A Subsurface Testing Program at Chiquiuitan, Guatemala

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Research Year: 2007
Culture: Maya
Chronology: Early to Middle Preclassic
Location: Pacific Coast, Santa Rosa, Guatemala
Site: Chiquiuitan

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Abstract

At Chiquiuitan, an Early and Middle Formative site on the Pacific coast of Santa Rosa, Guatemala, results from a subsurface testing program present a fine-grained picture of the use of space by the inhabitants of this ancient village. Excavated every twenty-five meters along randomly-selected north-south running transects across an area of approximately two square kilometers, data gathered from these 393 shovel pits have affirmed the assumption that the low area between the mounds was uninhabited, and have revealed evidence of activity in a part of the site previously thought to be culturally sterile. This research suggests that subsurface testing is an important means for gaining diachronic settlement information in areas such as the Pacific coast of Guatemala, where Formative structures are often unobtrusive and aggrading deposits can quickly conceal evidence of occupation and activity. This specific research method has provided a way to better understand the spatial component of past life at Chiquiuitan, reassess the extent and density of settlement at the village level, and investigate community variation.

Resumen

Chiquiuitan es un sitio del periodo Formativo Temprano y Medio localizado en la costa Pacifica del departamento de Santa Rosa, Guatemala en donde se realizó un programa de registros que tuvo como objetivo principal establecer si en el área fuera de los grupos residenciales existieron espacios ocupados por residencias o tal vez otro tipo de actividades. Se utilizó la metodología de excavación de registros manejando únicamente una pala, en los que se logro un pozo cada veinticinco metros en líneas de marca de eje norte-sur escogidos al azar. Los datos recolectados en el programa indican que el área entre los montículos fue utilizada solamente en pocas actividades. También se sugiere ocupación en un lugar que ya no se conocía. Estas investigaciones muestran el beneficio de registros pequeños para examinar ocupación en regiones como la costa Pacifica, en donde materiales culturales frecuentemente son enterrados debajo de estratos de sedimentación. Esta metodología provee un modo para aumentar el conocimiento de asentamiento en comunidades del Formativo.

Introduction

Aid from the Foundation for the Advancement of Mesoamerican Studies, Inc., (FAMSI) has supported ongoing work at Chiquiuitan, an Early and Middle Formative (1400-600 B.C., calibrated dates) site on the southeastern Pacific Coast of Guatemala. The overall goals of the Proyecto Arqueológico Chiquiuitan (PACHI) were to investigate domestic practice and gain a better understanding of site occupation through a subsurface testing program. FAMSI funds specifically supported the later objective, in a shovel testing component looking for settlement and activity areas located off-mound, in what has been referred to as the hidden domain of settlement remains. In April and May of 2007, PACHI

researchers excavated 393 shovel tests in the low-lying areas between the residential mounds at the site. Forty-two of these probes located cultural deposits. These data supplemented those gathered through excavation of test pits and horizontal exposures of the mounds to complete an intensive and comprehensive household archaeology program, and have significantly enhanced our understanding of the use of space at the site, indicating activity in areas of the site previously assumed to be culturally vacant.

Previous Research

Chiquiuitan is composed of twenty-two earthen mounds located in an estuary region near the modern town of Monterrico, in the district of Santa Rosa (Figure 1 and Figure 2). Early research conducted by Francisco Estrada-Belli (Estrada-Belli 1999; Estrada-Belli et al. 1998) included the site in a regional survey program and found that it is the largest Formative period village in the southeastern Guatemala region. Three text pits excavated by Estrada-Belli revealed layered construction events elevating the surfaces of the mounds, allowing their residents to live above the surrounding ground level. Based on these data, studies at Chiquiuitan have followed the assumption that the past inhabitants occupied the area atop the mounds to avoid the seasonal inundation that creates a swampy environment for part of each year. The shovel testing program reconsidered the possibility of the use of the off-mound space, thus testing this assumption.

Figure 1. Map of Mesoamerica showing the location of Chiquiuitan, well-known ancient sites, and modern country capitals.

