Community Identity and Shared Practice at Actuncan, Belize

Kara A. Fulton

Shared identities create deep historical ties to community spaces and can facilitate or constrict political expansion. This research examines the relationship between the ways in which families engaged local landscapes and developed shared identities at Actuncan, Belize, during the Terminal Classic period, a time when the city experienced population growth as surrounding centers declined. The nature and location of activity patterns in and around three residential groups allow inferences about shared practices and the expression of identities that those activities enabled and constrained. Importantly, this research includes investigations of both residential groups and architecturally free areas. It uses multiple methods to explore activities and to produce overlapping datasets, including excavation and analysis of macroartifacts, microartifacts, and soil chemical residues. The results suggest that Actuncan residents used not only the formal patio spaces of residential groups but also the interstitial spaces between them. Moreover, one residential group, Group 1, appears to have been a locus for distinct activities including sequential burials and, possibly, affiliative ritual practices connected to ancestral landscape use. Understanding relationships among residents is an important foundation for exploring broader political dynamics, including relationships between residents and rulers and how rulers created, legitimized, and maintained power and authority.

Keywords: Maya archaeology, Terminal Classic, identity, soil chemical residue analysis, microartifact analysis

Las identidades compartidas crean profundos lazos históricos en los espacios de uso común, pudiendo facilitar o restringir la expansión política. Esta investigación examina la relación entre el desarrollo de identidades compartidas en Actuncán, Belice y la manera en que las familias residentes confrontaban el medio ambiente local durante el periodo Clásico terminal (ca. 800 dC - 900 dC), momento en el cual dicha ciudad experimentó un crecimiento poblacional mientras otros centros cercanos declinaban. Se consideran la naturaleza y la localización de patrones de actividad en y alrededor de tres grupos residenciales, para inferir las prácticas compartidas y la expresión de las identidades que estas actividades fomentaban o limitaban. Este estudio contempla tanto los grupos residenciales como las áreas libres de arquitectura. Se emplean múltiples métodos para explorar dichas actividades y generar conjuntos de datos superpuestos, incluyendo la excavación y el análisis de macro-artefactos, micro-artefactos y residuos químicos de suelo. Los resultados sugieren que los residentes de Actuncán no sólo utilizaban los espacios formales del patio, sino también los espacios intercalados entre ellos. Además, se sugiere que uno de los grupos residenciales, el Grupo 1, habría servido como foco de distintas actividades tales como el enterramiento y, posiblemente, otras prácticas rituales relacionadas al uso del paisaje ancestral. Comprender las relaciones entre las unidades residenciales es fundamental para explorar políticas dinámicas más amplias, incluyendo las relaciones entre los residentes y sus gobernantes y la manera en que los últimos creaban, legitimaban y mantenían su poder y autoridad.

Palabras clave: Arqueología Maya, Clásico terminal, identidad, análisis de residuos químicos de suelo, análisis de micro-artefactos

Archaeological research has traditionally focused on areas with visible architecture, given that those regions are most recognizable as places that contained ancient activity, but it has neglected the open spaces between them. Many researchers in Mesoamerica interested in the ancient use of open spaces have focused their efforts on exploring formalized patios and plazas (e.g., Cap 2015; Coronel et al. 2015; Fulton et al. 2017; Low 2000; Manzanilla and Barba 1990; Rothenberg 2014; Tsukamoto and Inomata 2014; Wells 2004). Less attention has been given to nonformalized space, such as the areas between residences.

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Few studies exist whose primary focus is these interstitial spaces (e.g., Fash 1986; Johnston 2004; Robin 2002, 2004, 2013; Robin and Rothschild 2002; Webster and Gonlin 1988). Yet, these open areas contain an abundance of potential data for archaeologists exploring everyday life. They could have been used for many purposes, such as for informal or formal gatherings of residents, as a walkway to agricultural fields or to neighbors (Robin 2002), or as lithic manufacturing areas (Yaeger 2010).

This research examines the relationship between these open areas on the landscape and the development of shared community identities in Actuncan, Belize. Such shared identities would have created deep historical ties to specific community spaces, which would have enabled and constrained political expansion during the Terminal Classic period (ca. AD 800–900). If engagement with local landscapes helped define shared social and political identities among Actuncan residents, then we might expect to find patterns in material culture that characterize areas of social distinctiveness within and outside architecture. For example, tasks involved in food production shared among residents, such as lime slaking corn or large-scale cooking (both of which require cooperation and coordination), may mark locations where practices of affiliation were materialized and reproduced (Joyce 2000; Stockett 2005). Other shared activities, such as commensal feasting, certain types of craft production, and communal ritual activities, also could have inscribed the landscape with affiliative practices (Deal 1998; Kramer 1985; LeCount 2001; McAnany 1994; Stockett 2005). Alternatively, if local landscape connections did not play a significant role in identity formation, then we would not expect to find shared practices outside residential contexts. Instead, identity formation would have developed in the context of strong ties between kin groups that were not necessarily linked to the landscapes surrounding the residences.

In this article I consider the nature and location of activity patterns in and around three contemporaneous residential groups to infer shared practices and identities that those activities both enabled and constrained. Interpretations are drawn from excavation data, macroartifact and microartifact analyses, and soil chemical residue analysis. The data suggest that activities conducted in architecturally defined spaces were distinct from activities conducted in the interstitial spaces between them. I argue that community identity, which may have been developed and maintained through shared practices among residents, in addition to their perceived connection to the communal landscape, likely influenced the decisions of many to remain at Actuncan despite the unstable political climate in the region. The extent of inter- and intrahousehold relationships may have established the framework for broader-scale political dynamics and explain how Actuncan rulers may have been able to create and maintain authority during the Terminal Classic.

Shared Practices, Built Environments, and Community Identity

Mesoamerican archaeologists have argued that neighborhoods played important, diverse, and functional roles within cities because of the social ties created among community members (Arnauld et al. 2012; Ashmore et al. 2004; Cowgill 2004; Fletcher 2009; Hutson et al. 2008; Marcus and Sabloff 2008; Smith 2010; Yaeger and Canuto 2000; York et al. 2011). Social ties often evolve into a shared group identity: an important building block for communities because it provides a sense of connection to place that integrates people at various social levels (Burke 1989; Gillis 1994; Le Goff 1992). Shared identity provides an individual with social memories and meanings that can be applied to understanding, experiencing, and interpreting material life, in addition to fostering a common sense of self and awareness (Hendon 2010; McAnany 1994). In the prehispanic Maya region, group identities were often physically inscribed on the landscape in the form of architecture, orchards, fields, and forests (McAnany 1998). Here, I use the term "landscape" to denote the physical spaces, both open and bounded by architecture, within which activities took place.

Daily activities and engagement with the material world entangle social meaning, values, and relationships (Allison 1999; Hutson 2010; Robin 2002, 2004; Wells and McAnany 2008).

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Additionally, spaces in which people reside and perform these tasks often affect the meanings and values associated with the activities themselves (Ashmore 2004; Ashmore and Knapp 1999; Hendon 2004, 2010; Lawrence and Low 1990; Smith 2003). The physical landscape is inclusive of the empty spaces between visible architecture (Anschuetz et al. 2001). Through social practices, actors transform physical spaces—a realm of possibilities with which people can interact—into places imbued with meaning through human experience and engagement (de Certeau 1984). The sociocultural production of space and place affects the way people operate on an everyday basis and, in turn, is influenced by human activities (Lefebvre 1991 [1974]). The combination of shared practices and the communal landscapes on which they occur creates, transforms, and maintains community identity (Knapp and Ashmore 1999; Whitridge 2004).

