

BLADEN PALEOINDIAN AND ARCHAIC ARCHAEOLOGICAL PROJECT AND UXBENKÁ ARCHAEOLOGICAL PROJECT



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Report of the 2023 Field Season

Prepared for the Institute of Archaeology,
National Institute of Culture and History, Belize
Forest Department and National Biodiversity Office, Belize
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Introduction

This report details the archaeological and ecological research conducted by the Bladen Paleoindian and Archaic Project (BPAAP) in the Bladen Nature Reserve, a protected area located in the Toledo District of southern Belize during the 2023 field season. Archaeological research was conducted at Saki Tzul (ST) rockshelter in southern Belize and ecological research was conducted in the Ek Xux and AC valleys (Figure 1). This research is part of a larger ongoing program aimed at exploring the earliest presence of humans in Belize and Mesoamerica, and better understanding long-term use of sites as domestic, ritual, and mortuary spaces. Permits for the project were issued to Dr. Keith Prufer by the Forestry Department and Belize Institute of Archaeology (IA). We thank Dr. Melissa Badillo (IA), Ms. Rashida Garcia (NBIO), and Beth Dorgay (Ya'axche Conservation Trust) for supporting our permits with technical review and oversight.

Table 1. 2023 BPAAP Project members

Name	Affiliation
Dr. Keith Prufer (PI)	University of New Mexico
Dr. Mark Robinson (co-PI)	University of Exeter
Ms. Nadia Neff	University of New Mexico
Mr. Horvey Palacios	Oklahoma University
Mr. Oligario Sho	Archaeological assistant, Santa Cruz Village
Mr. Silvestre Rash	Archaeological assistant, Golden Stream
Mr. Mateo Rash	Archaeological assistant, Golden Stream
Mr. Dilbert Pop	Ranger, Ya'axché Conservation Trust
Mr. Arturo Zuniga	Ranger, Ya'axché Conservation Trust
Mr. Catarino Cal	Ranger, Ya'axché Conservation Trust

Table 2. 2023 Uxbenká Archaeological Project survey members

Dr. Keith Prufer (co-PI)	University of New Mexico
Dr. Amy Thompson (co-PI)	University of Texas Austin
Dr. Heather Richards (co-PI)	University of Nebraska
Mr. Chris Plotz	University of Texas Austin
Ms. Monica Warner	University of New Mexico
Mr. Sanyam Agrawi	University of Nebraska
Ms. Nadia Neff	University of New Mexico

Below we describe the information that we gathered from two test unit excavations at Saki Tzul and plant collection conducted in the Ek Xux and AC valleys.



Figure 1. location of Saki Tzul in the Bladen Nature Reserve relative to Punta Gorda, the district capital.

2023 Archaeological Research Objectives

The 2023 archaeological objectives were to gain a better understanding of the types of wild foods that past communities were processing before and during the transition to agriculture and to gain contextual information about variation in mortuary practices of the earliest peoples in the region.

Research being conducted by the BPAAP in Southern Belize (figure 1) is changing the way we view the pre-ceramic history of the region. Over a 10,000-year period people repeatedly visited and found shelter at ST. Evidence from these shelters indicates that humans were using these spaces for tool use or manufacture based on large amount of chert debitage and worked igneous rock. They were regularly transporting rocks to the shelters from the rivers below each site. The presence of Late Paleoindian bifaces, commonly known as Lowe Points is suggestive of hunting (Prufer et al. 2019). In all levels and time periods we have evidence of hunting mammal, reptiles, and birds. In the Late Archaic it would appear that *jute* snails were harvested in the clear flowing waters

of the Bladen Branch as an industry, and millions of consumed shells were deposited in the rockshelters. Remarkably, these shelters were also used episodically a mortuary spaces for over 10,000 years. They contain individuals of all ages and both sexes. Future research will continue to illuminate mortuary practices throughout the human adaptations in the neotropics.

This report describes research conducted by the Bladen Paleoindian and Archaic Project (BPAAP) in the Bladen Nature Reserve, a protected area in the Toledo District of southern Belize. This study is part of a broader research program that involved limited excavations in rockshelters in the Ek Xux Valley of the upper (western) Bladen reserve. Permits for this project were granted by the Forestry Department and the Belize Institute of Archaeology (IA) to complete this research in May and June 2023.

Saki Tzul Unit 22 Excavations

Unit 22 was started in 2022 as an extension of Unit 15 (figure 2). At the end of the 2022 season after recovering the burials from Unit 15 C40 and Unit 15 C39, the cranium of a juvenile (C3) was revealed but we determined there was not enough time to properly remove the burial before backfilling the unit. We covered the cranium with supports and a tarp to recover the following field season. At the beginning of the 2023 field season this was the first burial excavated.

This short excavation consisted of four contexts, three fill contexts (C1, C2, C4) and a burial (C3) (figure 2). C1 began below leaf litter and consisted of loose and silty matrix with Classic period ceramics. C2 was also very soft and silty with Classic period ceramics but with some medium cobbles and gravel. The transition between C1 and C2 was dispersed. An adult rib and 1st proximal phalanx were

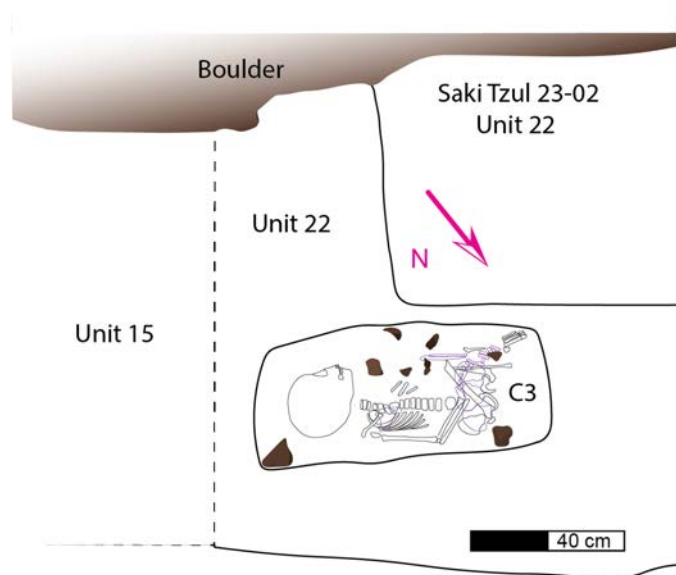


Figure 2. Schematic of Saki Tzul unit 22 with location of C3 burial.