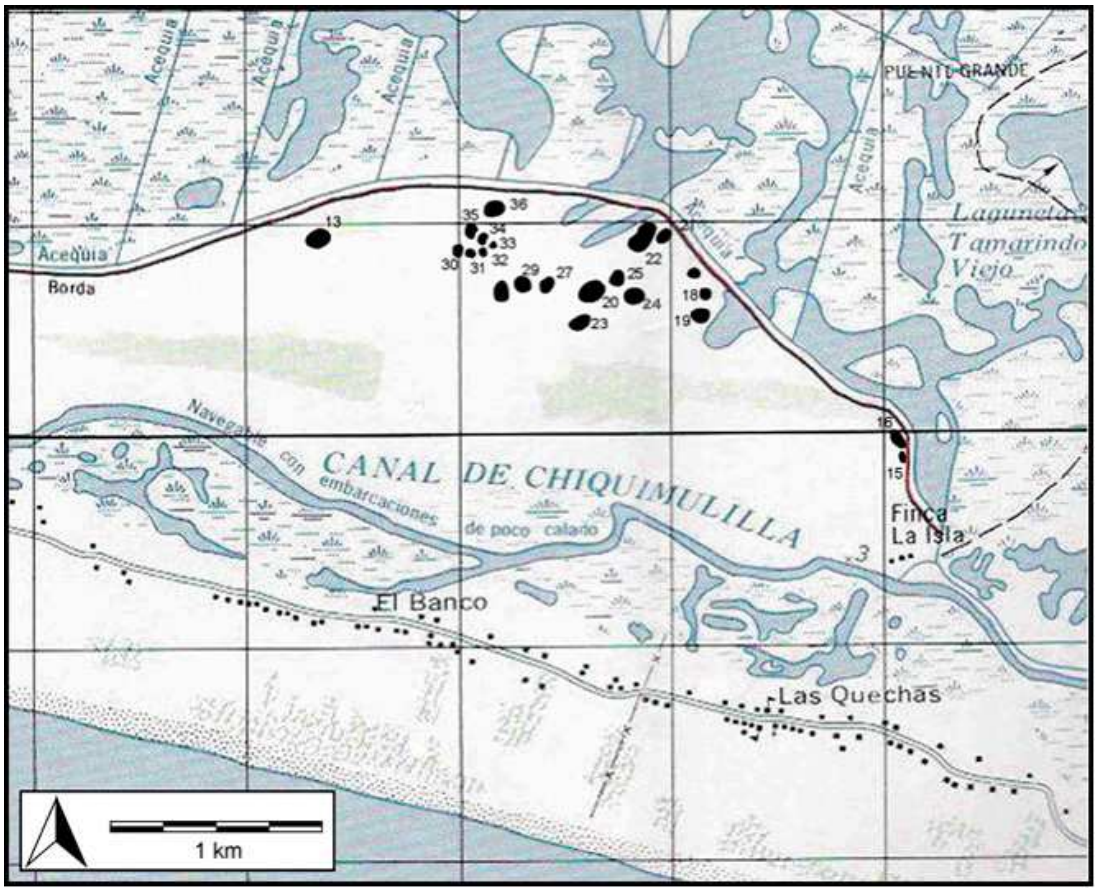

Figure 2. Map of the site of Chiquiuitan showing mound locations and their numbers.

Ongoing Research

While past research provided preliminary results for understanding Chiquiuitan within the region, PACHI sought a more targeted understanding of this particular early community. In the pilot season of PACHI, conducted in March and April of 2006, archaeologists excavated test pits in two of the mounds believed to be the earliest at the site (Morgan and Valle 2006, 2007). These test pits revealed successive platform layers and architectural features, and allowed researchers to gather artifacts and material samples that were used in better understanding the site's chronology.

With FAMSI support in 2007, PACHI tested the assumption that the mounds were the primary locales for occupation, seeking to examine how different spaces were used at the site. This phase of research complemented a more general research plan that investigated the mounds themselves in larger excavation units, supported by grants from IIE Fulbright, Vanderbilt University, and the New World Archaeological Foundation.

Subsurface Shovel Testing

Collecting comprehensive settlement data through surface survey procedures alone can be difficult, especially in cases where natural deposits may obscure occupation, as is found in the seasonally inundated lagoon estuary of Chiquiuitan. In such circumstances, a more complete representation of diachronic site organization must be acquired through some sort of subsurface testing. Shovel testing is an appropriate means to collect such data at Chiquiuitan for three reasons. First, previously excavated test pits at the site have shown that cultural deposits are not found more than 1 m below the ground surface, an easy depth to reach through shovel-probing. Second, the abundance of ceramic sherds in other previously-excavated cultural deposits indicates that even small excavations (shovel pits create holes of 50-70 cm diameter) provide enough evidence to indicate settlement or activity areas. Furthermore, shovel testing allows the excavator some control over vertical stratigraphy in a time effective manner.