The shared identity of a group can manifest in a variety of tangible ways, such as through shared "practices of affiliation" (Yaeger 2000: 125). Practices of affiliation are defined as beliefs and behaviors that contribute to the creation and expression of community identity or the way of perceiving and experiencing an individual's social world. Further, these practices help make the community distinct and recognizable as a group, both to group members and those outside the community. For example, Yaeger argues that shared community identity at San Lorenzo, Belize, was reinforced by practices of affiliation, including feasts sponsored by local leaders. Certain activities supported a sense of "local community identity while simultaneously highlighting differences between the members of that community" and those outside it. In addition, spatial proximity contributed to a high level of interaction between community members; "through daily interaction, people build social relationships and tacitly acknowledge similar beliefs about the world and how to act within it" (Yaeger 2000:131, 130).

Stockett applies Yaeger's "practices of affiliation" approach to Las Canoas, Honduras, to investigate "the ways that identity unites and divides individuals and groups" (2005:4). She developed a model for locating affiliative practices in archaeological contexts on three interrelated and overlapping scales: household, community, and region. In Belize, LeCount (1999) uses a practice-oriented framework to investigate the shared activities involving Mount Maloney pottery vessels in residential spaces at Xunantunich and its surrounding countryside. She argues that Mount Maloney pottery represented distinct relationships and "that everyday practices in which these very common pottery types were used embodied an identity based on kin, ancestors, and place on the landscape, which in turn came to be symbolized by the pottery itself" (LeCount and Yaeger 2010a:345). In their investigation of household ritual activities, McAnany (1994, 1998) and Walker and Lucero (2000) argue that royal rituals may have developed from the domestic ritual practices of local lineage groups. Although research on households and communities has been influential in expanding our understanding of ancient Maya social relations in small-scale settlements (e.g., Allison 1999; Canuto and Yaeger 2000), the nature and role of identity affiliations in larger settlements remain poorly understood (Yaeger and Canuto 2000).

Actuncan in Context

Actuncan is located in the upper Belize River valley near the modern town of San Jose de Succotz and the Guatemalan border (Figure 1). The settlement is roughly 2 km north of Xunantunich, the Late Classic provincial center of the region (Ashmore 2010; LeCount and Yaeger 2010b; Leventhal and Ashmore 2004). It rests on a T-3 alluvial terrace west of the Mopan River, a tributary of the Belize River. The Mopan River flows all year and provided a consistent supply of freshwater to prehispanic residents (Fedick 1989; Smith 1998). Additionally, this waterway allows direct access to the Caribbean coast, providing a transportation route for goods and people (Cap 2015).

The rugged upland terrain of the Belize River valley includes enclosed depressions and residual hills with gray and brown soils of the Toledo Beds that are predominantly calcareous mollisols and vertisols (Beach et al. 2003; Day 1993). Underlying the area is a karst belt that

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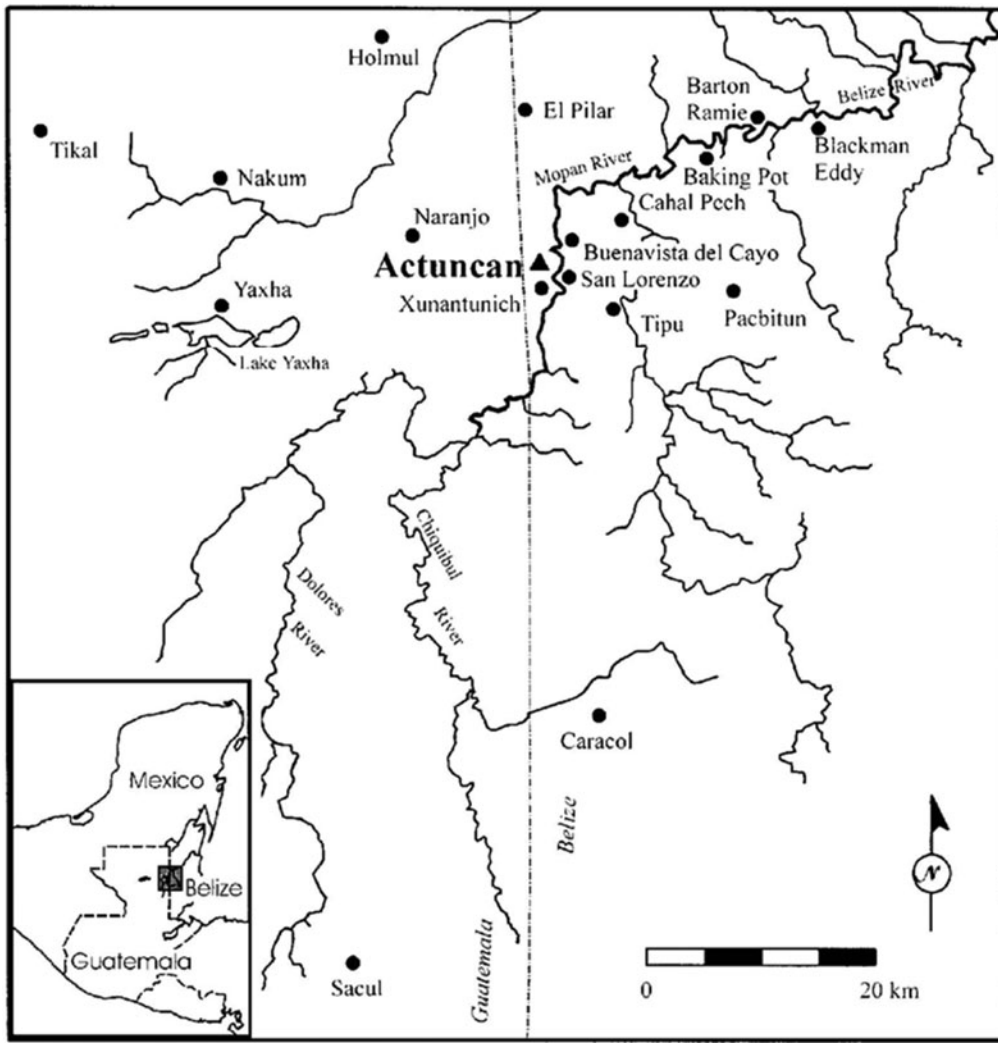


Figure 1. Map of the upper Belize River valley showing Actuncan and other archaeological sites (LeCount 2004:Figure 1). Note: The size of the triangle does not represent the relative site size.

runs through central Belize. The Cretaceous to Early Tertiary period limestone substrate is composed primarily of calcium, barium, and strontium (Day 1993). The soils are mostly acidic with a range of 5.5–6.5 on the pH scale and are often less than 0.5 m thick. Probes at the northern portion of Actuncan have reached depths over 3 m; limestone bedrock was not readily available as a source of construction material.

With 14 ha of civic and domestic buildings, Actuncan is similar in size to neighboring centers and is a prime example of a low-density urban center as defined by Smith (2010). The area was first settled in the Middle Preclassic period (ca. 1000–400 BC), but all construction from this time was buried when the entire ridgetop was leveled in preparation for the construction of a planned urban center (Mixter 2016). During the Late Preclassic period (ca. 400 BC–AD 250), Actuncan was established as a planned political and ceremonial center and contained monumental civic constructions including an E-Group and a triadic temple group (McGovern 2004; Mixter et al. 2014). Actuncan initially rose to political prominence during the Late Preclassic extending into the Early Classic period (ca. AD 250–600;

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LeCount 2004). In the Early Classic, competition between Actuncan and Buenavista del Cayo escalated until Buenavista del Cayo eclipsed Actuncan (Ball and Taschek 2004; LeCount and Yaeger 2010a, 2010b; Leventhal and Ashmore 2004; McGovern 2004).