recovered from C2. C3 was a juvenile burial (ST.23.22.C3) that was cut into C4 from C2. The individual was in a fully flexed position on the left side. The head was oriented to the east and facing south. The hands were near the pelvis with the upper body turned at the midthoracic onto the left side. The lower torso was horizontal to the earth with both legs crossed over to the left and fully flexed with the right leg on top of the left. The pelvis was located on top of a rock and slightly elevated above the spine. Within the C3 burial there was an unarticulated adult temporal fragment and a talus (92124). C4 was similar to C2 but slightly more compact and may have been a use surface. Only a portion of C4 was excavated until the C3 burial could be recovered. This unit reached a maximum depth of 64cmbd and was terminated after recovering the C3 burial.

Table 3. Unit 22 C1-C3 list of materials recovered

Lot #	Context	Material
92129	C1	Ceramics
92130	C1	Lithics artifact
92124	C2	Human bone
92128	C2	Fauna
92127	C2	Lithics artifact
92134	C3	C14
92132	C3	Ceramics
92133	C3	Fauna
92136	C3	Human bone
92138	C3	Human bone
92139	C3	Human bone
92135	C3	Macrobotanical
92131	C3	Shell
92137	C3	Soil
92124	C3	Human bone

Saki Tzul Unit 15 Excavations

During the 2023 field season we returned to Saki Tzul Unit 15.

This unit was started in 2022 but due to time constraints was terminated before reaching sterile levels. During the 2022 field season multiple extensions of Unit 15 were dug (Units 19, 20, 21). Units 15, 19, 20, 21 were combined into Unit 15 for the 2023 field season (figure 3). The last context for unit 15 during 2022 was C50, however, to distinguish clearly between the two excavation years, we began with C60 this year. This unit was recorded using a combination of levels and contexts. Context numbers were given to each surface, fill, feature, and burial based on observed changes in sediment, artifact and midden compositions, and cultural materials and features. We then used an arbitrary level system with letters to aid in depth organization and relationships between contexts. However, some contexts cross-cut arbitrary levels. The unit datum was in the wall of the large boulder to the south of the rockshelter wall. We recorded

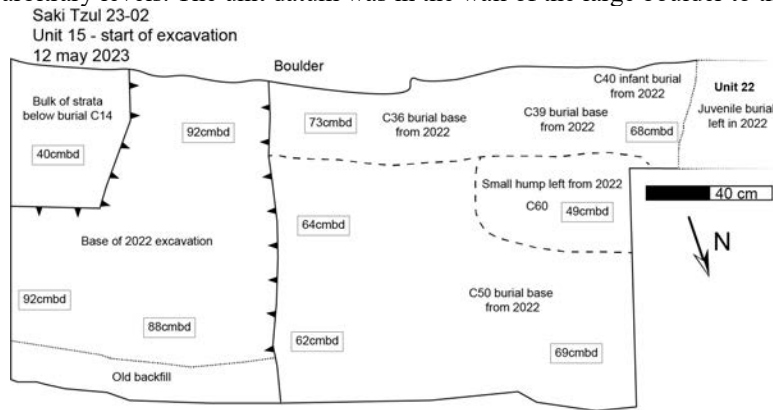


Figure 3. ST Unit 15 beginning of excavation map.

Level A (C60)

Level A consisted of context C60. C60 began at 49cmbd and ended at 65cmbd. C60 was a hump that was left unexcavated in 2022 in the middle of the unit abutting the east wall. It contained midden fill right above a jute rich level with burnt limestone, ceramics, lithic pieces, faunal remains and isolated human skeletal remains.

Level B (C61, C62, C63, C64, C65)

C61 was a surface along the west half of the unit and started at 62-73cmbd and ended at 78-89cmbd. C61 contained a large amount of jute with a distinct transition to the C65 surface. The matrix was variable across the context with small limestone cobbles and small amounts of fauna, lithics, ceramics and minimal human skeletal remains. There was some potential burial architecture in the SW corner but no associated burials.

the unit using a combination of paper and digital methods. Three burials were recorded using traditional paper maps and all other burials were recorded digitally using photographs and adobe illustrator. Notes were recorded digitally using the iPad GoodNotes application and on paper. No extensions were dug this field season. Separate lot numbers were assigned for each artifact type, context, and unit. A total of 15 levels, 36 contexts, and 9 primary burials were excavated in 2023. Unit 15 was excavated until reaching sterile Pleistocene levels.

Table 4. C60 list of materials recovered

C60	
Lot #	Material
92001	Charcoal
92006	Charcoal
92003	Ceramics
92000	Fauna
92002	Groundstones
92005	Human bone
92004	Lithics artifact

Table 4. C61-C65 list of materials recovered

C61		C62		C63		C64		C65	
Lot #	Material	Lot #	Material	Lot #	Material	Lot #	Material	Lot #	Material
92038	Lithics	92007	Lithics	92014	Human bone	92021	Fauna	92033	Shell
92039	Fauna	92008	Ceramics	92015	Shell	92022	Lithics artifact	92034	Fauna
92040	Macrobot.	92009	Fauna	92016	Fauna	92023	Human bone	92035	Charcoal
92041	Macrobot.	92010	Human bone	92017	Lithics	92024	Shell	92036	Obsidian
92042	Ceramics	92011	Groundstone	92018	Groundstone	92025	Obsidian	92037	Special find
92043	Obsidian	92012	Charcoal	92019	Obsidian	92026	Diag. lithics		
92044	Human bone	92013	Macrobotanical	92020	Ceramics	92027	Groundstone		
92045	Charcoal					92028	Macrobotanical		
92046	Groundstone					92029	Charcoal		
92047	Groundstone					92030	Special find		
92048	Charcoal					92031	Groundstone		

C62-C65 were originally part of an unexcavated corner of unit 15 from 2022. We excavated this corner to the same general level as the rest of the unit. C62 began at 40cmbd and ended at 54cmbd and had some small cobbles and ~10% Jute, the soil along the boulder was very soft in comparison to the rest of the soil. C63 began at 54cmbd, ended at 70cmbd, and consisted of approximately 40% jute with a high degree of ash and many river cobbles. The base transitioned to an ashy jute matrix. C64 began at 70cmbd, ended at 80cmbd, and contained approximately 60% jute with several larger potential ground stones and a large rock in the SE corner. C65 began at 80cmbd, ended at 97cmbd, and was removed to level ground with the rest of the unit.