Subsurface testing has been an important means for settlement data collection from several archaeology projects in Mesoamerica and elsewhere. For example, auger testing was conducted at Tres Zapotes to successfully study settlement patterning in the Arroyo Hueyapan floodplain where alluvium and volcanic ash cover archaeological deposits (Wendt 2003). Similarly, auger testing at the Saladoid site of Maizabel, in an area of Puerto Rico with heavy ground cover vegetation addressed settlement organization and community patterning through a subsurface testing program that usefully delimited the boundaries of the site and monitored the presence/absence of artifacts (Siegel 1995). Zeidler discusses hidden domain studies through shovel testing methodology in his review of archaeological survey (1995). He describes the ability of shovel-probe testing to cross-cut distinct physiographic zones and discover sites in the Jama Valley of coastal Ecuador. Lastly, at the Late Preclassic Maya center of Cerros, a sophisticated water control system was fruitfully investigated through trenching as well as posthole excavation, with the specific goal of the postholing program to produce a series of schematized profiles to illustrate the nature of the buried canals (Scarborough 1983). In summary, systematic subsurface testing programs have provided successful results for detecting buried deposits in Mesoamerican and other neotropical lowland environments, and have similarly facilitated the acquisition of site settlement information at Chiquiuitan.

Methodology

We carried out the subsurface testing program through a systematic sampling procedure. The boundaries of the survey area were partially determined by the visible layout of mounds at the site and partially by the modern spatial boundaries of the cattle ranch where the site is located. Project archaeologist Dr. Jon C. Lohse first set up the east-west transect to the south of the survey area, placing 80 stakes at intervals of 25m. From this baseline, one north-south

transect was randomly selected from every 100m stretch of survey area to be sampled through shovel testing (researchers conducted shovel testing by walking northwards from one out of every four stakes on the east-west transect). Another project archaeologist, Antolín Velásquez López, supervised field excavation for the shovel-testing program by placing a pit at every 25m along the selected north-south running transects, with the assistance of four hired workmen, José Estuardo Carvajal, Víctor Rogelio Betancourt, Wilfred Tuna, and Gregorio Hernández. Where mounds or the edge of the Chiquimulilla Lagoon were encountered, shovel pits were not excavated. Figure 3 illustrates the survey area and transect lines, with colored symbols indicating shovel pits in which cultural material was located.

