7	platform ?
Moral-Iglesia							
6506	75.8	56	3.1	3.1	MOE	4	platform
6527	26.7	23.2	2.1	5.2	MOE	5	
Aguacate North							
7111	42.2	16	3.6	7.3	AGN	5	
7113	19.7	12.1	1.6	5.4	AGN	5	

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
7114	72	71.8	3.8	3.8	AGN	4	platform
7115	12.6	9.6	0.4	4.2	AGN	5	
Aguacate South							
974	md	md	md	md	AG	8	
7140	39.2	21.2	6	9.9	AG	5	
7141	86.4	63.9	3.4	3.4	AG	4	platform
7142	18.8	15	1.2	4.6	AG	5	
7143	31	15.6	1.2	1.2	AG	1	
7144	49.5	35.5	1.2	1.2	AG	1	
7145	86.3	61.3	6.5	6.5	AG	4	platform
7146	34.9	md	2	8.5	AG	5	
7147	24.5	14.5	0.8	0.8	AG	1	
SPEAKER SURVEY BLOCKS							
COMPLEXES NORTH OF THE CENTRAL BLOCK							
Paso de las Mulas							
5053	50	45	3	3	PM	4	platform ?
5054	18	15	0.8	0.8	PM	1	
5055	16	11	0.6	3.6	PM	5	
5056	35	23	1.7	1.7	PM	7	
5057	28	20	0.7	0.7	PM	3	
5059	63	34	4.6	4.6	PM	1	lateral ?
5060	51	50	12.7	12.7	PM	1	conical
5071	30	25	1.4	1.4	PM	1	ball court ?
5072	25	24	0.4	0.4	PM	3	
Rincón del Tigre							
988	35	22	2	2	RT	1	
989	38	37	5	2	RT	1	
5148	24	22	0.6	0.6	RT	1	
5173	43	38	1.3	1.3	RT	1	ballcourt ?
5174	64	30	1.8	1.8	RT	1	lateral
5175	45	44	9.3	9.3	RT	1	conical
Rincón del Tigre Norte							
5144	35	32	1.1	1.1	RTN	1	
5150	44	30	1.5	1.5	RTN	1	lateral
5151	53	50	13.1	13.1	RTN	2	conical
5152	23	23	1.2	1.2	RTN	1	
5153	32	30	1.1	1.1	RTN	1	
5154	23	23	0.4	0.4	RTN	1	
5155	55	30	2.5	2.5	RTN	1	lateral
5161	50	40	2.8	2.8	RTN	2	
5162	43	38	2.7	2.7	RTN	3	
5163	17	17	0.5	0.5	RTN	1	
5164	25	18	0.5	0.5	RTN	1	
5165	25	23	0.8	0.8	RTN	1	
5171	47	43	4.2	4.2	RTN	2	
5172	30	20	0.9	0.9	RTN	3	
5177	45	39	0.6	0.6	RTN	1	ball court ?
5178	13	10	1	1	RTN	3	

Table A1.3. Dimensions of features in monumental complexes *(continued)*

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
Platform 5140 Complex							
5139	23	14	2.6	7.4	RTW	5	
5140	67	54	4.8	4.8	RTW	3	platform
COMPLEXES SOUTHEAST OF THE CENTRAL BLOCK							
Lobato							
5432	32	32	2.7	2.7	LB	7	
5433	31	23	3.2	3.2	LB	7	
5434	22	21	4.3	4.3	LB	7	ball court ?
5435	24	24	4.5	4.5	LB	7	ball court ?
5450	33	26	4	4	LB	7	conical position
5452	25	15	3.1	3.1	LB	7	lateral position
COMPLEXES SOUTH AND WEST OF THE CENTRAL BLOCK							
Salto							
5231	68	68	20	20	SA	1	conical
5232	70	27	3.5	3.5	SA	1	lateral
5233	80	30	3.6	3.6	SA	1	lateral
5234	45	32	2	2	SA	7	ball court
5235	35	35	4.5	4.5	SA	1	
5236	30	30	4.5	4.5	SA	1	
5237	50	40	5.8	5.8	SA	2	
5238	40	25	2.8	2.8	SA	1	
5239	45	30	2	2	SA	1	
5240	65	25	5.4	5.4	SA	2	
5241	112	73	3.3	3.3	SA	2	
5242	80	68	2.2	2.2	SA	3	
5243	36	29	0.5	0.5	SA	1	
5244	35	25	1.2	1.2	SA	3	
5245	78	13	0.5	0.5	SA	6	
Salto Norte							
5181	32	20	1	1	SAN	1	
5182	36	31	4.2	4.2	SAN	2	
5183	30	20	2.2	2.2	SAN	3	
5184	20	8	0.7	0.7	SAN	1	
5188	49	30	2.5	2.5	SAN	1	
5189	24	20	0.5	0.5	SAN	1	
5191	50	37	3	3	SAN	1	lateral
5193	27	24	1.1	1.1	SAN	1	ball court ?
5194	67	37	7.1	7.1	SAN	2	lateral
5195	50	48	10	10	SAN	2	conical
5196	46	42	3.3	3.3	SAN	1	conical
5197	58	46	2.7	2.7	SAN	3	
5198	57	55	1.3	1.3	SAN	3	
5199	md	md	0	0	SAN	6	
5203	51	34	1.6	1.6	SAN	1	
5211	48	37	2.1	2.1	SAN	2	
5212	24	23	1.4	1.4	SAN	3	

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
UPRIVER BLANCO RIVER COMPLEXES							
Cerro Coyote							
6465	36	36	3.6	3.6	CO	2	conical
6466	70	25	2.6	2.6	CO	1	lateral
6467	26	18	2.4	2.4	CO	3	
6468	16	15	1.2	1.2	CO	1	
6469	31	12	3.3	3.3	CO	1	ball court
6470	29	10	2	2	CO	1	ball court
6471	20	19	1.3	1.3	CO	1	
6472	27	19	1.4	1.4	CO	1	
6473	18	13.5	1.6	1.6	CO	1	
6474	25	21	1.4	1.4	CO	1	
6475	48	42	8	8	CO	1	conical
6476	9	8.5	0.3	0.3	CO	1	altar ?
6477	17	16	0.5	0.5	CO	1	
Cerro Bartolo West							
6101	38.3	27	0.5	6.6	BW	5	conical-on-platform
6102	36	36	6.1	6.1	BW	4	platform with conical
Cerro Bartolo							
955	17.6	16	md	md	CB	1	
6107	19.2	15.2	1.5	1.5	CB	1	
7001	49.6	44.8	14	14	CB	1	conical
7002	22.4	20.8	3.8	3.8	CB	1	
7003	46.4	40	2.4	2.4	CB	1	
7004	27.2	24	4.7	4.7	CB	1	
7005	28	19.2	1.9	1.9	CB	1	
7006	43.2	22.4	4.1	4.1	CB	1	lateral
7007	40	15	0	0	CB	6	
Tilcampo							
945	md	md	md	md	TC	8	
6111	72	65.6	0.8	0.8	TC	4	platform position
6112	52.8	43.2	6.9	7.7	TC	5	L platform on 6111
6113	83.2	64.8	9	9.8	TC	5	L platform on 6111
6114	50	48	0.8	0.8	TC	1	
6115	44	33	1	1	TC	1	
6116	35.2	md	0.5	0.5	TC	1	
6117	41.6	20.8	0.8	0.8	TC	1	
6118	44.8	41.6	8.9	8.9	TC	1	conical
6119	14.4	12.8	0.3	0.3	TC	1	
6120	24	22.4	0.6	0.6	TC	1	
6121	32	28	1.3	3.5	TC	5	
6122	62	28	2.2	2.2	TC	4	
6123	52	48	0.7	0.7	TC	1	
6124	38	26	0.8	0.8	TC	1	
6125	30.4	20.8	0.4	0.4	TC	1	
6126	40	34	1	1	TC	1	

Table A1.3. Dimensions of features in monumental complexes *(continued)*

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
6127	32	30	0.4	0.4	TC	1	
6128	35.2	27.2	0.5	0.5	TC	1	
6147	20	20	1.1	1.1	TC	1	
Madereros							
Madereros Southwest Plaza Group							
6162	84	33.6	6.2	6.2	MA	1	lateral
6163	54.4	51.2	15.4	15.4	MA	1	conical
6164	23.2	20	1	1	MA	1	altar
6165	57.6	29.6	6.1	6.1	MA	1	
6166	36.8	24	1.4	1.4	MA	1	
6167	43.2	32	1.6	1.6	MA	1	
6168	24	21.6	0.6	0.6	MA	1	
Madereros Western Arroyo Line							
6169	30.4	29.6	2.7	2.7	MA	1	
6173	36.8	20.8	1	1	MA	1	
6174	17.6	14.4	0.4	0.4	MA	1	
6175	35.2	20.8	1	1	MA	1	
Madereros Northeast Platform Group							
6176	64	48	3.2	3.2	MA	2	
6177	49.6	41.6	1	1	MA	3	
6178	78.4	60	8.2	8.2	MA	7	platform
6179	54.4	35.2	2.7	2.7	MA	3	
6180	25.6	21.6	0.6	0.6	MA	1	
6201	24	19.2	0.5	0.5	MA	1	
Madereros Eastern Arroyo Line							
948	md	md	md	md	MA	7	ball court collection
6171	44.8	43.2	4.3	4.3	MA	1	
6194	49.6	22.4	2.7	2.7	MA	1	ball court
6195	49.6	19.2	2.3	2.3	MA	1	ball court
6196	46.4	30.4	1.6	1.6	MA	1	
6197	54.4	43.2	8.3	8.3	MA	2	conicall-on-platform ?
6198	89.6	48	4.9	4.9	MA	3	platform with conical ?
6199	34.4	32.8	1	1	MA	1	
6200	15.2	11.6	0.6	0.6	MA	1	
6202	35.2	28.8	0.6	0.6	MA	1	
6193	19.2	md	0.7	0.7	MA	1	
Other Madereros Features							
6170	46.4	33.6	5.1	5.1	MA	1	conical ?
6172	35.2	27.2	0.7	0.7	MA	1	
Callejón del Horno							
943	md	md	md	md	CH	7	platform ?
946	md	md	0	0	CH	6	
947	md	md	0	0	CH	6	
6000	22.5	21.4	0.8	0.8	CH	1	
6001	22.7	20.2	0.8	0.8	CH	1	
6002	28	26.1	5.2	5.2	CH	2	conical
6003	38	28	0.9	0.9	CH	3	
6004	27	25.8	4.4	4.4	CH	2	conical

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
6005	31.6	19	0.5	0.5	CH	1	
6006	md	md	0.4	0.4	CH	7	
6007	md	md	1.2	1.2	CH	7	
6008	md	md	md	md	CH	7	
6009	31.5	25	3.4	3.4	CH	1	
6010	22	20	2.5	2.5	CH	1	
6011	md	md	0	0	CH	6	
6015	7.3	6	0.5	0.5	CH	1	
6016	10	10	0	0	CH	6	
6017	20	20	0	0	CH	6	
6018	20	13	0.3	0.3	CH	3	
Cerro de los Muertos							
6034	36.7	31.5	0.5	0.5	MU	1	
6045	30	28	6.5	14	MU	5	
6046	104	88	7.5	7.5	MU	4	platform
6047	61	61	3.2	3.2	MU	1	
6048	19	17	0.2	0.2	MU	7	
6049	57	49	0.8	0.8	MU	1	
6050	59	55	10.5	10.5	MU	1	conical
6051	54	md	1.6	1.6	MU	7	ball court
6052	66	22	4.4	4.4	MU	1	lateral
6053	37	34	0.5	0.5	MU	1	
6054	56	29	0.7	0.7	MU	1	lateral
NOPILOA AREA							
Nopiloa Core							
901	9	9	0.5	0.5	NO	1	
906	15	10	0.5	0.5	NO	1	
912	15	10	0.3	0.3	NO	1	
933	12	8	0.2	0.2	NO	1	
949	md	md	md	md	NO	7	
950	md	md	md	md	NO	7	
964	93	7	0.7	0.7	NO	1	
965	9	7	0.3	0.3	NO	1	
6203	97	87	22	22	NO	1	conical
6204	51	50	3.7	3.7	NO	1	
6230	22	9	0.5	0.5	NO	1	
6244	15	7.5	0.2	0.2	NO	1	
6245	15	9	0.6	0.6	NO	1	
6246	22.4	16	1.2	1.2	NO	1	
6249	22.4	14.4	0.9	0.9	NO	1	
6250	41.6	32	6.8	6.8	NO	1	
6251	51	48	10	10	NO	1	
6252	66	28	3.6	3.6	NO	1	
6253	md	md	0.4	0.4	NO	7	
6254	40	16	2.3	2.3	NO	7	
6255	36	19	0.4	0.4	NO	1	
6256	13	11	0.3	0.3	NO	1	
6257	23	5	0.4	0.4	NO	1	

Table A1.3. Dimensions of features in monumental complexes *(continued)*

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
6258	51.2	19.2	2	2	NO	1	
6259	24	22	3.1	3.1	NO	1	
6260	100	51	9.2	9.2	NO	1	lateral
6261	62	57	4.5	4.5	NO	1	platfrm
6262	30.4	24	0.6	0.6	NO	1	
6263	17.6	14.4	1	1	NO	1	
6264	32	24	1.7	1.7	NO	1	
6265	19	18	2.3	2.3	NO	1	
6266	86	32	4.3	4.3	NO	1	ball court
6267	82	21	3.2	3.2	NO	1	ball court
6268	46.4	35.2	3.7	3.7	NO	1	
6269	89.6	25.6	6	13.4	NO	5	
6270	44	36.8	8.2	15.6	NO	5	conical-on-platform
6271	81.1	9.6	1.4	8.8	NO	5	
6272	25.6	9.6	0.6	8	NO	5	
6273	67.2	38.4	5.9	13.3	NO	5	
6274	41.6	14.4	0.4	7.8	NO	5	
6275	110.4	24	4.6	12	NO	5	
6276	38.4	12.8	0.6	8	NO	5	
6277	9.6	9.6	0.5	0.5	NO	1	
6278	16.8	16	0.7	0.7	NO	1	
6280	11.2	8	0.5	0.5	NO	1	
6281	38.4	8	0.2	0.2	NO	7	
6289	22.4	16	1.2	1.2	NO	1	
6290	16	8	0.6	0.6	NO	1	
6291	15.2	12.8	1.2	1.2	NO	7	
6346	12.8	11.2	0.2	0.2	NO	1	
6382	264	192	7.4	7.4	NO	4	platform with conical
6391	9.6	8	0.5	0.5	NO	1	
6399	9.6	8	0.4	7.8	NO	5	
7230	52	35	0.8	8.2	NO	3	
Platform 6234 Complex							
952	md	md	md	md	BE	7	
6234	114	81	6.5	6.5	BE	4	platform
6237	45	md	1.2	7.4	BE	5	
6238	11	9	0.5	7.9	BE	5	
6239	28	26	3.2	3.2	BE	1	
6248	21	21	1.5	1.5	BE	1	
6285	54	10	0.6	0.6	BE	1	
6287	30	21	1.5	1.5	BE	1	
6288	15	13	0.6	0.6	BE	1	
6292	18	17	1.1	1.1	BE	1	
6293	20.9	19	0.5	0.5	BE	1	
6295	20	16	0.5	0.5	BE	1	
6296	22.8	20.9	0.3	0.3	BE	1	
Platform 6309 Complex							
953	md	md	md	md	TH	7	
954	43	27	md	md	TH	7	

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
6309	96	89	7.6	7.6	TH	4	platform
6310	30	14	2.8	2.8	TH	1	ball court
6311	30	14	2	2	TH	1	ball court
6312	36	10	1.9	1.9	TH	5	
6313	23	20	2.5	2.5	TH	1	
6314	28	19	1.9	1.9	TH	1	
6315	43	28	1.7	1.7	TH	4	
6321	52	11	0.9	0.9	TH	1	
6322	57	12	2.2	9.8	TH	5	
6323	29	7	1.2	8.8	TH	5	
6324	39	25	3.2	3.2	TH	1	
6325	57	46	2	2	TH	1	
Platform 6404 Complex							
6404	65	54	6.2	6.2	CR	7	platform
6417	22	20	4	4	CR	1	
6418	15	12	0.8	0.8	CR	1	
Platform 6404 Nearby Features							
6416	22	17	0.4	0.4		1	
6452	54.6	38.7	0	0		6	
6453	71.8	60	0	0		6	
Platform 6409 Complex							
6406	32.3	27.7	2.2	2.2	KE	1	
6407	50.1	34.7	2.6	2.6	KE	1	
6408	23	9	1	5.2	KE	5	
6409	58.5	55.4	4.2	4.2	KE	4	platform
GUERENGO DRAINAGE COMPLEXES							
Loma de Pinchones South							
6365	49	45	8.7	8.7	PS	1	conical
6366	20	16	0.4	0.4	PS	1	
6367	47	36	2.3	2.3	PS	1	
6368	19	11	0.7	0.7	PS	1	
6369	38	md	2.6	2.6	PS	1	
6370	25	22	1.4	1.4	PS	1	
Loma de Pinchones North							
6371	46	39	9.6	9.6	PN	1	conical
6372	38	26	1.8	1.8	PN	1	
6373	39	23.5	3.3	3.3	PN	1	
6374	17	14	1.1	1.1	PN	1	
6375	18	md	2.2	2.2	PN	1	
6376	22	9	1.1	1.1	PN	1	
6377	19	14	1.4	1.4	PN	1	
6378	34	15	1.6	1.6	PN	1	lateral
6379	14	14	0.4	0.4	PN	1	
6380	18	md	1	1	PN	1	
6381	23	18	1.6	1.6	PN	1	
Nuevo Porvenir West							
6421	53	52	5.6	5.6	PW	1	conical
6422	63	40	3.6	3.6	PW	1	lateral

Table A1.3. Dimensions of features in monumental complexes *(continued)*

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
6423	0	0	3.3	3.3	PW	1	
6424	25	24	1.7	1.7	PW	1	
6425	26	25	2.8	2.8	PW	1	
6426	21.5	16	0.8	0.8	PW	1	
6461	19	16	0.7	0.7	PW	1	
Dicha Tuerta							
Dicha Tuerta North Group							
6427	24	20	0.6	0.6	PE	1	
6428	23	20	0.4	0.4	PE	1	
6429	24	22	1.3	1.3	PE	1	altar?
6430	59	31	4.9	4.9	PE	1	lateral
6431	61	25	5.7	5.7	PE	1	ball court
6432	59	20	3	3	PE	1	ball court
6459	63	58	16.2	16.2	PE	1	conical
6480	37	24	2.8	2.8	PE	1	
Dicha Tuerta South Group							
6433	36	34	5.6	5.6	PE	1	
6434	37	31	2.6	2.6	PE	1	
6435	18	18	1.3	1.3	PE	1	
6436	67	28	4.1	4.1	PE	1	
6437	26	20	3.1	3.1	PE	1	
6438	29	27	4.5	4.5	PE	1	
6439	34	29	4	4	PE	1	
6440	56	13	1.1	1.1	PE	1	
6441	60.5	46	4.1	4.1	PE	4	platform with conical
6442	25	21	2.1	6.2	PE	5	conical-on-platform
6443	45	42	3.7	3.7	PE	2	
6444	32	30.5	1.3	1.3	PE	3	
6462	18	17	0.2	0.2	PE	1	
6463	md	md	0	0	PE	6	
6464	md	md	0	0	PE	6	altar
6479	12.3	11.5	0.4	0.4	PE	1	
INTERFLUVE COMPLEXES							
Canal 2							
6831	42.1	40.1	7.2	7.2	C2	1	conical
6832	24.4	23.3	1.3	1.3	C2	1	
6833	37.7	36.1	1.2	1.2	C2	1	
6886	31.1	30.6	1.4	1.4	C2	1	
6888	34.9	33.1	1.1	1.1	C2	1	
6889	38	31.8	1.5	1.5	C2	1	
6891	34	28.3	2	2	C2	1	
6892	38.2	30.9	1.6	1.6	C2	1	
6893	34.3	33.4	1.2	1.2	C2	1	
6894	25.8	22.3	1.4	1.4	C2	1	
6895	26.3	18.9	0.8	0.8	C2	1	
Loma							
6205	62	58	13.7	13.7	LL	1	conical

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
6206	34	31	3.5	3.5	LL	1	
6207	33	29	4.8	4.8	LL	1	
6208	45	16	1	1	LL	1	
6209	22	18	0.4	0.4	LL	1	
6210	25	20	2.2	2.2	LL	1	
6211	15	11	0.7	0.7	LL	1	
6212	37	34	4.1	4.1	LL	1	
6213	22	19	1.1	1.1	LL	1	
6214	46	32	1.8	1.8	LL	1	
6215	50	30	4.9	4.9	LL	1	lateral
6216	15	13	1.1	1.1	LL	1	
6217	16	15	1.1	1.1	LL	1	altar
6218	35	21	4.6	4.6	LL	1	ball court
6219	40	20	4	4	LL	1	ball court
6220	14	12	1.4	1.4	LL	1	
6231	17	11	0.5	0.5	LL	1	
6236	md	md	0	0	LL	6	
6286	28	13	0.9	0.9	LL	1	
6478	12.5	10.5	0.4	0.4	LL	1	
TUZALES AREA							
Tuzales							
6854	53	50	13	13	TS	1	conical
6855	md	34	2.3	2.3	TS	1	lateral
6856	36	30	0.2	0.2	TS	1	
6857	58	53	6.7	6.7	TS	4	platform
6858	32	17	3.7	10.4	TS	5	
6859	29	17	0.7	0.7	TS	1	
6860	md	md	3.5	3.5	TS	1	
6861	33	32	6.6	6.6	TS	1	conical
6862	48	20	1.4	1.4	TS	1	ball court
6863	51	18	1.2	1.2	TS	1	ball court
Tuzales North							
6797	40	36	1.1	1.1	TN	1	
6798	46	38	2.3	2.3	TN	1	
6799	md	md	md	md	TN	7	
6800	68	63	14.6	14.6	TN	1	conical
6835	45	44.3	1.6	1.6	TN	1	
6836	30	29.8	0.4	0.4	TN	1	
6845	47	44	0.8	0.8	TN	1	was ball court
6846	38	31	1.7	1.7	TN	1	was lateral
6847	18	12	0.8	5.1	TN	5	
6848	58	md	4.3	4.3	TN	4	platform
6849	35	md	0.5	0.5	TN	7	
6850	30	16	0.5	0.5	TN	7	
6851	37.1	31.8	1.5	1.5	TN	1	
6852	70	38.6	2.6	2.6	TN	1	
6853	48	md	1.9	1.9	TN	3	

Table A1.3. Dimensions of features in monumental complexes *(continued)*

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
Tuzales South							
7047	60	24	2.7	3.2	TFS	5	lateral?
7048	122	92	7.4	7.4	TFS	4	platform with conical
7049	56	38	1.5	2	TFS	5	
7050	24	13	0.3	0.9	TFS	5	
7051	85	103.1	0.5	0.5	TFS	4	
7052	34	30	1.2	1.2	TFS	1	
7181	48	30	9.5	16.9	TFS	5	conical-on-platform
Recreo							
7155	72.5	69.1	7.7	7.7	REN	1	platform ?
Recreo South							
7063	18.7	10.1	1	1	RES	1	
7064	68.1	md	6.7	6.7	RES	1	platform
7065	38.9	33.2	3	3	RES	1	
PALEODUNES							
Ajitos							
Ajitos North Group							
961	md	md	md	md	AJ	8	
6870	43	21	2.7	md	AJ	1	
6871	51	22	2.5	md	AJ	1	lateral
6872	52	40	2.9	md	AJ	1	
6873	60	56	10.2	10.2	AJ	1	conical
6874	42	23.5	3.4	md	AJ	1	lateral
6875	42	29	1.5	md	AJ	1	
6876	33	22	1.3	md	AJ	1	
6877	23	14	1.2	1.2	AJ	1	
6878	71	60	6.7	6.7	AJ	4	platform
6879	19.6	16	1.7	md	AJ	5	
6900	27	21	0.8	0.8	AJ	1	
6903	25.5	19	0.4	0.4	AJ	1	
6907	34	32	1.2	1.2	AJ	7	
6936	25	md	1	1	AJ	7	
Ajitos South Group							
960	md	md	md	md	AJ	8	
6866	71	39	4.7	4.7	AJ	1	conical
6867	69	26	2	md	AJ	1	
6868	23	19	0.7	md	AJ	1	
6869	19	18.5	0.5	md	AJ	1	
6880	54	50	10.1	10.1	AJ	1	conical
6881	56	55	10.6	10.6	AJ	1	conical
6899	52	25	1.9	md	AJ	1	
6901	32	16	2.1	2.1	AJ	7	
6931	49	15	2.4	18	AJ	5	
6932	63	27	5.1	md	AJ	1	
6933	31	22	2	md	AJ	1	
6934	29	26	1.8	md	AJ	7	
6935	88	72	15.6	15.6	AJ	1	conical
6937	md	md	0.8	md	AJ	7	

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
6938	55	20	4	md	AJ	1	
6939	87	64	15.6	15.6	AJ	4	platform
Pitos							
7074	21.1	19.4	0.8	0.8	PIT	1	
7075	29.7	24.3	1.6	1.6	PIT	1	
7076	23.8	18.2	0.3	0.3	PIT	1	
7084	31.3	16	0.5	0.5	PIT	1	
7085	48.4	46.1	3.7	3.7	PIT	1	
7089	md	md	md	md	PIT	1	
7104	29	17.2	0.8	0.8	PIT	1	ball court
7105	29.4	13.2	1.6	1.6	PIT	1	ball court
7106	13.4	10.2	2.5	2.5	PIT	1	
7107	10.6	9.3	2.3	2.3	PIT	1	
7108	24.6	17.7	5.8	5.8	PIT	1	
7109	58.9	16.2	2.6	2.6	PIT	1	
Vibora							
962	md	md	md	md	LV	7	
6922	56.5	15.3	3.9	3.9	LV	1	ball court
6923	53.4	14.9	4.6	4.6	LV	1	ball court
6924	53	31.1	4.2	4.2	LV	1	lateral
6925	57.6	32.1	3.7	3.7	LV	1	lateral
6926	59.5	53.7	11.9	11.9	LV	1	conical
6930	30.4	27.3	1.5	1.5	LV	1	
7072	59.2	21.8	2.3	2.3	LV	1	
7073	24.9	18.5	0.8	0.8	LV	1	
7081	26.1	23.1	2.7	2.7	LV	1	
7082	24.3	19.6	2.7	2.7	LV	1	
7083	24.3	19.6	4.3	4.3	LV	1	
Ajitos East							
6885	27.8	22.3	1.9	1.9	AJE	1	
6890	25.9	22.3	3.5	3.5	AJE	1	
6898	26.9	24.4	3.5	3.5	AJE	1	
6905	33.3	22.3	2.4	2.4	AJE	1	
6906	48.2	42.5	7.6	7.6	AJE	1	conical
6910	17.1	14.8	1.4	1.4	AJE	1	
6911	18	15.4	1.2	1.2	AJE	1	
MANGROVES							
Boca de Santa Catarina							
6979	39.6	37.1	8.6	8.6	SC	1	conical
6980	22.7	15.9	3.1	3.1	SC	2	
6981	28.5	26.6	3.8	3.8	SC	2	
6982	71.5	20.6	2.5	2.5	SC	1	lateral
6983	33.3	28.1	1	1	SC	1	
6984	33.5	21.2	1.2	1.2	SC	3	
6985	48.2	14.6	1.6	1.6	SC	1	ball court
6986	30.6	30	1.4	1.4	SC	1	
6987	md	md	md	md	SC	7	