Table 5. C66-C69 list of materials recovered

C66		C67		C68		C69		C69 cont	
Lot #	Material	Lot #	Material	Lot #	Material	Lot #	Material	Lot #	Material
92049	Human bone	92051	Lithics	92060	Charcoal	92062	Fauna	92074	Charcoal
92050	Fauna	92052	Fauna			92063	Charcoal	92075	Charcoal
92054	Charcoal	92053	Charcoal			92064	Macrobot.	92076	Groundstone
92055	Human bone	92057	Groundstone			92065	Groundstone	92077	Charcoal
92056	Lithics					92066	Obsidian	92078	Charcoal
92058	Groundstone					92067	Lithics	92079	Charcoal
92059	Groundstone					92068	Ceramics	92080	Groundstone
92061	Charcoal					92069	Shell	92081	Macrobot.
						92070	Macrobot.	92082	Macrobot.
						92071	Charcoal	92083	Groundstone
						92072	Charcoal	92084	Special find
						92073	Groundstone		

Level C (C66, C67, C68, C69)

C69 was a fill context with three features on the surface (C66, C67, C68) located approximately 2m from the W wall and spanning the N-S side of the unit. The matrix was silty and contained small amounts of jute, noticeably less than previous contexts. C66, C67, and C68 were rock features. All three contexts were contained within the C61 matrix and sitting on the surface of C69. C66 was a rock feature that consisted of large river rocks and some ground stones

on the surface of C69. Within this feature were several fragments of burnt human and faunal bone with no distinctly burned rock underneath indicating bone fragments were likely part of the midden fill. C67 and C68 are fire features near to each other and made of several burned river stones with a high degree of charcoal throughout. Both fire features began on the surface of C61 and extended to the surface of C69. C69 began at 78-89cmbd and ended at 92-105cmbd. C68 is located to the north of C68.

Level D (C70, C72)

C70 began at 93-105cmbd and ended at 107-115cmbd. C70 consisted of silty, loose, midden fill approximately at a similar depth to C69 but was considered a separate context due to differences in the matrix, namely much looser, uncondensed fill with almost no jute. The matrix was looser and siltier on the east side of the unit and more gravelly on the west end. C70 was dug to reveal the surface of C71. C72 (104-113cmbd) was a fire feature within the C70 matrix on the surface of C71 (Level E) comprised of burned limestone rocks, several ground stones and one lithic tool. The transition to C71 was distinct across the unit with more small rocks in the C71 fill.

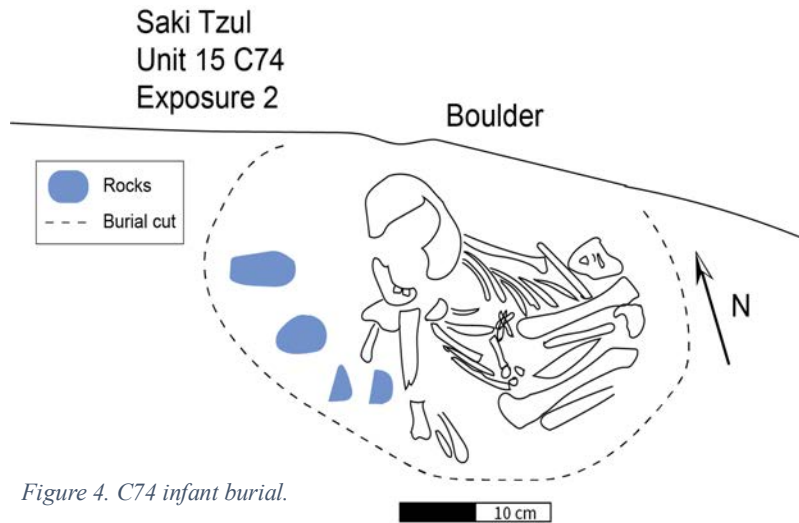


Figure 4. C74 infant burial.

Level E (C71, C74, C75, C76)

Level E consisted of the C71 fill context with 3 burials (C74, C75, C76) contained within the matrix and on the surface of C73. C71 began at 107-115cmbd and ended at 120-128cmbd. C71 consisted of pure silt midden fill with rocky inclusions. C71 contained many ground stones, lithics, fauna, and a few isolated human remains including some infant bones along the north wall above a well-defined surface (C73). The matrix close to the boulder was very soft and the large limestone rocks continued in the west from the previous level.

C74 (figure 4) was an infant burial (ST.23.15.74) along the north wall approximately halfway between the east and west walls. It appears as through the burial cut began on the surface of C70 through C71 and the remains were laying on the surface of C73. The head was oriented to the west in a fully flexed position with the anterior body facing up and the legs extending towards the head with the arms along the sides. The head may have been face up to begin with but was tilted to the west possibly due to slumping of softer fill. Nadia determined that this infant was approximately 1 year old at the time of death based on long bone lengths and tooth development.