During the Late Classic period (ca. AD 600–800), Xunantunich became established as the provincial political center of the region (LeCount and Yaeger 2010b). The population of the settlement zone surrounding Xunantunich, which includes Actuncan, doubled from the Early Classic to Late Classic, demonstrating the increased political importance of the polity (LeCount and Yaeger 2010b). Because of Actuncan's proximity to Xunantunich, people who remained around its community core were integrated into the polity of Xunantunich. Actuncan was likely a subordinate center in the Late Classic (Mixter et al. 2014).

Xunantunich, along with much of the Mopan Valley rural hinterland, experienced demographic decline and eventual abandonment during the Terminal Classic period (ca. AD 800–900), sparking the political resurgence of other nearby communities (LeCount and Yaeger 2010b). Rather than declining in parallel with Xunantunich and other secondary centers, Actuncan gained independence and was ruled corporately by a governing council, a new form of political organization in the area (Mixter 2017). Residential units at Actuncan adopted a variety of social and economic strategies for survival as the local community reformed its social and political institutions following the decline of Xunantunich, although the details of these strategies are poorly understood (Mixter et al. 2014). Despite the ongoing reorganization of many Maya polities at this time, Actuncan remained a viable center into the Postclassic (Mixter et al. 2014).

Little is known regarding how Actuncan residents managed to thrive in the context of rapidly changing demographics. Community ties among residents may have influenced the decisions of many to remain at Actuncan. Further, because of the long occupation history of the settlement, group identities may have been tied to local landscapes. The extent of inter- and intrahousehold relationships may have established the framework for broader-scale political dynamics and enabled rulers at Actuncan to create and maintain authority.

The Northern Settlement

This research focuses on the Northern Settlement, an area located northwest of the Actuncan civic-ceremonial core. This zone houses numerous residential groups in close proximity that contain permanent stone architecture. At least six patio-focused groups, several single mounds and platforms, and a series of agricultural field complexes have been identified. This investigation focuses on three residential groups—Groups 1, 5, and 6 – all of which were occupied during the Terminal Classic (Figure 2). Their spatial proximity and contemporaneity suggest that group residents interacted with one another on a daily basis and possibly maintained a close relationship (Robin 2002, 2004, 2013; Robin and Rothschild 2002). Additionally, these three groups are located close to important site center architecture, including an E-Group, ball court, and public plaza. Spatial proximity to the settlement center may have influenced residents' day-to-day activities. Group 1 consists of four buildings situated on a raised platform and is the largest plazuela on the ridgetop, both in terms of area and mound size (Antonelli and Rothenberg 2011; LeCount 2004; LeCount and Blitz 2002, 2005; LeCount et al. 2005; Rothenberg 2012). Excavations have uncovered a long, albeit interrupted, occupation sequence, dating from the Late Preclassic to the Postclassic. Terminal Preclassic crypts at Group 1 suggest the group was a founding residential unit in the Northern Settlement (LeCount 2012; LeCount and Blitz 2002). Group 5 is smaller, also consisting of four buildings oriented around a central patio on a raised platform. In contrast to Group 1, these constructions are not arranged symmetrically around the patio space nor do they fully enclose the patio. Rather, a wide entryway is located in the southeast corner, facing a large plaza space. Group 5 was founded after Group 1, during the Terminal Preclassic, and was continuously occupied into the Terminal Classic (Hahn 2012). Group 6 comprises two apparent buildings, possibly surrounding a patio space to the south and facing toward Group 1; excavations suggest the group

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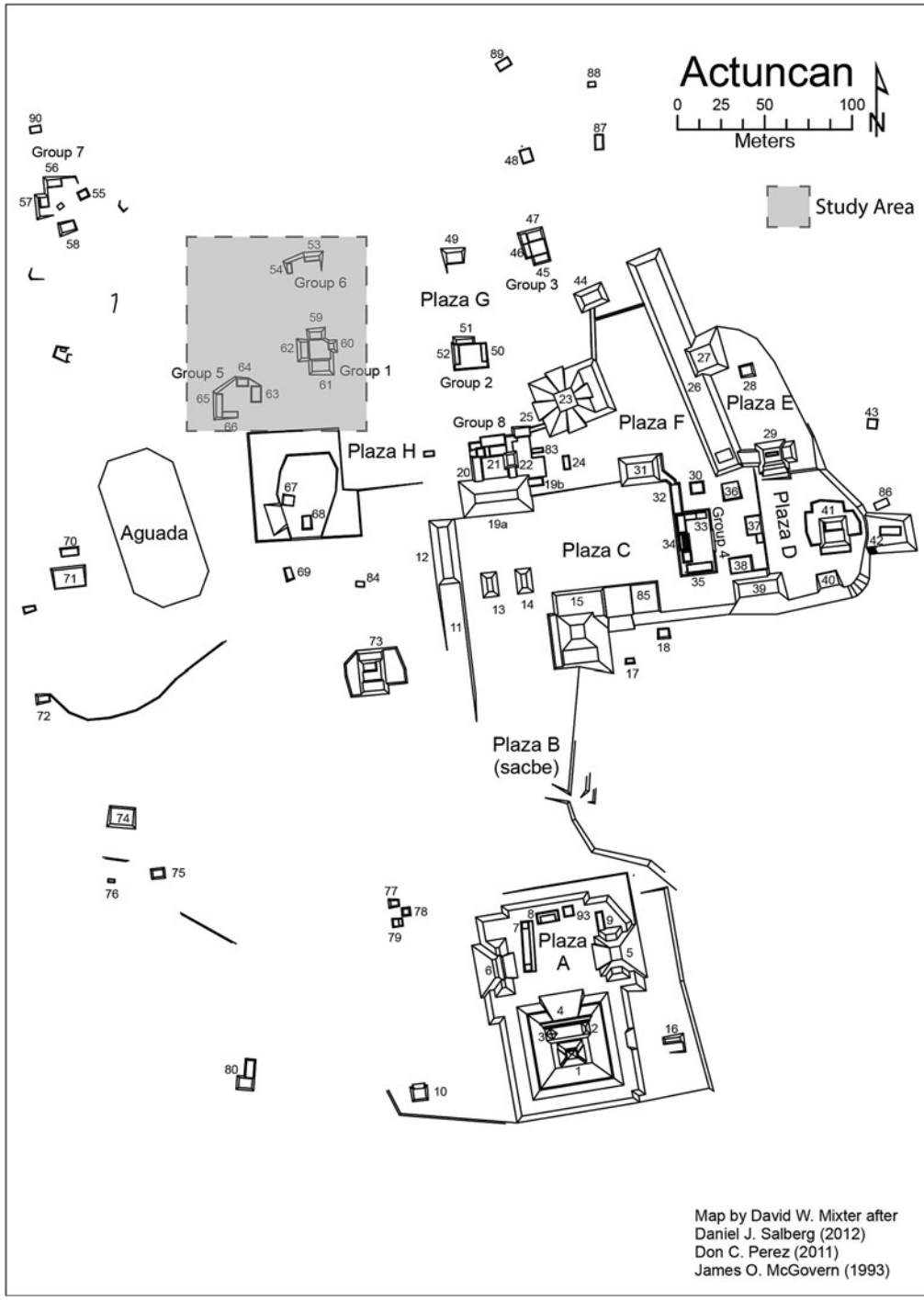


Figure 2. Map of Actuncan with the study area identified. (Modified from LeCount et al. 2016:Figure 2)

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was not occupied for a long time, likely only during the Terminal Classic and possibly during the latter part of the Late Classic (Simova 2012).