Table A1.3. Dimensions of features in monumental complexes *(continued)*

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
Nacastle-Patarata Settlement							
Tío Perciliano							
6959	41.2	17.4	1.5	1.5	PER	1	
6960	19.4	18.3	1.4	1.4	PER	1	
6961	42.9	37.6	8.2	8.2	PER	1	conical
6962	44	25	3.6	3.6	PER	1	lateral
6963	33	8.7	0.9	0.9	PER	1	ball court
6964	32.1	9.1	0.7	0.7	PER	1	ball court
6965	58.7	31.4	1.4	1.4	PER	1	
6966	31.2	26.6	5.6	5.6	PER	2	
6967	17.6	14.1	1.9	1.9	PER	3	
6968	33	29.1	0.6	0.6	PER	1	
6969	30.2	25.3	3	3	PER	2	
6970	58.7	24.1	1.1	1.1	PER	3	
6971	124.9	33.8	1.2	1.2	PER	7	
6972	53	27.3	1.1	1.1	PER	7	
6973	7.6	35.1	1.2	1.2	PER	1	
6974	25.1	21.7	2.3	2.3	PER	1	
6975	43.5	38.6	8.6	8.6	PER	2	
6976	22	21.4	2.3	2.3	PER	1	
6977	39.5	13.2	1.5	1.5	PER	3	
6978	32.1	15.6	1.2	1.2	PER	1	
Palma Real							
7098	130.7	69.9	0.7	0.7	PR	4	
7099	20	20	2.9	3.6	PR	5	
7100	40.1	15.5	1.5	2.2	PR	5	lateral
7129	30.5	30.5	6.1	6.8	PR	5	conical
Nacastle							
963	md	md	md	md	NA	8	
6948	49	15.3	2.7	2.7	NA	1	lateral
6949	46.4	41.5	10.5	10.5	NA	1	conical
6950	36.4	27.5	3.9	3.9	NA	1	
6951	30.7	28.8	4.6	4.6	NA	1	
6952	109.3	74.3	1.3	1.3	NA	7	
Costa de San Juan							
7172	30.9	16.2	2.1	3.1	SJ	5	lateral
7173	30.9	27.5	7.3	8.3	SJ	5	conical
7179	69.9	56.7	1	1	SJ	4	
Patarata East							
6989	65.6	54.4	1.4	1.4	PAE	7	
6990	32.6	29.4	3.6	3.6	PAE	1	
6991	47.7	15.2	1.5	1.5	PAE	1	lateral
6992	32.7	28.6	5.9	5.9	PAE	1	conical
OTHER LARGE STRUCTURES (CA. 7-15 M GRAND HEIGHT) AND ASSOCIATED FEATURES							
Cerro de las Mesas Vicinity							
Complex 422 (plaza group on platform 424)							
422	27.5	22.5	5.2	6.9	C422	5	conical-on-platform

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
420	43.3	29.9	1.4	3.1	C422	5	
421	73.3	70.8	4.9	6.6	C422	5	
423	25	13.3	0.9	2.6	C422	5	
424	142.5	126.7	1.7	1.7	C422	4	
Complex 847 (contiguous structures)							
847	42.4	38.1	8	8	C847	2	conical with terrace or contiguous mounds
846	39.8	37.2	3.2	3.2	C847	3	
845	44	33.1	4.1	4.1	C847	2	
Complex 104 (conical mound group)							
104	41	39.5	15.6	15.6	C104	2	conical with terrace
105	39	15	3.9	3.9	C104	3	
511	41.3	30.5	1.6	1.6	C104	1	
141	19.8	18.4	0.7	0.7	C104	1	
134	44.7	39.5	0.5	0.5	C104	1	
106	46	46	1.9	1.9	C104	1	
101	60.8	27.1	1.6	1.6	C104	1	
102	22	13	0.3	0.3	C104	1	
929	md	md	md	md	C104	8	
Zapotal Vicinity							
Complex 1564 (contiguous structures)							
1564	md	md	6.2	9.2	C1564	5	conical-on-platform
1567	md	md	md	md	C1564	8	
1566	md	md	3.6	3.6	C1564	8	
1565	md	md	3	3	C1564	4	
1499	43.6	38	0.6	0.6	C1564	1	
1563	39.6	29.8	1	1	C1564	1	
Complex 1377 (associated with extended access platform 1373)							
1377	38	32.4	7	7	C1377	2	conical-on-platform or with terrace
1376	md	md	0.3	0.3	C1377	3	
1373	md	md	0.8	0.8	C1377	4	
1375	36.4	21	0.5	1.3	C1377	5	
1374	19.4	17.8	0.4	1.2	C1377	5	
1382	16.9	16	0.4	0.4	C1377	1	
Complex 1464 (contiguous structures)							
1464	55.5	36	8.8	8.8	C1464	2	conical with terraces
1463	44.2	25.4	1.2	1.2	C1464	3	
1466	41.4	30	1.8	1.8	C1464	3	
1465	54	36	2.2	2.2	C1464	2	
1461	36	28	1.4	1.4	C1464	3	
1462	28.3	25.9	1.2	1.2	C1464	1	
Complex 1574 (conical mound group)							
1574	67.6	23.5	11	11	C1574	1	conical
1573	81.7	79.4	2.7	2.7	C1574	2	
1614	md	md	1.7	1.7	C1574	3	
Complex 1613 (conical-on-platform 1609 and contiguous mounds)							

Table A1.3. Dimensions of features in monumental complexes *(continued)*

Collection or Feature	Length m	Width m	Height m	Grand Height m	Complex	Survey Mtype	Structure Categories from SPPG and Monumental Platforms
1613	37.1	29.5	2.5	7	C1613	5	conical-on-platform
1609	112.1	88.4	4.5	4.5	C1613	4	
1608	38	36.1	1.9	1.9	C1613	3	
1610	88	64	1.8	1.8	C1613	3	
1607	33.6	25.2	1.8	1.8	C1613	1	
1615	31	21	1.6	1.6	C1613	1	
1606	34.4	29.4	2.2	2.2	C1613	1	
1612	39.9	39.9	0.4	0.4	C1613	1	
1611	53	50.8	1.8	1.8	C1613	1	
Azuzules Vicinity							
Complex 1732 (cluster of mounds)							
1732	34.8	19.7	1.5	7.2	C1732	5	
1731	59.2	52.6	5.7	5.7	C1732	4	
1733	90	45	5.9	5.9	C1732	1	
1730	27.2	22.6	0.7	0.7	C1732	1	
1729	34.8	34	1	1	C1732	1	
6584	92.3	69.5	3.3	3.3	C1732	1	
6583	51.5	43.1	4	4	C1732	1	
6640	md	md	1	1	C1732	1	
Zone 1							
Complex 5489 (plaza group)							
5489	74	53	7	7	C5489	1	conical
5491	30	27	1	1	C5489	1	
5492	md	md	md	md	C5489	1	
5490	55	42	1.2	1.2	C5489	1	

Note: md = missing data
The grand height measurement refers to the height of the feature plus the height of the underlying platform (if any).

Table A1.4. Counts and percentages of sherds according to periods for PALM 1 and 2 monumental complexes

	Count									Percentage							
Coll.	Total Sherds	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.
CENTRAL BLOCK																	
Central Cerro de las Mesas (CCM)																	
CCM Northern Group																	
1	174	31	49	5	9	5	1	0	0	0.18	0.28	0.03	0.05	0.03	0.01	0.00	0.00
2	115	25	22	0	5	12	4	0	0	0.22	0.19	0.00	0.04	0.10	0.03	0.00	0.00
3	78	19	11	0	4	2	2	0	0	0.24	0.14	0.00	0.05	0.03	0.03	0.00	0.00
4	133	35	18	1	8	1	5	0	0	0.26	0.14	0.01	0.06	0.01	0.04	0.00	0.00
5	113	29	23	1	5	4	4	1	0	0.26	0.20	0.01	0.04	0.04	0.04	0.01	0.00
6	64	5	11	0	0	4	4	0	0	0.08	0.17	0.00	0.00	0.06	0.06	0.00	0.00
7	193	36	23	1	8	3	26	5	0	0.19	0.12	0.01	0.04	0.02	0.13	0.03	0.00
8	187	42	40	1	8	7	10	2	0	0.22	0.21	0.01	0.04	0.04	0.05	0.01	0.00
9	139	14	18	2	3	3	39	5	0	0.10	0.13	0.01	0.02	0.02	0.28	0.04	0.00
10	185	39	27	7	9	0	8	1	0	0.21	0.15	0.04	0.05	0.00	0.04	0.01	0.00
11	75	21	16	1	4	1	2	0	0	0.28	0.21	0.01	0.05	0.01	0.03	0.00	0.00
12	20	2	3	0	0	0	1	0	0	0.10	0.15	0.00	0.00	0.00	0.05	0.00	0.00
13	79	25	11	1	4	0	3	1	0	0.32	0.14	0.01	0.05	0.00	0.04	0.01	0.00
14	75	22	15	2	3	2	2	1	0	0.29	0.20	0.03	0.04	0.03	0.03	0.01	0.00
15	20	2	4	0	1	0	2	0	0	0.10	0.20	0.00	0.05	0.00	0.10	0.00	0.00
16	13	3	3	0	0	1	1	0	0	0.23	0.23	0.00	0.00	0.08	0.08	0.00	0.00
17	86	20	13	2	3	4	15	2	0	0.23	0.15	0.02	0.03	0.05	0.17	0.02	0.00
19	74	20	16	4	4	2	1	0	0	0.27	0.22	0.05	0.05	0.03	0.01	0.00	0.00
31	41	10	7	2	0	2	10	0	0	0.24	0.17	0.05	0.00	0.05	0.24	0.00	0.00
32	53	9	8	0	4	1	0	0	0	0.17	0.15	0.00	0.08	0.02	0.00	0.00	0.00
33	64	6	2	0	1	1	10	0	0	0.09	0.03	0.00	0.02	0.02	0.16	0.00	0.00
34	30	9	3	0	1	0	3	2	0	0.30	0.10	0.00	0.03	0.00	0.10	0.07	0.00
35	180	55	34	3	4	1	6	0	0	0.31	0.19	0.02	0.02	0.01	0.03	0.00	0.00
36	111	34	10	0	2	0	3	1	0	0.31	0.09	0.00	0.02	0.00	0.03	0.01	0.00
37	31	8	5	0	2	0	1	0	0	0.26	0.16	0.00	0.06	0.00	0.03	0.00	0.00
38	65	19	8	2	2	1	2	0	0	0.29	0.12	0.03	0.03	0.02	0.03	0.00	0.00
39	222	42	44	2	4	14	20	0	0	0.19	0.20	0.01	0.02	0.06	0.09	0.00	0.00
40	74	9	15	1	1	2	0	0	0	0.12	0.20	0.01	0.01	0.03	0.00	0.00	0.00
41	8	2	1	0	0	0	0	0	0	0.25	0.13	0.00	0.00	0.00	0.00	0.00	0.00
42	31	9	5	2	1	1	0	0	0	0.29	0.16	0.06	0.03	0.03	0.00	0.00	0.00
43	122	27	7	2	2	0	7	0	0	0.22	0.06	0.02	0.02	0.00	0.06	0.00	0.00
44	24	1	2	0	0	1	2	0	0	0.04	0.08	0.00	0.00	0.04	0.08	0.00	0.00
45	10	1	1	0	0	0	0	0	0	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00
46	43	20	5	2	0	0	0	0	0	0.47	0.12	0.05	0.00	0.00	0.00	0.00	0.00
47	33	12	2	0	0	0	0	0	0	0.36	0.06	0.00	0.00	0.00	0.00	0.00	0.00
48	24	14	4	0	1	2	0	0	0	0.58	0.17	0.00	0.04	0.08	0.00	0.00	0.00
49	131	16	20	0	5	7	36	4	0	0.12	0.15	0.00	0.04	0.05	0.27	0.03	0.00
90	114	41	22	3	6	0	0	0	0	0.36	0.19	0.03	0.05	0.00	0.00	0.00	0.00
91	46	10	9	0	0	0	1	0	0	0.22	0.20	0.00	0.00	0.00	0.02	0.00	0.00
92	22	5	10	1	2	0	0	0	0	0.23	0.45	0.05	0.09	0.00	0.00	0.00	0.00
93	151	34	26	2	6	0	3	1	0	0.23	0.17	0.01	0.04	0.00	0.02	0.01	0.00
100	88	27	21	2	8	4	0	0	0	0.31	0.24	0.02	0.09	0.05	0.00	0.00	0.00
349	134	10	20	0	0	10	18	2	0	0.07	0.15	0.00	0.00	0.07	0.13	0.01	0.00
904	132	12	39	5	3	3	10	0	0	0.09	0.30	0.04	0.02	0.02	0.08	0.00	0.00
905	19	5	7	0	0	0	0	0	0	0.26	0.37	0.00	0.00	0.00	0.00	0.00	0.00
907	50	12	9	0	1	1	0	0	0	0.24	0.18	0.00	0.02	0.02	0.00	0.00	0.00
subtotal	***3876***	***849***	***669***	***57***	***134***	***102***	***262***	***28***	***0***	***0.22***	***0.17***	***0.01***	***0.03***	***0.03***	***0.07***	***0.01***	***0.00***

Table A1.4. Counts and percentages of sherds according to periods for PALM 1 and 2 monumental complexes *(continued)*

Count										Percentage							
Coll.	Total Sherds	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.
CCM Western Group																	
95	109	37	23	4	5	0	5	1	0	0.34	0.21	0.04	0.05	0.00	0.05	0.01	0.00
96	46	8	8	1	1	2	4	0	0	0.17	0.17	0.02	0.02	0.04	0.09	0.00	0.00
97	254	9	94	6	2	23	22	2	1	0.04	0.37	0.02	0.01	0.09	0.09	0.01	0.00
98	91	5	23	2	0	15	17	2	0	0.05	0.25	0.02	0.00	0.16	0.19	0.02	0.00
99	248	2	112	3	3	52	27	1	1	0.01	0.45	0.01	0.01	0.21	0.11	0.00	0.00
233	78	17	26	1	4	0	4	1	0	0.22	0.33	0.01	0.05	0.00	0.05	0.01	0.00
234	99	9	32	2	2	1	7	3	0	0.09	0.32	0.02	0.02	0.01	0.07	0.03	0.00
300	26	9	3	0	0	0	1	0	0	0.35	0.12	0.00	0.00	0.00	0.04	0.00	0.00
301	81	2	36	1	4	0	5	1	0	0.02	0.44	0.01	0.05	0.00	0.06	0.01	0.00
302	85	17	28	3	4	1	1	1	0	0.20	0.33	0.04	0.05	0.01	0.01	0.01	0.00
303	49	9	15	1	5	0	1	0	0	0.18	0.31	0.02	0.10	0.00	0.02	0.00	0.00
304	158	17	47	1	5	11	24	1	1	0.11	0.30	0.01	0.03	0.07	0.15	0.01	0.01
305	86	2	34	0	3	1	3	0	0	0.02	0.40	0.00	0.03	0.01	0.03	0.00	0.00
306	43	5	7	0	0	1	10	0	0	0.12	0.16	0.00	0.00	0.02	0.23	0.00	0.00
308	40	10	9	1	0	0	4	1	0	0.25	0.23	0.03	0.00	0.00	0.10	0.03	0.00
312	18	2	3	0	1	0	0	0	0	0.11	0.17	0.00	0.06	0.00	0.00	0.00	0.00
315	60	8	17	0	1	0	2	1	0	0.13	0.28	0.00	0.02	0.00	0.03	0.02	0.00
316	73	10	16	0	2	2	14	0	0	0.14	0.22	0.00	0.03	0.03	0.19	0.00	0.00
317	27	5	4	0	1	0	2	0	0	0.19	0.15	0.00	0.04	0.00	0.07	0.00	0.00
1233	136	31	52	0	1	3	7	0	1	0.23	0.38	0.00	0.01	0.02	0.05	0.00	0.01
1235	82	21	18	0	7	1	11	1	0	0.26	0.22	0.00	0.09	0.01	0.13	0.01	0.00
1236	102	23	9	0	3	1	8	0	1	0.23	0.09	0.00	0.03	0.01	0.08	0.00	0.01
1237	131	14	19	0	2	1	32	0	0	0.11	0.15	0.00	0.02	0.01	0.24	0.00	0.00
subtotal	***2122***	***272***	***635***	***26***	***56***	***115***	***211***	***16***	***5***	***0.13***	***0.30***	***0.01***	***0.03***	***0.05***	***0.10***	***0.01***	***0.00***
CCM Eastern Group																	
18	120	36	20	0	7	1	3	0	0	0.30	0.17	0.00	0.06	0.01	0.03	0.00	0.00
20	91	11	15	0	3	5	9	1	0	0.12	0.16	0.00	0.03	0.05	0.10	0.01	0.00
21	67	8	17	1	3	0	1	0	0	0.12	0.25	0.01	0.04	0.00	0.01	0.00	0.00
22	45	4	7	1	1	0	5	0	0	0.09	0.16	0.02	0.02	0.00	0.11	0.00	0.00
23	42	11	7	0	0	2	1	0	0	0.26	0.17	0.00	0.00	0.05	0.02	0.00	0.00
24	149	17	22	3	6	0	12	0	0	0.11	0.15	0.02	0.04	0.00	0.08	0.00	0.00
25	31	4	7	1	0	1	2	0	0	0.13	0.23	0.03	0.00	0.03	0.06	0.00	0.00
26	45	3	9	0	2	2	2	0	0	0.07	0.20	0.00	0.04	0.04	0.04	0.00	0.00
27	80	13	19	4	2	1	3	0	0	0.16	0.24	0.05	0.03	0.01	0.04	0.00	0.00
28	140	29	46	8	5	1	4	1	0	0.21	0.33	0.06	0.04	0.01	0.03	0.01	0.00
29	146	18	25	4	4	2	12	2	0	0.12	0.17	0.03	0.03	0.01	0.08	0.01	0.00
30	38	11	6	0	0	4	3	0	0	0.29	0.16	0.00	0.00	0.11	0.08	0.00	0.00
50	24	6	4	1	1	1	7	3	0	0.25	0.17	0.04	0.04	0.04	0.29	0.13	0.00
51	32	6	2	1	0	0	1	0	0	0.19	0.06	0.03	0.00	0.00	0.03	0.00	0.00
52	72	14	11	1	0	4	14	1	0	0.19	0.15	0.01	0.00	0.06	0.19	0.01	0.00
53	24	10	2	0	2	0	1	0	0	0.42	0.08	0.00	0.08	0.00	0.04	0.00	0.00
54	59	21	9	1	2	0	1	0	0	0.36	0.15	0.02	0.03	0.00	0.02	0.00	0.00
55	25	4	2	1	0	0	2	0	0	0.16	0.08	0.04	0.00	0.00	0.08	0.00	0.00
56	23	7	1	0	0	0	3	0	0	0.30	0.04	0.00	0.00	0.00	0.13	0.00	0.00
57	79	12	6	1	1	1	12	1	0	0.15	0.08	0.01	0.01	0.01	0.15	0.01	0.00
58	56	3	7	1	0	2	10	1	0	0.05	0.13	0.02	0.00	0.04	0.18	0.02	0.00
59	116	16	7	0	1	0	36	1	1	0.14	0.06	0.00	0.01	0.00	0.31	0.01	0.01
60	46	7	9	0	2	1	4	0	0	0.15	0.20	0.00	0.04	0.02	0.09	0.00	0.00
61	33	7	8	0	0	1	2	0	0	0.21	0.24	0.00	0.00	0.03	0.06	0.00	0.00
62	40	3	3	1	0	0	15	5	0	0.08	0.08	0.03	0.00	0.00	0.38	0.13	0.00
94	58	18	10	0	3	0	0	0	0	0.31	0.17	0.00	0.05	0.00	0.00	0.00	0.00
318	26	3	4	0	0	0	8	1	0	0.12	0.15	0.00	0.00	0.00	0.31	0.04	0.00

	Count									Percentage							
Coll.	Total Sherds	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.
382	63	6	9	1	0	1	7	0	0	0.10	0.14	0.02	0.00	0.02	0.11	0.00	0.00
908	51	13	8	1	1	0	1	0	0	0.25	0.16	0.02	0.02	0.00	0.02	0.00	0.00
986	151	14	34	3	1	3	22	1	0	0.09	0.23	0.02	0.01	0.02	0.15	0.01	0.00
1234	51	4	15	0	1	3	5	1	0	0.08	0.29	0.00	0.02	0.06	0.10	0.02	0.00
subtotal	***2023***	***339***	***351***	***35***	***48***	***36***	***208***	***19***	***1***	***0.17***	***0.17***	***0.02***	***0.02***	***0.02***	***0.10***	***0.01***	***0.00***
CCM Platform 64 Group																	
63	162	22	44	6	6	2	8	0	0	0.14	0.27	0.04	0.04	0.01	0.05	0.00	0.00
64	913	212	174	14	23	13	73	12	0	0.23	0.19	0.02	0.03	0.01	0.08	0.01	0.00
65	69	20	15	3	0	2	6	3	0	0.29	0.22	0.04	0.00	0.03	0.09	0.04	0.00
66	204	10	36	8	0	4	4	0	0	0.05	0.18	0.04	0.00	0.02	0.02	0.00	0.00
67	245	13	63	1	9	6	18	5	0	0.05	0.26	0.00	0.04	0.02	0.07	0.02	0.00
68	397	26	101	7	11	25	93	0	0	0.07	0.25	0.02	0.03	0.06	0.23	0.00	0.00
911	165	1	35	0	1	5	29	0	2	0.01	0.21	0.00	0.01	0.03	0.18	0.00	0.01
938	33	1	27	2	0	22	0	0	0	0.03	0.82	0.06	0.00	0.67	0.00	0.00	0.00
subtotal	***2188***	***305***	***495***	***41***	***50***	***79***	***231***	***20***	***2***	***0.14***	***0.23***	***0.02***	***0.02***	***0.04***	***0.11***	***0.01***	***0.00***
CCM Feature 71 Group																	
69	135	19	35	2	7	2	12	1	0	0.14	0.26	0.01	0.05	0.01	0.09	0.01	0.00
70	29	2	4	0	0	2	3	0	0	0.07	0.14	0.00	0.00	0.07	0.10	0.00	0.00
71	214	5	42	0	3	3	63	12	0	0.02	0.20	0.00	0.01	0.01	0.29	0.06	0.00
72	23	0	5	0	1	0	1	0	0	0.00	0.22	0.00	0.04	0.00	0.04	0.00	0.00
73	86	1	14	1	0	0	3	0	0	0.01	0.16	0.01	0.00	0.00	0.03	0.00	0.00
74	200	3	57	2	3	6	23	6	0	0.02	0.29	0.01	0.02	0.03	0.12	0.03	0.00
75	66	4	26	0	1	2	3	0	0	0.06	0.39	0.00	0.02	0.03	0.05	0.00	0.00
76	38	4	9	0	0	3	8	0	0	0.11	0.24	0.00	0.00	0.08	0.21	0.00	0.00
9069																	
subtotal	***791***	***38***	***192***	***5***	***15***	***18***	***116***	***19***	***0***	***0.05***	***0.24***	***0.01***	***0.02***	***0.02***	***0.15***	***0.02***	***0.00***
Other CCM Features																	
320	12	0	4	1	0	0	0	0	0	0.00	0.33	0.08	0.00	0.00	0.00	0.00	0.00
367	58	10	14	1	0	1	1	0	0	0.17	0.24	0.02	0.00	0.02	0.02	0.00	0.00
370	45	7	9	1	3	0	0	0	0	0.16	0.20	0.02	0.07	0.00	0.00	0.00	0.00
371	109	17	23	2	1	0	0	0	0	0.16	0.21	0.02	0.01	0.00	0.00	0.00	0.00
379	71	5	23	2	2	0	1	0	0	0.07	0.32	0.03	0.03	0.00	0.01	0.00	0.00
909	143	19	14	2	2	0	37	5	0	0.13	0.10	0.01	0.01	0.00	0.26	0.03	0.00
910																	
934	103	8	24	0	2	0	3	0	0	0.08	0.23	0.00	0.02	0.00	0.03	0.00	0.00
subtotal	***541***	***66***	***111***	***9***	***10***	***1***	***42***	***5***	***0***	***0.12***	***0.21***	***0.02***	***0.02***	***0.00***	***0.08***	***0.01***	***0.00***
total	***9518***	***1530***	***2102***	***138***	***265***	***315***	***862***	***88***	***7***	***0.16***	***0.22***	***0.01***	***0.03***	***0.03***	***0.09***	***0.01***	***0.00***
Cerro del Chivo Complex																	
Cerro del Chivo Group																	
77	110	33	18	1	2	2	4	0	0	0.30	0.16	0.01	0.02	0.02	0.04	0.00	0.00
78	40	4	6	0	1	0	8	1	0	0.10	0.15	0.00	0.03	0.00	0.20	0.03	0.00
79	42	1	8	0	0	2	17	1	0	0.02	0.19	0.00	0.00	0.05	0.40	0.02	0.00
80	76	15	18	2	1	0	12	1	0	0.20	0.24	0.03	0.01	0.00	0.16	0.01	0.00
81	11	0	1	0	0	0	3	1	0	0.00	0.09	0.00	0.00	0.00	0.27	0.09	0.00
82	75	3	15	0	1	2	28	1	0	0.04	0.20	0.00	0.01	0.03	0.37	0.01	0.00
83	44	11	9	0	2	0	2	0	0	0.25	0.20	0.00	0.05	0.00	0.05	0.00	0.00
84	87	35	8	1	1	1	0	0	0	0.40	0.09	0.01	0.01	0.01	0.00	0.00	0.00
85	9	1	0	0	0	0	4	0	0	0.11	0.00	0.00	0.00	0.00	0.44	0.00	0.00
86	16	3	5	0	0	2	0	0	0	0.19	0.31	0.00	0.00	0.13	0.00	0.00	0.00
87	46	2	9	0	0	1	12	0	0	0.04	0.20	0.00	0.00	0.02	0.26	0.00	0.00
88	24	5	4	0	0	0	4	0	0	0.21	0.17	0.00	0.00	0.00	0.17	0.00	0.00
89	26	4	6	0	0	1	2	0	0	0.15	0.23	0.00	0.00	0.04	0.08	0.00	0.00
total	***606***	***117***	***107***	***4***	***8***	***11***	***96***	***5***	***0***	***0.19***	***0.18***	***0.01***	***0.01***	***0.02***	***0.16***	***0.01***	***0.00***

Table A1.4. Counts and percentages of sherds according to periods for PALM 1 and 2 monumental complexes *(continued)*