Table 7. C70, C72 list of materials recovered

C70		C72	
Lot #	Material	Lot #	Material
92085	Fauna	92107	Groundstone
92086	Lithics	92110	Fauna
92087	Shell		
92088	Special find		
92089	Ceramics		
92090	Macrobot.		
92091	Human bone		
92092	Groundstone		
92093	Special find		
92094	Charcoal		
92095	Groundstone		
92096	Charcoal		
92097	Groundstone		
92098	Charcoal		
92099	Charcoal		
92100	Human bone		
92101	Special find		

Table 6. C71-C76 list of materials recovered

C71		C74		C75		C76	
Lot #	Material	Lot #	Material	Lot #	Material	Lot #	Material
92102	Human bone	92146	Charcoal	92151	Lithics	92172	Human bone
92103	Charcoal	92147	Obsidian	92152	Lithics	92161	Groundstone
92104	Groundstone	92159	Lithics	92153	Fauna	92162	Charcoal
92105	Lithics			92154	Charcoal	92163	Groundstone
92106	Charcoal			92156	Groundstone	92164	Lithics
92102	Human bone			92157	Lithics	92165	Charcoal
				92158	Shell	92166	Lithics
				92160	Human bone	92168	Fauna
				92169	Lithics	92171	Human bone
				92170	Human bone		

towards the East, Face to the West). The burial architecture was quite elaborate with large rocks surrounding the entire burial and placed on top. It also appears as though there may have been some rocks underneath this individual that caused some fragmentation and movement of elements out of articulation. The left ribs and vertebrae were pushed up and to the north while the right ribs remained in roughly their original position with the scapula (very fragmented) still in articulation with the humerus and clavicle (right side). The right femur was articulated with the tibia/fibula which were underneath the femur in a flexed position and in articulation with the feet. The distal ends of both tibiae/fibulae were articulated with the feet, but it was unclear which elements were present at the time of excavation. The right arm was straight and extended between the legs with the hands by the feet. The left arm was bent with the forearm between the legs and the hand to the front of the body (south) at a 90° angle. Only small fragments of the pelvis were found but it appeared as though most elements were in articulation upon initial deposition. Based on the mastoid process, this individual was most likely male. The mandible is edentulous so most likely an older individual. Several infant remains were also found but it is not clear if they are associated with the adult C75 burial. Some minimal faunal bone was found within the burial fill.

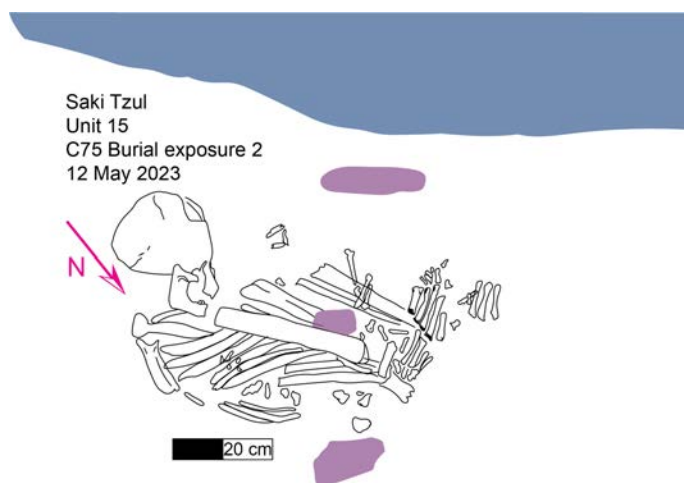


Figure 5. C75 Burial map.

to be an adult based on completed bone development and sex was estimated based on cranial elements assessed using standard methods.

C75 (figure 5) is an adult burial (ST.23.15.75) in the SE corner of unit 15 about 1 meter from the east wall and ~50cm from the large south boulder. This individual was in a fully flexed position with the knees tucked tight into the chest and the arms between the legs with the hands near the pelvis. They are positioned on the left side facing south with the head tilted forward in an E-W orientation (occipital

C76 (figure 6) was an adult female burial (ST.23.15.76a) that was possibly 36-40 weeks pregnant at the time of death in a fully flexed position laying on the left side with the right side oriented down. The head was oriented to the east and the feet/inferior portion of the pelvis to the west. This individual was facing south with the posterior body to the north. In situ, the remains were in a very fragmented condition. There was little burial architecture associated with this individual, but there was a large oblong river stone on top of the legs that potentially may have been used as a grinding stone (92163) and will be tested for residues. Two other smaller grinding stones located around the pelvis/legs were present as well (92161). One to the north and one to the west. The burial cut appeared to have been dug beginning possibly on the surface of C70. This individual was determined

In addition to the adult remains, there were several perinatal elements (ST.23.15.76b) within C76, including a partial cranium, femur, ulna, ilium, and rib near the adult's feet and pelvis. Calculations performed by Nadia based on femur and ulna diaphyses lengths indicated that this individual was a perinate around 36-40 weeks in utero. Upon removal of the first exposure several other perinate remains were recovered. The perinate was oriented with the head to the west and the postcrania to the southeast, the opposite direction as the adult. The parietals were dislodged to the west and slightly below (inferior) to the adult's feet, but the rest of the cranium appeared to be mostly in the original burial position. The post-crania was mostly articulated with some elements likely shifted from their original position. There were integrated in the abdominal region and pelvic girdle of the adult, with most of the right-side elements to the SW and the left side elements to the NE. The chest was up right with the legs and arms stratigraphically above the torso.

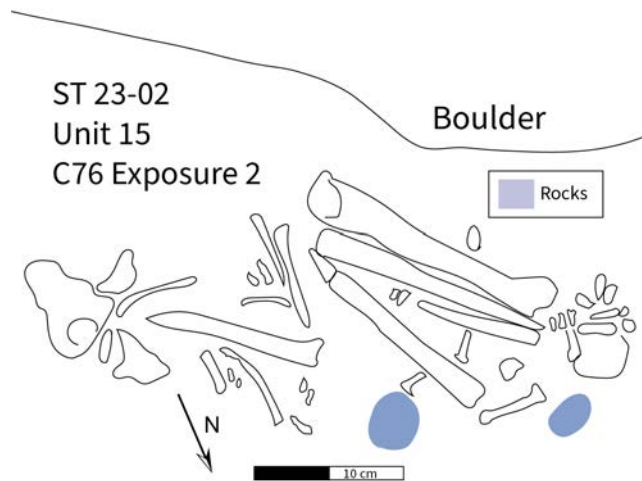


Figure 6. C76 burial map.

Level F (C73, C77, C80, C81)

The unit was divided into 2 fill contexts based on differences in fill matrix. Originally the entire surface was called C73 but upon excavation we divided the fill into C73 and C77. C77 follows the large boulder to the south of the rockshelter wall and consisted of a looser more gravelly fill with many lithic artifacts and several special finds. C77 began at 120-128 cmbd and ended at 137-144 cmbd. C73 began at 120-128 cmbd and ended at 134-143cmbd. C77 followed the north half of the unit and was much more densely compacted with large stone inclusions, large quantities of fauna, and some lithic artifacts that appeared to be biface remnants. C73 and C77 were dug to reveal the surfaces of C78 (under C77 fill), and C79 (under C73 and C77 fill). Along the boulder (the south wall) a juvenile burial was found (C80). The C80 burial cut was dug from the surface of C73 and was cut through C77. In the SE corner of the C77 fill, a cluster of adult and juvenile bones were uncovered (C81). There was some articulation of a juvenile foot, but no other discernable patterns were present.