Field Methods and Research Design

A sampling strategy was designed to collect macroartifacts, microartifacts, and soils for multielemental analysis across the formally defined residential groups and the spaces between them. Before this project was begun, large-scale excavations were conducted at Group 1, and so this area was sampled in a different manner from the rest of the sample area. Soils were available for chemical analysis from Group 1 because samples were collected before excavations, but the area was not sampled for macro- and microartifacts. The field methods employed for this study follow the sampling strategy developed by Keller and Craiker (2012), based on methods originally outlined by Fry (1972). This research aims to go beyond architecturally bounded space visible today to explore open spaces between architecture in attempts to better understand residential relationships in the context of one continuous landscape. This exploration of interstitial areas is aligned with other research at Actuncan (Blitz et al. 2012; Millar 2016; Walker 2012) and elsewhere (Johnston 2004).

Using standard manually operated clam-shell style posthole diggers, excavators created 515 uniform 19 cm diameter holes along a predefined grid from which to systematically collect overlapping datasets of macroartifacts, microartifacts, and soils for multielemental analysis. The sampling area encompassed Group 1, Group 5, and Group 6 architecture, in addition to all other open spaces in between and surrounding surface visible architecture (hereafter referred to as "the space between groups"). The space between groups was sampled using a 5 m lattice grid matrix, whereas architectural space was investigated using a 2.5 m staggered grid matrix.

Often, archaeologists analyze artifacts collected from a ¼ inch screen during excavations. Here, I refer to artifacts larger than ¼ inch as macroartifacts. Macroartifacts are often subject to disturbance, whether in antiquity with the cleaning of a space or in modern times through field plowing. Most macroartifacts associated with activities are swept or carried away from their primary contexts (Deal 1985; Hayden and Cannon 1983; Kramer 1982; LaMotta and Schiffer 1999; Siegel and Roe 1986). For this study, I selected a subset of postholes ($n = 74$) from which to also collect microartifacts (those less than ¼ inch in size). Compared to macroartifacts, microartifacts tend to move little (vertically or horizontally) from where they were originally deposited on the surface because they are often incorporated into the occupation surface by trampling (Gifford 1978; Gifford-Gonzalez et al. 1985; Hayden and Cannon 1983; Killion 1990; Nielsen 1991; Schiffer 1983). Therefore, microartifacts are more likely to survive over time than macroartifacts in an open area that may have been regularly cleaned or otherwise disturbed. Comparing macro- and microartifact distributions can bring further insight to activity locations, especially in combination with other methods.

Additionally, I collected soil samples for chemical residue analysis from each posthole. The underlying premise of chemical residue analysis is that specific chemical compounds are generated from repeated human activities (e.g., cooking, toolmaking). The elements are deposited into the activity surface and fixed to soil particles. The deposition and distribution of chemical elements can be linked through ethnoarchaeological and experimental studies to a variety of human tasks involving food preparation and consumption, among other activities (Barba and Ortiz 1992; Barba et al. 1995; Manzanilla and Barba 1990; Wells and Moreno Cortés 2010; Wells and Terry 2007). Therefore, chemical residue analysis of living surfaces provides essential data to reconstruct the activities that took place in ancient spaces (Wells et al. 2000). This method has become increasingly popular throughout Mesoamerica as a tool to explore past human behavior. Researchers have used chemical residue analysis to explore plazas, middens, marketplaces, palaces, and houselots, among other contexts (e.g., Anderson et al. 2012; Cook et al. 2006; Dahlin et al. 2007; LeCount et al. 2016).

I used inductively coupled plasma-mass spectrometry (ICP-MS) using the Foss mild acid-extraction technique (0.60 M HCl + 0.16 M HNO3, trace metal grade) to characterize

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chemical concentrations of soil samples (Lewis et al. 1993). I chose an extraction procedure, rather than total digestion of the samples, for chemical analysis because this research focused on anthropogenic residues, not the total composition of the soil (Wells 2010). Additionally, high elemental concentrations exhibited in total digestion samples can overwhelm the comparably small anthropogenic inputs (Middleton and Price 1996). In sum, this study used multiple lines of evidence from independent datasets at diverse spatial scales of analysis. Analyzing a combination of overlapping datasets contributes to a deep level of understanding of the residential environment.

Group 1 Excavations

As mentioned, large-scale excavations were conducted at Group 1 before posthole testing, and those Group 1 excavations focusing on the Late and Terminal Classic occupation layers are summarized in this section (for detailed descriptions of Group 1 excavations, see Antonelli and Rothenberg 2011; Freiwald 2012; Freiwald and Micklin 2013; Fulton 2015a, 2015b; Heindel 2015; LeCount 2004; LeCount and Blitz 2002, 2005; LeCount et al. 2005; Rothenberg 2012).

Evidence for Late Classic occupation at Group 1 was recovered from all structures, even though building activities were sporadic and small-scale. Although all Group 1 structures have evidence of occupation during the Terminal Classic, only the southern structure, Structure 61, shows architectural modification at this time. Residents focused their architectural efforts on the enlargement of Structure 61 by using large (>50 cm) dry laid chert cobbles to enlarge this structure by at least 1 m. This type of construction appears to be the hallmark of Terminal Classic construction at Actuncan and is distinct from the densely packed cobble, soil, and midden fill used during the Late Classic (Mixter et al. 2014). Structure 61 fronts a public plaza and was therefore visible by many people, so it is possible that the augmentation of the structure was an attempt to highlight the social status of Group 1 residents.

During the Late and Terminal Classic, the patio space next to the eastern structure, Structure 60, was used as a burial ground (see Freiwald 2012; Freiwald and Micklin 2013; Fulton 2015b for full burial descriptions). Ten burials have been identified to the west of Structure 60, containing a minimum number of 14 individuals, although it is possible more burials are present.

The excavated burials were interred within the patio fill and placed in close proximity to each other (Freiwald 2012; Freiwald and Micklin 2013). Nearly all the graves were disturbed, likely from the placement of later interments, and most burials included elements from other individuals or were missing body parts. Although there is evidence to support repeated burial ground use, analysis of radiocarbon dates is ongoing to determine the precise chronology (see LeCount 2015 for initial data).

Throughout the Maya region, eastern structures functioned as sacred ground for the burial of important household members, thus operating as a shrine for ancestor veneration (Helmke et al. 2006; McAnany 1994). Not all community members were buried in eastern shrines, but these locations were often used as shared burial locations for different residential units (Aimers et al. 2000). The large number of burials identified west of Structure 60 suggests the building's function as an ancestral shrine, and the time span of those interments suggests the area was used for this purpose over several generations. From the manner in which individuals were disturbed, we can infer that the space itself held as much importance as a ritual location as the individual graves.

Results

In this section I highlight the results from analyses of the macroartifacts, microartifacts, and soil chemistry. I also discuss how the datasets complement one another in the interpretation of the findings.

Macroartifacts

The 2,369 macroartifacts analyzed in this study show that activity areas were mostly concentrated around architecture. To analyze macroartifacts, samples were first divided into artifact class and then counted and weighed. As expected, because of the nature of open spaces, the numbers of macroartifact per posthole were low

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(ranging from 1 to 34 total macroartifacts per posthole), with many postholes ($n = 164$) producing no macroartifacts. The macroartifact numbers were also small in size, making ceramic diagnostics challenging. Nonetheless, several Late and Terminal Classic diagnostic ceramic artifacts were identified, including 82 ash-ware (unspecified types and forms), two Mount Maloney (types unspecified), six Belize Red type (forms unspecified), and one Alexander Jar piecrust rim.