	Count									Percentage							
Coll.	Total Sherds	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.
Ojochal Complex																	
Ojochal Southern Group																	
569	152	16	43	1	0	3	16	0	0	0.11	0.28	0.01	0.00	0.02	0.11	0.00	0.00
575	82	7	12	1	0	1	25	5	0	0.09	0.15	0.01	0.00	0.01	0.30	0.06	0.00
576	73	2	6	0	0	0	22	3	0	0.03	0.08	0.00	0.00	0.00	0.30	0.04	0.00
613	123	9	24	1	0	1	15	0	1	0.07	0.20	0.01	0.00	0.01	0.12	0.00	0.01
subtotal	***430***	***34***	***85***	***3***	***0***	***5***	***78***	***8***	***1***	***0.08***	***0.20***	***0.01***	***0.00***	***0.01***	***0.18***	***0.02***	***0.00***
Ojochal Eastern Group																	
581	187	9	72	6	7	5	13	0	0	0.05	0.39	0.03	0.04	0.03	0.07	0.00	0.00
582	119	5	56	6	7	1	3	0	0	0.04	0.47	0.05	0.06	0.01	0.03	0.00	0.00
583	140	10	41	2	6	5	13	2	0	0.07	0.29	0.01	0.04	0.04	0.09	0.01	0.00
584	125	6	46	5	3	6	3	0	0	0.05	0.37	0.04	0.02	0.05	0.02	0.00	0.00
585	100	7	27	0	4	2	11	0	0	0.07	0.27	0.00	0.04	0.02	0.11	0.00	0.00
586	104	4	22	4	1	1	5	0	0	0.04	0.21	0.04	0.01	0.01	0.05	0.00	0.00
588	176	9	28	1	0	2	18	1	0	0.05	0.16	0.01	0.00	0.01	0.10	0.01	0.00
597	84	20	21	5	5	0	0	0	0	0.24	0.25	0.06	0.06	0.00	0.00	0.00	0.00
subtotal	***1035***	***70***	***313***	***29***	***33***	***22***	***66***	***3***	***0***	***0.07***	***0.30***	***0.03***	***0.03***	***0.02***	***0.06***	***0.00***	***0.00***
Ojochal Western Group																	
365	83	19	19	1	5	1	3	1	0	0.23	0.23	0.01	0.06	0.01	0.04	0.01	0.00
712	91	8	14	2	0	0	39	0	0	0.09	0.15	0.02	0.00	0.00	0.43	0.00	0.00
713	58	16	11	1	0	0	1	0	0	0.28	0.19	0.02	0.00	0.00	0.02	0.00	0.00
714	60	8	13	0	0	0	6	0	0	0.13	0.22	0.00	0.00	0.00	0.10	0.00	0.00
715	108	17	25	0	3	2	21	4	0	0.16	0.23	0.00	0.03	0.02	0.19	0.04	0.00
802	67	5	7	1	1	2	1	0	0	0.07	0.10	0.01	0.01	0.03	0.01	0.00	0.00
803	106	9	12	0	0	0	9	0	0	0.08	0.11	0.00	0.00	0.00	0.08	0.00	0.00
subtotal	***573***	***82***	***101***	***5***	***9***	***5***	***80***	***5***	***0***	***0.14***	***0.18***	***0.01***	***0.02***	***0.01***	***0.14***	***0.01***	***0.00***
Ojochal Northern Group																	
811	112	2	19	1	2	0	19	0	0	0.02	0.17	0.01	0.02	0.00	0.17	0.00	0.00
812	99	9	36	3	3	2	10	0	0	0.09	0.36	0.03	0.03	0.02	0.10	0.00	0.00
813	74	22	19	5	1	1	3	0	0	0.30	0.26	0.07	0.01	0.01	0.04	0.00	0.00
814	84	17	28	1	2	1	1	0	0	0.20	0.33	0.01	0.02	0.01	0.01	0.00	0.00
815	97	21	27	2	6	0	5	0	0	0.22	0.28	0.02	0.06	0.00	0.05	0.00	0.00
816	52	3	3	0	0	0	13	1	0	0.06	0.06	0.00	0.00	0.00	0.25	0.02	0.00
817	91	13	23	2	2	3	7	1	0	0.14	0.25	0.02	0.02	0.03	0.08	0.01	0.00
818	148	30	13	0	10	1	8	0	0	0.20	0.09	0.00	0.07	0.01	0.05	0.00	0.00
819	51	1	6	1	0	1	23	2	0	0.02	0.12	0.02	0.00	0.02	0.45	0.04	0.00
824	87	7	23	1	4	1	7	1	0	0.08	0.26	0.01	0.05	0.01	0.08	0.01	0.00
825	100	5	26	1	0	3	6	0	1	0.05	0.26	0.01	0.00	0.03	0.06	0.00	0.01
826	118	9	29	3	2	2	13	0	0	0.08	0.25	0.03	0.02	0.02	0.11	0.00	0.00
896	27	2	4	0	0	0	1	0	0	0.07	0.15	0.00	0.00	0.00	0.04	0.00	0.00
subtotal	***1140***	***141***	***256***	***20***	***32***	***15***	***116***	***5***	***1***	***0.12***	***0.22***	***0.02***	***0.03***	***0.01***	***0.10***	***0.00***	***0.00***
Other Ojochal Features																	
566	120	3	13	0	2	1	52	0	0	0.03	0.11	0.00	0.02	0.01	0.43	0.00	0.00
subtotal	***120***	***3***	***13***	***0***	***2***	***1***	***52***	***0***	***0***								
total	***3298***	***330***	***768***	***57***	***76***	***48***	***392***	***21***	***2***	***0.10***	***0.23***	***0.02***	***0.02***	***0.01***	***0.12***	***0.01***	***0.00***
Tío Primo Complex																	
972	30	4	11	1	0	0	2	0	0	0.13	0.37	0.03	0.00	0.00	0.07	0.00	0.00
973	18	2	2	0	0	0	5	3	0	0.11	0.11	0.00	0.00	0.00	0.28	0.17	0.00
4032	156	0	48	1	5	3	11	1	0	0.00	0.31	0.01	0.03	0.02	0.07	0.01	0.00
4042	26	3	10	2	0	0	2	0	0	0.12	0.38	0.08	0.00	0.00	0.08	0.00	0.00
4043	26	6	7	1	0	0	2	0	0	0.23	0.27	0.04	0.00	0.00	0.08	0.00	0.00
4044	40	0	7	0	0	0	14	1	0	0.00	0.18	0.00	0.00	0.00	0.35	0.03	0.00
4049	42	17	8	0	1	0	0	0	0	0.40	0.19	0.00	0.02	0.00	0.00	0.00	0.00
total	***338***	***32***	***93***	***5***	***6***	***3***	***36***	***5***	***0***	***0.09***	***0.28***	***0.01***	***0.02***	***0.01***	***0.11***	***0.01***	***0.00***

	Count									Percentage							
Coll.	Total Sherds	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.
Campana Complex																	
636	33	9	6	1	4	0	3	0	0	0.27	0.18	0.03	0.12	0.00	0.09	0.00	0.00
637	248	0	15	0	0	5	126	1	0	0.00	0.06	0.00	0.00	0.02	0.51	0.00	0.00
638	34	10	8	0	3	0	0	0	0	0.29	0.24	0.00	0.09	0.00	0.00	0.00	0.00
902	99	42	9	4	2	0	5	0	0	0.42	0.09	0.04	0.02	0.00	0.05	0.00	0.00
1350	73	14	15	0	1	0	0	0	0	0.19	0.21	0.00	0.01	0.00	0.00	0.00	0.00
1351	88	4	19	1	4	0	7	0	0	0.05	0.22	0.01	0.05	0.00	0.08	0.00	0.00
total	***575***	***79***	***72***	***6***	***14***	***5***	***141***	***1***	***0***	***0.14***	***0.13***	***0.01***	***0.02***	***0.01***	***0.25***	***0.00***	***0.00***
Zapotal South Complex																	
389	72	17	17	1	2	0	1	0	0	0.24	0.24	0.01	0.03	0.00	0.01	0.00	0.00
390	96	27	7	0	2	0	8	0	0	0.28	0.07	0.00	0.02	0.00	0.08	0.00	0.00
391	45	6	11	0	1	0	2	1	0	0.13	0.24	0.00	0.02	0.00	0.04	0.02	0.00
392	54	2	9	1	0	0	6	2	0	0.04	0.17	0.02	0.00	0.00	0.11	0.04	0.00
393	58	1	14	1	0	2	7	0	0	0.02	0.24	0.02	0.00	0.03	0.12	0.00	0.00
394	86	2	21	0	3	1	1	0	0	0.02	0.24	0.00	0.03	0.01	0.01	0.00	0.00
395	226	4	29	1	1	0	121	7	0	0.02	0.13	0.00	0.00	0.00	0.54	0.03	0.00
396	61	16	7	3	0	0	5	0	0	0.26	0.11	0.05	0.00	0.00	0.08	0.00	0.00
397	43	11	10	1	3	0	2	0	0	0.26	0.23	0.02	0.07	0.00	0.05	0.00	0.00
399	69	16	13	0	2	1	6	0	0	0.23	0.19	0.00	0.03	0.01	0.09	0.00	0.00
702	64	3	7	0	0	0	12	0	0	0.05	0.11	0.00	0.00	0.00	0.19	0.00	0.00
total	***874***	***105***	***145***	***8***	***14***	***4***	***171***	***10***	***0***	***0.12***	***0.17***	***0.01***	***0.02***	***0.00***	***0.20***	***0.01***	***0.00***
Sauce Complex																	
110	63	8	9	0	1	0	16	3	0	0.13	0.14	0.00	0.02	0.00	0.25	0.05	0.00
111	50	0	3	0	0	0	29	7	0	0.00	0.06	0.00	0.00	0.00	0.58	0.14	0.00
112	37	1	1	0	0	0	16	0	0	0.03	0.03	0.00	0.00	0.00	0.43	0.00	0.00
116	317	17	31	1	5	6	83	23	0	0.05	0.10	0.00	0.02	0.02	0.26	0.07	0.00
117	34	0	2	0	0	0	12	5	0	0.00	0.06	0.00	0.00	0.00	0.35	0.15	0.00
118	105	1	12	1	1	0	18	3	0	0.01	0.11	0.01	0.01	0.00	0.17	0.03	0.00
119	342	4	32	1	3	6	163	39	0	0.01	0.09	0.00	0.01	0.02	0.48	0.11	0.00
120	24	0	7	1	0	2	0	0	0	0.00	0.29	0.04	0.00	0.08	0.00	0.00	0.00
121	38	0	5	0	0	0	9	1	0	0.00	0.13	0.00	0.00	0.00	0.24	0.03	0.00
122	151	0	20	0	1	1	73	12	0	0.00	0.13	0.00	0.01	0.01	0.48	0.08	0.00
123	134	1	10	0	1	1	59	3	1	0.01	0.07	0.00	0.01	0.01	0.44	0.02	0.01
124	354	2	31	0	1	3	191	45	0	0.01	0.09	0.00	0.00	0.01	0.54	0.13	0.00
127	166	3	16	0	0	5	83	21	0	0.02	0.10	0.00	0.00	0.03	0.50	0.13	0.00
130	142	0	10	0	0	4	69	15	0	0.00	0.07	0.00	0.00	0.03	0.49	0.11	0.00
132	111	1	8	0	0	3	59	11	0	0.01	0.07	0.00	0.00	0.03	0.53	0.10	0.00
135	178	0	23	0	2	4	97	21	0	0.00	0.13	0.00	0.01	0.02	0.54	0.12	0.00
169	110	3	15	0	0	3	56	19	0	0.03	0.14	0.00	0.00	0.03	0.51	0.17	0.00
209	145	4	9	1	0	4	97	31	0	0.03	0.06	0.01	0.00	0.03	0.67	0.21	0.00
210	99	1	8	0	1	1	58	5	0	0.01	0.08	0.00	0.01	0.01	0.59	0.05	0.00
211	201	0	20	0	0	8	111	39	0	0.00	0.10	0.00	0.00	0.04	0.55	0.19	0.00
213	124	0	15	1	0	2	68	17	0	0.00	0.12	0.01	0.00	0.02	0.55	0.14	0.00
214	332	1	26	0	0	12	203	55	0	0.00	0.08	0.00	0.00	0.04	0.61	0.17	0.00
215	151	1	18	0	1	3	70	17	1	0.01	0.12	0.00	0.01	0.02	0.46	0.11	0.01
217	90	1	5	0	1	3	45	14	0	0.01	0.06	0.00	0.01	0.03	0.50	0.16	0.00
224	106	0	9	0	0	1	68	10	0	0.00	0.08	0.00	0.00	0.01	0.64	0.09	0.00
225	77	1	9	0	1	4	43	11	0	0.01	0.12	0.00	0.01	0.05	0.56	0.14	0.00
1152	139	0	23	0	0	4	71	14	0	0.00	0.17	0.00	0.00	0.03	0.51	0.10	0.00
1172	131	8	10	0	0	0	61	17	0	0.06	0.08	0.00	0.00	0.00	0.47	0.13	0.00
1173	119	0	7	0	0	2	73	14	0	0.00	0.06	0.00	0.00	0.02	0.61	0.12	0.00
1175	73	0	7	0	0	2	37	9	0	0.00	0.10	0.00	0.00	0.03	0.51	0.12	0.00
1176	139	0	17	0	0	2	72	6	0	0.00	0.12	0.00	0.00	0.01	0.52	0.04	0.00

Table A1.4. Counts and percentages of sherds according to periods for PALM 1 and 2 monumental complexes *(continued)*

	Count									Percentage							
Coll.	Total Sherds	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.
1750	1	0	0	0	0	0	1	1	0	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00
1751	103	1	18	0	1	1	40	3	2	0.01	0.17	0.00	0.01	0.01	0.39	0.03	0.02
1752	86	0	16	0	0	2	39	0	1	0.00	0.19	0.00	0.00	0.02	0.45	0.00	0.01
1753	115	2	25	0	0	3	30	1	0	0.02	0.22	0.00	0.00	0.03	0.26	0.01	0.00
1754	86	0	13	0	0	1	28	7	0	0.00	0.15	0.00	0.00	0.01	0.33	0.08	0.00
1756	356	0	20	0	1	1	189	48	1	0.00	0.06	0.00	0.00	0.00	0.53	0.13	0.00
1818	130	0	14	0	0	1	63	8	0	0.00	0.11	0.00	0.00	0.01	0.48	0.06	0.00
4017	48	0	7	0	0	0	18	6	0	0.00	0.15	0.00	0.00	0.00	0.38	0.13	0.00
4020	48	0	4	0	0	0	27	10	0	0.00	0.08	0.00	0.00	0.00	0.56	0.21	0.00
4022	210	4	17	0	0	1	104	28	0	0.02	0.08	0.00	0.00	0.00	0.50	0.13	0.00
total	***5465***	***65***	***552***	***6***	***21***	***96***	***2649***	***599***	***6***	***0.01***	***0.10***	***0.00***	***0.00***	***0.02***	***0.48***	***0.11***	***0.00***
Complex 1473																	
1412	106	0	22	1	1	7	22	0	0	0.00	0.21	0.01	0.01	0.07	0.21	0.00	0.00
1413	68	4	13	0	0	2	9	1	0	0.06	0.19	0.00	0.00	0.03	0.13	0.01	0.00
1414	95	0	38	0	0	0	4	0	0	0.00	0.40	0.00	0.00	0.00	0.04	0.00	0.00
1415	97	0	23	0	0	6	27	2	1	0.00	0.24	0.00	0.00	0.06	0.28	0.02	0.01
1416	94	0	37	0	0	7	10	0	0	0.00	0.39	0.00	0.00	0.07	0.11	0.00	0.00
1418	85	0	30	0	1	11	8	1	0	0.00	0.35	0.00	0.01	0.13	0.09	0.01	0.00
1445	132	1	47	0	0	12	2	0	0	0.01	0.36	0.00	0.00	0.09	0.02	0.00	0.00
1446	165	2	81	0	3	11	3	0	0	0.01	0.49	0.00	0.02	0.07	0.02	0.00	0.00
total	***842***	***7***	***291***	***1***	***5***	***56***	***85***	***4***	***1***	***0.01***	***0.35***	***0.00***	***0.01***	***0.07***	***0.10***	***0.00***	***0.00***
Palmas Cuatas Complex																	
Palmas Cuatas Eastern Group																	
1575	23	5	1	0	0	0	0	0	0	0.22	0.04	0.00	0.00	0.00	0.00	0.00	0.00
1576	72	17	18	2	1	4	1	1	0	0.24	0.25	0.03	0.01	0.06	0.01	0.01	0.00
1578	36	11	4	1	1	0	0	0	0	0.31	0.11	0.03	0.03	0.00	0.00	0.00	0.00
1581	157	20	41	5	2	5	5	1	0	0.13	0.26	0.03	0.01	0.03	0.03	0.01	0.00
1584	72	28	15	2	4	0	5	1	0	0.39	0.21	0.03	0.06	0.00	0.07	0.01	0.00
1586	102	4	42	3	0	9	2	0	0	0.04	0.41	0.03	0.00	0.09	0.02	0.00	0.00
1587	1	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1588	97	10	24	2	2	3	0	0	0	0.10	0.25	0.02	0.02	0.03	0.00	0.00	0.00
1589	124	3	28	0	0	6	17	3	0	0.02	0.23	0.00	0.00	0.05	0.14	0.02	0.00
1628	179	1	42	0	2	5	50	12	0	0.01	0.23	0.00	0.01	0.03	0.28	0.07	0.00
subtotal	**863**	**99**	**215**	**15**	**12**	**32**	**80**	**18**	**0**	***0.11***	***0.25***	***0.02***	***0.01***	***0.04***	***0.09***	***0.02***	***0.00***
Palmas Cuatas Western Group																	
1577	9	0	1	0	0	0	3	0	0	0.00	0.11	0.00	0.00	0.00	0.33	0.00	0.00
1582	52	11	15	1	3	0	1	0	0	0.21	0.29	0.02	0.06	0.00	0.02	0.00	0.00
1583	75	12	10	1	3	0	3	0	0	0.16	0.13	0.01	0.04	0.00	0.04	0.00	0.00
1592	67	18	18	3	4	3	2	0	0	0.27	0.27	0.04	0.06	0.04	0.03	0.00	0.00
1594	50	6	11	0	0	0	9	1	0	0.12	0.22	0.00	0.00	0.00	0.18	0.02	0.00
1597	103	20	32	5	3	3	0	0	0	0.19	0.31	0.05	0.03	0.03	0.00	0.00	0.00
1598	24	6	3	2	1	0	0	0	0	0.25	0.13	0.08	0.04	0.00	0.00	0.00	0.00
1599	118	19	28	4	2	10	1	0	0	0.16	0.24	0.03	0.02	0.08	0.01	0.00	0.00
1630	13	0	2	0	0	0	1	0	0	0.00	0.15	0.00	0.00	0.00	0.08	0.00	0.00
1644	28	1	1	0	1	0	3	0	0	0.04	0.04	0.00	0.04	0.00	0.11	0.00	0.00
1645	100	17	14	0	1	0	1	0	0	0.17	0.14	0.00	0.01	0.00	0.01	0.00	0.00
subtotal	***639***	***110***	***135***	***16***	***18***	***16***	***24***	***1***	***0***	***0.17***	***0.21***	***0.03***	***0.03***	***0.03***	***0.04***	***0.00***	***0.00***
total	***1502***	***209***	***350***	***31***	***30***	***48***	***104***	***19***	***0***	***0.14***	***0.23***	***0.02***	***0.02***	***0.03***	***0.07***	***0.01***	***0.00***
Tiesto Complex																	
1735	39	7	9	2	5	0	1	0	0	0.18	0.23	0.05	0.13	0.00	0.03	0.00	0.00
1737	72	0	26	0	0	2	9	1	0	0.00	0.36	0.00	0.00	0.03	0.13	0.01	0.00
total	***111***	***7***	***35***	***2***	***5***	***2***	***10***	***1***	***0***	***0.06***	***0.32***	***0.02***	***0.05***	***0.02***	***0.09***	***0.01***	***0.00***

	Count									Percentage							
Coll.	Total Sherds	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.
Villa Nueva Complex																	
Villa Nueva Eastern Group																	
755	297	5	104	5	4	7	8	1	0	0.02	0.35	0.02	0.01	0.02	0.03	0.00	0.00
757	46	2	13	0	2	1	1	0	0	0.04	0.28	0.00	0.04	0.02	0.02	0.00	0.00
778	53	0	12	0	0	1	28	2	0	0.00	0.23	0.00	0.00	0.02	0.53	0.04	0.00
779	177	0	43	2	3	5	12	2	0	0.00	0.24	0.01	0.02	0.03	0.07	0.01	0.00
798	10	0	7	0	0	0	0	0	0	0.00	0.70	0.00	0.00	0.00	0.00	0.00	0.00
1090	16	0	4	1	0	0	3	0	0	0.00	0.25	0.06	0.00	0.00	0.19	0.00	0.00
subtotal	***599***	***7***	***183***	***8***	***9***	***14***	***52***	***5***	***0***	***0.01***	***0.31***	***0.01***	***0.02***	***0.02***	***0.09***	***0.01***	***0.00***
Villa Nueva Northwest Group																	
subtotal	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***								
Villa Nueva Southwest Group																	
subtotal	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***								
Villa Nueva Other Features																	
754	97	0	31	0	2	7	15	3	0	0.00	0.32	0.00	0.02	0.07	0.15	0.03	0.00
subtotal	***97***	***0***	***31***	***0***	***2***	***7***	***15***	***3***	***0***	***0.00***	***0.32***	***0.00***	***0.02***	***0.07***	***0.15***	***0.03***	***0.00***
total	***696***	***7***	***214***	***8***	***11***	***21***	***67***	***8***	***0***	***0.01***	***0.31***	***0.01***	***0.02***	***0.03***	***0.10***	***0.01***	***0.00***
Platform 1094 (Molina Complex)																	
1094	2	0	1	0	0	1	0	0	0	0.00	0.50	0.00	0.00	0.50	0.00	0.00	0.00
total	***2***	***0***	***1***	***0***	***0***	***1***	***0***	***0***	***0***	***0.00***	***0.50***	***0.00***	***0.00***	***0.50***	***0.00***	***0.00***	***0.00***
Fraternidad Complex																	
1150	107	0	31	2	4	4	14	0	0	0.00	0.29	0.02	0.04	0.04	0.13	0.00	0.00
1151	96	1	11	1	0	2	14	0	0	0.01	0.11	0.01	0.00	0.02	0.15	0.00	0.00
1154	19	0	6	0	0	1	1	0	0	0.00	0.32	0.00	0.00	0.05	0.05	0.00	0.00
1155	102	1	19	1	1	2	0	0	0	0.01	0.19	0.01	0.01	0.02	0.00	0.00	0.00
1156	86	1	33	2	4	5	2	0	0	0.01	0.38	0.02	0.05	0.06	0.02	0.00	0.00
1157	158	0	41	0	2	13	1	0	0	0.00	0.26	0.00	0.01	0.08	0.01	0.00	0.00
1161	374	0	7	0	0	2	2	0	0	0.00	0.02	0.00	0.00	0.01	0.01	0.00	0.00
total	***942***	***3***	***148***	***6***	***11***	***29***	***34***	***0***	***0***	***0.00***	***0.16***	***0.01***	***0.01***	***0.03***	***0.04***	***0.00***	***0.00***
Azuzules and Azuzules East																	
Azuzules East																	
935	43	0	24	0	0	4	2	0	0	0.00	0.56	0.00	0.00	0.09	0.05	0.00	0.00
1209	61	2	20	0	1	3	0	0	0	0.03	0.33	0.00	0.02	0.05	0.00	0.00	0.00
1210	52	0	15	0	2	1	1	0	0	0.00	0.29	0.00	0.04	0.02	0.02	0.00	0.00
1211	59	0	11	1	1	0	16	1	0	0.00	0.19	0.02	0.02	0.00	0.27	0.02	0.00
1212	14	0	8	0	1	2	1	0	0	0.00	0.57	0.00	0.07	0.14	0.07	0.00	0.00
1213	53	0	16	0	0	1	6	0	0	0.00	0.30	0.00	0.00	0.02	0.11	0.00	0.00
1214	18	0	9	0	0	2	2	0	0	0.00	0.50	0.00	0.00	0.11	0.11	0.00	0.00
1215	26	0	7	0	0	1	0	0	0	0.00	0.27	0.00	0.00	0.04	0.00	0.00	0.00
1217	143	0	70	1	4	5	0	0	0	0.00	0.49	0.01	0.03	0.03	0.00	0.00	0.00
total	***469***	***2***	***180***	***2***	***9***	***19***	***28***	***1***	***0***	***0.00***	***0.38***	***0.00***	***0.02***	***0.04***	***0.06***	***0.00***	***0.00***
Azuzules Central Group																	
1139	21	0	7	0	1	1	0	0	0	0.00	0.33	0.00	0.05	0.05	0.00	0.00	0.00
1140	37	0	20	1	0	0	0	0	0	0.00	0.54	0.03	0.00	0.00	0.00	0.00	0.00
1141	37	1	13	1	0	2	1	0	0	0.03	0.35	0.03	0.00	0.05	0.03	0.00	0.00
1142	10	0	4	0	0	2	0	0	0	0.00	0.40	0.00	0.00	0.20	0.00	0.00	0.00
1143	59	0	25	0	0	0	3	1	0	0.00	0.42	0.00	0.00	0.00	0.05	0.02	0.00
1144	22	0	8	0	0	1	0	0	0	0.00	0.36	0.00	0.00	0.05	0.00	0.00	0.00
1147	5	0	1	0	0	1	0	0	0	0.00	0.20	0.00	0.00	0.20	0.00	0.00	0.00
1167	54	1	18	0	2	1	2	0	0	0.02	0.33	0.00	0.04	0.02	0.04	0.00	0.00
1171	403	0	96	1	2	0	0	0	0	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00
1201	9	0	1	0	0	0	0	0	0	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00
subtotal	***657***	***2***	***193***	***3***	***5***	***8***	***6***	***1***	***0***	***0.00***	***0.29***	***0.00***	***0.01***	***0.01***	***0.01***	***0.00***	***0.00***

Table A1.4. Counts and percentages of sherds according to periods for PALM 1 and 2 monumental complexes *(continued)*

	Count									Percentage							
Coll.	Total Sherds	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.
Azuzules Central Extension																	
1145	70	0	37	3	11	1	2	0	0	0.00	0.53	0.04	0.16	0.01	0.03	0.00	0.00
1146	38	0	19	1	2	3	2	0	0	0.00	0.50	0.03	0.05	0.08	0.05	0.00	0.00
1149	38	0	23	2	3	2	1	0	0	0.00	0.61	0.05	0.08	0.05	0.03	0.00	0.00
1169	65	0	21	0	1	0	1	0	0	0.00	0.32	0.00	0.02	0.00	0.02	0.00	0.00
1170	42	1	5	0	0	2	1	0	0	0.02	0.12	0.00	0.00	0.05	0.02	0.00	0.00
1188	115	0	60	2	5	6	2	1	0	0.00	0.52	0.02	0.04	0.05	0.02	0.01	0.00
1189	27	0	8	0	0	2	0	0	0	0.00	0.30	0.00	0.00	0.07	0.00	0.00	0.00
1190	39	0	23	0	1	1	1	0	0	0.00	0.59	0.00	0.03	0.03	0.03	0.00	0.00
1191	88	2	42	2	9	6	0	0	0	0.02	0.48	0.02	0.10	0.07	0.00	0.00	0.00
1192	44	0	13	1	3	0	1	0	0	0.00	0.30	0.02	0.07	0.00	0.02	0.00	0.00
1200	23	0	9	0	0	1	0	0	0	0.00	0.39	0.00	0.00	0.04	0.00	0.00	0.00
1202	31	0	11	1	0	1	1	0	0	0.00	0.35	0.03	0.00	0.03	0.03	0.00	0.00
subtotal	***620***	***3***	***271***	***12***	***35***	***25***	***12***	***1***	***0***	***0.00***	***0.44***	***0.02***	***0.06***	***0.04***	***0.02***	***0.00***	***0.00***
Azuzules Additional Features																	
1207	54	0	20	0	1	2	1	0	0	0.00	0.37	0.00	0.02	0.04	0.02	0.00	0.00
1208	71	0	6	0	0	1	35	0	0	0.00	0.08	0.00	0.00	0.01	0.49	0.00	0.00
subtotal	***125***	***0***	***26***	***0***	***1***	***3***	***36***	***0***	***0***	***0.00***	***0.21***	***0.00***	***0.01***	***0.02***	***0.29***	***0.00***	***0.00***
total	***1402***	***5***	***490***	***15***	***41***	***36***	***54***	***2***	***0***	***0.00***	***0.35***	***0.01***	***0.03***	***0.03***	***0.04***	***0.00***	***0.00***
CENTRAL BLOCK ADDITIONS																	
Azuzules South																	
957	161	0	46	4	4	1	35	1	0	0.00	0.29	0.02	0.02	0.01	0.22	0.01	0.00
958	29	0	6	0	2	0	13	4	0	0.00	0.21	0.00	0.07	0.00	0.45	0.14	0.00
6661	105	1	28	1	6	5	2	0	0	0.01	0.27	0.01	0.06	0.05	0.02	0.00	0.00
6662	112	0	14	0	2	1	30	0	0	0.00	0.13	0.00	0.02	0.01	0.27	0.00	0.00
6746	5	0	1	0	1	0	0	0	0	0.00	0.20	0.00	0.20	0.00	0.00	0.00	0.00
6747	48	0	16	3	0	1	1	0	0	0.00	0.33	0.06	0.00	0.02	0.02	0.00	0.00
6748	142	1	42	3	5	7	31	3	0	0.01	0.30	0.02	0.04	0.05	0.22	0.02	0.00
6749	7	0	1	0	0	0	1	0	1	0.00	0.14	0.00	0.00	0.00	0.14	0.00	0.14
6750	34	0	11	1	0	2	5	0	0	0.00	0.32	0.03	0.00	0.06	0.15	0.00	0.00
6753	3	0	0	0	0	0	2	0	0	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.00
6754	61	0	11	0	4	0	1	0	0	0.00	0.18	0.00	0.07	0.00	0.02	0.00	0.00
6768	173	1	34	0	9	3	52	0	0	0.01	0.20	0.00	0.05	0.02	0.30	0.00	0.00
total	***880***	***3***	***210***	***12***	***33***	***20***	***173***	***8***	***1***	***0.00***	***0.24***	***0.01***	***0.04***	***0.02***	***0.20***	***0.01***	***0.00***
Azuzules Southeast																	
6638	145	0	58	4	4	3	7	1	0	0.00	0.40	0.03	0.03	0.02	0.05	0.01	0.00
6639	14	0	8	0	0	1	0	0	0	0.00	0.57	0.00	0.00	0.07	0.00	0.00	0.00
6769	27	0	9	0	0	2	0	0	0	0.00	0.33	0.00	0.00	0.07	0.00	0.00	0.00
6770	140	0	50	0	1	19	6	0	0	0.00	0.36	0.00	0.01	0.14	0.04	0.00	0.00
6793	120	0	36	0	5	8	4	0	0	0.00	0.30	0.00	0.04	0.07	0.03	0.00	0.00
6794	12	0	2	0	1	0	1	0	0	0.00	0.17	0.00	0.08	0.00	0.08	0.00	0.00
6795	15	0	3	0	0	1	0	0	0	0.00	0.20	0.00	0.00	0.07	0.00	0.00	0.00
total	***473***	***0***	***166***	***4***	***11***	***34***	***18***	***1***	***0***	***0.00***	***0.35***	***0.01***	***0.02***	***0.07***	***0.04***	***0.00***	***0.00***
Zacate Colorado II																	
6651	74	11	23	1	4	2	1	0	0	0.15	0.31	0.01	0.05	0.03	0.01	0.00	0.00
6655	70	7	9	1	0	2	6	0	0	0.10	0.13	0.01	0.00	0.03	0.09	0.00	0.00
6656	56	7	9	0	2	2	3	0	0	0.13	0.16	0.00	0.04	0.04	0.05	0.00	0.00
6672	75	18	11	1	1	0	4	0	0	0.24	0.15	0.01	0.01	0.00	0.05	0.00	0.00
6673	8	2	1	0	0	1	0	0	0	0.25	0.13	0.00	0.00	0.13	0.00	0.00	0.00
6678	62	12	16	4	1	1	0	0	0	0.19	0.26	0.06	0.02	0.02	0.00	0.00	0.00
6679	8	0	2	0	0	0	0	0	0	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00
6686	7	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6687	4	0	1	0	0	0	0	0	0	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00
total	***364***	***57***	***72***	***7***	***8***	***8***	***14***	***0***	***0***	***0.16***	***0.20***	***0.02***	***0.02***	***0.02***	***0.04***	***0.00***	***0.00***