C80 (figure 7) was a juvenile burial (ST.23.15.80). The burial cut appears to have been dug from the surface of C73 and into C77. The cranium was oriented to the west with the post-crania to the east. The original burial position was fully flexed with the legs stacked parallel to each other with the left arm between the legs and the cranium, while the right arm was slightly above with the skull sitting on the shoulder in an upright position with the mandible below the cranium stratigraphically and the left side of the skull oriented east, and face to the south. The cervical vertebrae were found in articulation inside of the mandible along with a right clavicle. Most of the epiphyses of the lower long bones were missing.

Level G (C78, C79, C84, C85)

Level G consisted of 2 fill contexts (C78 and C79) and two burial contexts (C84 and C85) that penetrated the C78 fill. C78 and C79 continued to follow the north-south division of the unit into two contexts but C78 was reduced in width to approximately 20-40cm from the boulder wall extending north to C79 based on differences in fill matrix, C78 was dug to reveal the surface of C83. C78 began at 137-144 cmbd and ended at 152-160 cmbd. C78 was a very loose silty matrix with large rocks and two burials. C79 was dug to reveal the surface of C82 and began at 137-144 cmbd and

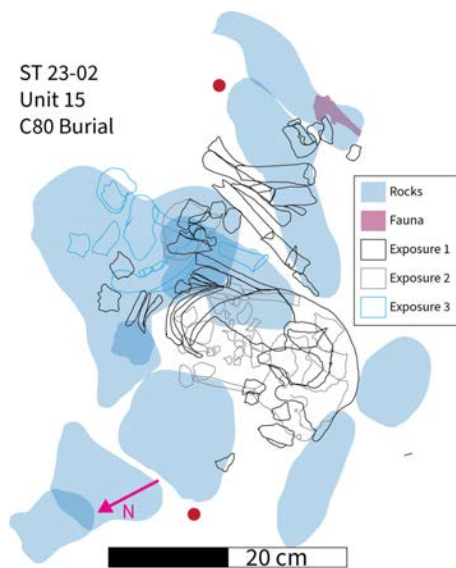


Figure 7. C80 burial map.

ending at 148-160 cmbd. C79 was very ashy with burnt limestone compact matrix interspersed with softer ashy deposits. Several grinding stones, a large amount of fauna, and some isolated human remains were present.

Table 7. C73, C77, C80, C81 list of materials recovered

C73		C77		C80		C81	
Lot #	Material	Lot #	Material	Lot #	Material	Lot #	Material
92108	Lithics	92198	Charcoal	92198	Charcoal	92191	Charcoal
92109	Charcoal	92189	Fauna	92189	Fauna	92200	Fauna
92115	Groundstone	92188	Human bone	92188	Human bone	92201	Lithics
92116	Groundstone	92197	Human bone	92197	Human bone	92190	Shell
92117	Groundstone	92196	Lithics	92196	Lithics	92187	Human bone
92118	Charcoal						
92119	Groundstone						
92121	Groundstone						
92123	Human bone						
92141	Groundstone						
92142	Groundstone						
92143	Groundstone						
92144	Charcoal						
92145	Groundstone						

C84 (figure 8) was a highly disturbed adult burial represented by cranial elements and a few lower limb bone fragments including a distal left fibula, left tibia fragments (that refit), and a right distal femur. There was a large rock between the cranium and several tibia fragments, but some tibia fragments that refit were on the south side of the rock. There was no apparent articulation at the time of excavation, however, it appeared as through this was likely due to rock fall from the boulder and slumping of loose matrix near the boulder that caused major disturbances of the remains. The cranium was nearly upside down with the occipital to the east and the left parietal/temporal to the north with several cervical vertebrae in articulation and contained within the fragmented cranium. The left temporal had an intact mastoid process that indicated that this individual was female. It is important to note that C84 may be a part of the C88 burial and may even represent a single individual, but this will not be determined until complete analysis of these burial contexts in a laboratory environment.

C85 was an extremely fragmented and disturbed adult burial. The remains of this individual were found in a highly crushed state under a large rock. Due to fragmentation the burial position was difficult to assess but based on identifiable elements in situ, this individual appeared to have originally been buried in a fully flexed position with the legs underneath the torso, the back facing up, the head tucked under the chest, oriented along an E-W line with the head to the east and facing the south.

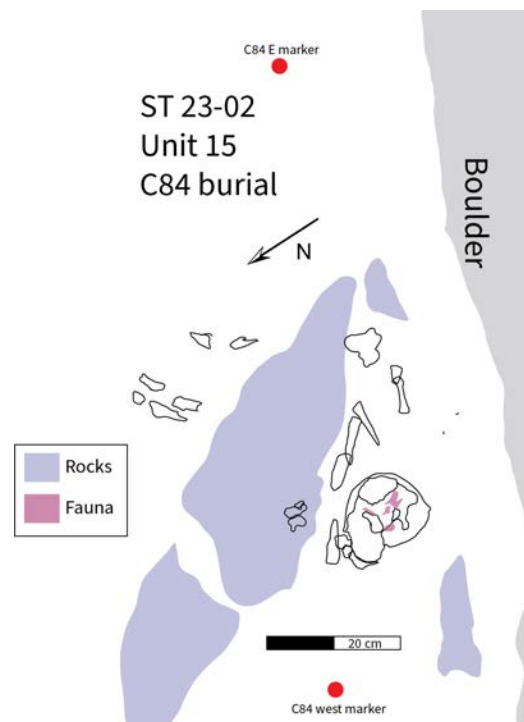


Figure 8. Burial C84 map.