Overall, ceramic artifacts account for the highest percentage of artifacts and had the widest range in terms of types; as a class, they have a large standard deviation (Table 1). High ranges and standard deviations mean the deposition of the material class varies spatially and is not homogeneous across the study region. The only artifact class with a higher standard deviation than ceramic artifacts is jute, but this is due to an outlier. Chipped stone is the only other category with a noticeably large range and standard deviation.

To examine the spatial distributions of a selection of macroartifact classes, I employed spatial interpolation using Kriging (Entwistle et al. 2007; Wells et al. 2007), a form of semivariogram modeling that situates the data in a broader context of spaces not sampled (see Wells 2010). The resulting images represent densities of each variable as it changes over space. I selected Kriging for these datasets to be consistent with the analysis and data presentation for the soil chemical analyses described later. For spatial analysis, I chose three material classes for examination—ceramic artifacts, daub, and chipped stone—to examine and compare the distribution of macroartifacts and microartifacts at various scales. Additionally, these categories varied the most when considering all macro- and microartifact categories. Spatial distribution maps for macro-ceramic artifacts, macro-daub, and macro-chipped stone appear in Figure 3. Macro-slate and macro-obsidian quantities were not high enough to consider making spatial distribution maps, but because of their rarity and importance, their locations were mapped onto the macro-chipped stone spatial distribution maps. Given that Group 1 was not sampled in the same manner as the rest of the sample area, this area of the spatial distribution maps is blocked out in white and is not considered in this part of the analysis.

Spatial distributions for all macroartifact classes are concentrated around architecture, although their distributions vary. There are high macro-ceramic artifact levels within Group 5 and Group 6, and macro-ceramic artifacts extend to the spaces just beyond Group 1 but are mostly absent in the rest of the sample area. Macro-daub is only found in the western part of Group 6 and surrounding it. Elevated macro-chipped stone concentrations appear in the same areas with high macro-ceramic artifact quantities in Group 5, whereas the rest of the space contains few macroartifacts. The macro-obsidian and macro-slate are randomly distributed and not associated with architecture or the presence of other material classes. All macroartifact categories suggest that activities were mostly concentrated in areas associated with architecture.

Microartifacts

The 74 microartifact samples analyzed in this study indicate that activity areas are associated with architecture and areas between architecture. It is notable that there are few microartifacts compared to macroartifacts. This could be due to sampling loci placement, postdepositional processes that helped preserve macroartifacts, or recovery methods. To analyze microartifacts, each sample was divided into three size fractions using nested screens. The size fractions include (1) over ¼ inch—Fraction 1, (2) between ¼ inch and ⅛ inch—Fraction 2, and (3) between ⅛ inch and ⅙ inch—Fraction 3). The artifacts in the largest fraction, Fraction 1, are not technically considered microartifacts, but they were collected and analyzed to use as a comparison to macroartifacts collected from the same locations. Like macroartifacts, microartifacts were first sorted by material class. All classes were weighed, and some classes were counted.

As with the macroartifacts, ceramic artifacts as a class account for the highest quantity, the widest range, and the largest standard deviation in Fraction 1 (Table 2). Chipped stone has the next highest quantity, range, and standard deviation, followed by daub. Fraction 2 follows a similar pattern with the exception of range, where daub represents the highest range,

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Table 1. Summary Statistics for Macroartifacts.

Artifact Class	*n*	Min.	Max.	Range	Mean	Standard Deviation	Coefficient of Variation*
All artifacts	2369	1	35	34	7	5	71
Ceramic artifacts	1871	1	32	31	5	4	80
Daub	38	1	2	1	1	0	0
Lithic artifacts	404	1	11	10	2	1	50
Jute	48	1	29	28	3	7	233
Obsidian	2	1	1	0	1	0	0
Slate	3	1	2	1	2	1	50
Quartz	1	1	1	0	-	-	-
Bone	1	1	1	0	-	-	-
Tortoise shell	1	1	1	0	-	-	-

Note: Postholes that yielded 0 artifacts were not figured into calculations.
*Coefficient of variation = (standard deviation/mean) × 100.

followed by ceramic artifacts and then chipped stone. In Fraction 3, daub surpasses ceramic artifacts in quantity, range, and standard deviation, with ceramic artifacts following close behind, and, finally, chipped stone.

Because of the wider spacing between micro-artifact sample locations, spatial distributions were mapped using point density maps rather than Kriged interpolations. Point density maps for all fractions of micro-ceramic artifacts, micro-daub, and micro-chipped stone appear in Figures 4, 5, and 6, respectively. As with macroartifacts, micro-slate and micro-obsidian locations were identified individually on the micro-chipped stone maps, and Group 1 is blocked out.

At the largest fraction, Fraction 1, the micro-ceramics distribution appears rather homogeneous, with only one large concentration in the northwest. Areas containing higher quantities of micro-ceramic artifacts become apparent as the scale is decreased, with high concentrations within and between architecture in Fraction 2 and high concentrations more constrained to architecture in Fraction 3. Considering all three scales, there were a variety of areas where activities involving ceramic artifacts occurred, both in relation to architecture and the spaces between.

The micro-daub distribution appears constrained to architectural areas. The highest quantities appear in association with the eastern structure of Group 6, whereas the micro-daub from Group 1 extends beyond the formal patio space. Group 5 does not contain high micro-daub concentrations, suggesting different building strategies were used there. Significant quantities of micro-daub are present only in Fraction 3 between architecture.

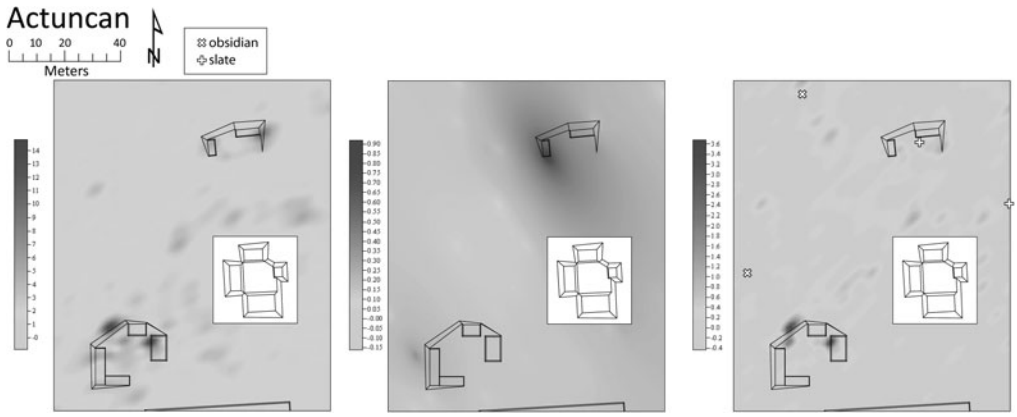


Figure 3. Spatial distributions of macro-ceramic artifacts (left), macro-daub (middle), and macro-chipped stone (right).

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Table 2. Summary Statistics for Microartifacts.