	Count									Percentage							
Coll.	Total Sherds	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.
Zacate Colorado II West																	
6689	5	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6690	34	6	14	2	3	1	0	0	0	0.18	0.41	0.06	0.09	0.03	0.00	0.00	0.00
total	***39***	***6***	***14***	***2***	***3***	***1***	***0***	***0***	***0***	***0.15***	***0.36***	***0.05***	***0.08***	***0.03***	***0.00***	***0.00***	***0.00***
Sabaneta																	
6563	7	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6603	8	2	0	0	0	0	0	0	0	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6636	150	1	30	2	2	6	27	4	0	0.01	0.20	0.01	0.01	0.04	0.18	0.03	0.00
6637	12	4	0	0	0	0	2	0	0	0.33	0.00	0.00	0.00	0.00	0.17	0.00	0.00
total	***177***	***7***	***30***	***2***	***2***	***6***	***29***	***4***	***0***	***0.04***	***0.17***	***0.01***	***0.01***	***0.03***	***0.16***	***0.02***	***0.00***
Mixtequilla																	
6585	8	0	3	0	0	1	0	0	0	0.00	0.38	0.00	0.00	0.13	0.00	0.00	0.00
6586	22	0	7	1	0	2	0	0	0	0.00	0.32	0.05	0.00	0.09	0.00	0.00	0.00
6587	1	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6588	33	4	6	1	0	0	5	2	0	0.12	0.18	0.03	0.00	0.00	0.15	0.06	0.00
6598	7	2	0	0	0	0	0	0	0	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total	***71***	***6***	***16***	***2***	***0***	***3***	***5***	***2***	***0***	***0.08***	***0.23***	***0.03***	***0.00***	***0.04***	***0.07***	***0.03***	***0.00***
Mixtequilla North																	
6535	78	1	21	1	1	3	8	0	0	0.01	0.27	0.01	0.01	0.04	0.10	0.00	0.00
6562	15	0	7	1	1	0	1	0	0	0.00	0.47	0.07	0.07	0.00	0.07	0.00	0.00
total	***93***	***1***	***28***	***2***	***2***	***3***	***9***	***0***	***0***	***0.01***	***0.30***	***0.02***	***0.02***	***0.03***	***0.10***	***0.00***	***0.00***
Moral																	
6485	27	1	8	0	2	0	0	0	0	0.04	0.30	0.00	0.07	0.00	0.00	0.00	0.00
6486	11	0	1	0	0	0	2	0	0	0.00	0.09	0.00	0.00	0.00	0.18	0.00	0.00
6489	67	0	7	1	1	1	31	1	0	0.00	0.10	0.01	0.01	0.01	0.46	0.01	0.00
6490	27	6	9	0	2	0	0	0	0	0.22	0.33	0.00	0.07	0.00	0.00	0.00	0.00
6495	21	1	2	0	0	1	5	0	0	0.05	0.10	0.00	0.00	0.05	0.24	0.00	0.00
total	***153***	***8***	***27***	***1***	***5***	***2***	***38***	***1***	***0***	***0.05***	***0.18***	***0.01***	***0.03***	***0.01***	***0.25***	***0.01***	***0.00***
Moral North																	
6504	122	0	42	2	3	1	0	0	0	0.00	0.34	0.02	0.02	0.01	0.00	0.00	0.00
total	***122***	***0***	***42***	***2***	***3***	***1***	***0***	***0***	***0***	***0.00***	***0.34***	***0.02***	***0.02***	***0.01***	***0.00***	***0.00***	***0.00***
Moral-Iglesia																	
6506	312	2	49	6	2	17	104	16	0	0.01	0.16	0.02	0.01	0.05	0.33	0.05	0.00
total	***312***	***2***	***49***	***6***	***2***	***17***	***104***	***16***	***0***	***0.01***	***0.16***	***0.02***	***0.01***	***0.05***	***0.33***	***0.05***	***0.00***
Aguacate North																	
7111	13	2	3	1	1	0	0	0	0	0.15	0.23	0.08	0.08	0.00	0.00	0.00	0.00
7114	13	3	1	0	0	0	0	0	0	0.23	0.08	0.00	0.00	0.00	0.00	0.00	0.00
total	***26***	***5***	***4***	***1***	***1***	***0***	***0***	***0***	***0***	***0.19***	***0.15***	***0.04***	***0.04***	***0.00***	***0.00***	***0.00***	***0.00***
Aguacate South																	
974	10	0	4	0	0	0	0	0	0	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00
total	***10***	***0***	***4***	***0***	***0***	***0***	***0***	***0***	***0***	***0.00***	***0.40***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***
UPRIVER BLANCO RIVER COMPLEXES																	
Cerro Coyote																	
6465	38	0	2	0	0	0	0	0	0	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00
6466	1	0	1	1	0	0	0	0	0	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
6467	42	2	5	0	0	0	0	0	0	0.05	0.12	0.00	0.00	0.00	0.00	0.00	0.00
6468	4	0	1	0	0	0	0	0	0	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00
6470	1	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6472	2	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6473	3	0	2	0	0	0	0	0	0	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00
6474	34	0	9	0	1	0	0	0	0	0.00	0.26	0.00	0.03	0.00	0.00	0.00	0.00
6475	21	3	4	0	1	0	0	0	0	0.14	0.19	0.00	0.05	0.00	0.00	0.00	0.00
6476	1	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6477	1	0	1	0	1	0	0	0	0	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
total	***148***	***5***	***25***	***1***	***3***	***0***	***0***	***0***	***0***	***0.03***	***0.17***	***0.01***	***0.02***	***0.00***	***0.00***	***0.00***	***0.00***

Table A1.4. Counts and percentages of sherds according to periods for PALM 1 and 2 monumental complexes *(continued)*

	Count									Percentage							
Coll.	Total Sherds	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.
Cerro Bartolo West																	
6101	143	4	56	5	5	1	0	0	0	0.03	0.39	0.03	0.03	0.01	0.00	0.00	0.00
6102	309	0	86	7	14	2	3	0	0	0.00	0.28	0.02	0.05	0.01	0.01	0.00	0.00
total	***452***	***4***	***142***	***12***	***19***	***3***	***3***	***0***	***0***	***0.01***	***0.31***	***0.03***	***0.04***	***0.01***	***0.01***	***0.00***	***0.00***
Cerro Bartolo																	
7001	157	3	68	33	4	0	0	0	0	0.02	0.43	0.21	0.03	0.00	0.00	0.00	0.00
7002	13	1	7	4	0	0	0	0	0	0.08	0.54	0.31	0.00	0.00	0.00	0.00	0.00
7004	10	0	1	0	0	0	0	0	0	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00
7005	1	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7006	60	3	16	6	1	0	0	0	0	0.05	0.27	0.10	0.02	0.00	0.00	0.00	0.00
7007	113	0	16	1	1	0	0	0	0	0.00	0.14	0.01	0.01	0.00	0.00	0.00	0.00
total	***354***	7	***108***	***44***	***6***	***0***	***0***	***0***	***0***	***0.02***	***0.31***	***0.12***	***0.02***	***0.00***	***0.00***	***0.00***	***0.00***
Tilcampo																	
945	56	1	26	2	5	0	0	0	0	0.02	0.46	0.04	0.09	0.00	0.00	0.00	0.00
6111	115	2	21	8	2	0	31	0	0	0.02	0.18	0.07	0.02	0.00	0.27	0.00	0.00
6112	23	2	8	2	1	0	0	0	0	0.09	0.35	0.09	0.04	0.00	0.00	0.00	0.00
6113	116	4	43	3	11	1	2	0	1	0.03	0.37	0.03	0.09	0.01	0.02	0.00	0.01
6114	131	1	30	1	4	1	12	0	1	0.01	0.23	0.01	0.03	0.01	0.09	0.00	0.01
6115	56	2	19	3	1	1	1	0	0	0.04	0.34	0.05	0.02	0.02	0.02	0.00	0.00
6116	96	1	28	0	0	3	9	0	0	0.01	0.29	0.00	0.00	0.03	0.09	0.00	0.00
6117	117	1	27	1	0	1	24	0	1	0.01	0.23	0.01	0.00	0.01	0.21	0.00	0.01
6121	7	0	2	1	1	0	0	0	0	0.00	0.29	0.14	0.14	0.00	0.00	0.00	0.00
6122	20	0	3	0	1	0	2	0	0	0.00	0.15	0.00	0.05	0.00	0.10	0.00	0.00
6123	11	0	0	0	0	0	3	0	0	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00
6124	111	1	22	9	1	0	28	0	0	0.01	0.20	0.08	0.01	0.00	0.25	0.00	0.00
6125	163	0	25	1	0	4	36	0	0	0.00	0.15	0.01	0.00	0.02	0.22	0.00	0.00
6126	55	1	5	0	1	1	20	1	1	0.02	0.09	0.00	0.02	0.02	0.36	0.02	0.02
6127	189	1	34	3	5	0	28	0	1	0.01	0.18	0.02	0.03	0.00	0.15	0.00	0.01
6147	11	1	1	0	0	0	1	0	0	0.09	0.09	0.00	0.00	0.00	0.09	0.00	0.00
total	***1277***	***18***	***294***	***34***	***33***	***12***	***197***	***1***	***5***	***0.01***	***0.23***	***0.03***	***0.03***	***0.01***	***0.15***	***0.00***	***0.00***
Madereros																	
Madereros Southwest Plaza Group																	
6162	181	49	13	0	11	0	0	0	0	0.27	0.07	0.00	0.06	0.00	0.00	0.00	0.00
6163	177	34	28	11	5	1	0	0	0	0.19	0.16	0.06	0.03	0.01	0.00	0.00	0.00
6164	11	3	2	0	0	0	0	0	0	0.27	0.18	0.00	0.00	0.00	0.00	0.00	0.00
6165	148	19	20	7	7	1	0	0	0	0.13	0.14	0.05	0.05	0.01	0.00	0.00	0.00
6166	26	6	4	1	0	1	0	0	0	0.23	0.15	0.04	0.00	0.04	0.00	0.00	0.00
6167	39	4	5	1	0	0	0	0	0	0.10	0.13	0.03	0.00	0.00	0.00	0.00	0.00
6168	114	18	14	4	2	2	0	0	0	0.16	0.12	0.04	0.02	0.02	0.00	0.00	0.00
subtotal	***696***	***133***	***86***	***24***	***25***	***5***	***0***	***0***	***0***	***0.19***	***0.12***	***0.03***	***0.04***	***0.01***	***0.00***	***0.00***	***0.00***
Madereros Western Arroyo Line																	
6169	62	12	2	2	0	0	0	0	0	0.19	0.03	0.03	0.00	0.00	0.00	0.00	0.00
6173	110	14	20	4	2	1	0	0	0	0.13	0.18	0.04	0.02	0.01	0.00	0.00	0.00
6174	68	7	22	4	6	1	0	0	0	0.10	0.32	0.06	0.09	0.01	0.00	0.00	0.00
6175	118	21	25	11	3	0	1	0	0	0.18	0.21	0.09	0.03	0.00	0.01	0.00	0.00
subtotal	***358***	***54***	***69***	***21***	***11***	***2***	***1***	***0***	***0***	***0.15***	***0.19***	***0.06***	***0.03***	***0.01***	***0.00***	***0.00***	***0.00***
Madereros Northeast Platform Group																	
6176																	
6177	60	2	14	3	5	1	1	0	0	0.03	0.23	0.05	0.08	0.02	0.02	0.00	0.00
6178	207	10	59	17	6	3	2	1	0	0.05	0.29	0.08	0.03	0.01	0.01	0.00	0.00
6179	104	17	23	7	4	0	0	0	0	0.16	0.22	0.07	0.04	0.00	0.00	0.00	0.00
6201	47	1	12	2	1	0	1	0	0	0.02	0.26	0.04	0.02	0.00	0.02	0.00	0.00
subtotal	***418***	***30***	***108***	***29***	***16***	***4***	***4***	***1***	***0***	***0.07***	***0.26***	***0.07***	***0.04***	***0.01***	***0.01***	***0.00***	***0.00***

	Count									Percentage							
Coll.	Total Sherds	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.
Madereros Eastern Arroyo Line																	
948	107	6	30	11	4	1	0	0	0	0.06	0.28	0.10	0.04	0.01	0.00	0.00	0.00
6196	14	1	3	2	0	0	1	0	0	0.07	0.21	0.14	0.00	0.00	0.07	0.00	0.00
6197	19	1	3	1	0	0	0	0	0	0.05	0.16	0.05	0.00	0.00	0.00	0.00	0.00
6199	28	0	11	0	0	0	0	0	0	0.00	0.39	0.00	0.00	0.00	0.00	0.00	0.00
6200	14	0	2	1	1	0	2	0	0	0.00	0.14	0.07	0.07	0.00	0.14	0.00	0.00
subtotal	***182***	***8***	***49***	***15***	***5***	***1***	***3***	***0***	***0***	***0.04***	***0.27***	***0.08***	***0.03***	***0.01***	***0.02***	***0.00***	***0.00***
Other Madereros Features																	
6170	101	9	21	1	5	0	1	0	0	0.09	0.21	0.01	0.05	0.00	0.01	0.00	0.00
6172	145	22	41	7	5	1	2	0	0	0.15	0.28	0.05	0.03	0.01	0.01	0.00	0.00
subtotal	***246***	***31***	***62***	***8***	***10***	***1***	***3***	***0***	***0***	***0.13***	***0.25***	***0.03***	***0.04***	***0.00***	***0.01***	***0.00***	***0.00***
total	***1900***	***256***	***374***	***97***	***67***	***13***	***11***	***1***	***0***	***0.13***	***0.20***	***0.05***	***0.04***	***0.01***	***0.01***	***0.00***	***0.00***
Callejón del Horno																	
943	106	1	2	0	0	0	62	0	1	0.01	0.02	0.00	0.00	0.00	0.58	0.00	0.01
946	1237	3	36	0	2	5	939	1	38	0.00	0.03	0.00	0.00	0.00	0.76	0.00	0.03
947	31	0	2	0	0	1	17	0	0	0.00	0.06	0.00	0.00	0.03	0.55	0.00	0.00
6002	73	0	7	0	0	0	40	0	5	0.00	0.10	0.00	0.00	0.00	0.55	0.00	0.07
6003	39	0	3	0	0	0	24	0	1	0.00	0.08	0.00	0.00	0.00	0.62	0.00	0.03
6004	31	0	0	0	0	0	16	0	1	0.00	0.00	0.00	0.00	0.00	0.52	0.00	0.03
6005	124	1	7	0	0	1	67	0	3	0.01	0.06	0.00	0.00	0.01	0.54	0.00	0.02
6009	42	0	1	0	0	0	33	0	1	0.00	0.02	0.00	0.00	0.00	0.79	0.00	0.02
6010	55	1	3	0	0	0	32	0	0	0.02	0.05	0.00	0.00	0.00	0.58	0.00	0.00
6011	54	1	5	0	0	0	26	0	4	0.02	0.09	0.00	0.00	0.00	0.48	0.00	0.07
6016	146	1	10	0	0	0	74	0	3	0.01	0.07	0.00	0.00	0.00	0.51	0.00	0.02
6017	31	0	2	0	0	0	22	0	0	0.00	0.06	0.00	0.00	0.00	0.71	0.00	0.00
total	***1969***	***8***	***78***	***0***	***2***	7	***1352***	***1***	***57***	***0.00***	***0.04***	***0.00***	***0.00***	***0.00***	***0.69***	***0.00***	***0.03***
Cerro de los Muertos																	
6034	22	0	1	0	0	0	0	0	0	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00
6045	22	1	10	0	1	0	0	0	0	0.05	0.45	0.00	0.05	0.00	0.00	0.00	0.00
6046	165	6	45	4	0	6	1	0	0	0.04	0.27	0.02	0.00	0.04	0.01	0.00	0.00
6047	20	0	4	1	1	0	1	0	0	0.00	0.20	0.05	0.05	0.00	0.05	0.00	0.00
6050	140	35	13	2	1	1	1	0	0	0.25	0.09	0.01	0.01	0.01	0.01	0.00	0.00
6051	81	21	16	6	3	1	0	0	0	0.26	0.20	0.07	0.04	0.01	0.00	0.00	0.00
6052	13	4	1	1	0	0	0	0	0	0.31	0.08	0.08	0.00	0.00	0.00	0.00	0.00
6053	8	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total	***471***	***67***	***90***	***14***	***6***	***8***	***3***	***0***	***0***	***0.14***	***0.19***	***0.03***	***0.01***	***0.02***	***0.01***	***0.00***	***0.00***
NOPILOA AREA																	
Nopiloa Core																	
949	47	0	3	0	0	1	0	0	0	0.00	0.06	0.00	0.00	0.02	0.00	0.00	0.00
950	1	0	1	0	1	0	0	0	0	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
6203	20	0	3	0	0	0	0	0	0	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00
6204	1	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6230	6	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6245	7	0	1	0	0	0	0	0	0	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00
6246	8	0	3	1	1	0	0	0	0	0.00	0.38	0.13	0.13	0.00	0.00	0.00	0.00
6249	4	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6250	20	0	3	0	2	1	0	0	0	0.00	0.15	0.00	0.10	0.05	0.00	0.00	0.00
6251	18	1	5	0	1	0	0	0	0	0.06	0.28	0.00	0.06	0.00	0.00	0.00	0.00
6252	3	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6253	6	0	2	0	0	0	0	0	0	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00
6254	19	0	4	1	1	0	0	0	0	0.00	0.21	0.05	0.05	0.00	0.00	0.00	0.00
6258	30	0	8	1	1	0	0	0	0	0.00	0.27	0.03	0.03	0.00	0.00	0.00	0.00

Table A1.4. Counts and percentages of sherds according to periods for PALM 1 and 2 monumental complexes *(continued)*

	Count									Percentage							
Coll.	Total Sherds	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.
6259	5	0	1	0	0	0	0	0	0	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00
6260	6	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6261	8	0	2	0	0	1	2	0	0	0.00	0.25	0.00	0.00	0.13	0.25	0.00	0.00
6262	11	0	2	0	0	1	0	0	0	0.00	0.18	0.00	0.00	0.09	0.00	0.00	0.00
6263	18	0	3	0	0	0	0	0	0	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00
6264	3	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6265	1	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6268	2	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6269	4	0	1	0	0	0	0	0	0	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00
6270	7	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6271	14	0	2	0	0	0	0	0	0	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00
6273	2	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6274	3	0	0	0	2	0	0	0	0	0.00	0.00	0.00	0.67	0.00	0.00	0.00	0.00
6275	3	0	1	0	0	1	0	0	0	0.00	0.33	0.00	0.00	0.33	0.00	0.00	0.00
6277	2	0	1	0	0	0	0	0	0	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00
6278	7	0	3	0	0	1	0	0	0	0.00	0.43	0.00	0.00	0.14	0.00	0.00	0.00
6291	2	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total	***288***	***1***	***49***	***3***	***9***	***6***	***2***	***0***	***0***	***0.00***	***0.17***	***0.01***	***0.03***	***0.02***	***0.01***	***0.00***	***0.00***
Platform 6234 Complex																	
952	123	5	39	2	0	0	0	0	0	0.04	0.32	0.02	0.00	0.00	0.00	0.00	0.00
6234	415	2	95	4	11	22	15	0	0	0.00	0.23	0.01	0.03	0.05	0.04	0.00	0.00
6237	119	0	27	0	3	7	7	0	0	0.00	0.23	0.00	0.03	0.06	0.06	0.00	0.00
6239	7	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6248	12	0	1	0	1	0	0	0	0	0.00	0.08	0.00	0.08	0.00	0.00	0.00	0.00
6285	4	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6292	1	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6293	155	1	28	0	0	2	0	0	0	0.01	0.18	0.00	0.00	0.01	0.00	0.00	0.00
6295	7	0	0	0	0	0	1	0	0	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00
total	***843***	***8***	***190***	***6***	***15***	***31***	***23***	***0***	***0***	***0.01***	***0.23***	***0.01***	***0.02***	***0.04***	***0.03***	***0.00***	***0.00***
Platform 6309 Complex																	
953	116	0	33	2	0	6	5	0	0	0.00	0.28	0.02	0.00	0.05	0.04	0.00	0.00
954	21	0	4	0	0	0	0	0	0	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00
6309	39	0	7	0	0	2	2	0	0	0.00	0.18	0.00	0.00	0.05	0.05	0.00	0.00
6313	19	0	5	1	0	0	0	0	0	0.00	0.26	0.05	0.00	0.00	0.00	0.00	0.00
6314	54	0	12	0	0	1	0	0	0	0.00	0.22	0.00	0.00	0.02	0.00	0.00	0.00
6321	2	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6324	14	0	4	1	4	0	0	0	0	0.00	0.29	0.07	0.29	0.00	0.00	0.00	0.00
6325	183	0	55	2	5	5	0	0	0	0.00	0.30	0.01	0.03	0.03	0.00	0.00	0.00
total	***448***	***0***	***120***	***6***	***9***	***14***	7	***0***	***0***	***0.00***	***0.27***	***0.01***	***0.02***	***0.03***	***0.02***	***0.00***	***0.00***
Platform 6404 Complex																	
6404	37	0	7	1	1	2	0	0	0	0.00	0.19	0.03	0.03	0.05	0.00	0.00	0.00
6417	7	0	2	0	0	0	0	0	0	0.00	0.29	0.00	0.00	0.00	0.00	0.00	0.00
6418	1	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total	***45***	***0***	***9***	***1***	***1***	***2***	***0***	***0***	***0***	***0.00***	***0.20***	***0.02***	***0.02***	***0.04***	***0.00***	***0.00***	***0.00***
Platform 6404 Nearby Features																	
6416	39	0	17	0	0	6	0	0	0	0	0.44	0	0	0.154	0	0	0
6452	14	0	5	0	0	1	0	0	0	0	0.36	0	0	0.071	0	0	0
6453	57	0	20	0	3	13	0	0	0	0	0.35	0	0.053	0.228	0	0	0
total	*200*	*0*	*60*	*2*	*5*	*24*	*0*	*0*	*0*								
Platform 6409 Complex																	
6406	52	1	10	0	1	5	0	0	0	0.02	0.19	0.00	0.02	0.10	0.00	0.00	0.00
6407	269	0	85	4	7	57	2	0	0	0.00	0.32	0.01	0.03	0.21	0.01	0.00	0.00