Table 8. C78, C79, C84, C85 list of materials recovered

C78		C79		C84		C85	
Lot #	Material	Lot #	Material	Lot #	Material	Lot #	Material
92221	Charcoal	92211	Charcoal	92233	Charcoal	92240	Fauna
92219	Fauna	92217	Charcoal	92226	Fauna	92306	Fauna
92223	Groundstone	92237	Charcoal	92222	Human bone	92239	Human bone
92293	Human bone	92236	Diag lithics	92227	Lithics	92241	Lithics
92218	Lithics	92206	Fauna	92224	Obsidian		
92295	Macrobot.	92194	Groundstone	92225	Shell		
92205	Obsidian	92245	Groundstone				
92220	Shell	92246	Groundstone				
		92215	Human bone				
		92207	Lithics				
		92212	Macrobot.				
		92208	Obsidian				
		92209	Shell				

Level H (C82, C88)

Level H consisted of 2 contexts, a fill context (C82) and a burial (C88) cut through the C82 fill. C82 began at 148-160cmbd and ended at 170-174cmbd. C82 spanned all of Unit 15 and was a loose, silty, and gravelly fill matrix with small rocks and medium cobbles, and with ashy deposits of limestone. Some larger fauna was concentrated in the NE corner. Three pieces of obsidian and several diagnostic lithic tools were recovered. Several isolated human remains were present as part of the midden fill.

C88 was a highly disturbed burial context. The remains from this context could likely be from the same individual as those recovered in C84 based on burial locations and a cursory assessment of elements present in each context. However, due to the extremely disturbed and fragmented nature of remains in this area it was not possible to determine association without a thorough laboratory analysis. C88 was divided into two lot numbers to control for spatial orientation of the degraded bones. 92261 contains the elements that were found to the north of C84

under a large rock that potentially crushed this burial and divided the remains. 92261 has pelvic elements, a scapula, and a distal right fibula. 92259 was a cluster of bones below C84 and to the south of 92261.

Level I (C86, C87, C89, C90)

Level I consisted of four contexts, three fill contexts (C86, C87, C90) at approximately the same depths but with distinct differences in the matrix and use patterns, and a burial context (C89). C86 began at 170-174cmbd and ended at 173-187cmbd. C86 was a distinct context made of a thick (~5-15cm) and dense white limestone powder that was potentially a plaster floor (but will require further laboratory analysis to determine). This context followed the north wall ending approximately 30-50cm from the boulder that defined the south side of the unit. The surface of C86 was relatively flat with minimal variation, while the context under C86 (C91), was variable in depth with undulations in

Table 9. C82, C88 list of materials recovered

C82		C88	
Lot #	Material	Lot #	Material
92242	Diag lithics	92258	Charcoal
92228	Fauna	92253	Fauna
92247	Groundstone	92256	Groundstone
92248	Groundstone	92254	Human bone
92249	Groundstone	92252	Obsidian
92250	Groundstone		
92255	Groundstone		
92232	Human bone		
92229	Lithics		
92230	Macrobot.		
92251	Macrobot.		
92238	Obsidian		
92231	Shell		

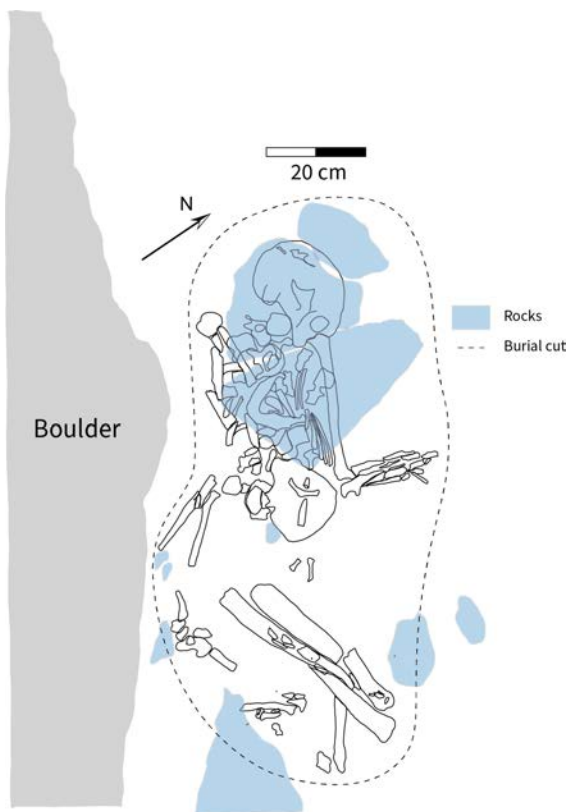


Figure 9. C89 burial map.

appeared to have been semi-flexed with the legs bent at the knees, but not the hips, and the knees oriented to the NE and the feet to the SW. The anterior torso was facing up with the head laying on the left side and tilted downward (face to the east). The right arm was extended down the right side of the body and the left was semi flexed at the elbow at a 90° angle with the humerus along the torso and the ulna/radius extended out to their left laying on top of the C86 floor. There were two large limestone rocks around the cranium and a large flat river stone placed on top of the limestone rocks over the cranium held up by the limestone rocks. There was another large river stone placed on the chest. The burial cut was in an area of great taphonomic disturbance due to differential matrix densities near the boulder versus the walking surfaces and potentially rocks falling from the boulder itself. This caused some disturbance of the burial position described above, specifically of the vertebrae, ribs, and pelvic girdle. Many elements were found out of articulation and commingled but still near their anatomical positions. Other elements such as from the upper limbs and shoulder girdles were still in articulation. The preservation across the burial was highly variable with some elements such as the left humerus and many vertebrae almost complete, and other elements such as some from the lower limbs, extremely fragmented and fragile. The cranial bones were in articulation but still clearly highly fragmented. This burial demonstrated evidence consistent with a potential in situ cremation but will require further analysis by a cremation expert to determine. Most of the skeletal elements had evidence of burning to different degrees. Some elements only appeared scorched while others were fully blackened but still maintained their structure including the trabecular bone. The legs did not appear to have the same level of burning. The articulation of skeletal elements and level of burning seems to imply an in-situ cremation and the burial architecture would have been placed after the burning event as the stones showed no evidence of burning, but there were large amounts of charcoal throughout the burial matrix and directly under the burial the matrix was very ashy.

the matrix that the potential plaster was used to fill in and create a mostly even surface. Minimal lithic artifacts and fauna were recovered within and on this context implying a single creation event. There were small organic rich deposits throughout this solid surface that were sampled for further analysis. On the east side of C86 was a cut in the floor with a sharp angle that was given a separate context number (C87). C87 (beginning at 170-174cmbd, ending at 178-189cmbd) was the cut in the floor along the SE side of unit 15. This was a very clear cut and did not follow the same transition as other areas. This cut was much more compact than the matrix of C90 (the context along the south side of the unit along the boulder. It contained minimal medium sized cobbles and a large amount of fauna and lithics. The context terminated at approximately the same depth as C86 and revealed the same context (C91) under C86. C90 began at 170-174cmbd (approximately the same general depth as C86 and C87) and ended at 182-189cmbd. This context followed the south boulder but consisted of a loose silty matrix with medium sized cobbles throughout. Only the east side of this context was dug, the west half was terminated for the rest of the season. This context was rich with lithics, fauna, and isolated human remains concentrated to the SE.