Artifact Class	Fraction	*n*/total g	Min.	Max.	Range	Mean	Standard Deviation	Coefficient of Variation*
Ceramic artifacts[#]	1	464	1	42	41	7	7	100
	2	507	1	26	25	8	7	88
	3	1488	2	163	161	33	40	121
Daub[#]	1	33	1	5	4	2	1	50
	2	296	1	49	48	5	7	140
	3	2138	1	391	390	29	47	162
Lithic artifacts[#]	1	136	1	8	7	3	2	67
	2	310	1	22	21	5	4	80
	3	1058	1	49	48	15	10	67
Jute[#]	1	6	1	1	0	1	0	0
	2	0	0	0	0	-	-	-
	3	0	0	0	0	-	-	-
Bone[#]	1	1	1	1	0	-	-	-
	2	0	0	0	0	-	-	-
	3	10	1	2	1	1	0	0
Slate[#]	1	1	1	1	0	-	-	-
	2	9	1	3	2	2	1	50
	3	37	1	4	3	2	1	50
Obsidian[#]	1	2	1	1	0	1	0	0
	2	1	1	1	0	-	-	-
	3	1	1	1	0	-	-	-
Marine shell[#]	1	0	0	0	0	-	-	-
	2	0	0	0	0	-	-	-
	3	1	1	1	0	-	-	-
Charcoal[g]	1	7.59	0.11	6.91	6.80	2.53	3.80	150.20
	2	5.56	0.01	2.42	2.41	0.25	0.52	208.00
	3	3.58	0.01	1.11	1.10	0.12	0.26	216.67
Land shell[g]	1	3.30	0.03	1.83	1.80	0.28	0.50	178.57
	2	5.75	0.01	0.64	0.63	0.16	0.15	93.75
	3	9.28	0.01	0.60	0.59	0.17	0.16	94.12
Quartz[g]	1	0.00	0.00	0.00	0.00	-	-	-
	2	4.65	0.01	0.40	0.39	0.15	0.09	60.00
	3	38.27	0.01	7.01	7.00	0.52	0.90	173.08
Limestone[g]	1	2354.38	0.59	292.89	292.30	49.05	73.69	150.23
	2	258.45	0.03	21.71	21.68	4.53	5.56	122.74
	3	199.44	0.01	19.25	19.24	2.70	4.02	148.89

Note: Postholes that yielded 0 artifacts were not figured into calculations.
*Coefficient of variation = (standard deviation/mean) × 100.
[#]Artifact classes displayed by counts.
[g]Artifact classes displayed by weight in grams.

A majority of the high micro-chipped stone concentrations appear off-structure. Areas with elevated micro-chipped stone levels are present to the northeast of Group 5 and Group 1 in similar locations relative to the architecture, but this pattern is not repeated at Group 6.

Additionally, at the smallest scale, Fraction 3, a variety of areas containing high micro-chipped stone quantities are present between residential groups. Many, although not all, of the micro-slate artifacts appear associated with the micro-chipped stone concentrations, whereas micro-obsidian artifacts appear to be distributed more randomly.

Soil Chemical Residues

The 711 soil samples analyzed in this study (703 on-site samples, 8 off-site controls) show different patterns for Group 1 than for the rest of the sample area. After determining the calibrated concentrations of 21 elements (Table 3), the results were reported in parts per million (ppm) of the element. Overall, the chemical data showed less than 5% variation on the NIST CRM (U.S.

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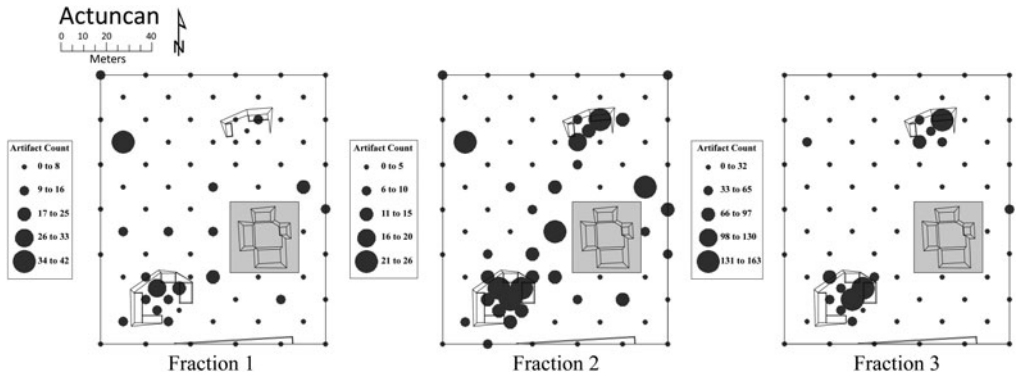


Figure 4. Point density maps showing the distribution of micro-ceramic artifacts by fraction.

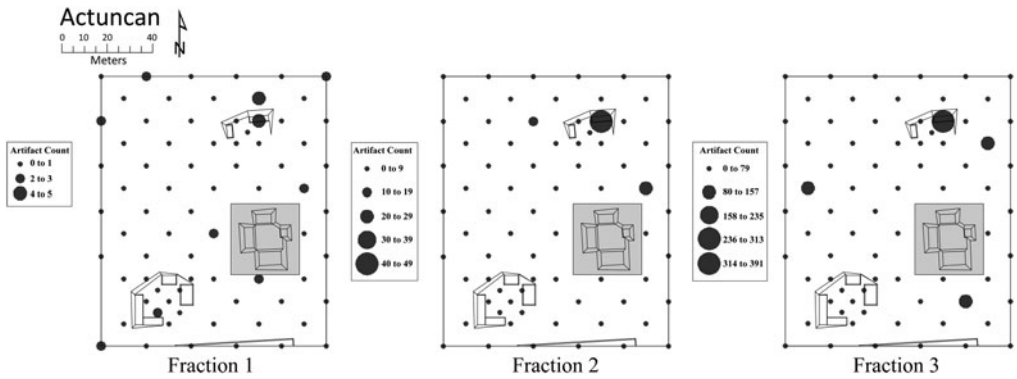


Figure 5. Point density maps showing the distribution of micro-daub by fraction.

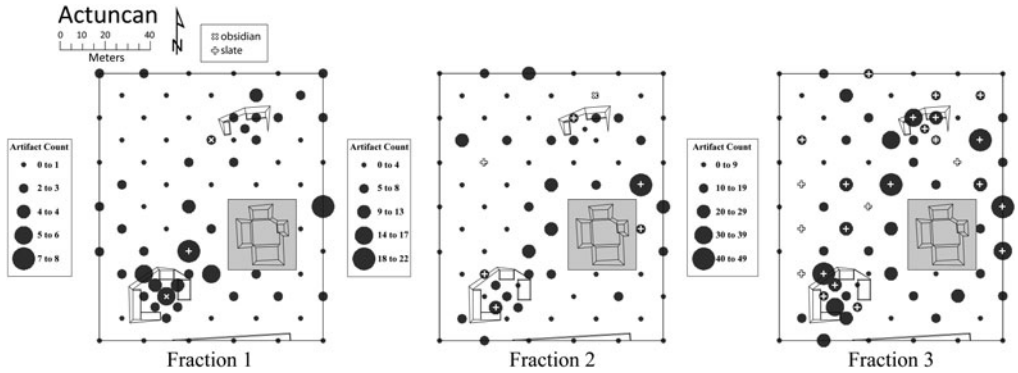


Figure 6. Point density maps showing the distribution of micro-chipped stone by fraction.

National Institute of Standards and Technology Certified Reference Material) for all standards and samples (including replicates) and less than 5% error on internal quality control (blanks).

Generally, for activity analysis, the most useful elements are those whose datasets have large ranges and high standard deviations, meaning that the element deposition varies spatially and is not homogeneous across the study area (Wells et al. 2007). For the on-site samples, many elements do have wide ranges and several outliers. As expected with the off-site controls,

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Table 3. Summary Statistics for Soil Chemical Data.