	Count									Percentage							
Coll.	Total Sherds	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.
6408	11	0	0	0	0	0	1	0	0	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00
6409	115	2	28	2	1	8	2	0	0	0.02	0.24	0.02	0.01	0.07	0.02	0.00	0.00
total	***447***	***3***	***123***	***6***	***9***	***70***	***5***	***0***	***0***	***0.01***	***0.28***	***0.01***	***0.02***	***0.16***	***0.01***	***0.00***	***0.00***
GUERENGO DRAINAGE COMPLEXES																	
Loma de Pinchones South																	
6365	3	0	1	0	0	0	0	0	0	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00
6367	4	0	1	0	0	0	0	0	0	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00
6369	3	0	2	0	0	0	0	0	0	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00
6370	14	0	3	1	0	0	0	0	0	0.00	0.21	0.07	0.00	0.00	0.00	0.00	0.00
total	***24***	***0***	7	***1***	***0***	***0***	***0***	***0***	***0***	***0.00***	***0.29***	***0.04***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***
Loma de Pinchones North																	
6371	9	0	2	1	0	0	0	0	0	0.00	0.22	0.11	0.00	0.00	0.00	0.00	0.00
6372	33	1	13	1	1	2	0	0	0	0.03	0.39	0.03	0.03	0.06	0.00	0.00	0.00
6373	6	0	3	1	0	0	0	0	0	0.00	0.50	0.17	0.00	0.00	0.00	0.00	0.00
6374	13	0	5	0	0	0	0	0	0	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.00
6376	1	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6378	1	0	1	1	0	0	0	0	0	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
6380	9	0	2	0	0	0	0	0	0	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00
6381	81	3	29	3	6	1	0	0	0	0.04	0.36	0.04	0.07	0.01	0.00	0.00	0.00
total	***153***	***4***	***55***	7	7	***3***	***0***	***0***	***0***	***0.03***	***0.36***	***0.05***	***0.05***	***0.02***	***0.00***	***0.00***	***0.00***
Nuevo Porvenir West																	
6421	2	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6422	2	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6423	6	1	1	0	0	0	0	0	0	0.17	0.17	0.00	0.00	0.00	0.00	0.00	0.00
6425	44	0	16	0	0	2	0	0	0	0.00	0.36	0.00	0.00	0.05	0.00	0.00	0.00
6426	3	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total	***57***	***1***	***17***	***0***	***0***	***2***	***0***	***0***	***0***	***0.02***	***0.30***	***0.00***	***0.00***	***0.04***	***0.00***	***0.00***	***0.00***
Dicha Tuerta																	
Dicha Tuerta North Group																	
6427	76	0	27	8	3	2	0	0	0	0.00	0.36	0.11	0.04	0.03	0.00	0.00	0.00
6428	2	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6429	1	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6430	67	0	17	0	3	0	0	0	0	0.00	0.25	0.00	0.04	0.00	0.00	0.00	0.00
6431	9	0	1	0	0	0	0	0	0	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00
6432	3	0	1	0	0	0	0	0	0	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00
6459	18	0	2	0	0	0	0	0	0	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00
6480	15	0	3	0	1	0	3	0	1	0.00	0.20	0.00	0.07	0.00	0.20	0.00	0.07
subtotal	***191***	***0***	***51***	***8***	7	***2***	***3***	***0***	***1***	***0.00***	***0.27***	***0.04***	***0.04***	***0.01***	***0.02***	***0.00***	***0.01***
Dicha Tuerta South Group																	
6433	5	0	1	0	0	0	0	0	0	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00
6434	14	0	8	0	0	0	0	0	0	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00
6436	12	0	5	0	0	0	0	0	0	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.00
6438	31	0	14	0	0	1	0	0	0	0.00	0.45	0.00	0.00	0.03	0.00	0.00	0.00
6439	6	0	4	0	0	0	0	0	0	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00
6440	46	0	13	0	0	1	0	0	0	0.00	0.28	0.00	0.00	0.02	0.00	0.00	0.00
6441	36	1	15	0	0	1	0	0	0	0.03	0.42	0.00	0.00	0.03	0.00	0.00	0.00
6442	9	0	3	0	0	0	0	0	0	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00
6443	154	0	58	1	7	3	1	0	0	0.00	0.38	0.01	0.05	0.02	0.01	0.00	0.00
6444	99	1	35	2	2	10	0	0	0	0.01	0.35	0.02	0.02	0.10	0.00	0.00	0.00
6462	1	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6463	82	2	26	2	2	3	0	0	0	0.02	0.32	0.02	0.02	0.04	0.00	0.00	0.00
6464	13	1	7	0	0	0	0	0	0	0.08	0.54	0.00	0.00	0.00	0.00	0.00	0.00
subtotal	***508***	***5***	***189***	***5***	***11***	***19***	***1***	***0***	***0***	***0.01***	***0.37***	***0.01***	***0.02***	***0.04***	***0.00***	***0.00***	***0.00***
total	***699***	***5***	***240***	***13***	***18***	***21***	***4***	***0***	***1***	***0.01***	***0.34***	***0.02***	***0.03***	***0.03***	***0.01***	***0.00***	***0.00***

Table A1.4. Counts and percentages of sherds according to periods for PALM 1 and 2 monumental complexes *(continued)*

	Count									Percentage							
Coll.	Total Sherds	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.
INTERFLUVE COMPLEXES																	
Canal 2																	
6831	49	16	9	1	2	0	0	0	0	0.33	0.18	0.02	0.04	0.00	0.00	0.00	0.00
6832	66	18	2	1	0	1	0	0	0	0.27	0.03	0.02	0.00	0.02	0.00	0.00	0.00
6833	45	8	5	1	2	0	0	0	0	0.18	0.11	0.02	0.04	0.00	0.00	0.00	0.00
6886	117	5	22	2	5	0	0	0	0	0.04	0.19	0.02	0.04	0.00	0.00	0.00	0.00
6888	68	6	8	2	2	0	0	0	0	0.09	0.12	0.03	0.03	0.00	0.00	0.00	0.00
6889	19	1	4	0	1	0	0	0	0	0.05	0.21	0.00	0.05	0.00	0.00	0.00	0.00
6891	61	7	13	4	0	0	0	0	0	0.11	0.21	0.07	0.00	0.00	0.00	0.00	0.00
6892	27	1	13	5	1	0	0	0	0	0.04	0.48	0.19	0.04	0.00	0.00	0.00	0.00
6893	28	0	10	2	2	0	0	0	0	0.00	0.36	0.07	0.07	0.00	0.00	0.00	0.00
6894	45	1	10	0	3	0	0	0	0	0.02	0.22	0.00	0.07	0.00	0.00	0.00	0.00
6895	51	1	12	0	0	0	0	0	0	0.02	0.24	0.00	0.00	0.00	0.00	0.00	0.00
total	***576***	***64***	***108***	***18***	***18***	***1***	***0***	***0***	***0***	***0.11***	***0.19***	***0.03***	***0.03***	***0.00***	***0.00***	***0.00***	***0.00***
Loma																	
6205	31	0	3	0	0	0	0	0	0	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00
6206	24	0	6	0	1	2	0	0	0	0.00	0.25	0.00	0.04	0.08	0.00	0.00	0.00
6207	14	0	2	0	0	0	0	0	0	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00
6208	2	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6209	1	0	1	0	0	0	0	0	0	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
6212	62	0	1	0	1	1	0	0	0	0.00	0.02	0.00	0.02	0.02	0.00	0.00	0.00
6213	8	0	1	0	0	1	0	0	0	0.00	0.13	0.00	0.00	0.13	0.00	0.00	0.00
6214	161	0	35	7	6	2	0	0	0	0.00	0.22	0.04	0.04	0.01	0.00	0.00	0.00
6215	8	0	1	1	0	0	0	0	0	0.00	0.13	0.13	0.00	0.00	0.00	0.00	0.00
6216	3	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6217	2	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6218	1	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6219	1	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6231	13	0	2	0	0	2	0	0	0	0.00	0.15	0.00	0.00	0.15	0.00	0.00	0.00
6236	60	0	7	0	2	0	1	0	0	0.00	0.12	0.00	0.03	0.00	0.02	0.00	0.00
total	***391***	***0***	***59***	***8***	***10***	***8***	***1***	***0***	***0***	***0.00***	***0.15***	***0.02***	***0.03***	***0.02***	***0.00***	***0.00***	***0.00***
TUZALES AREA																	
Tuzales North																	
6797	126	8	27	10	2	1	1	0	0	0.06	0.21	0.08	0.02	0.01	0.01	0.00	0.00
6798	118	6	40	9	2	0	0	0	0	0.05	0.34	0.08	0.02	0.00	0.00	0.00	0.00
6799	68	18	17	4	5	0	0	0	0	0.26	0.25	0.06	0.07	0.00	0.00	0.00	0.00
6800	124	22	42	8	5	0	1	0	0	0.18	0.34	0.06	0.04	0.00	0.01	0.00	0.00
6835	6	0	2	0	0	0	0	0	0	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00
6836	97	2	21	2	1	1	0	0	0	0.02	0.22	0.02	0.01	0.01	0.00	0.00	0.00
6845	34	6	10	2	0	0	0	0	0	0.18	0.29	0.06	0.00	0.00	0.00	0.00	0.00
6847	24	4	8	3	0	0	0	0	0	0.17	0.33	0.13	0.00	0.00	0.00	0.00	0.00
6848	47	3	16	6	2	0	1	0	0	0.06	0.34	0.13	0.04	0.00	0.02	0.00	0.00
6849	41	2	5	2	0	0	1	0	0	0.05	0.12	0.05	0.00	0.00	0.02	0.00	0.00
6850	36	5	8	0	0	0	0	0	0	0.14	0.22	0.00	0.00	0.00	0.00	0.00	0.00
6851	54	2	13	0	0	2	0	0	0	0.04	0.24	0.00	0.00	0.04	0.00	0.00	0.00
6852	74	11	19	5	3	1	0	0	0	0.15	0.26	0.07	0.04	0.01	0.00	0.00	0.00
6853	5	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total	***854***	***89***	***228***	***51***	***20***	***5***	***4***	***0***	***0***	***0.10***	***0.27***	***0.06***	***0.02***	***0.01***	***0.00***	***0.00***	***0.00***
Tuzales																	
6854	22	6	3	0	0	0	0	0	0	0.27	0.14	0.00	0.00	0.00	0.00	0.00	0.00
6855	87	24	18	3	1	0	0	0	0	0.28	0.21	0.03	0.01	0.00	0.00	0.00	0.00
6856	77	19	28	2	1	0	0	0	0	0.25	0.36	0.03	0.01	0.00	0.00	0.00	0.00
6857	14	1	3	0	0	0	0	0	0	0.07	0.21	0.00	0.00	0.00	0.00	0.00	0.00

	Count									Percentage							
Coll.	Total Sherds	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.
6858	2	1	0	0	0	0	0	0	0	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6859	17	1	5	0	1	0	0	0	0	0.06	0.29	0.00	0.06	0.00	0.00	0.00	0.00
6860	107	7	20	4	1	0	0	0	0	0.07	0.19	0.04	0.01	0.00	0.00	0.00	0.00
6861	40	8	12	0	2	0	0	0	0	0.20	0.30	0.00	0.05	0.00	0.00	0.00	0.00
6862	30	14	8	0	1	0	0	0	0	0.47	0.27	0.00	0.03	0.00	0.00	0.00	0.00
6863	50	9	26	4	0	0	0	0	0	0.18	0.52	0.08	0.00	0.00	0.00	0.00	0.00
total	***446***	***90***	***123***	***13***	7	***0***	***0***	***0***	***0***	***0.20***	***0.28***	***0.03***	***0.02***	***0.00***	***0.00***	***0.00***	***0.00***
Tuzales South																	
total	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***								
Recreo																	
7155	3	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total	***3***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***
Recreo South																	
7064	217	1	76	18	5	5	1	1	0	0.00	0.35	0.08	0.02	0.02	0.00	0.00	0.00
7065	31	0	12	2	0	1	0	0	0	0.00	0.39	0.06	0.00	0.03	0.00	0.00	0.00
total	***248***	***1***	***88***	***20***	***5***	***6***	***1***	***1***	***0***	***0.00***	***0.35***	***0.08***	***0.02***	***0.02***	***0.00***	***0.00***	***0.00***
PALEODUNES																	
Ajitos																	
Ajitos North Group																	
961	95	0	18	0	0	5	0	0	0	0.00	0.19	0.00	0.00	0.05	0.00	0.00	0.00
6872	3	0	1	0	0	1	0	0	0	0.00	0.33	0.00	0.00	0.33	0.00	0.00	0.00
6873	4	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6874	10	0	2	0	0	0	0	0	0	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00
6875	31	0	3	0	0	0	0	0	0	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00
6876	4	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6877	4	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6878	13	0	1	0	0	1	0	0	0	0.00	0.08	0.00	0.00	0.08	0.00	0.00	0.00
6879	15	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6900	16	0	1	0	0	1	0	0	0	0.00	0.06	0.00	0.00	0.06	0.00	0.00	0.00
6903	2	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6907	13	0	1	0	0	0	0	0	0	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00
subtotal	***210***	***0***	***27***	***0***	***0***	***8***	***0***	***0***	***0***	***0.00***	***0.13***	***0.00***	***0.00***	***0.04***	***0.00***	***0.00***	***0.00***
Ajitos South Group																	
960	73	1	9	0	0	2	0	0	0	0.01	0.12	0.00	0.00	0.03	0.00	0.00	0.00
6866	4	0	1	0	0	0	0	0	0	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00
6867	1	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6868	5	0	1	1	0	0	0	0	0	0.00	0.20	0.20	0.00	0.00	0.00	0.00	0.00
6869	3	0	1	0	0	0	0	0	0	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00
6880	14	0	4	0	0	0	0	0	0	0.00	0.29	0.00	0.00	0.00	0.00	0.00	0.00
6881	5	0	1	0	0	0	0	0	0	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00
6899	13	0	2	1	0	0	0	0	0	0.00	0.15	0.08	0.00	0.00	0.00	0.00	0.00
subtotal	***118***	***1***	***19***	***2***	***0***	***2***	***0***	***0***	***0***	***0.01***	***0.16***	***0.02***	***0.00***	***0.02***	***0.00***	***0.00***	***0.00***
total	***328***	***1***	***46***	***2***	***0***	***10***	***0***	***0***	***0***	***0.00***	***0.14***	***0.01***	***0.00***	***0.03***	***0.00***	***0.00***	***0.00***
Pitos																	
total	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***								
Vibora																	
962	1	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6930	14	0	0	0	0	0	2	0	0	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00
total	***15***	***0***	***0***	***0***	***0***	***0***	***2***	***0***	***0***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.13***	***0.00***	***0.00***
Ajitos East																	
6885	1	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6898	5	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6905	3	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total	***9***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***

Table A1.4. Counts and percentages of sherds according to periods for PALM 1 and 2 monumental complexes *(continued)*

	Count									Percentage							
Coll.	Total Sherds	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.
MANGROVES																	
Boca de Santa Catarina																	
6979	163	0	28	1	2	19	3	0	0	0.00	0.17	0.01	0.01	0.12	0.02	0.00	0.00
6980	26	0	4	1	0	1	0	0	0	0.00	0.15	0.04	0.00	0.04	0.00	0.00	0.00
6981	103	1	26	1	0	19	0	0	0	0.01	0.25	0.01	0.00	0.18	0.00	0.00	0.00
6982	14	0	2	0	0	1	1	0	0	0.00	0.14	0.00	0.00	0.07	0.07	0.00	0.00
6983	2	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6986	4	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total	***312***	***1***	***60***	***3***	***2***	***40***	***4***	***0***	***0***	***0.00***	***0.19***	***0.01***	***0.01***	***0.13***	***0.01***	***0.00***	***0.00***
Nacatle-Patarata Settlement																	
Tio Perciliano																	
6959	22	0	4	0	0	2	0	0	0	0.00	0.18	0.00	0.00	0.09	0.00	0.00	0.00
6960	9	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6961	121	0	13	1	1	7	0	0	0	0.00	0.11	0.01	0.01	0.06	0.00	0.00	0.00
6962	8	0	2	0	0	0	0	0	0	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00
6963	1	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6965	22	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6966	174	0	23	1	1	11	0	0	0	0.00	0.13	0.01	0.01	0.06	0.00	0.00	0.00
6969	17	0	2	0	1	0	0	0	0	0.00	0.12	0.00	0.06	0.00	0.00	0.00	0.00
6970	16	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6971	25	0	4	0	0	4	0	0	0	0.00	0.16	0.00	0.00	0.16	0.00	0.00	0.00
6972	5	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6973	10	0	3	0	0	0	0	0	0	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00
6974	10	0	2	0	0	1	0	0	0	0.00	0.20	0.00	0.00	0.10	0.00	0.00	0.00
6975	88	0	6	0	0	2	0	0	0	0.00	0.07	0.00	0.00	0.02	0.00	0.00	0.00
6976	5	0	1	0	0	1	0	0	0	0.00	0.20	0.00	0.00	0.20	0.00	0.00	0.00
6978	2	0	1	0	0	1	0	0	0	0.00	0.50	0.00	0.00	0.50	0.00	0.00	0.00
total	***535***	***0***	***61***	***2***	***3***	***29***	***0***	***0***	***0***	***0.00***	***0.11***	***0.00***	***0.01***	***0.05***	***0.00***	***0.00***	***0.00***
Palma Real																	
7100	12	0	2	0	0	0	1	0	0	0.00	0.17	0.00	0.00	0.00	0.08	0.00	0.00
7129	105	0	18	1	0	2	2	0	0	0.00	0.17	0.01	0.00	0.02	0.02	0.00	0.00
total	***117***	***0***	***20***	***1***	***0***	***2***	***3***	***0***	***0***	***0.00***	***0.17***	***0.01***	***0.00***	***0.02***	***0.03***	***0.00***	***0.00***
Nacastle																	
963	141	0	25	0	0	13	0	0	0	0.00	0.18	0.00	0.00	0.09	0.00	0.00	0.00
6948	31	0	2	0	0	1	0	0	0	0.00	0.06	0.00	0.00	0.03	0.00	0.00	0.00
6949	169	0	15	0	1	7	1	0	0	0.00	0.09	0.00	0.01	0.04	0.01	0.00	0.00
6950	133	0	27	0	0	25	1	0	0	0.00	0.20	0.00	0.00	0.19	0.01	0.00	0.00
6952	33	0	2	0	0	2	0	0	0	0.00	0.06	0.00	0.00	0.06	0.00	0.00	0.00
total	***507***	***0***	***71***	***0***	***1***	***48***	***2***	***0***	***0***	***0.00***	***0.14***	***0.00***	***0.00***	***0.09***	***0.00***	***0.00***	***0.00***
Costa de San Juan																	
7173	64	0	9	1	0	2	0	0	0	0.00	0.14	0.02	0.00	0.03	0.00	0.00	0.00
total	***64***	***0***	***9***	***1***	***0***	***2***	***0***	***0***	***0***	***0.00***	***0.14***	***0.02***	***0.00***	***0.03***	***0.00***	***0.00***	***0.00***
Patarata East																	
6989	69	1	4	2	3	1	0	0	0	0.01	0.06	0.03	0.04	0.01	0.00	0.00	0.00
6990	22	0	6	2	0	0	0	0	0	0.00	0.27	0.09	0.00	0.00	0.00	0.00	0.00
6991	45	0	10	0	1	9	0	0	0	0.00	0.22	0.00	0.02	0.20	0.00	0.00	0.00
6992	138	0	21	2	4	9	0	0	0	0.00	0.15	0.01	0.03	0.07	0.00	0.00	0.00
total	***274***	***1***	***41***	***6***	***8***	***19***	***0***	***0***	***0***	***0.00***	***0.15***	***0.02***	***0.03***	***0.07***	***0.00***	***0.00***	***0.00***
OTHER LARGE STRUCTURES (CA. 7-15 M GRAND HEIGHT) AND ASSOCIATED FEATURES																	
Cerro de las Mesas Vicinity																	
Complex 422 (plaza group on platform 424)																	
420	16	0	4	1	1	0	1	1	0	0.00	0.25	0.06	0.06	0.00	0.06	0.06	0.00
423	12	0	4	0	0	0	0	0	0	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00
total	***28***	***0***	***8***	***1***	***1***	***0***	***1***	***1***	***0***	***0.00***	***0.29***	***0.04***	***0.04***	***0.00***	***0.04***	***0.04***	***0.00***

	Count									Percentage							
Coll.	Total Sherds	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.	Pre-clas.	Clas.	Early Clas.	Early Clas. Tend.	Late Clas.	Post-clas.	Middle Post-clas.	Late Post-clas.
Complex 847 (contiguous structures)																	
846	10	1	6	0	1	0	1	0	0	0.10	0.60	0.00	0.10	0.00	0.10	0.00	0.00
845	92	20	24	0	0	1	3	0	0	0.22	0.26	0.00	0.00	0.01	0.03	0.00	0.00
total	***102***	***21***	***30***	***0***	***1***	***1***	***4***	***0***	***0***	***0.21***	***0.29***	***0.00***	***0.01***	***0.01***	***0.04***	***0.00***	***0.00***
Complex 104 (conical mound group)																	
104	114	28	34	3	4	1	1	0	0	0.25	0.30	0.03	0.04	0.01	0.01	0.00	0.00
134	113	3	24	0	1	5	24	1	0	0.03	0.21	0.00	0.01	0.04	0.21	0.01	0.00
106	66	13	9	0	2	0	7	0	0	0.20	0.14	0.00	0.03	0.00	0.11	0.00	0.00
101	151	13	19	1	2	1	35	5	1	0.09	0.13	0.01	0.01	0.01	0.23	0.03	0.01
102	32	4	8	2	0	1	0	0	0	0.125	0.25	0.0625	0	0.03	0	0	0
929	32	3	5	0	2	0	3	0	0	0.09	0.16	0.00	0.06	0.00	0.09	0.00	0.00
total	***508***	***64***	***99***	***6***	***11***	***8***	***70***	***6***	***1***	***0.13***	***0.19***	***0.01***	***0.02***	***0.02***	***0.14***	***0.01***	***0.00***
Zapotal Vicinity																	
Complex 1564 (contiguous structures)																	
1567	14	0	7	0	0	4	3	0	0	0.00	0.50	0.00	0.00	0.29	0.21	0.00	0.00
1566	108	0	23	0	1	5	25	1	1	0.00	0.21	0.00	0.01	0.05	0.23	0.01	0.01
1565	110	0	39	0	1	2	18	0	4	0.00	0.35	0.00	0.01	0.02	0.16	0.00	0.04
1499	82	0	15	0	0	3	12	4	0	0.00	0.18	0.00	0.00	0.04	0.15	0.05	0.00
1563	141	0	54	2	0	13	21	0	0	0.00	0.38	0.01	0.00	0.09	0.15	0.00	0.00
total	***455***	***0***	***138***	***2***	***2***	***27***	***79***	***5***	***5***	***0.00***	***0.30***	***0.00***	***0.00***	***0.06***	***0.17***	***0.01***	***0.01***
Complex 1377 (associated with extended access platform 1373)																	
1377	68	0	25	1	2	5	5	0	0	0.00	0.37	0.01	0.03	0.07	0.07	0.00	0.00
total	***68***	***0***	***25***	***1***	***2***	***5***	***5***	***0***	***0***	***0.00***	***0.37***	***0.01***	***0.03***	***0.07***	***0.07***	***0.00***	***0.00***
Complex 1464 (contiguous structures)																	
1464	53	0	19	0	1	2	2	2	0	0.00	0.36	0.00	0.02	0.04	0.04	0.04	0.00
1463	123	0	48	4	4	5	2	0	0	0.00	0.39	0.03	0.03	0.04	0.02	0.00	0.00
1466	218	0	60	2	0	10	58	9	0	0.00	0.28	0.01	0.00	0.05	0.27	0.04	0.00
1465	101	0	41	1	0	5	8	2	1	0.00	0.41	0.01	0.00	0.05	0.08	0.02	0.01
1461	95	1	41	1	4	5	3	1	0	0.01	0.43	0.01	0.04	0.05	0.03	0.01	0.00
1462	139	0	65	4	1	9	1	0	0	0.00	0.47	0.03	0.01	0.06	0.01	0.00	0.00
total	***729***	***1***	***274***	***12***	***10***	***36***	***74***	***14***	***1***	***0.00***	***0.38***	***0.02***	***0.01***	***0.05***	***0.10***	***0.02***	***0.00***
Complex 1574 (conical mound group)																	
1574	38	0	17	0	2	1	0	0	0	0.00	0.45	0.00	0.05	0.03	0.00	0.00	0.00
total	***38***	***0***	***17***	***0***	***2***	***1***	***0***	***0***	***0***	***0.00***	***0.45***	***0.00***	***0.05***	***0.03***	***0.00***	***0.00***	***0.00***
Complex 1613 (conical-on-platform 1609 and contiguous mounds)																	
1610	98	1	26	0	1	6	9	0	0	0.01	0.27	0.00	0.01	0.06	0.09	0.00	0.00
1615	127	0	37	0	1	5	5	0	0	0.00	0.29	0.00	0.01	0.04	0.04	0.00	0.00
1606	180	0	53	3	4	6	5	1	0	0.00	0.29	0.02	0.02	0.03	0.03	0.01	0.00
total	***405***	***1***	***116***	***3***	***6***	***17***	***19***	***1***	***0***	***0.00***	***0.29***	***0.01***	***0.01***	***0.04***	***0.05***	***0.00***	***0.00***
Complex 1613 (conical-on-platform 1609 and contiguous mounds)																	
1730	109	22	23	3	1	0	1	0	0	0.2	0.21	0.03	0.01	0	0.01	0	0
6584	55	8	5	0	0	0	6	0	0	0.15	0.09	0	0	0	0.11	0	0
6583	126	7	28	2	4	4	7	0	0	0.06	0.22	0.02	0.03	0.03	0.06	0	0
6640	38	10	5	0	0	1	0	0	0	0.26	0.13	0	0	0.03	0	0	0
total	**328**	**47**	**61**	**5**	**5**	**5**	**14**	**0**	**0**	***0.14***	***0.19***	***0.02***	***0.02***	***0.02***	***0.04***	***0.00***	***0.00***

Table A1.5. Counts and percentages of rims according to periods for monumental complexes in Speaker's (2001b) survey

	Count							Percentage					
Collection Number	Total Rims	Pre-classic	Classic	Late Classic	Post-classic	Middle Post-classic	Late Post-classic	Pre-classic	Classic	Late Classic	Post-classic	Middle Post-classic	Late Post-classic
COMPLEXES NORTH OF THE CENTRAL BLOCK													
Paso de las Mulas													
5053	77	3	26	0	2	0	0	0.04	0.34	0.00	0.03	0.00	0.00
5054	3	0	2	0	0	0	0	0.00	0.67	0.00	0.00	0.00	0.00
5056	21	1	8	3	2	0	0	0.05	0.38	0.14	0.10	0.00	0.00
5060	13	0	3	0	0	0	0	0.00	0.23	0.00	0.00	0.00	0.00
total	*114*	*4*	*39*	*3*	*4*	*0*	*0*	*0.04*	*0.34*	*0.03*	*0.04*	*0.00*	*0.00*
Rincón del Tigre													
5173	20	1	6	0	3	0	0	0.05	0.30	0.00	0.15	0.00	0.00
5174	0	0	0	0	0	0	0						
5175	30	4	10	0	0	0	0	0.13	0.33	0.00	0.00	0.00	0.00
total	*50*	*5*	*16*	*0*	*3*	*0*	*0*	*0.10*	*0.32*	*0.00*	*0.06*	*0.00*	*0.00*
Rincón del Tigre Norte													
5151	90	27	21	0	0	0	0	0.30	0.23	0.00	0.00	0.00	0.00
5161	7	3	1	0	0	0	0	0.43	0.14	0	0	0	0
5162	3	1	1	0	0	0	0	0.33	0.33	0	0	0	0
5177	33	1	6	2	6	1	0	0.03	0.18	0.06	0.18	0.03	0.00
total	*133*	*32*	*29*	*2*	*6*	*1*	*0*	*0.24*	*0.22*	*0.02*	*0.05*	*0.01*	*0.00*
Platform 5140 Complex													
5139	29	0	8	0	0	0	0	0.00	0.28	0.00	0.00	0.00	0.00
5140	58	2	17	2	0	0	0	0.03	0.29	0.03	0.00	0.00	0.00
total	*87*	*2*	*25*	*2*	*0*	*0*	*0*	*0.02*	*0.29*	*0.02*	*0.00*	*0.00*	*0.00*
COMPLEXES SOUTHEAST OF THE CENTRAL BLOCK													
Lobato													
5432	134	0	42	7	13	0	0	0.00	0.31	0.05	0.10	0.00	0.00
5433	192	0	56	16	7	0	0	0.00	0.29	0.08	0.04	0.00	0.00
5434	107	2	32	10	2	0	0	0.02	0.30	0.09	0.02	0.00	0.00
5435	196	0	55	20	1	0	0	0.00	0.28	0.10	0.01	0.00	0.00
5450	178	0	63	41	2	0	0	0.00	0.35	0.23	0.01	0.00	0.00
5452	235	1	53	30	17	1	0	0.00	0.23	0.13	0.07	0.00	0.00
total	*1042*	*3*	*301*	*124*	*42*	*1*	*0*	*0.00*	*0.29*	*0.12*	*0.04*	*0.00*	*0.00*
COMPLEXES SOUTH AND WEST OF THE CENTRAL BLOCK													
Salto													
5231	14	4	5	0	0	0	0	0.29	0.36	0.00	0.00	0.00	0.00
5232	28	7	10	0	3	1	0	0.25	0.36	0.00	0.11	0.04	0.00
5233	1	1	0	0	0	0	0	1.00	0.00	0.00	0.00	0.00	0.00
5234	10	3	3	0	0	0	0	0.30	0.30	0.00	0.00	0.00	0.00
5235	24	4	5	1	0	0	0	0.17	0.21	0.04	0.00	0.00	0.00
5236	55	12	18	1	0	0	0	0.22	0.33	0.02	0.00	0.00	0.00
5237	63	7	16	2	0	0	0	0.11	0.25	0.03	0.00	0.00	0.00
5238	39	1	15	1	0	0	0	0.03	0.38	0.03	0.00	0.00	0.00
5239	32	0	13	0	0	0	0	0.00	0.41	0.00	0.00	0.00	0.00
5240	18	3	6	0	0	0	0	0.17	0.33	0.00	0.00	0.00	0.00
5241	78	1	29	3	2	0	0	0.01	0.34	0.04	0.03	0	0
5242	310	1	96	18	10	1	1	0.00	0.31	0.06	0.035	0.00	0.00
5243	172	13	53	3	21	0	0	0.08	0.31	0.02	0.12	0	0
5244	59	1	23	2	1	0	0	0.02	0.39	0.03	0.02	0.00	0.00
5245	113	4	39	4	3	0	0	0.04	0.35	0.03	0.03	0	0
total	*1016*	*62*	*331*	*35*	*40*	*2*	*1*	*0.06*	*0.33*	*0.03*	*0.04*	*0.00*	*0.00*