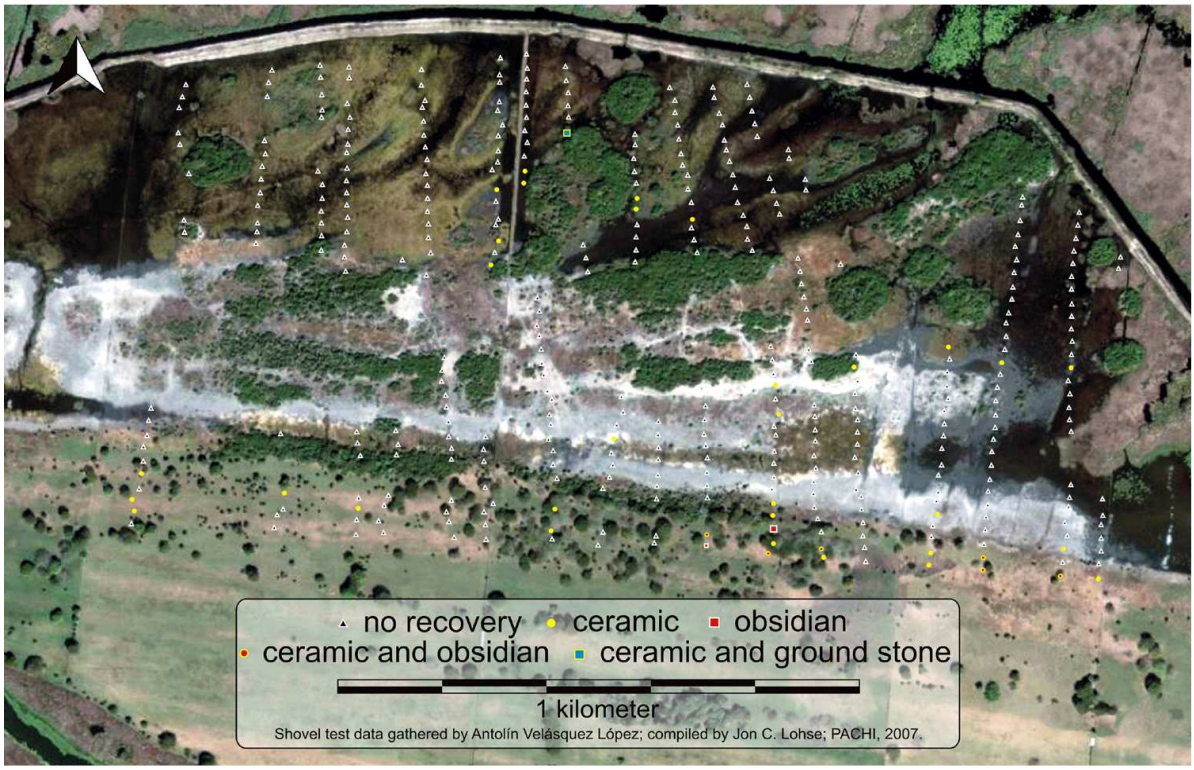

Figure 3. Aerial photo of Chiquiuitan with overlay of symbols indicating shovel pit locations and cultural material finds.

The test-pits were round in shape, with diameters of 0.50-0.70m, and depths varying from 0.60 to 1.60m (Figure 4), with excavations ceasing when the water table was encountered. The soil extracted from each shovel probe was sifted through a portable quarter-inch mesh screen. Cultural material was separated, bagged, and labeled in the field. The data recorded on shovel pit deposit characteristics includes a field number designated during survey, UTM coordinates, altitude above sea level, a description of the soil, Munsell number, and any artifact types located. This information is presented in Table 1, which includes test units with positive results for cultural material only. Data on shovel-probe location was gathered using a handheld GPS and compass.

Figure 4. Photo illustrating an example of the typical shovel pit.

Conclusions

Out of the 393 shovel pits excavated, 351 proved negative for cultural material. This demonstrates that there was not significant occupation between mounds at Chiquiuitan. From the 42 positive tests, 26 (or 62%) were located on the paleo dune located to the south of the site. Ceramics found in these test pits demonstrate diagnostic attributes of all three phases of Early and Middle Formative occupation of the site. Since most of the occupation of Chiquiuitan appears to have been situated on this hill or atop the constructed earthen platforms, it seems that the assumption that the seasonal inundation witnessed at Chiquiuitan today also occurred in the past, compelling ancient inhabitants to seek (or create) high ground upon which to build their residences. However, the remaining 16 cultural deposits were located through test pits placed in the low area between mounds, indicating that this low area was not devoid of activity at all times throughout the site's history. On the contrary, one find in particular, shovel pit CHI.08.39.14.01 located a midden (Figure 5) dating to the Middle Formative Tamarindo phase, probably associated with nearby Mound 35. This deposit, along with the other cultural materials found between the mounds, suggests that this area was utilized to some extent, perhaps during the dryer parts of the year.

Figure 5. Photo showing test pit CHI.08.39.14.01, which located a midden, perhaps associated with nearby Mound 35.

Significance of Research

Subsurface testing is an important means for gaining diachronic settlement information in areas such as the Pacific coast of Guatemala, where Formative structures are unobtrusive and alluvial deposits can quickly conceal visible evidence of occupation and activity. This specific research method has provided the means to better understand the spatial component of past life at Chiquiuitan, and reassess the extent and density of settlement at the community level. The results of this project have affirmed the assumption that ancient inhabitants of Chiquiuitan lived on top of the mound platforms, and not in the low-lying areas between the mounds, supporting the proposal that the land was seasonally inundated in the past as it is today. Furthermore, the positive test pits that were located near the mounds, but off their edges suggest that some activities were taking place between the mounds, especially in the case of the midden located near Mound 35.

Additionally, this research revealed an area of occupation or activity previously unknown, located on the hill south of the site. These results demonstrate previously unrecognized variability within this particular Formative period settlement pattern, illuminating an important component of the ancient community. The identification of cultural material concentrated on the high area south of the site core could indicate occupation, special activity areas, or the accumulation of debris. At this point, the discovery of obsidian tool fragments and ceramics in the same deposits in 5 of the 26 positive shovel tests in this

space and the higher elevation of the area would better support a scenario of occupation on desirable high ground in which many domestic practices took place, rather than an activity area specializing in a particular resource use or the unlikely accumulation of such a high density of debris. However, no architectural remains were located, and future work is needed to answer questions regarding the nature of the use of space in this section of the site. In general, the new data gained from the sub-surface testing program has indeed presented a clearer picture of occupation and use of space at the site of Chiquiuitan.