C89 (figure 9) was an adult male burial (ST.23.15.89) along the south wall in the SW portion of the unit. The burial cut was dug from the surface of C82 and appears to have been cut slightly into the surface of C86 and partially extends south into the fill of C90. The cranium was oriented to the west with the body extending to the east. The original burial position

Table 10. C86, C87, C89, C90 materials recovered

C86		C86 cont.		C87		C89		C90	
Lot #	Material	Lot #	Material	Lot #	Material	Lot #	Material	Lot #	Material
92257	Charcoal	92268	Macrobot.	92284	Fauna	92281	Charcoal	92288	Diag lithics
92264	Charcoal	92269	Macrobot.	92285	Lithics	92301	Charcoal	92290	Fauna
92265	Charcoal	92297	Macrobot.	92286	Macrobot.	92271	Fauna	92291	Lithics
92273	Charcoal	92298	Plaster soil			92287	Fauna	92292	Obsidian
92276	Charcoal	92299	Plaster soil			92270	Human bone	92294	Shell
92279	Charcoal	92300	Plaster soil			92272	Macrobot.	92309	Special find
92263	Fauna	92266	Soil			92282	Macrobot.		
92283	Groundstone	92267	Soil			92330	Soil		
92262	Human bone	92274	Soil			92331	Soil		
92280	Lithics	92277	Soil			92334	Soil		
92296	Lithics	92278	Soil						

Level J (C91)

Level J consisted of a single fill context, C91. At the end of level I, the south portion of the unit was terminated and we focused on the north portion of the unit. C91 began 170-187cmbd and 195-208cmbd. C91 was a high organic matrix very dark in color with high levels of charcoal and minimal cultural material. This context was only directly under the C86 floor and did not extend into areas where they floor was not present above. A large unidentified faunal bone was found on the surface of C91. It was thought that this may be a megafauna rib but will require a specialist to determine.

Table 11. C91 materials recovered

C91	
Lot #	Material
92307	Charcoal
92310	Charcoal
92316	Charcoal
92317	Charcoal
92313	Fauna
92314	Macrobot.
92311	Obsidian
92312	Soil
92305	Special find

Levels K (C92), L (C93), M (C94), N (C95)

Levels K-N (C92-C95) were all part of the same stratigraphic layer, Pleistocene red soil, but were arbitrarily divided to maintain spatial control along a z axis. C92 began at 187-200cmbd and ended at 212-214cmbd. C93 began at 212-214cmbd and ended at 215-225cmbd. C94 began at 215-225cmbd and ended at 234-237cmbd. C95 began 234-237cmbd and ended at 250cmbd. The transition from C91 to C92 was very distinct. C92-C95 had a reddish color with a more clay like texture. This layer was dug to about 50cm in depth and then terminated due to a lack of cultural material and the presence of a new stratigraphic layer (Level O, C96). No use surfaces were uncovered in these contexts. A single piece of obsidian was found on the C92 surface. Some fauna (rodents and another possibly megafauna bone) was found in the C94 fill. Charcoal was present in each level and sampled for radiocarbon dating.

Table 12. C92-C94 materials recovered

C92		C93		C94	
Lot #	Material	Lot #	Material	Lot #	Material
92315	Charcoal	92321	Charcoal	92329	Fauna
92318	Charcoal	92322	Charcoal		
		92328	Charcoal		
		92327	Fauna		
		92323	Soil		
		92324	Soil		
		92325	Soil		
		92326	Soil		

Level O (C96) – End of excavation.

The unit was terminated at the surface of C96 (figure 10). This context appeared to be a little ashier and darker in color than C92-C95. The greatest depth reached was 250cmbd. No cultural material was recovered from the surface of C96.