	Count							Percentage					
Collection Number	Total Rims	Pre-classic	Classic	Late Classic	Post-classic	Middle Post-classic	Late Post-classic	Pre-classic	Classic	Late Classic	Post-classic	Middle Post-classic	Late Post-classic
Salto Norte													
5182	147	36	35	0	0	0	0	0.24	0.24	0.00	0.00	0.00	0.00
5194	14	6	1	0	1	0	0	0.43	0.07	0.00	0.07	0.00	0.00
5196	160	8	41	1	22	1	0	0.05	0.26	0.01	0.14	0.01	0.00
5199	17	3	4	0	1	0	0	0.18	0.24	0.00	0.06	0.00	0.00
5203	198	5	63	5	11	0	0	0.03	0.32	0.03	0.06	0.00	0.00
total	*536*	*58*	*144*	*6*	*35*	*1*	*0*	*0.11*	*0.27*	*0.01*	*0.07*	*0.00*	*0.00*
OTHER LARGE STRUCTURES (CA. 7-15 M GRAND HEIGHT) AND ASSOCIATED FEATURES													
Zone 1													
Complex 5489 (plaza group)													
5489	9	1	4	0	0	0	0	0.11	0.44	0.00	0.00	0.00	0.00
5491	1	1	0	0	0	0	0	1.00	0.00	0.00	0.00	0.00	0.00
5492	27	1	15	0	1	0	0	0.04	0.56	0.00	0.04	0.00	0.00
5490	17	2	6	1	0	0	0	0.12	0.35	0.06	0.00	0.00	0.00
total	*54*	*5*	*25*	*1*	*1*	*0*	*0*	*0.09*	*0.46*	*0.02*	*0.02*	*0.00*	*0.00*

Table A1.6. Monumental platform dimensions and associated structures

		Platform Measurements				Features on Top							
Coll or Fea No.	Abbr.	Len m	Width m	Hgt m	Grand Hgt m	Linear Mound	L-shape Linear Mounds	U-shape Linear Mounds	Oval/ Round Mound	None	Conical Mound	Ramp/ Stair for Conical	Terrace for Linear Mound
Cerro de las Mesas Settlement Core													
36	CM	120.0	120.0	3.2	3.2	1					1	1	
45	CM	102.0	79.0	6.9	6.9	1							
59	CM	80.0	65.0	2.8	2.8						1		
64	CM	91.0	73.0	5.3	5.3				1				
98	CM	168.0	141.0	6.9	6.9	1			2				
71	CM	61.0	54.0	4.4	4.4								
924	CV	116.0	64.0	2.6	2.6		1		1		1		
588	OJ	101.0	84.0	2.9	2.9					1			
712	OJ	162.0	133.0	5.8	5.8				1		1		
715	OJ	109.0	91.0	5.9	5.9					1			
716	OJ	99.0	63.0	4.6	4.6					1			
823	OJ	74.0	65.0	2.7	2.7		1		1				
Cerro de las Mesas Segment Complex													
389	ZS	106.0	88.0	2.9	2.9	2							
Azuzules Settlement Core													
1195	LA	63.0	38.0	7.4	7.4			1					
1213	AE	97.0	79.0	6.7	6.7		1		1				
Azuzules Segment Complexes													
6748	AS	92.0	90.0	7.4	7.4	1			1				
6638	ASE	71.0	62.0	6.0	6.0				1				
6656	ZC	54.0	43.2	4.3	4.3								
6673	ZC	52.6	52.0	5.2	5.2								
6675	ZC	66.6	41.1	5.2	5.2								
6678	ZC	112.0	87.0	5.2	5.2	1			1				
6690	ZCW	70.0	61.0	4.7	4.7	1			1				
756	VN	90.0	50.0	8.4	8.4	1			1				
1090	VN	85.0	63.0	3.0	3.0				1				
1156	LF	90.0	62.0	4.1	4.1	1			1				
1094	MM	100.0	83.0	9.0	9.0				3				
Azuzules Possible Segment Complexes													
7141	AG	86.4	63.9	3.4	3.4				1		1		
7145	AG	86.3	61.3	6.5	6.5	1							
Nopiloa Settlement Core													
6382	NO	264.0	192.0	7.4	7.4	6			2		1		1
6261	NO	62	57	4.5	4.5					1			
Nopiloa Segment Complexes													
6234	BE	114.0	81.0	6.5	6.5	1			1				
6309	TH	96.0	89.0	7.6	7.6		1						
6404	CR	65.0	54.0	6.2	6.2					1			
6409	KE	58.5	55.4	4.2	4.2	1							

Features Affixed to Platform Base						
Terrace	Ramp/ Stairs	Single Elongate Mound	Dual Elongate Mounds	Small Projections	Underlying Platform	Adjoining Mound
1						
	1					
	1					
1						
	1					
1	1					
1						
1	1					
1						
	1					
2						
	1					
	1					
	1					
	1					
		1				
		1				

Table A1.6. Monumental platform dimensions and associated structures *(continued)*

		Platform Measurements				Features on Top							
Coll or Fea No.	Abbr.	Len m	Width m	Hgt m	Grand Hgt m	Linear Mound	L-shape Linear Mounds	U-shape Linear Mounds	Oval/ Round Mound	None	Conical Mound	Ramp/ Stair for Conical	Terrace for Linear Mound
Ajitos Settlement Core													
6878	AJ	71.0	60.0	6.7	6.7				1				
6939	AJ	87.0	64.0	15.6	15.6	1							
Gallo Group Zapotal													
M		250.0	175.0	4.0		2					1		
Gallo Group Segment Complexes													
1473	EM	70.0	41.6	5.3	6.5					1			
Moral Settlement Core													
6493	MO	44.0	44.0	5.2	5.2					1			
6489	MO	md	md	md	md	md	md	md	md	md	md	md	md
Moral Segment Complexes													
6506	MOE	75.8	56.0	3.1	3.1	1							
6504	MON	96.8	75.7	5.5	5.5					1			
Tuzales and Tuzales North Settlement Cores													
6857	TS	58.0	53.0	6.7	6.7	1							
6848	TN	58.0	md	4.3	4.3				1				
Tuzales Segment Complex													
7048	TFS	122.0	92.0	7.4	7.4	1					1		
Platforms at Other Secondary or Tertiary/Quaternary Centers													
6102	BW	36.0	36.0	6.1	6.1						1		
6046	MU	104.0	88.0	7.5	7.5						1		
6535	MXN	98.0	92.0	6.2	6.2				1		1		
1581	PC	106.0	77.0	5.6	5.6					1			
6441	PE	60.5	46.0	4.1	4.1						1		
6112*	TC	52.8	43.2	6.9	7.7					1			
6113*	TC	83.2	64.8	9.0	9.8					1			
6178	MA	78.4	60.0	8.2	8.2					1			
4046	TP	96.0	96.0	2.7	2.7	1			2				
Rural Estate Platforms													
7155	REN	72.5	69.1	7.7	7.7					1			
7064	RES	68.1	md	6.7	6.7					1			
7114	AGN	72.0	71.8	3.8	3.8	1			2				
Postclassic Centers													
943	CH	md	md	md	md	md	md	md	md	md	md	md	md
119	ES	98.0	65.0	3.5	3.5	1			1				
4022	ES	100.0	65.0	4.4	4.4					1			
Speaker (2001b) Survey													
5140	RTW	67.0	54.0	4.8	4.8	1							
5053	PM	50.0	45.0	3.0	3.0				1				
Totals						29	4	1	30	15	12	1	1

Notes: md = missing data; ? = possible case
* 6112 and 6113 form an L-shape
The grand height measurement refers to the height of the feature plus the height of the underlying platform (if any).

Features Affixed to Platform Base						
Terrace	Ramp/ Stairs	Single Elongate Mound	Dual Elongate Mounds	Small Projections	Under-lying Platform	Adjoining Mound
1		1				
	1					
	1?			2	1	
md	md	md	md	md	md	
1			1			
		1				
	1					
1						
					1	
					1	
	1					1
			?			
md	md	md	md	md	md	md
	1					
11	14	4	1	2	3	1

Appendix 2

Distances between Monumental Complexes

Table A2.1. provides heights of conical mounds and distances between settlement cores and their segment complexes. Heights of conical mounds have been used as a basis for distinguishing settlement hierarchies in other investigations (e.g., Daneels 2016) and are provided for convenient comparisons.

Table A2.2. provides distances between settlement levels. As a convention, distances are measured to the nearest tenth of a kilometer in a straight line. In both tables distances are measured from the center of the principal structures, either the highest conical mound or the center of a monumental platform.

In both tables, entries in italics indicate uncertainty in the settlement relationship or hierarchical position.

Table A2.1. Distance from core complex to segment, paired, or boundary complex, Classic period, with conical mound heights

	Abbrev.	Name	Distance, km	Conical Feature No.	Conical Grand Ht, m	Conical-on-Platform Feature No.	Pair, Segment, or Boundary Complex
Proposed Primary Settlements							
Ajito-Pitos settlement (from Ajitos feature 6935)				6935	15.6		
				6880	10.1		
				6873	10.2		
				6881	10.6		
				6866	4.7		
	PIT	Pitos	0.8	md	md		paired complex
	AJE	Ajitos East	0.8	6909	7.6		segment complex
	LV	*Vibora*	*1.3*	*6926*	*11.9*		*segment complex or secondary center?*
Azuzules settlement (from Azuzules feature 1138)				1138	23.0		
	AE	Azuzules East	0.6	na	na		segment complex platform
	AS	Azuzules South	0.9	6751	3.5		segment complex platform
	ASE	Azuzules Southeast	1.5	na	na		segment complex platform
	LF	Fraternidad	0.7	na	na		segment complex platform
	MM	Complex 1094, Molina	1.0	na	na		segment complex platform
	VN	Villa Nueva	1.9	na	na		segment complex platforms
	ET	*Tiesto*	*3.0*	*1735*	*9.8*		*boundary complex or tertiary center?*
	AG	*Aguacate South*	*2.6*	*na*	*na*		*segment complex platform or rural estate?*
	ZC	Zacate Colorado II	1.9	6675	5.2		segment complex platform
				6673	5.2		
	ZCW	Zacate Colorado West	2.1	na	na		segment complex platform
	C1732	Complex 1732 high structure	2.6	1732	7.2		conical mound group, boundary complex
Nopiloa settlement (from Nopiloa feature 6203)				6203	22.0		
				6250	6.8		
				6251	10.0		
					15.6	6270	
	TH	Complex 6309	0.7	na	na		segment complex platform
	CR	Complex 6404	0.7	na	na		segment complex platform
	BE	Complex 6234	1.1	na	na		segment complex platform
	KE	Complex 6409	0.4	na	na		segment complex platform
	PS	*Loma de Pinchones South?*	*2.5*	*6365*	*8.7*		*segment complex or tertiary center?*

	Abbrev.	Name	Distance, km	Conical Feature No.	Conical Grand Ht, m	Conical-on-Platform Feature No.	Pair, Segment, or Boundary Complex
Cerro de las Mesas settlement (from Central CM feature 93)				93	24.0		
				91	21.3		
				90	13.2		
				14	9.6		
				908	8.7		
				50	8.0		
				308	7.8		
					18.9	38	
	OJ	Ojochal	0.5	597	12.0		part of Cerro de las Mesas
				814	15.0		
					10.8	713	
	CV	Chivo	1.5	83	13.8		part of Cerro de las Mesas
				926	5.8		
					7.0	77	
	ZS	*Zapotal South*	*2.3*	*700*	*10.1*		*boundary complex?*
	CC	*Campana*	*1.7*	*638*	*14.8*		*boundary complex?*
				1352	4.5		
	C847	Complex 847, high structure	0.8	847	8.0		conical with contiguous mounds
	C104	Complex 104, high structure	0.7	104	15.6		conical mound with nearby mounds
	C422	Complex 422, high structure	3.2	422	5.2		conical mound plaza group, boundary complex
Nacastle-Patarata settlement (from Tio Perciliano feature 6961)				6961	8.2		
	SJ	Costa de San Juan	1.9	7173	8.3		segment complex
	PAE	Patarata East	3.5	6992	5.9		segment complex
	NA	Nacastle	0.8	6949	10.5		segment complex
	PR	Palma Real	1.4	7129	8.2		segment complex
Zapotal settlement (from Zapotal Cerro del Gallo, Mound N)					28.0	Gallo	(height approximate)
					24.0	Gallina	(height approximate)
	EM	Platform 1473 Complex	1.0	na	na		segment complex platform
	C1377	Complex 1377, high structure	0.8		7.0	1377	conical on platform or with terrace
	C1564	Complex 1564, high structure	1.3		9.2	1564	conical on platform
	C1464	Complex 1464, high structure	1.4	1464	8.8		conical with terraces
	C1574	Complex 1574, high structure	0.3	1574	11.0		conical mound group
	C1613	Complex 1613, high structure	0.4	1613	7.0		conical on platform and contiguous mounds

Table A2.1. Distance from core complex to segment, paired, or boundary complex, Classic period, with conical mound heights *(continued)*

	Abbrev.	Name	Distance, km	Conical Feature No.	Conical Grand Ht, m	Conical-on-Platform Feature No.	Pair, Segment, or Boundary Complex
Proposed Secondary Settlements							
Mixtequilla settlement (from feature 6567)				6567	13.2		
	MXN	Mixtequilla North	0.4		16.1	6562	segment complex platform
	AGN	*Aguacate North*	*2.3*	*na*	*na*		*segment complex platform or rural estate?*
Moral settlement (from feature 6485)				6485	md		
	MOE	Moral-Iglesia	0.7	na	na		segment complex platform
	MON	Moral North	0.4	na	na		segment complex platform
Madereros-Tilcampo settlement (from Madereros feature 6163)				6163	15.4		
				6170	5.1		
	TC	Tilcampo	0.7	6118	8.9		paired complex across river
Rincó+A113n del Tigre Norte settlement (from feature 5151)				5151	13.1		
	RT	*Rincón del Tigre*	*0.6*	*5175*	*9.3*		*segment complex or tertiary center?*
	RTW	Platform 5140 Complex	0.6	na	na		segment complex platform
	PM	*Paso de las Mulas?*	*1.8*	*5060*	*12.7*		*segment complex or tertiary center?*
Tuzales-Tuzales North settlement (from Tuzales feature 6854)				6854	13.0		
				6861	6.6		
	TN	Tuzales North	0.4	6800	14.6		paired complex
	TFS	Tuzales South	0.6		16.9	7181	segment complex platform
Secondary centers with no segment complexes							
	TP	Tio Primo		4040	17.2		
	MU	Cerro de los Muertos		6050	10.5		
	PE	Dicha Tuerta		6459	16.5		
				6439	4.0		
	LL	Loma		6205	13.7		
				6207	4.8		
	PC	Palmas Cuatas		1579	17.3		
				1582	7.2		
				1583	8.7		
				1592	8.1		
				1579	6.9		
				1656	5.2		
				1655	7.5		
	SA	Salto		5231	20.0		
	SAN	Salto Norte		5195	10.0		
	SC	Boca de Santa Catarina		6979	8.6		
	LV	*Vibora?*		*see above*	*see above*		*segment complex or secondary center?*

	Abbrev.	Name	Distance, km	Conical Feature No.	Conical Grand Ht, m	Conical-on-Platform Feature No.	Pair, Segment, or Boundary Complex
Proposed Tertiary Settlements							
Bartolo settlement (from Bartolo feature 7001)				7001	14.0		
	BW	Bartolo West	0.4	na	na		segment complex platform
Tertiary centers with no segment complexes:							
	LB	Lobato		na	na		
	SAB	Sabaneta		6563	8.8		
	PN	Loma de Pinchones North		6371	9.6		
	CO	Cerro Coyote		6475	8.0		
	ET	*Tiesto?*		*1735*	*9.8*		*boundary complex or tertiary center?*
	PM	*Paso de las Mulas?*		*see above*	*see above*		*segment complex or tertiary center?*
	RT	*Rincón del Tigre*		*see above*	*see above*		*segment complex or tertiary center?*
		Complex 5489, high structure		5489	md		conical plaza group
	PW	Nuevo Porvenir West		6421	5.6		
	PS	*Loma de Pinchones South?*		*see above*	*see above*		*segment complex or tertiary center?*
	C2	Canal 2		6831	7.2		conical mound group
Proposed Rural Estate Platforms							
	AGN	*Aguacate North*		*na*	*na*		*segment complex platform or rural estate?*
	AG	*Aguacate South*		*na*	*na*		*segment complex platform or rural estate?*
	REN	*Recreo*		*na*	*na*		
	RES	*Recreo South*		*na*	*na*		

Note: less certain assignments in italics; uncertain complexes may appear more than once
na means not applicable; md means missing data

Table A2.2. Distances between centers according to settlement hierarchy

Primary to Secondary Centers		**km**
Cerro de las Mesas (Early Classic) to		
	Palmas Cuatas	4.4
	Muertos	11.5
	Madereros-Tilcampo	17.3
	Rincón del Tigre Norte	7.5
	Paso de las Mulas	5.8
	Moral	6.6
	Salto	6.4
	Salto Norte	5.1
	Tuzales	10.4
	Azuzules?	*8.8*
	Mixtequilla?	*7.5*
	Zapotal?	*2.9*
	Loma?	*12.7*
	Nopiloa	21.0
	Dicha Tuerta?	*15.5*
	Nacastle-Patarata (Tio Perciliano)?	*24.3*
	Vibora?	*27.3*
	Ajitos?	*26.0*
Nopiloa (Late Classic) to		
	Dicha Tuerta	6.7
	Loma?	*11.0*
Azuzules (Late Classic) to		
	Zapotal	*6.3*
	Cerro de las Mesas	8.8
	Mixtequilla	3.6
	Moral	3.0
	Rincón del Tigre Norte	7.7
	Paso de las Mulas ?	*7.5*
	Salto	7.2
	Salto Norte	7.9
	Muertos	20.3
	Madereros-Tilcampo?	26.0
	Tuzales	17.6
	Loma?	*21.0*
Ajitos-Pitos (from 6935) to		
	Vibora?	1.3
Primary to Tertiary		
Cerro de las Mesas to		
	Bartolo	20.3
	Tiesto?	5.9
	Coyote?	22.8
	Sabaneta?	7.0
	Canal 2?	15.5
Azuzules to		

Primary to Secondary Centers		km
	Sabaneta	2.9
	Lobato	2.9
	Bartolo West?	29.4
	Madereros-Tilcampo?	26.0
	Muertos?	20.4
	Canal 2?	23.7
Nopiloa		
	Loma de Pinchones North	3.4
Secondary to Neighboring Secondary Centers		
Salto to		
	Salto Norte	1.6
Paso de las Mulas to		
	Rincón del Tigre Norte	1.8
Mixtequilla to		
	Rincón del Tigre Norte	4.2
Madereros-Tilcampo to		
	Muertos	6.4
Rincón del Tigre Norte to		
	Tuzales	11.0
Tuzales to		
	Muertos	8.3
Muertos to		
	Loma	6.2
Madereros-Tilcampo to		
	Loma	6.5
Moral		
	Lobato	5.0
Tio Primo		
	Salto Norte	6.0
Secondary to Neighboring Tertiary Centers		
Madereros-Tilcampo to		
	Bartolo	3.0
Madereros-Tilcampo to		
	Coyote	5.6
Palmas Cuatas to		
	Tiesto ?	*1.5*
Palmas Cuatas to		
	Sabaneta	3.0
Mixtequilla to		
	Sabaneta	1.0
Loma to		
	Canal 2	3.0
Dicha Tuerta to		
	Nuevo Porvenir West?	*2.3*
Tertiary to Neighboring Tertiary Centers		
Bartolo to		
	Coyote	3.4
Coyote to		
	Canal 2	9.1

Appendix 3

Data and Analysis of Monumental Platforms and Mound-Terraces

Consideration of an autocratic principle in governance prompted a close examination of elite residences. This appendix presents the detailed data from that effort. Two categories of residences considered are (1) elite palatial monumental platforms and (2) mounds with terraces (mound-terraces). The latter are far less imposing than the monumental platforms, but they tend to be higher and more voluminous on average than individual residential mounds, and they offer more area for household activities, including social hosting. Mound-terraces represent a middle echelon of WLPB society, probably comprising lesser elites and wealthier commoners. In the case of monumental platforms, all are analyzed, but only mound-terraces outside of centers are considered. Mound-terraces in centers may have been residential, but it is difficult to assure that none were, instead, devoted to ritual or administrative functions.

Table A3.1 summarizes the number of cases in various ways to indicate sample sizes. Tables A3.2 and A3.3 indicate the collections from separate structures, for example, a mound and its terrace, but also provide totals of pottery for the combined structures. Monumental platforms may have mounds on top, a ramp or stair, or other contiguous features that were collected separately, as previously discussed (see Table A1.6). Such collections are added together to improve the sample size. For the monumental platforms at Cerro de las Mesas, it is useful to examine the individual component collections to identify possible reuse in a later period that might be concentrated at a particular component structure.

The focus here is entirely on the Classic period, using three temporally sensitive categories. Diagnostics for the Early Classic period are augmented with those from the category "Early Classic Tendency." The category Early Classic Tendency includes types that occur in the Early Classic period, but also during the Late Classic, probably more associated with the early part of the Late Classic—in other words, they may pertain to the Middle Classic, AD 400–700. Further analyses will be required to be more precise. Close perusal of the data tables shows that sometimes the Early Classic Tendency diagnostics differ in frequency from the Early Classic, and in some cases, the number of diagnostics increases across the three Classic period divisions, possibly signaling continued and more intensive occupation but also the effects of superposition.

In Table A3.2, monumental platform information is organized according to settlements and the settlement hierarchy because it is useful to see where platforms occur. In Table A3.3, mound-terrace information (for those outside of center cores) is arranged according to the collection size categories, with features lacking collections placed at the end.

Table A3.1. Summary data for monumental platforms (center and non-center) and mound-terraces (non-center)

A. Counts of Cases

	Platforms PALM 1&2	Platforms Speaker 2001b	Mound-Terraces PALM 1&2	Mound-Terraces Speaker 2001b
Total Cases	59	2	80	34
No Collection	10		16	
<30 Sherds	8		2	
>=30<76 Sherds	6		7	
>=76 Sherds	35*		55**	

B. Platforms, Temporal Diagnostic Counts, PALM 1&2

Collections >= 76 sherds				
Indeterminate	Early Classic Combo***	Late Class***	About Equal	Neither
2	13	10	9	1
Collections >=30<76				
2	1	0	3	0

C. Platform Associations with Standard Plan Plaza Groups, PALM 1&2

	Collections >= 76 sherds			Collections >=30<76		
Period of Abundance	Yes	No	Possibly	Yes	No	Possibly
Early Classic Combo	3	10			1	
Late Classic		9	1			
About Equal	5	3	1	2	1	
Neither Period		1				
Indeterminate	1	1		1	1	

D. Mound-Terraces, Temporal Diagnostic Counts, PALM 1&2

Collections >= 76 sherds				
Indeterminate	Early Classic Combo	Late Classic	About Equal	Neither
8	19	15	13	
Collections >=30<76				
1	2	2	2	

Notes:
*range 3–50 diagnostic sherds for Classic analysis, median 13
** range 6–103 diagnostic sherds for Classic analysis, median 13
***only one case lacks the other period
Sherd median for all PALM 1 & 2 collections is 76

Interpretation of surface collections from the two groups of residences is not straightforward because the monumental platforms and probably most of the mound-terraces were built using fill that may have garnered up trash from earlier occupations in the vicinity. Fill is much more an issue for the platforms because of their volume. An additional complication is that much of the information derives from the low-lying Blanco delta, which was apparently some of the most valuable land in the WLPB. Residential mounds tended to be continuously occupied or reoccupied because they afforded more elevation during the rainy season. Except for three platforms, all the collected platforms with robust samples have diagnostics from the Early Classic and Early Classic Tendency. Only two platforms lack Late Classic diagnostics. Finally, the principle of superposition will tend to make the latest period the most likely to be well represented in surface artifacts. Table A3.2 and A3.3 reveal that, although most of the platforms have diagnostics from both the Early and Late Classic periods, the predominant diagnostics are not always the latest ones, which can signal strong activities in the Early Classic to Middle Classic periods.

I examine the data to determine if there is a predominant period of use, taking various steps to avoid problems with sample size. The primary target of analysis for both types of structures is collections at or above the median in total sherds for all PALM 1 and 2 collections (the median is 76 sherds). These are the most robust collections. Secondarily, for platforms I consider

collections below the median but that have 30 or more total sherds in order to slightly expand the number of cases. This step is unnecessary for mound-terraces, for which the robust collections are more abundant. In analyzing collections, I examine the counts for the Early Classic plus Early Classic Tendency in combination versus the Late Classic. After some inspection of the data and contemplation of the possibilities for sample error, I considered one of these two periods to predominate if it had more diagnostics than the other period by a minimum margin of three sherds. Cases for which the periods differed by less than three sherds were considered "about equal." In some cases, despite meeting the collection size criterion (at or above the median), the collection had very few Classic diagnostics. If the Early and Late Classic combined yielded only one or two diagnostics, the case was classified as "indeterminate." See Table A3.1.

Some features were not surface collected because of vegetation. Monumental platforms, like conical mounds, are so massive they are not normally subject to cultivation today, and usually are covered by grass and sometimes brush. Several did not yield surface collections or only meager ones. This is less of an issue for mound-terraces. Collections below 30 sherds are not analyzed for mound-terraces. Despite these various structures that cannot be analyzed temporally, 35 platforms and 55 mound-terraces have samples for the robust collections at or above the median. Another six platforms can be analyzed secondarily for which total sherds are below the median but number 30 or more.

I do not consider any cases from Speaker's (2001b) survey because he used the initial ceramic classification system; that classification schema was later redone for PALM collections to provide better chronological distinctions, especially for the Classic period. For the purpose of examining change in monumental platforms and terraces during the Classic period, Speaker's data are not useful.

In addition to the chronological analysis, I tabulated whether a monumental platform was associated with a SPPG (Table A3.1.C). The presence of a platform near but not on the plaza is one indication of local authority counterbalanced with other public institutions. Platforms not associated with such plazas indicate privileged families operating more independently of governmental nodes. In the case of Cerro de las Mesas, it is difficult to assess the association with SPPGs. Cerro de las Mesas has an agglomerative quality with several SPPGs or Partial SPPGs. The sheer amount of construction makes the spatial SPPG association less distinct because other structures may intervene. Sometimes there is more than one platform that could be considered associated. Since generally only one platform accompanies a SPPG, I did not assume both were associated if there were two contenders. Also, one Partial SPPG is near an aberrant monumental platform (platform 36) surmounted by a large conical mound—a sizable linear mound is either attached to one side of the platform or on it, raising the possibility that a separate set of considerations may have been responsible for the placement of structures, not the Standard Plan. Generally, however, the association is clear if present, and many platforms do not have an associated SPPG.

Monumental Platforms

Cerro de las Mesas

Platforms at Cerro de las Mesas are complex to interpret. In the Early Classic it was a primary center, but some buildings continued in use in the Late Classic, sometimes with more of a ritual emphasis. Some platforms have substantial Late Classic diagnostics at one or several structures, suggesting that important families continued to reside at Cerro de las Mesas. In addition to its revered history, it likely functioned as a secondary center under Azuzules. Similarly, Late Classic primary centers got their start as secondary centers during the Early Classic, providing complications for their analysis.