Importantly, these conclusions show that Formative period communities were composed of variable types of occupied areas, as opposed to being entirely comprised of constructed mounds. This new view requires researchers to consider settlement patterns at these communities more heterogeneously, conceptualizing various uses of spaces that may not be as apparent as mounded platforms. Spaces between and surrounding the mounds must be investigated, and this study indicates that in the case of Early Formative estuary sites along the coast, paleo dunes or other types of naturally occurring higher ground may be fruitful places to start. Recognizing variability in ancient sites has important ramifications for interpretations of past lifeways. It is through approaching Formative sites as dynamic entities that we can develop new knowledge of how these villages functioned, allowing us to consider not only different community spaces, but also specialized practices, social group diversity, and the various roles and identities that comprise society. Thus, by considering and evaluating diverse occupation of ancient sites, our understanding of the variability in human groups and their activities at these communities will be enriched.

Table 1. Data from shovel pits, showing positive cultural material finds

Pit Field#	UTM	Altitude	Description	Munsell	Depth	Artifacts
08.01.01.01	0708143 1540199	1 M	Sandy, Fine, Soft	2.5YR 2.5/2	1.00 M	Ceramic
08.04.01.01	0768071 1540204	2 M	Sandy, Soft, with Charcoal Inclusions	10YR 3/2	1.20 M	Ceramic, Obsidian
08.04.03.01	0768077 1540257	0 M	Sandy, Soft	2.5Y 5/3	.70 M	Ceramic
08.10.01.01	0767922 1540216	1 M	Sandy, Muddy, Soft	10 YR 3/2	1.25 M	Ceramic, Obsidian
08.10.02.01	0767922 1540239	0 M	Sandy, Muddy, Soft	10 YR 3/2	1.10 M	Ceramic, Obsidian
08.10.17.01	0767958 1540617	2 M	Sandy, Muddy, Soft	5 YR 4/6	.95 M	Ceramic

Pit Field#	UTM	Altitude	Description	Munsell	Depth	Artifacts
08.14.01.01	0767818 1540225	3 M	Sandy, Compact, Hard, Dry, with Charcoal Inclusions	5 YR 3/1	1.25 M	Ceramic
08.14.02.01	0767822 1540249	3 M	Sandy, Hard, Compact, Dry	5 YR 3/1	1.20 M	Ceramic
08.14.05.01	0767826 1540323	3 M	Sandy, Humid, Soft	7.5 YR 5/8	1.00 M	Ceramic
08.14.18.01	0767856 1540647	0 M	Sandy, Humid, Soft	Gley 1 5/N	.85 M	Ceramic
08.19.16.01	0767675 1540608	1 M	Sandy, Humid, Soft	10 YR 5/6	1.00 M	Ceramic
08.22.01.01	0767616 1540240	6 M	Sandy, Compact, Hard, Dry	10 YR 5/6	1.30 M	Ceramic
08.22.02.01	0767612 1540257	2 M	Sandy, Compact, Hard, Dry	7.5 YR 3/1	1.30 M	Ceramic, Obsidian
08.26.01.01	0767510 1540248	4 M	Sandy, Compact, Hard, Dry	10 YR 3/6	1.31 M	Ceramic, Obsidian
08.26.02.01	0767520 1540267	3 M	Sandy, Compact, Hard, Dry	7.5 YR 3/2	1.30 M	Ceramic
08.26.03.01	0767520 1540295	3 M	Sandy, Humid, Soft	Gley 1 5/10Y	1.10 M	Obsidian
08.26.04.01	0767519 1540321	7 M	Sandy, Humid, Soft	Gley 1 4/10Y	1.10 M	Ceramic
08.26.05.01	0767920 1540344	9 M	Sandy, Humid, Soft	2.5 Y 4/3	1.00 M	Ceramic
08.26.12.01	0767530 1540517	4 M	Sandy, Humid, Soft	10 YR 4/4	.95 M	Ceramic
08.26.14.01	0767524 1540574	3 M	Sandy, Humid, Soft	10 YR 4/4	1.00 M	Ceramic
08.31.01.01	0767391 1540252	4 M	Sandy, Compact, Hard, Dry, with Charcoal Inclusions	2.5 Y 4/2	1.45 M	Obsidian