Element	Location	Min.	Max.	Range	Mean	Standard Deviation	Coefficient of Variation*
Al	on-site	0.0	158.5	158.5	38.2	26.1	68.2
	off-site	0.0	73.5	73.5	44.9	24.4	54.4
Ba	on-site	0.0	19.1	19.1	4.8	3.1	65.1
	off-site	2.1	6.7	4.6	4.6	1.6	34.8
Ca	on-site	0.0	16339.0	16339.0	4998.3	4274.7	85.5
	off-site	424.2	8332.8	7908.6	4682.4	3521.7	75.2
Co	on-site	0.0	0.3	0.3	0.1	0.0	67.5
	off-site	0.0	0.1	0.1	0.0	0.0	58.7
Cr	on-site	0.0	0.4	0.4	0.1	0.1	109.3
	off-site	0.1	0.1	0.1	0.1	0.0	18.8
Cu	on-site	0.0	1.9	1.9	0.6	0.3	55.4
	off-site	0.1	0.3	0.2	0.2	0.1	38.6
Fe	on-site	0.0	70.4	70.4	8.9	8.2	92.2
	off-site	4.5	29.5	25.0	14.0	9.9	70.8
Hg	on-site	0.0	0.7	0.7	0.0	0.0	319.2
	off-site	0.0	0.0	0.0	0.0	0.0	0.0
K	on-site	0.1	126.7	126.6	23.1	17.0	73.5
	off-site	8.6	14.2	5.6	11.5	2.2	19.1
Mg	on-site	0.0	196.2	196.2	38.2	20.8	54.6
	off-site	1.3	4.1	2.8	3.0	1.0	35.2
Mn	on-site	0.0	26.6	26.6	5.2	4.6	89.7
	off-site	0.3	0.6	0.3	0.5	0.1	22.2
Na	on-site	0.0	51.2	51.2	10.8	5.3	48.8
	off-site	17.9	52.2	34.4	36.9	13.6	36.8
Ni	on-site	0.0	159.1	159.1	0.8	6.0	796.6
	off-site	3.2	7.2	3.9	5.1	1.4	27.1
P	on-site	0.0	535.7	535.6	41.9	59.9	143.2
	off-site	0.0	0.8	0.8	0.3	0.4	114.5
Pb	on-site	0.0	0.7	0.7	0.2	0.1	46.4
	off-site	0.1	0.3	0.1	0.2	0.1	30.2
Sr	on-site	0.0	4.9	4.9	2.0	1.1	57.1
	off-site	0.0	2.5	2.5	1.2	1.1	85.3
Ti	on-site	0.0	3.6	3.6	0.3	0.4	121.9
	off-site	0.1	0.1	0.1	0.1	0.0	23.2
U	on-site	0.0	0.6	0.6	0.2	0.2	73.1
	off-site	0.0	0.0	0.0	0.0	0.0	43.8
V	on-site	0.0	2.4	2.4	0.3	0.6	191.0
	off-site	1.5	2.0	0.6	1.7	0.2	13.3
Y	on-site	0.0	0.9	0.9	0.3	0.1	41.8
	off-site	0.4	0.8	0.4	0.7	0.2	23.0
Zn	on-site	0.0	6.9	6.9	1.0	0.7	69.6
	off-site	0.5	0.8	0.3	0.7	0.1	16.3

Note: Results reported in ppm; 0.00 indicates levels are below the detection limits of the ICP-MS.
*Coefficient of variation = (standard deviation/mean) × 100.

ranges for all elements are significantly lower than for the on-site samples. The differences in elemental concentrations between off-site controls and on-site samples are presumably due to the chemical additions from human activity.

I conducted principal components analysis using a correlation matrix and discriminant function analysis on a selection of the chemical data from the on-site samples. Visual representations of the results for each analysis are summarized in Figure 7 as scatterplots. In the scatterplot for the principal components analysis, the numbers in parentheses show component loadings. Both analyses suggest that the samples from Group 1 have distinctly different chemical signatures from the rest of the samples. Differing chemical

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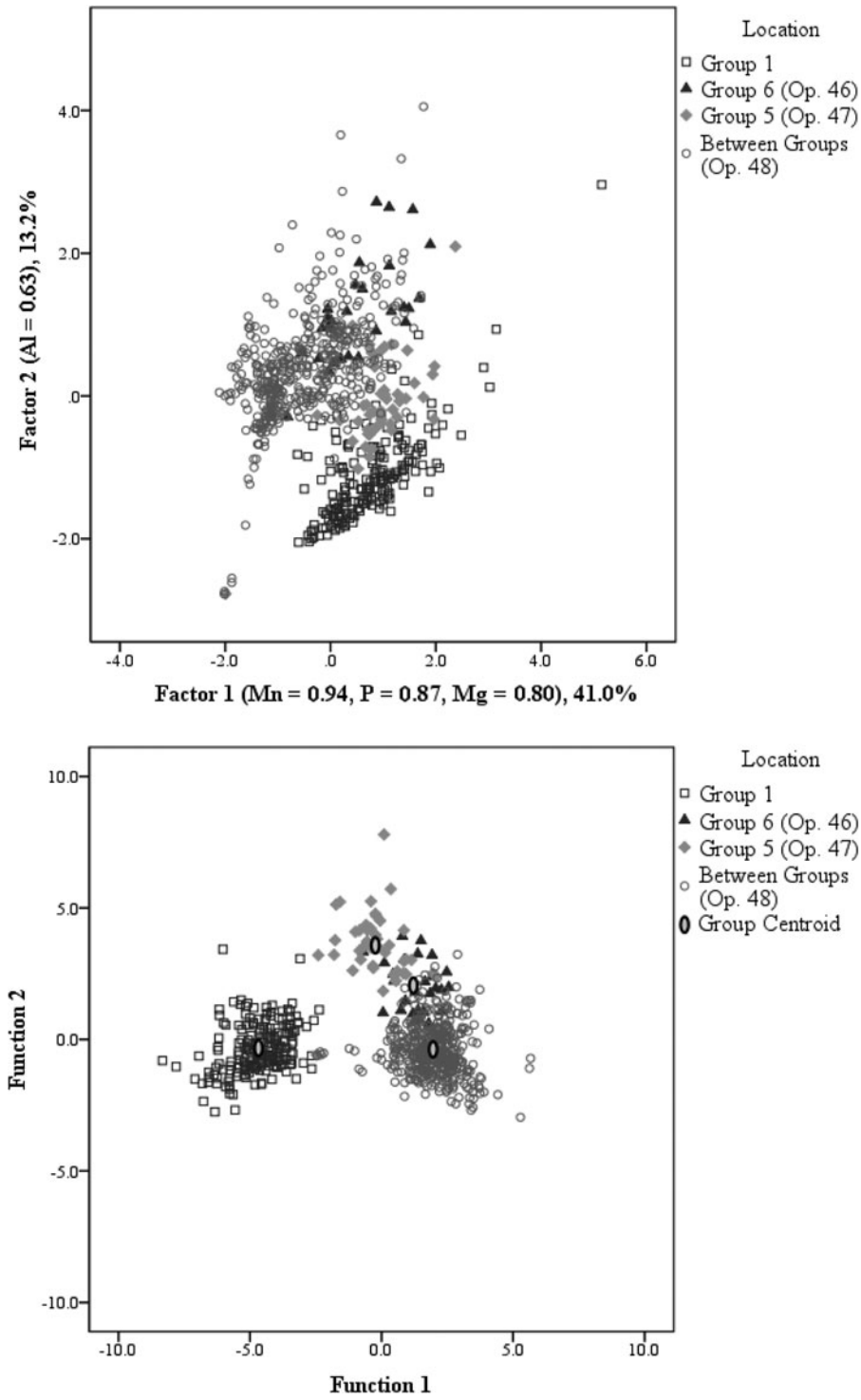


Figure 7. Scatterplot of the first two factor scores from principal components analysis (top) and the first two functions from discriminant function analysis (bottom). Numbers in parentheses show component loadings.