In the main text, I plot the distribution of platforms on maps according to predominant periods. A second method in this appendix examines the three diagnostic groups, treating them as representing three somewhat overlapping periods, Early Classic, Middle Classic, and Late Classic. This perspective helps assess possible continuity of use into the Late Classic as well as predominant construction and use from the last of the Early Classic period through the Late Classic period. In a third method, for Cerro de las Mesas I examine whether the Late Classic is concentrated at a particular feature in the set of structures associated with a platform. In some instances this can point to reuse that focused on particular platform structures.

At Cerro de las Mesas three platforms have a noteworthy increase in Late Classic diagnostics, but the increment is largely due to particular associated collections. At platform 45, the Late Classic pottery derives from the terrace. At platform 36, the Late Classic is mostly from a collection from the small mound 39 situated in front of the conical mound. At platform 64,

although Early Classic combination diagnostics predominate overall, a boost in Late Classic diagnostics derives mainly from a collection made at a looting pit dug into mound 65 on top of the platform. The looters' pit may have intersected a cache due to the size of some vessel fragments lying on the surface; no human bone was detected, suggesting the looter did not intersect a burial. In each of these three cases, continuing ritual use of the structures associated with the platform may be responsible for most of the Late Classic diagnostics.

This pattern contrasts with platform 98, which yielded a variety of collections, all but one with a stronger Late Classic representation than the Early Classic combination. At platforms 71 and 924, Late Classic diagnostics suggests that they may have been in active use then, but the counts of sherds are low. I conclude that some of the Late Classic use of monumental platforms likely derives from a continuing recognition of the historical, sacred value of Cerro de las Mesas, but in some cases new construction and activity are likely, such as platform 98, possibly also platform 45 in the far northwest of Central Cerro de las Mesas, and at platform 64.

Nopiloa

Nopiloa provides an example of a later proliferation of monumental platforms in the core vicinity. Nopiloa gained a primary center role in the Late Classic, following Early Classic occupation. The large platform in the core, 6382, shows an increase in the count of diagnostics from Early Classic, to Early Classic Tendency, to Late Classic. Nearby, platform 6234 and associated structures also show this trajectory. The other three monumental platforms with smaller collections all concur in having Late Classic diagnostics even though the sample size is small. I cannot rule out an inception of some of the Nopiloa platforms in the Early Classic when it was a secondary center, but no other secondary center has more than one platform, while Nopiloa has four near its core, which has an even larger one. The most reasonable conclusion is that their construction and use date substantially to the Late Classic period when Nopiloa was a primary center.

Azuzules

Azuzules has the greatest number of monumental platforms within the settlement area versus the core. The two from Aguacate South (possible segment complex) did not yield a collection, nor did 1195 at Azuzules itself. Four show a progression of increasing diagnostic count from Early Classic, to Early Classic Tendency, to Late Classic: Villa Nueva 756, La Fraternidad 1156, Azuzules East 1213, and 6656 at Zacate Colorado II. All collected monumental platforms have at least some Late Classic diagnostics. I conclude that the surface-collected monumental platforms spatially associated with Azuzules in its settlement area were active during the Late Classic period. Early Classic combination values show that some of the platforms may have been initiated in the Early Classic when Azuzules was a secondary center. If so, they did not follow the agglomerative Cerro de las Mesas pattern because they were located outside the Azuzules core.

Other Centers

There are exceptions to the Late Classic Azuzules and Nopiloa patterns. At Ajitos-Pitos, a Late Classic center on the paleodunes, monumental platforms are scarcer, with none evident in the near vicinity of the monumental core. The Late Classic mangrove settlements do not have palatial platforms (although they do have mound-terraces that likely represent elite residences). Only one Late Classic platform occurs in the vicinity of the Gallo group at Zapotal, with one likely underlying the Gallo plaza and mounds. In Chapter 12 I propose the Gallo group as a capital near the close of the Classic period

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Residential Mound-Terraces Outside of Monumental Complexes

Mound-terraces are partly the result of midden accumulations but also include construction episodes with fill. Mound-terraces occur almost exclusively in the Blanco delta, with one in the Tuzales area and two in the Nopiloa area. The concentration in the delta suggests that low-lying terrain, the length of occupational history, and the high agricultural potential could have contributed to the spatial distribution. The robust set for analysis comprises 55 cases.

Table A3.3 provides summary data about the mound-terraces. Only five robust cases lack any Early Classic combination sherds. Only four robust cases lack any Late Classic diagnostics. Thus, most mound-terraces have trash from both periods and considerable continuity of occupation is indicated, although fill with Early Classic combination sherds cannot be ruled out. Certainly most mound-terraces were in use during the Late Classic period.

Table A3.2. Monumental platform dimensions and pottery diagnostics

Platform and other Feature Descriptive Information								Pottery Diagnostic Counts, Sherds										
Platform Descrip.	Added Coll or Feature	Coll or Fea No.	Len m	Width m	Hgt m	Grand Hgt m	Abbr	Total Sherd	Pre	Clas	E Clas	E Clas Ten	Late Clas	Post	Mid Post	Late Post	Comment	With SPPG	EC+ ECTEN+ LC*
CERRO DE LAS MESAS SETTLEMENT CORE																			
platform with conical		**36**	120.0	120.0	3.2	3.2	CM	111	34	10	0	2	0	3	1	0			
	surf coll	37	50.0	28.0	0.0	0.0	CM	31	8	5	0	2	0	1	0	0			
	surf coll	40	72.0	14.4	0.0	0.0	CM	74	9	15	1	1	2	0	0	0			
	conical	38	66.0	60.0	15.7	18.9	CM	65	19	8	2	2	1	2	0	0			
	adosado	39	58.0	30.0	2.5	5.7	CM	222	42	44	2	4	14	20	0	0			
	Totals Feature 36							***503***	***112***	***82***	***5***	***11***	***17***	***26***	***1***	***0***	about equal	P	33
platform		**45**	102.0	79.0	6.9	6.9	CM	10	1	1	0	0	0	0	0	0			
	mound	931	50.0	18.0	1.3	8.2	CM												
	terrace	349	42.5	36.0	1.6	1.6	CM	134	10	20	0	0	10	18	2	0			
	Totals Feature 45							***144***	***11***	***21***	***0***	***0***	***10***	***18***	***2***	***0***	LC	N	10
platform with conical		**59**	80.0	65.0	2.8	2.8	CM	116	16	7	0	1	0	36	1	1			
	mound	52	md	md	0	0	CM	72	14	11	1	0	4	14	1	0			
	ramp	58	35.0	15	1.3	1.3	CM	56	3	7	1	0	2	10	1	0			
	Totals Feature 59							***244***	***33***	***25***	***2***	***1***	***6***	***60***	***3***	***1***	LC	P	9
platform with conical		**64**	91.0	73.0	5.3	5.3	CM	913	212	174	14	23	13	73	12	0			
	conical	65	29.0	22.0	1.6	6.3	CM	69	20	15	3	0	2	6	3	0			
	looter's pit	938	29.0	22.0	0.0	0.0	CM	33	1	27	2	0	22	0	0	0			
	ramp	67	50.0	32.0	2.6	2.6	CM	245	13	63	1	9	6	18	5	0			
	Totals Feature 64							***1260***	***246***	***279***	***20***	***32***	***43***	***97***	***20***	***0***	EC	N	95
platform		**98**	168.0	141.0	6.9	6.9	CM	91	5	23	2	0	15	17	2	0			
	mound	95	90.0	30.5	4.3	11.2	CM	109	37	23	4	5	0	5	1	0			
	surf coll	99	59.0	27.0	0.0	0.0	CM	248	2	112	3	3	52	27	1	1			
	mound	97	48.0	33.0	1.7	8.6	CM	254	9	94	6	2	23	22	2	1			
	mound	96	26.0	22.0	1.2	8.1	CM	46	8	8	1	1	2	4	0	0			
	Totals Feature 98							***748***	***61***	***260***	***16***	***11***	***92***	***75***	***6***	***2***	LC	N	119
platform with terrace		**71**	61.0	54.0	4.4	4.4	CM	214	5	42	0	3	3	63	12	0			
	terrace	76	50.0	45.0	0.8	0.8	CM	38	4	9	0	0	3	8	0	0			

Table A3.2. Monumental platform dimensions and pottery diagnostics *(continued)*

Platform and other Feature Descriptive Information								Pottery Diagnostic Counts, Sherds										
Platform Descrip.	Added Coll or Feature	Coll or Fea No.	Len m	Width m	Hgt m	Grand Hgt m	Abbr	Total Sherd	Pre	Clas	E Clas	E Clas Ten	Late Clas	Post	Mid Post	Late Post	Comment	With SPPG	EC+ ECTEN+ LC*
	Totals Feature 71							***252***	***9***	***51***	***0***	***3***	***6***	***71***	***12***	***0***	LC	N	9
platform with conical		**924**	116.0	64.0	2.6	2.6	CV												
	conical	77	53.0	44.0	5.4	7.0	CV	110	33	18	1	2	2	4	0	0			
	L mound	78	40.0	22.0	1.7	4.3	CV	40	4	6	0	1	0	8	1	0			
	L mound	79	25.0	25.0	1.8	4.4	CV	42	1	8	0	0	2	17	1	0			
	mound	925	27.0	10.0	0.2	2.8	CV												
	Totals Feature 924							***192***	***38***	***32***	***1***	***3***	***4***	***29***	***2***	***0***	about equal	Y	8
platform		**588**	101.0	84.0	2.9	2.9	OJ	176	9	28	1	0	2	18	1	0	about equal	P	3
platform with conical		**712**	162.0	133.0	5.8	5.8	OJ	91	8	14	2	0	0	39	0	0			
	conical	713	55.0	48.0	6.0	10.8	OJ	58	16	11	1	0	0	1	0	0			
	mound	714	22.0	20.0	0.6	5.6	OJ	60	8	13	0	0	0	6	0	0			
	surf coll	802	15.0	15.0	0.0	0.0	OJ	67	5	7	1	1	2	1	0	0			
	Totals Feature 712							***276***	***37***	***45***	***4***	***1***	***2***	***47***	***0***	***0***	EC	N	7
platform		**715**	109.0	91.0	5.9	5.9	OJ	108	17	25	0	3	2	21	4	0	about equal	N	5
platform		**716**	99.0	63.0	4.6	4.6	OJ										no coll	N	
platform		**823**	74.0	65.0	2.7	2.7	OJ										no coll	Y	
	mound	821	25.0	22.0	1.3	4.0	OJ												
	L mound	822	37.0	20.0	0.3	3.0	OJ												
CERRO DE LAS MESAS SEGMENT COMPLEXES																			
platform		**389**	106.0	88.0	2.9	2.9	ZS	72	17	17	1	2	0	1	0	0			
	mound	391	88.0	32.0	1.6	4.5	ZS	45	6	11	0	1	0	2	1	0			
	mound	392	86.0	63.0	2.5	5.4	ZS	54	2	9	1	0	0	6	2	0			
	Totals Feature 389							***171***	***25***	***37***	***2***	***3***	***0***	***9***	***3***	***0***	EC	Y	5
AZUZULES SETTLEMENT CORE																			
platform		**1195**	63.0	38.0	7.4	7.4	LA										no coll	N	
	U mound	1263	md	md	1.0	8.4	LA												
	ramp	1194	24.0	20.0	1.5	1.5	LA												
platform		**1213**	97.0	79.0	6.7	6.7	AE	53	0	16	0	0	1	6	0	0			
	terrace	1217	67.0	25.0	3.5	3.5	AE	143	0	70	1	4	5	0	0	0			

Platform and other Feature Descriptive Information								Pottery Diagnostic Counts, Sherds										
Platform Descrip.	Added Coll or Feature	Coll or Fea No.	Len m	Width m	Hgt m	Grand Hgt m	Abbr	Total Sherd	Pre	Clas	E Clas	E Clas Ten	Late Clas	Post	Mid Post	Late Post	Comment	With SPPG	EC+ ECTEN+ LC*
	mound	1215	16.0	10.0	0.6	7.4	AE	26	0	7	0	0	1	0	0	0			
	L mound east	1214	52.0	13.0	0.8	7.6	AE	18	0	9	0	0	2	2	0	0			
	L mound north	935	22.0	10.0	0.8	7.6	AE	43	0	24	0	0	4	2	0	0			
	ramp	1216	md	md	0.3	0.3	AE												
	Totals Feature 1213							***283***	***0***	***126***	***1***	***4***	***13***	***10***	***0***	***0***	LC	N	18
AZUZULES SEGMENT COMPLEXES																			
platform		**6748**	92.0	90.0	7.4	7.4	AS	142	1	42	3	5	7	31	3	0			
	mound	6747	25.0	24.0	1.2	8.6	AS	48	0	16	3	0	1	1	0	0			
	mound	6746	33.0	22.0	3.0	10.4	AS	5	0	1	0	1	0	0	0	0			
	mound, lower part	6753	22.0	18.0	2.2	9.6	AS	3	0	0	0	0	0	2	0	0			
	looter's pit	958	md	md	md	md	AS	29	0	6	0	2	0	13	4	0			
	Totals Feature 6748							***227***	***1***	***65***	***6***	***8***	***8***	***47***	7	***0***	EC	N	22
platform		**6638**	71.0	62.0	6.0	6.0	ASE	145	0	58	4	4	3	7	1	0			
	mound	6639	22.0	19.0	0.9	6.9	ASE	14	0	8	0	0	1	0	0	0			
	terrace	6769	59.0	19.0	2.7	2.7	ASE	27	0	9	0	0	2	0	0	0			
	ramp	6928	16.0	9.0	0.8	0.8	ASE												
	Totals Feature 6638							***186***	***0***	***75***	***4***	***4***	***6***	7	***1***	***0***	EC	N	14
platform with terrace		**6656**	54.0	43.2	4.3	4.3	ZC	56	7	9	0	2	2	3	0	0			
	terrace	6655	39.6	27.0	1.7	1.7	ZC	70	7	9	1	0	2	6	0	0			
	Totals Feature 6656							***126***	***14***	***18***	***1***	***2***	***4***	***9***	***0***	***0***	about equal	N	7
platform (A)		**6673**	52.6	52.0	5.2	5.2	ZC	8	2	1	0	0	1	0	0	0	<30	N	
A platform with terraces		**6675**	66.6	41.1	5.2	5.2	ZC										no coll	N	
	terrace	6677	42.0	26.0	1.8	1.8	ZC												
	terrace	6676	29.0	24.0	3.2	3.2	ZC												
platform		**6678**	112.0	87.0	5.2	5.2	ZC	62	12	16	4	1	1	0	0	0			
	mound	6651	55.0	23.0	5.1	10.3	ZC	74	11	23	1	4	2	1	0	0			
	mound	6679	27.0	23.0	1.4	6.6	ZC	8	0	2	0	0	0	0	0	0			
	Totals Feature 6678							***144***	***23***	***41***	***5***	***5***	***3***	***1***	***0***	***0***	EC	N	13

Table A3.2. Monumental platform dimensions and pottery diagnostics *(continued)*

Platform and other Feature Descriptive Information								Pottery Diagnostic Counts, Sherds										
Platform Descrip.	Added Coll or Feature	Coll or Fea No.	Len m	Width m	Hgt m	Grand Hgt m	Abbr	Total Sherd	Pre	Clas	E Clas	E Clas Ten	Late Clas	Post	Mid Post	Late Post	Comment	With SPPG	EC+ ECTEN+ LC*
platform		**6690**	70.0	61.0	4.7	4.7	ZCW	34	6	14	2	3	1	0	0	0			
	mound	6691	16.0	15.0	0.5	5.2	ZCW												
	mound	6689	35.0	20.0	4.5	8.4	ZCW	5	0	0	0	0	0	0	0	0			
	ramp	6692	18.0	12.0	0.4	0.4	ZCW												
	Totals Feature 6690							***39***	***6***	***14***	***2***	***3***	***1***	***0***	***0***	***0***	>30<76 EC	N	
platform		**756**	90.0	50.0	8.4	8.4	VN												
	mound	757	85.0	30.0	2.4	10.3	VN	46	2	13	0	2	1	1	0	0			
	mound	758	18.0	17.0	0.3	8.7	VN												
	ramp	755	41.0	38.0	5.0	5.0	VN	297	5	104	5	4	7	8	1	0			
	Totals Feature 756							***343***	***7***	***117***	***5***	***6***	***8***	***9***	***1***	***0***	EC	N	19
platform		**1090**	85.0	63.0	3.0	3.0	VN	16	0	4	1	0	0	3	0	0			
	mound	798	32.0	25.0	0.5	3.5	VN	10	0	7	0	0	0	0	0	0			
	Totals Feature 1090							***26***	***0***	***11***	***1***	***0***	***0***	***3***	***0***	***0***	<30	N	
platform (L)		**1156**	90.0	62.0	4.1	4.1	LF	86	1	33	2	4	5	2	0	0			
	mound	1151	40.0	13.0	0.8	4.9	LF	96	1	11	1	0	2	14	0	0			
	mound	1154	18.0	16.0	0.4	4.4	LF	19	0	6	0	0	1	1	0	0			
	ramp	1455	17.0	15.0	1.6	1.6	LF												
	Totals Feature 1156							***201***	***2***	***50***	***3***	***4***	***8***	***17***	***0***	***0***	about equal	N	15
platform		**1094**	100.0	83.0	9.0	9.0	MM	2	0	1	0	0	1	0	0	0	<30	N	
	mound	914	14.0	11.0	0.9	9.9	MM												
	mound	915	22.0	13.0	0.9	9.9	MM												
	mound	916	22.0	17.0	1.1	10.1	MM												
AZUZULES POSSIBLE SEGMENT COMPLEXES																			
platform		**7141**	86.4	63.9	3.4	3.4	AG										no coll	N	
	mound	7140	39.2	21.2	6.0	9.9	AG												
	mound	7142	18.8	15.0	1.2	4.6	AG												
platform		**7145**	86.3	61.3	6.5	6.5	AG										no coll	N	
	mound	7146	34.9	md	2.0	8.5	AG												
NOPILOA SETTLEMENT CORE																			
platform (A)		**6382**	264.0	192.0	7.4	7.4	NO												
	mound	6272	25.6	9.6	0.6	8.0	NO												
	mound	6274	41.6	14.4	0.4	7.8	NO	3	0	0	0	2	0	0	0	0			
	mound	6273	67.2	38.4	5.9	13.3	NO	2	0	0	0	0	0	0	0	0			
	mound	6271	81.1	9.6	1.4	8.8	NO	14	0	2	0	0	0	0	0	0			

Platform and other Feature Descriptive Information								Pottery Diagnostic Counts, Sherds										
Platform Descrip.	Added Coll or Feature	Coll or Fea No.	Len m	Width m	Hgt m	Grand Hgt m	Abbr	Total Sherd	Pre	Clas	E Clas	E Clas Ten	Late Clas	Post	Mid Post	Late Post	Comment	With SPPG	EC+ ECTEN+ LC*
	conical	6270	44.0	36.8	8.2	15.6	NO	7	0	0	0	0	0	0	0	0			
	mound	6269	89.6	25.6	6.0	13.4	NO	4	0	1	0	0	0	0	0	0			
	mound	6276	38.4	12.8	0.6	8.0	NO												
	mound	6275	110.4	24.0	4.6	12.0	NO	3	0	1	0	0	1	0	0	0			
	mound	7230	52.0	35.0	0.8	8.2	NO												
	mound	6399	9.6	8.0	0.4	7.8	NO												
	Totals Feature 6382							***33***	***0***	***4***	***0***	***2***	***1***	***0***	***0***	***0***	>30<76 about equal	Y	
platform		**6261**	62	57	4.5	4.5	NO	8	0	2	0	0	1	2	0	0	<30	Y	
NOPILOA SEGMENT COMPLEXES																			
platform		**6234**	114.0	81.0	6.5	6.5	BE	415	2	95	4	11	22	15	0	0			
	mound	6237	45.0	md	1.2	7.4	BE	119	0	27	0	3	7	7	0	0			
	mound	6238	11.0	9.0	0.5	7.9	BE												
	looter's pit	952	md	md	md	md	BE	123	5	39	2	1	0	0	0	0			
	Totals Feature 6234							***657***	***7***	***161***	***6***	***15***	***29***	***22***	***0***	***0***	LC	N	50
platform		**6309**	96.0	89.0	7.6	7.6	TH	39	0	7	0	0	2	2	0	0	>30<76 indeterm	N	
	mound	6322	57.0	12.0	2.2	9.8	TH												
	mound	6323	29.0	7.0	1.2	8.8	TH												
platform		**6404**	65.0	54.0	6.2	6.2	CR	37	0	7	1	1	2	0	0	0	>30<76 about equal	N	
platform		**6409**	58.5	55.4	4.2	4.2	KE	115	2	28	2	1	8	2	0	0			
	mound	6408	23.0	9.0	1.0	5.2	KE	11	0	0	0	0	0	1	0	0			
Totals Feature 6409								***126***	***2***	***28***	***2***	***1***	***8***	***3***	***0***	***0***	LC	N	11
AJITOS SETTLEMENT CORE																			
platform		**6878**	71.0	60.0	6.7	6.7	AJ	13	0	1	0	0	1	0	0	0			
	mound	6879	19.6	16.0	1.7	md	AJ	15	0	0	0	0	0	0	0	0			
	ramp	6907	34.0	32.0	1.2	1.2	AJ	13	0	1	0	0	0	0	0	0			
	Totals Feature 6878							***41***	***0***	***2***	***0***	***0***	***1***	***0***	***0***	***0***	>30<76 indeterm	Y	
platform		**6939**	87.0	64.0	15.6	15.6	AJ										no coll	N	
	mound	6931	49.0	15.0	2.4	18.0	AJ												
M (IN GALLO GROUP, ZAPOTAL)																			
platform with conical (M)		**M**	162.0	171.0	4.0			from google earth											

Table A3.2. Monumental platform dimensions and pottery diagnostics *(continued)*

Platform and other Feature Descriptive Information								Pottery Diagnostic Counts, Sherds											
Platform Descrip.	Added Coll or Feature	Coll or Fea No.	Len m	Width m	Hgt m	Grand Hgt m	Abbr	Total Sherd	Pre	Clas	E Clas	E Clas Ten	Late Clas	Post	Mid Post	Late Post	Comment	With SPPG	EC+ ECTEN+ LC*
platform with conical (M)		**M**	80.0	130.0	4.0			from map										(N)	
GALLO GROUP SEGMENT COMPLEXES																			
platform		**1473**	70.0	41.6	5.3	6.5	EM												
	sub platform	**1446**	md	md	1.2	1.2	EM	165	2	81	0	3	11	3	0	0			
	mound	**1445**	31	26	0.5	1.7	EM	132	1	47	0	0	12	2	0	0			
	mound	**1412**	44.5	44.5	1.6	3	EM	106	0	22	1	1	7	22	0	0			
	terrace	**1413**	40	md	1.1	1.1	EM	68	4	13	0	0	2	9	1	0			
	terrace	**1414**	40	21.5	0.8	0.8	EM	95	0	38	0	0	0	4	0	0			
	mound	**1415**	28.6	22.6	0.5	2.1	EM	97	0	23	0	0	6	27	2	1			
	mound	**1416**	58	21	0.9	1.7	EM	94	0	37	0	0	7	10	0	0			
	mound	**1478**	25	23.5	0.2	1.4	EM												
	mound	**1474**	32	27	0.4	2.3	EM												
	Totals Feature 1473							***757***	***7***	***261***	***1***	***4***	***45***	77	***3***	***1***	LC	N	50
MORAL SETTLEMENT CORE																			
platform		**6493**	44.0	44.0	5.2	5.2	MO										no coll	Y	
platform		**6489**	md	md	md	md	MO	67	0	7	1	1	1	31	1	0	>30<76 about equal	Y	
MORAL SEGMENT COMPLEXES																			
platform		**6506**	75.8	56.0	3.1	3.1	MOE	312	2	49	6	2	17	104	16	0	LC	N	25
	mound	6527	26.7	23.2	2.1	5.2	MOE												
platform (A)		**6504**	96.8	75.7	5.5	5.5	MON	122	0	42	2	3	1	0	0	0	EC	N	6
TUZALES SETTLEMENT CORES																			
platform		**6857**	58.0	53.0	6.7	6.7	TS	14	1	3	0	0	0	0	0	0			
	mound	6858	32.0	17.0	3.7	10.4	TS	2	1	0	0	0	0	0	0	0			
	Totals Feature 6857							***16***	***2***	***3***	***0***	***0***	***0***	***0***	***0***	***0***	<30	Y	
platform		**6848**	58.0	md	4.3	4.3	TN	47	3	16	6	2	0	1	0	0			
	mound	6847	18.0	12.0	0.8	5.1	TN	24	4	8	3	0	0	0	0	0			
	ramp	6853	48.0	md	1.9	1.9	TN	5	0	0	0	0	0	0	0	0			
	projection	6849	35.0	md	0.5	0.5	TN	41	2	5	2	0	0	1	0	0			
	projection	6850	30.0	16.0	0.5	0.5	TN	36	5	8	0	0	0	0	0	0			
	Totals Feature 6848							***153***	***14***	***37***	***11***	***2***	***0***	***2***	***0***	***0***	EC	Y	13

Platform and other Feature Descriptive Information								Pottery Diagnostic Counts, Sherds											
Platform Descrip.	Added Coll or Feature	Coll or Fea No.	Len m	Width m	Hgt m	Grand Hgt m	Abbr	Total Sherd	Pre	Clas	E Clas	E Clas Ten	Late Clas	Post	Mid Post	Late Post	Comment	With SPPG	EC+ ECTEN+ LC*
TUZALES SEGMENT COMPLEX																			
platform with conical		**7048**	122.0	92.0	7.4	7.4	TFS										no coll	N	
	conical	7181	48.0	30.0	9.5	16.9	TFS												
PLATFORMS AT OTHER SECONDARY OR TERTIARY CENTERS																			
platform with conical (R)		**6102**	36.0	36.0	6.1	6.1	BW	309	0	86	7	14	2	3	0	0			
	conical	6101	38.3	27.0	0.5	6.6	BW	143	4	56	5	5	1	0	0	0			
	Totals Feature 6102							***452***	***4***	***142***	***12***	***19***	***3***	***3***	***0***	***0***	EC	Y	34
platform with conical		**6046**	104.0	88.0	7.5	7.5	MU	165	6	45	4	0	6	1	0	0			
	ramp	6048	19.0	17.0	0.2	0.2	MU												
	conical	6045	30.0	28.0	6.5	14.0	MU	22	1	10	0	1	0	0	0	0			
	Totals Feature 6046							***187***	***7***	***55***	***4***	***1***	***6***	***1***	***0***	***0***	about equal	Y	11
platform with conical		**6535**	98.0	92.0	6.2	6.2	MXN	78	1	21	1	1	3	8	0	0			
	conical	6562	46.0	36.0	9.9	16.1	MXN	15	0	7	1	1	0	1	0	0			
	mound	6564	md	md	md	md	MXN												
	Totals Feature 6535							***93***	***1***	***28***	***2***	***2***	***3***	***9***	***0***	***0***	about equal	Y	7
platform (A)		**1581**	106.0	77.0	5.6	5.6	PC	157	20	41	5	2	5	5	1	0	about equal	Y	12
platform with conical		**6441**	60.5	46.0	4.1	4.1	PE	36	1	15	0	0	1	0	0	0			
	conical	6442	25.0	21.0	2.1	6.2	PE	9	0	3	0	0	0	0	0	0			
	terrace	6440	56.0	13.0	1.1	1.1	PE	46	0	13	0	0	1	0	0	0			
	Totals Feature 6441							***91***	***1***	***31***	***0***	***0***	***2***	***0***	***0***	***0***	indeterm	Y	
west L platform on 6111		**6112**	52.8	43.2	6.9	7.7	TC	23	2	8	2	1	0	0	0	0	<30	N	
north L platform on 6111		**6113**	83.2	64.8	9.0	9.8	TC	116	4	43	3	11	1	2	0	1	EC	N	15
platform		**6178**	78.4	60.0	8.2	8.2	MA	207	10	59	17	6	3	2	1	0			
	ramp	6201	24.0	19.2	0.5	0.5	MA	47	1	12	2	1	0	1	0	0			
	Totals Feature 6178							***254***	***11***	***71***	***19***	***7***	***3***	***3***	***1***	***0***	EC	N	29
platform		**4046**	96.0	96.0	2.7	2.7	TP										no coll	Y	
	mound	4047	md	md	1.5	4.1	TP												