Pit Field#	UTM	Altitude	Description	Munsell	Depth	Artifacts
08.31.02.01	0767391 1540283	4 M	Sandy, Compact, Hard, Dry	2.5 Y 4/2	1.50 M	Ceramic, Obsidian
08.31.14.01	0767363 1540905	3 M	Sandy, Muddy, Soft	10YR 4/6	.95 M	Ceramic
08.35.14.01	0767257 1540914	-4 M	Sandy, Muddy, Soft	10 YR 4/4	1.05 M	Ceramic
08.35.15.01	0767258 1540935	-2 M	Sandy, Muddy, Soft	10 YR 4/4	.88 M	Ceramic
08.39.07.01	0767214 1540469	2 M	Sandy, Muddy, Soft	10 Y 4/4	1.30 M	Ceramic
08.39.14.01	0767124 1541062	5 M	Sandy, Muddy, Soft	Gley 1 3/10GY	.70 M	Ceramic, Lithic
08.43.02.01	0767093 1540291	0 M	Sandy, Hard, Compact, Dry	7.5 YR 3/1	1.45 M	Ceramic
08.43.03.01	0767101 1540334	5 M	Sandy, Hard, Compact, Dry	10 YR 3/2	1.60 M	Ceramic
08.43.19.01	0767041 1540964	1 M	Sandy, Muddy, Soft	Gley 1 4/N	.95 M	Ceramic
08.43.20.01	0767043 1540988	1 M	Sandy, Muddy, Soft	2.5 Y 4/4	.90 M	Ceramic
08.48.09.01	0766978 1540806	0 M	Sandy, Muddy, Soft	Gley 1 5/N	.85 M	Ceramic
08.48.11.01	0766903 1540853	3 M	Sandy, Muddy, Soft	10 YR 5/8	.75 M	Ceramic
08.48.15.01	0766988 1540952	1 M	Sandy, Muddy, Soft	2.5 Y 4/2	.65 M	Ceramic
08.58.03.01	0766724 1540335	3 M	Sandy, Hard, Compact, Dry	10 YR 4/3	1.50 M	Ceramic
08.64.04.01	0766582 1540365	6 M	Sandy, Hard, Compact, Dry	7.5 YR 5/4	1.20 M	Ceramic
08.75.02.01	0766294 1540329	6 M	Sandy, Hard, Compact, Dry	10 YR 5/6	1.30 M	Ceramic
08.75.03.01	0766290 1540352	6 M	Sandy, Hard, Compact, Dry	10 YR 4/4	1.30 M	Ceramic
08.75.05.01	0766307 1540402	1 M	Sandy, Hard, Compact, Dry	2.5 Y 5/2	1.25 M	Ceramic

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List of Figures

Sources Cited

Estrada-Belli, Francisco
1999 *The Archaeology of Complex Societies in Southeastern Pacific Coastal Guatemala: A Regional GIS Approach.* British Archaeological Reports, Oxford.

Estrada-Belli, Francisco, Laura J. Kosakowsky, and Marc Wolf
1998 Survey and Excavation in Pacific Coastal Jutiapa, Guatemala, 1997. *Mexicon* 20(3):55-59.

Morgan, Molly and Judith Valle
2006 Proyecto Arqueológico Chiquiuitan, Investigaciones de una Sociedad Compleja en el Periodo Formativo Temprano en la Costa Sur de Guatemala, Informe Final de Temporada 2006. Presented to the Department of Monumentos Prehispanicos y Coloniales, Instituto de Antropología e Historia de Guatemala.

2007 La Evidencia para la Ocupación Formativa Temprana del Sitio Chiquiuitan, Santa Rosa, Guatemala. *Utz'ib* 4(2):14-17. Asociación Tikal, Guatemala.

Scarborough, Vernon L.
1983 A Preclassic Maya Water System. *American Antiquity* 48(4):720-744.

Siegel, Peter E.
1995 The Archaeology of Community Organization in the Tropical Lowlands: A Case Study from Puerto Rico. In *Archaeology in the Lowland American Tropics: Current Analytical Methods and Recent Applications*, pp. 42-65, edited by Peter W. Stahl. Cambridge University Press.

Wendt, Carl J.
2003 Buried Occupational Deposits at Tres Zapotes: The Results of an Auger Testing Program. In *Settlement Archaeology and Political Economy at Tres Zapotes, Veracruz, Mexico*, pp. 32-46, edited by Christopher A. Pool. Cotsen Institute of Archaeology Monograph 50. University of California, Los Angeles.

Zeidler, James A.
1995 Archaeological Survey and Site Discovery in the Forested Neotropics. In *Archaeology in the Lowland American Tropics: Current Analytical Methods and Recent Applications*, pp. 7-41, edited by Peter W. Stahl. Cambridge University Press.