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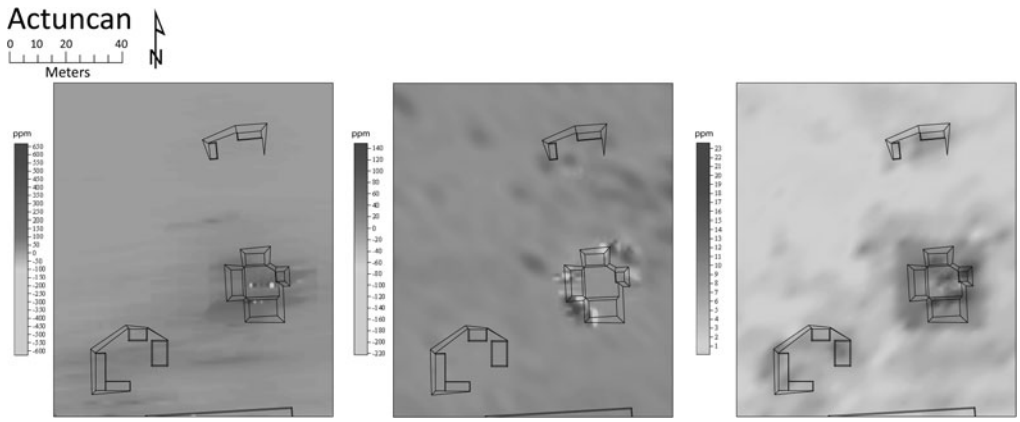


Figure 8. Spatial distributions of extractable soil P (left), Fe (middle), and Mn (right).

signatures suggest that activity loci within the sample area varied by location. More specifically, ancient activities practiced in Group 1 differed from those conducted in the rest of the sample area.

Kriging was used to examine the spatial distributions of a selection of elements. The spatial distribution maps presented in Figure 8 show examples of chemical distributions highlighting P, Fe, and Mn. In each map, darker shades indicate higher concentrations of the given element. It should be noted that higher elemental concentrations do not necessarily reflect the intensity or longevity of the activity responsible for the deposition of that element, given that activity characteristics are affected by numerous long-term processes that differentially affect elemental deposition and retention (see Bethell and Máté 1989; Hammond 1982). The deposition of P is often linked to organics, such as those used for food preparation and/or consumption (Wells and Terry 2007; Wells et al. 2007). The homogeneous P distribution suggests that not only the patio groups but also the empty spaces between architecture were heavily trafficked in a generalized way. The higher concentrations surrounding and within Group 1 suggest that activities in these areas were more focused and perhaps specialized than in other areas or that the group residential population was higher than the other groups.

Deposition of Fe is often associated with ferric oxide, a mineral commonly employed in ceremonial contexts including rituals using ochre and hematite (Vázquez and Velázquez 1996; Wells et al. 2000; Wells and Terry 2007). If the Fe deposition patterns resulted from pigment use, the open area between Group 1 and Group 6, as well as possibly Group 1 itself, may have been used for special residential ritual functions. Deposition of Mn is often associated with organic refuse disposal and likely with the disposal of items used in food preparation or of leftovers from food consumption (Parnell et al. 2002). The large areas of high Mn concentrations extending past Group 1 architecture may indicate that Group 1 hosted food-related activities for a large number of participants, who thus disposed of waste across a widespread area.

Discussion

Locations with elevated concentrations of macroartifacts, microartifacts, and chemical elements appear in many parts of the sample area. Nevertheless, not all enriched loci are associated with visible architecture. Data interpretation from the Northern Settlement demonstrates that Actuncan Terminal Classic residents interacted with architectural zones, such as residential groups, as well as the spaces between and surrounding them. Activities conducted in different areas seem to have been distinct from one another, suggesting a compartmentalization of space.

Quantitative analyses of the chemical data suggest that ancient activities practiced at Group 1 differed from those that occurred in

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other locations, as might be expected due to the overall size and time depth of the group. The high P concentrations, often associated with food consumption and preparation, and Mn, related to organic refuse disposal, surrounding Group 1 suggest that the location-specific activities surrounding Group 1 may have included the use of food, possibly for ceremonial feasting. I suggest that food presence may indicate feasting given that others have argued for ceremonial feasting at nearby contemporary settlements (e.g., LeCount 2001; Yaeger 2000). Elevated Fe levels, linked with iron oxide, at Group 1 could point to ritual activities. Hematite and ochre, both composed of iron oxide, were common minerals used throughout the Maya region in ceremonial contexts, including burials and caches (Vázquez and Velázquez 1996).

Higher macroartifact and microartifact levels also appear near Group 1. Perhaps the daub surrounding Group 1 resulted from temporary perishable structures for activities involving high quantities of ceramic artifacts and chipped stone either produced by the residents or possibly by itinerant attached artisans (Heindel 2015; Kovacevich 2007).

The distinct signatures of Group 1 and its immediate surroundings may indicate that it was a locus for specialized activities, in addition to those associated with basic domestic tasks and practices. These activities could have been affiliative practices or community events that included members from other nearby residential units. The perishable structures represented by the high daub quantities might have accommodated other community members involved in the affiliative ritual practices or craft production. Alternatively, perishable structures may have covered outside work areas, such as for stone tool production or large-scale food preparation.

Excavation data from Group 1 suggest residents used Structure 60 for burials over several generations. Although Structure 60 was repeatedly used to inter and venerate the dead, no similar deposits are evident in other residential units at Actuncan, suggesting the importance of Group 1's residents or its location or both. The sequential manner in which the individuals were buried, with each new burial disturbing a previous one, suggests that the space itself held as much importance as a ritual location as the individual graves (Freiwald 2012). Perhaps the emphasis on locale also suggests a tie to the long occupation history of Group 1. Founded in the Late to Terminal Preclassic and containing the earliest documented patio-focused group in the Northern Settlement, Group 1 was occupied until the Postclassic. Perhaps the selection of Group 1 as the location for specialized activities was connected to the ancestral ties (real or perceived) of the Group 1 residents to the founders of the original Preclassic residence. Possibly others participating in shared rituals also traced their decent to the same ancestors. This pattern would mirror what Gonlin (1993) documented in the Copan Valley, where households exhibited strong ties to focal residences. By associating themselves with a shared heritage in a common location, ancestral veneration practices would have increased a sense of community among residents involved (see Vogt 1976:111–115; Wisdom 1940:197–198). If Group 1 was a focal residence, was it the only one in the Northern Settlement? Alternatively, were there occupation clusters, each with distinct focal residences?

Shared practices at Actuncan could have helped reinforce social ties and a sense of community affiliation and identity. With the collapse of surrounding political structures during the Terminal Classic, strong social ties between Actuncan community members may have motivated people to stay in the places their ancestors had occupied for generations, rather than abandon them. If this was the case for the residences in the sample area, was this also the case for the greater Actuncan residential community (or at least those in the Northern Settlement)? Through this research, I aimed to provide insight into social strategies employed by residents to maintain their communities following the reorganization of political power in the region.

Nevertheless, the exact nature of community social ties remains unclear. Can these types of relationships even be identified given the coarseness of the archaeological record? What other data might contribute to our understanding of community identity? Questions such as these can help form the foundation for further exploration into social practice and shared identity.

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Data Availability Statement. Macroartifact, microartifact, and chemical data presented in this paper can be obtained from the Digital Archaeological Record (tDAR), doi:10.6067/XCV83R0V68, https://core.tdar.org/dataset/398973.

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