Table A3.2. Monumental platform dimensions and pottery diagnostics *(continued)*

Platform and other Feature Descriptive Information								Pottery Diagnostic Counts, Sherds											
Platform Descrip.	Added Coll or Feature	Coll or Fea No.	Len m	Width m	Hgt m	Grand Hgt m	Abbr	Total Sherd	Pre	Clas	E Clas	E Clas Ten	Late Clas	Post	Mid Post	Late Post	Comment	With SPPG	EC+ ECTEN+ LC*
	mound	4048	28.0	24.0	2.3	5.0	TP												
	mound	4049	45.0	30.0	3.2	5.9	TP												
RURAL ESTATE PLATFORMS																			
platform (A)		**7155**	72.5	69.1	7.7	7.7	REN	3	0	0	0	0	0	0	0	0	<30	N	
platform		**7064**	68.1	md	6.7	6.7	RES	217	1	76	18	5	5	1	1	0	EC	N	28
platform		**7114**	72.0	71.8	3.8	3.8	AGN	13	3	1	0	0	0	0	0	0			
	mound	7111	42.2	16.0	3.6	7.3	AGN	13	2	3	1	1	0	0	0	0			
	mound	7113	19.7	12.1	1.6	5.4	AGN												
	mound	7115	12.6	9.6	0.4	4.2	AGN												
	Totals Feature 7114							**26**	**5**	**4**	**1**	**1**	**0**	**0**	**0**	**0**	<30	N	
POSTCLASSIC CENTERS																			
platform ?		**943**	md	md	md	md	CH	106	1	2	0	0	0	62	0	1	absent	N	
	remnant	6006	md	md	0.4	0.4	CH												
	remnant	6007	md	md	1.2	1.2	CH												
	remnant	6008	md	md	md	md	CH												
platform		**119**	98.0	65.0	3.5	3.5	ES	342	4	32	1	3	6	163	39	0			
	mound	120	20.0	17.0	0.3	3.8	ES	24	0	7	1	0	2	0	0	0			
	mound	121	24.0	12.0	0.6	4.1	ES	38	0	5	0	0	0	9	1	0			
	Totals Feature 119							***404***	***4***	***44***	***2***	***3***	***8***	***172***	***40***	***0***	LC	N	13
platform		**4022**	100.0	65.0	4.4	4.4	ES	210	4	17	0	0	1	104	28	0	indeterm	N	
Speaker (2001b) Survey; Different Pottery Classification																			
platform		**5140**	67.0	54.0	4.8	4.8	RTW											Y	
	mound	5139	23.0	14.0	2.6	7.4	RTW												
platform (A)		**5053**	50.0	45.0	3.0	3.0	PM											Y	
	mound	5055	16.0	11.0	0.6	3.6	PM												
	ramp	5056	35.0	23.0	1.7	1.7	PM												

Notes:
Grand height is the height of a structure plus the height of any underlying platform.
A platform = aberrant platform. L platform = platform with two "wings" at right angles. U mound = U shaped mound.
76 sherds is median for all PALM 1 & 2 collections; md = missing data.
Y = yes, N = no, P = possibly. "About equal" means up to 2 sherd difference.
"Indeterm" = indeterminate: total for Early Classic, Early Classic Tendency, and Late Classic less than or equal to 2 sherds
EC = Early Classic and Early Classic Tendency; LC= Late Classic
*for collections >= median for all collections, excluding indeterminate cases

Table A3.3. Mound-terraces outside centers, PALM 1 and 2

Feature Descriptions								Pottery Diagnostic Counts, Sherds										
Coll, Key Fea	Added Coll	Survey mtype	Len m	Wid m	Hgt m	Grand Hgt m	Locale	Total Sherd	Pre	Class	E Class	E Class Ten	Late Class	Post	Mid Post	Late Post	Comment	EC & LC total*
154		2	52.5	52.5	3.4	3.4	CB	493	11	156	**6**	**10**	**15**	84	5	0	about equal, incr	31
	159	3	7.5	md	1.3	1.3	CB											
160		2	56	54	4.4	4.4	CB	147	1	21	2	4	3	59	6	0		
	438	7	46.7	39.4	md	md	CB	139	2	52	4	1	4	4	0	0		
	total							**286**	**3**	**73**	**6**	**5**	**7**	**63**	**6**	**0**	more EC	18
278		2	64.5	37.4	2.3	2.3	CB	154	1	44	2	4	4	23	4	1		
	279	3	25.2	24.7	1.1	1.1	CB	117	1	32	0	0	1	7	0	0		
	total							**271**	**2**	**76**	**2**	**4**	**5**	**30**	**4**	**1**	about equal, incr	11
295		2	52.6	52.6	2.8	2.8	CB	143	5	42	0	5	1	15	5	0		
	504	3	38.2	25.4	0.9	0.9	CB	222	7	47	4	3	2	21	1	0		
	total							**365**	**12**	**89**	**4**	**8**	**3**	**36**	**6**	**0**	more EC	15
329		2	54.1	49.6	1.1	1.1	CB	113	4	39	**4**	**4**	**0**	6	1	0	more EC no LC	8
	327	3	19.3	15.7	0.6	0.6	CB											
332		2	66.7	58.7	4	4	CB	151	11	37	8	6	2	9	1	0		
	333	3	36	26.3	1.2	1.2	CB	44	4	19	2	0	2	1	0	0		
	total							**195**	**15**	**56**	**10**	**6**	**4**	**10**	**1**	**0**	more EC	20
334		2	90	43.2	2.6	2.6	CB	162	1	54	2	2	3	21	2	2		
	335	3	32	30	2.3	2.3	CB	63	1	18	0	0	0	12	1	0		
	total							**225**	**2**	**72**	**2**	**2**	**3**	**33**	**3**	**2**	about even	7
358		2	66.3	39.9	2.9	2.9	CB	119	13	32	2	3	1	5	0	0		
	359	3	md	md	0.4	0.4	CB	85	5	20	1	2	1	11	2	0		
	total							**204**	**18**	**52**	**3**	**5**	**2**	**16**	**2**	**0**	more EC	10
368		2	77.5	58.5	2.6	2.6	CB	95	3	19	2	4	3	13	1	0		
	369	3	md	md	1.4	1.4	CB	174	6	32	3	1	1	30	5	0		
	total							**269**	**9**	**51**	**5**	**5**	**4**	**43**	**6**	**0**	more EC	14
375		2	54.3	38.9	1.9	1.9	CB	163	3	49	3	2	1	37	7	0		
	376	3	63	18.5	0.5	0.5	CB	104	0	17	3	0	2	24	1	0		
	total							**267**	**3**	**66**	**6**	**2**	**3**	**61**	**8**	**0**	more EC	11
405		2	61.3	54.3	3	3	CB	100	9	49	**3**	**4**	**2**	3	0	0	more EC	9
	406	3	48	19.3	1	1	CB											
415		2	50	42.1	2.1	2.1	CB	134	2	25	**1**	**7**	**0**	12	0	0	more EC no LC	8
	416	3	42.1	18.4	1.2	1.2	CB											
549		2	39.4	34.3	2.9	2.9	CB											
	548	3	24	17.5	1	1	CB											
	900	8	md	md	md	md	CB	320	1	70	**1**	**4**	**2**	39	7	0	more EC	7
553		2	48	36	1.6	1.6	CB											
	552	3	70	48	1.1	1.1	CB	149	9	44	**5**	**6**	**2**	3	1	0	more EC	13
562		2	47	39	1.8	1.8	CB	122	2	40	3	3	3	7	2	0		
	563	3	27	23	1	1	CB	61	0	25	2	0	1	13	1	0		
	total							**183**	**2**	**65**	**5**	**3**	**4**	**20**	**3**	**0**	more EC	12

Table A3.3. Mound-terraces outside centers, PALM 1 and 2 *(continued)*

Feature Descriptions								Pottery Diagnostic Counts, Sherds									
Coll, Key Fea	Added Coll	Survey mtype	Len m	Wid m	Hgt m	Grand Hgt m	Locale	Total Sherd	Pre	Class	E Class	E Class Ten	Late Class	Post	Mid Post	Late Post	Comment	EC & LC total*
612		2	44.9	44.1	1.2	1.2	CB	287	7	60	**2**	**2**	**2**	67	7	0	about equal	6
	614	3	31.4	15.3	0.5	0.5	CB											
626		2	47.1	41.8	2.9	2.9	CB											
	628	2	44.1	42.4	2.8	2.8	CB											
	627	3	21.9	19.3	1.5	1.5	CB	117	1	19	**2**	**3**	**2**	7	0	0	more EC	7
	629	3	44.1	10.2	0.9	0.9	CB											
666		2	39.8	38.9	3.2	3.2	CB											
	668	3	22	14	0.4	0.4	CB	178	2	59	**4**	**4**	**9**	26	0	0	about equal	17
672		2	61	52.5	2.8	2.8	CB	117	4	23	1	5	4	12	1	0		
	673	3	41.5	16.9	0.3	0.3	CB	124	3	33	1	0	3	6	0	0		
	total							**241**	**7**	**56**	**2**	**5**	**7**	**18**	**1**	**0**	about equal, incr	14
725		2	45.8	43.3	1.6	1.6	CB	126	3	25	1	1	10	33	7	0		
	726	3	29.2	16.7	0.3	0.3	CB	76	6	10	0	0	0	12	0	0		
	total							**202**	**9**	**35**	**1**	**1**	**10**	**45**	**7**	**0**	more LC	12
792		2	53.5	45.8	2.9	2.9	CB											
	793	3	83.3	74.6	1.4	1.4	CB	134	2	39	**1**	**0**	**10**	8	0	0	more LC	11
878		2	57.9	36.9	4.5	4.5	CB	123	2	41	**3**	**1**	**1**	13	2	1	more EC	5
	879	3	26.3	md	0.9	0.9	CB											
1049		2	73.7	62.7	3.3	3.3	CB	196	0	63	2	4	4	22	6	0		
	1050	3	49.2	12.7	0.3	0.3	CB	23	1	9	0	0	1	2	2	0		
	total							**219**	**1**	**72**	**2**	**4**	**5**	**24**	**8**	**0**	about equal	11
1056		2	52.5	45.8	1.6	1.6	CB	203	1	97	**1**	**0**	**16**	8	2	0	more LC	17
	1063	3	76.3	27.1	1	1	CB											
1106		2	56.9	41.2	1.7	1.7	CB	122	0	53	1	6	6	11	3	0		
	1107	3	17.5	17.5	0.7	0.7	CB	79	0	27	0	0	4	13	0	0		
	total							**201**	**0**	**80**	**1**	**6**	**10**	**24**	**3**	**0**	more LC	17
1126		2	37.5	27.5	1.3	1.3	CB	200	1	70	2	19	4	7	0	0		
	1129	3	30	28	1	1	CB	132	0	44	1	3	3	5	1	0		
	total							**332**	**1**	**114**	**3**	**22**	**7**	**12**	**1**	**0**	more EC	32
1130		2	70	67.5	2	2	CB	124	0	28	1	0	5	6	0	0		
	1125	3	80	50	1.9	1.9	CB	74	0	21	0	0	3	3	0	0		
	total							**198**	**0**	**49**	**1**	**0**	**8**	**9**	**0**	**0**	more LC	9
1132		2	84.7	75.4	3	3	CB	95	1	28	1	4	5	10	0	0		
	1133	3	42.4	21.2	md	md	CB	291	2	100	3	5	11	5	0	1		
	1174	3	46.6	25.4	md	md	CB											
	total							**386**	**3**	**128**	**4**	**9**	**16**	**15**	**0**	**1**	more LC, incr	29
1222		2	23.1	21.7	1.1	1.1	CB	140	2	74	1	1	21	1	0	0		
	1223	3	34	22	0.4	0.4	CB	118	0	48	0	0	10	5	0	1		
	total							**258**	**2**	**122**	**1**	**1**	**31**	**6**	**0**	**1**	more LC	33

Feature Descriptions								Pottery Diagnostic Counts, Sherds										
Coll, Key Fea	Added Coll	Survey mtype	Len m	Wid m	Hgt m	Grand Hgt m	Locale	Total Sherd	Pre	Class	E Class	E Class Ten	Late Class	Post	Mid Post	Late Post	Comment	EC & LC total*
1228		2	87.3	42.8	2.2	2.2	CB	174	0	61	8	4	8	9	1	0		
	1270	3	79.8	26.1	0.8	0.8	CB	143	0	46	1	2	6	16	0	1		
	total							**317**	**0**	**107**	**9**	**6**	**14**	**25**	**1**	**1**	about equal	29
1245		2	45	36.6	1.7	1.7	CB	155	1	44	0	0	7	31	2	0		
	1246	3	31	18.8	0.5	0.5	CB	74	0	43	0	1	1	15	1	0		
	total							**229**	**1**	**87**	**0**	**1**	**8**	**46**	**3**	**0**	more LC	9
1427		2	54	51.5	3	3	CB	245	0	105	2	3	27	12	0	0		
	1428	3	52.7	13.5	0.8	0.8	CB	139	2	75	0	2	31	2	0	0		
	total							**384**	**2**	**180**	**2**	**5**	**58**	**14**	**0**	**0**	more LC	65
1503		2	78.2	37	2.6	2.6	CB	113	1	34	0	0	6	15	4	1		
	1504	3	29.4	26.9	1.2	1.2	CB	111	0	38	0	0	8	19	3	0		
	total							**224**	**1**	**72**	**0**	**0**	**14**	**34**	**7**	**1**	all LC	14
1513		5	51.3	40.9	5	5.4	CB	18	0	10	0	3	2	2	0	0		
	1514	3	58	48.5	2.3	2.7	CB	131	1	37	0	1	10	39	6	0		
	1515	3	69.4	34.2	2.7	3.1	CB	43	1	19	1	0	3	0	0	0		
	1517	5	23.8	18.1	0.3	0.7	CB	36	0	4	0	0	1	19	3	0		
	1518	4	128.5	111.2	0.4	0.4	CB	77	0	27	2	1	6	13	1	0		
	total							**305**	**2**	**97**	**3**	**5**	**22**	**73**	**10**	**0**	more LC	30
1531		2	78.1	73.9	1.4	1.4	CB	219	2	59	1	4	1	38	3	0		
	1532	3	37.8	20.2	0.5	0.5	CB	36	0	10	1	1	1	0	0	0		
	total							**255**	**2**	**69**	**2**	**5**	**2**	**38**	**3**	**0**	more EC	9
1549		2	47.5	46.6	2.5	2.5	CB	129	0	46	4	2	3	12	0	0		
	1550	3	43.7	33.3	1.5	1.5	CB	80	0	19	0	4	0	4	0	0		
	total							**209**	**0**	**65**	**4**	**6**	**3**	**16**	**0**	**0**	more EC	13
1693		5	37.2	30.7	3.1	4.6	CB	40	1	14	3	0	4	0	0	0		
	1692	4	107.5	44.2	1.4	1.4	CB	89	1	29	2	2	1	6	1	0		
	1694	3	33.2	21.9	2.2	3.2	CB	45	2	18	3	0	3	5	2	0		
	total							**174**	**4**	**61**	**8**	**2**	**8**	**11**	**3**	**0**	about equal	18
1725		2	31.9	29.1	1.4	1.4	CB	83	3	26	0	1	4	8	1	0		
	1726	3	31.9	20.6	0.8	0.8	CB	100	0	42	3	3	13	6	0	0		
	total							**183**	**3**	**68**	**3**	**4**	**17**	**14**	**1**	**0**	more LC	24
4039		2	59	52	2.4	2.4	CB	177	4	55	**2**	**7**	**7**	10	0	1	about equal	16
	4052	3	25	16	1.3	1.3	CB											
	4053	3	23	22	0.7	0.7	CB											
4068		2	55.9	43.8	3	3	CB	121	4	37	**3**	**3**	**1**	7	1	0	more EC	7
	4071	3	35.6	26.7	1.6	1.6	CB											
4093		2	64.5	56.5	1.9	1.9	CB	110	3	35	0	2	2	7	1	0		
	4094	3	46.5	28.5	0.8	0.8	CB	64	2	20	0	1	2	3	0	0		
	total							**174**	**5**	**55**	**0**	**3**	**4**	**10**	**1**	**0**	about equal	7
4127		2	62	44	2.9	2.9	CB	186	5	49	0	4	0	26	2	1		

Table A3.3. Mound-terraces outside centers, PALM 1 and 2 *(continued)*

Feature Descriptions								Pottery Diagnostic Counts, Sherds										
Coll, Key Fea	Added Coll	Survey mtype	Len m	Wid m	Hgt m	Grand Hgt m	Locale	Total Sherd	Pre	Class	E Class	E Class Ten	Late Class	Post	Mid Post	Late Post	Comment	EC & LC total*
	4128	3	44	34	1.5	1.5	CB	111	3	18	0	0	2	15	0	0		
	total							**297**	**8**	**67**	**0**	**4**	**2**	**41**	**2**	**1**	about equal	6
6336		2	27.5	25.5	2	2	NO	111	2	29	1	4	7	0	0	0		
	6335	3	38.7	34.4	2.7	2.7	NO	116	1	24	0	0	21	0	0	0		
	total							**227**	**3**	**53**	**1**	**4**	**28**	**0**	**0**	**0**	more LC	33
6360		2	51.4	49	5.1	5.1	NO	367	1	74	0	0	70	3	0	0		
	6386	3	73	33.5	4.1	4.1	NO	78	0	29	2	1	13	0	0	0		
	6339	6	20	20	0	0	NO	178	1	19	2	2	13	0	0	0		
	total							**623**	**2**	**122**	**4**	**3**	**96**	**3**	**0**	**0**	more LC	103
6595		2	50.4	49.8	2.2	2.2	MX	68	2	19	**0**	**0**	**7**	9	2	0	more LC, no EC	7
	6596	3	34	25.8	1.7	1.7	MX											
6645		2	55.9	md	2.4	2.4	MX	54	4	12	3	0	1	3	0	0		
	6646	3	47.5	md	2.4	2.4	MX	69	1	16	2	1	6	2	0	0		
	total							**123**	**5**	**28**	**5**	**1**	**7**	**5**	**0**	**0**	about equal	13
6828		2	44.1	43.9	1.4	1.4	TU	104	3	32	3	2	1	2	0	0		
	6830	3	36.3	34.9	1.2	1.2	TU	18	6	3	0	0	0	0	0	0		
	total							**122**	**9**	**35**	**3**	**2**	**1**	**2**	**0**	**0**	more EC	6
264		2	22	22	3.7	3.7	CB	29	0	6	0	0	0	5	0	0		
	263	3	71.2	30.5	2.4	2.4	CB	75	2	13	0	0	0	10	1	0		
	total							**104**	**2**	**19**	**0**	**0**	**0**	**15**	**1**	**0**	indeterm	
271		2	51	39.8	1.6	1.6	CB	83	0	20	1	1	0	10	1	0	indeterm	
	277	3	38	16	md	md	CB											
291		2	40.7	37.3	2.1	2.1	CB	112	1	11	**0**	**1**	**0**	19	0	0	indeterm	
	292	3	29.7	9.3	0.8	0.8	CB											
383		2	61.1	48.3	1.6	1.6	CB	75	2	14	**0**	**0**	**2**	21	1	0	indeterm	
	384	3	40	11.9	1	1	CB											
440		2	47	42	2.9	2.9	CB	114	0	23	**0**	**1**	**1**	8	0	0	indeterm	
	439	3	63	31	1.4	1.4	CB											
	441	3	49	46	0.9	0.9	CB											
657		2	79.7	48.3	2.2	2.2	CB	198	0	34	**1**	**0**	**1**	33	3	0	indeterm	
	658	3	45.8	17.8	1.1	1.1	CB											
720		2	60.9	35	1	1	CB											
	723	3	28.7	25	0	0	CB	79	0	11	**0**	**0**	**1**	30	0	0	indeterm	
845		2	44	33.1	4.1	4.1	CB	92	20	24	0	0	1	3	0	0		
	847	2	42.4	38.1	8	8	CB											
	846	3	39.8	37.2	3.2	3.2	CB	10	1	6	0	1	0	1	0	0		
	total							**102**	**21**	**30**	**0**	**1**	**1**	**4**	**0**	**0**	indeterm	
151		2	68.4	39.6	2	2	CB	55	2	14	0	**2**	**0**	**8**	1	0	>30 <76 indeterm	
	157	3	42.9	7.1	0.7	0.7	CB											

Feature Descriptions								Pottery Diagnostic Counts, Sherds										
Coll, Key Fea	Added Coll	Survey mtype	Len m	Wid m	Hgt m	Grand Hgt m	Locale	Total Sherd	Pre	Class	E Class	E Class Ten	Late Class	Post	Mid Post	Late Post	Comment	EC & LC total*
322		2	47.5	md	3.4	3.4	CB	10	1	3	0	2	0	0	0	0		
	323	3	md	21	0.9	0.9	CB	8	0	3	1	0	0	1	0	0		
	total							**18**	**1**	**6**	**1**	**2**	**0**	**1**	**0**	**0**	<30	
646		2	58	51	2.7	2.7	CB	51	6	7	0	3	1	3	0	0		
	647	3	34	13	1.2	1.2	CB	15	0	2	0	0	1	0	0	0		
	total							**66**	**6**	**9**	**0**	**3**	**2**	**3**	**0**	**0**	>30 <76 about equal	
1299		2	43.8	34.2	1.2	1.2	CB	70	6	25	**0**	**3**	**0**	3	0	0	>30 <76more EC	
	1298	3	69.4	26.6	0.5	0.5	CB											
1377		2	38	32.4	7	7	CB	68	0	25	**1**	**2**	**5**	5	0	0	>30 <76 more LC	
	1376	3	md	md	0.3	0.3	CB											
	1375	5	36.4	21	0.5	1.3	CB											
	1374	5	19.4	17.8	0.4	1.2	CB											
	1373	4	md	md	0.8	0.8	CB											
1525		2	68.9	32.8	2.5	2.5	CB	33	0	10	0	0	6	1	0	0		
	1522	3	22.7	8.4	0.5	0.5	CB											
	1521	8	md	md	md	md	CB	9	0	3	0	0	0	0	0	0		
	total							**42**	**0**	**13**	**0**	**0**	**6**	**1**	**0**	**0**	>30 <76 LC, no EC	
4095		2	35	22	0.3	0.3	CB											
	4096	3	35	17	0.2	0.2	CB	31	2	9	0	2	1	2	0	0	>30 <76 about equal	
6576		2	45.1	44	2.4	2.4	MX	34	1	9	1	1	0	2	1	0		
	6577	3	42.2	24.5	1.3	1.3	MX	29	0	7	2	1	0	0	0	0		
	total							**63**	**1**	**16**	**3**	**2**	**0**	**2**	**1**	**0**	>30 <76 EC, no LC	
6618		2	72.7	62.8	4.9	4.9	MX	10	0	2	0	0	0	0	0	0		
	6619	3	45.2	43.9	2.4	2.4	MX	9	0	3	0	0	0	2	0	0		
	6796	3	51	34	0.5	0.5	MX											
	total							**19**	**0**	**5**	**0**	**0**	**0**	**2**	**0**	**0**	<30	
258		2	29.7	22.8	2.1	2.1	CB										no coll	
	259	3	49.5	25	1.8	1.8	CB											
280		2	49.2	37.3	1.8	1.8	CB										no coll	
	281	3	20.3	13.6	1.8	1.8	CB											
286		2	34.9	33.2	1.2	1.2	CB										no coll	
	287	3	26	17.5	0.4	0.4	CB											
557		2	42	34	1.4	1.4	CB										no coll	
	940	3	42	21	md	md	CB											
655		2	66.7	24.2	4.7	4.7	CB										no coll	
	656	3	66.7	48.7	3.1	3.1	CB											

Table A3.3. Mound-terraces outside centers, PALM 1 and 2 *(continued)*

Feature Descriptions								Pottery Diagnostic Counts, Sherds										
Coll, Key Fea	Added Coll	Survey mtype	Len m	Wid m	Hgt m	Grand Hgt m	Locale	Total Sherd	Pre	Class	E Class	E Class Ten	Late Class	Post	Mid Post	Late Post	Comment	EC & LC total*
1118		2	46	41	1.5	1.5	CB										no coll	
	1119	3	35	26	0.4	0.4	CB											
1122		2	76.7	52.5	2.2	2.2	CB										no coll	
	1123	3	30.7	28.5	0.3	0.3	CB											
1240		2	33.6	29.4	1	1	CB										no coll	
	1241	3	11.9	6.3	0.6	0.6	CB											
1248		2	33.2	19.5	1.8	1.8	CB										no coll	
	1249	3	23.5	16.2	1.2	1.2	CB											
1320		2	44.7	42.8	1.7	1.7	CB										no coll	
	1321	3	25.7	18.1	0.3	0.3	CB											
1544		2	56.5	44.7	1.7	1.7	CB										no coll	
	1546	3	55.1	35.2	1.4	1.4	CB											
1662		2	54.2	md	1.5	1.5	CB										no coll	
	1663	3	51	21	0.7	0.7	CB											
1697		2	43.7	38.8	1.5	1.5	CB										no coll	
	1698	3	29.8	28.3	0.9	0.9	CB											
6612		2	45.6	35.9	1.4	1.4	MX										no coll	
	6613	3	30.9	9.3	1.1	1.1	MX											
6727		2	40.8	30.9	2.1	2.1	MX										no coll	
	6728	3	55.3	24	1	1	MX											
6534		2	43.1	36.3	1.1	1.1	MO										no coll	
	6533	3	23.6	22.2	1.4	1.4	MO											

Notes:
Collection key feature is the mound; terraces are the usual added collections.
Grand height is the height of a structure plus the height of any underlying platform.
In comments, EC = Early Classic plus Early Classic Tendency; LC = Late Classic. "incr" means increasing between Early Classic, Early Classic Tendency, and Late Classic
"About equal" means a difference of 1 or 2 sherds between Early Classic plus Early Classic Tendency versus Late Classic
Table excludes mound-terraces in Speaker (2001b)
Median of total sherds for all PALM 1 and 2 collections is 76
*for collections >= 76 total sherds and not categorized as indeterminate

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The Archaeology of Political Organization

Urbanism in Classic Period Veracruz, Mexico

In this volume, Barbara Stark examines settlement in the coastal plain of lowland Mesoamerica, which was richly endowed with fertile soil and valued tropical resources such as jaguars, cacao, avian species with bright plumage, and cotton. The book provides basic archaeological data about regional settlement from three decades of survey research in south-central Veracruz in the western lower Papaloapan basin, a region with low density urbanism. The data reveals political and social change, with consolidation of wealth by elite families during the Late Classic period.

The political analysis considers archaeological evidence related to several organizational principles: collective versus autocratic, corporate versus exclusionary/network, and segmentary (unspecialized versus specialized). Many variables related to these principles used by other scholars are either suited to historically documented states, not archaeological ones, or ambiguous. Many published studies either focus on a particular city or use documents or other evidence drawn from the top of the settlement hierarchy, characterizing the whole society politically from a biased sample. This political analysis is regional in scope and attentive to variation in the settlement hierarchy, providing a guidepost to analysis of political principles with archaeological data.

Above: Recreo South monumental platform cut by backhoe, C. Garraty and A.J. Vonarx measuring elevation. *Photograph by Barbara L. Stark.*

Front: Classic period figurines, left to right: old god representation from mound 1055, rain god representation or impersonator from feature 139, and young lord representation from mound 354. *Photographs by Barbara L. Stark.*

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