Table 13. C96 materials recovered

C96	
Lot #	Material
92332	Charcoal
92333	Charcoal
92335	Charcoal
92336	Fauna

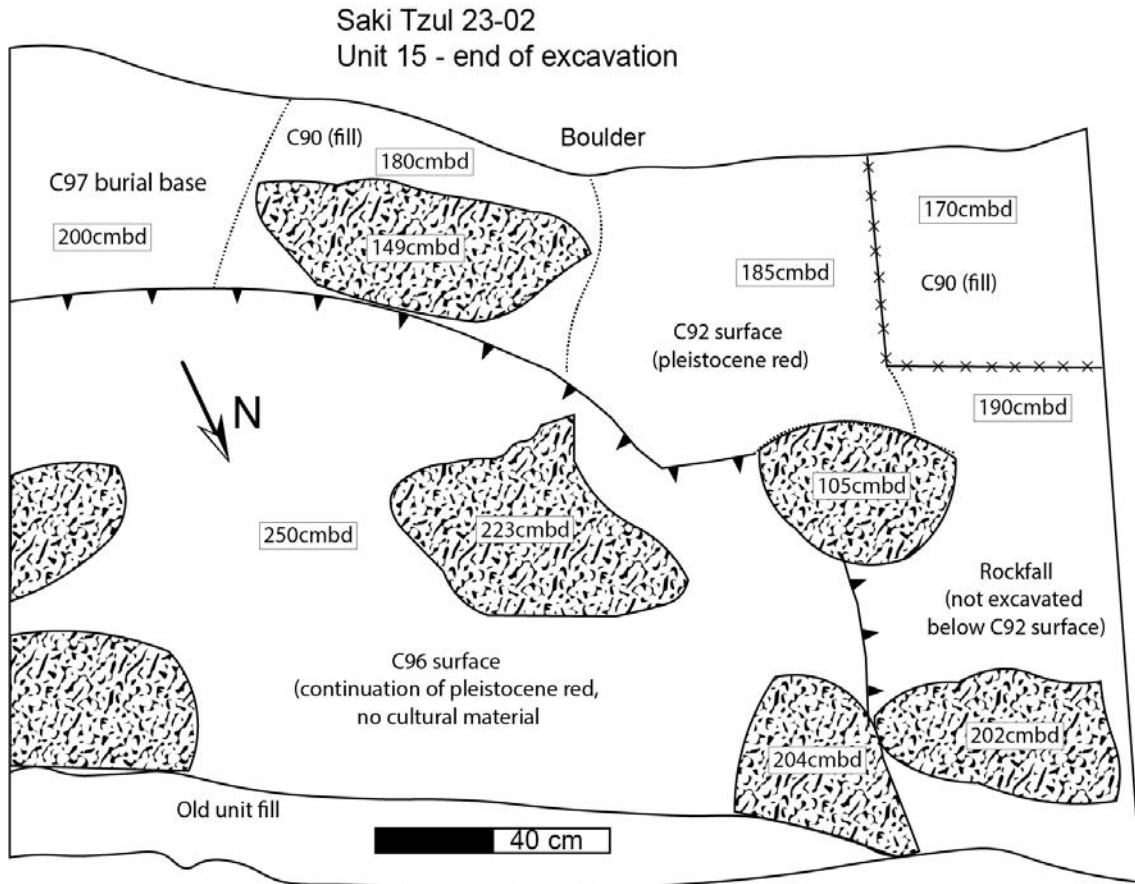


Figure 10. Saki Tzul Unit 15 end of excavation map.

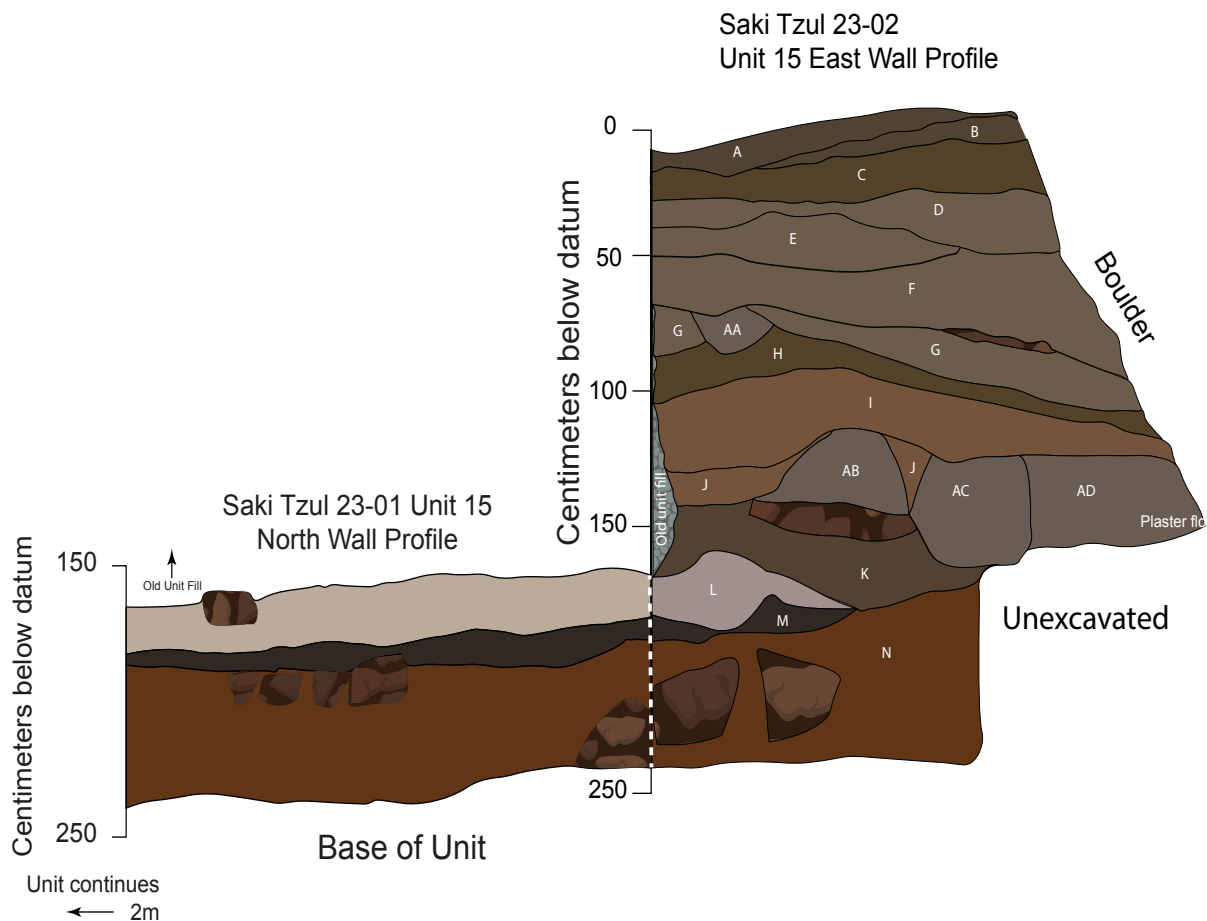


Figure 11. Saki Tzul unit 15 north and east wall profiles.

Plant collection

During the 2023 field season, we collected and preserved samples from 37 plants in the Bladen Nature Reserve. The aim of collecting these modern plants was to characterize baseline stable isotope values and variation, create a library of unique stable isotope fingerprints of different plant groups using isotopes found in plant amino acids, and to create libraries of previously unknown starch grain and pollen morphologies. The goal of collecting these data is to better characterize the types of plants that were used in antiquity by comparing the plant fingerprint libraries to stable isotopes in ancient human remains and in tools that were used for food processing. We targeted plants that were known to be either edible or medicinal with long use histories. Plant samples were collected in the Ek Xux and A.C. valleys (figure 12) during the last week of field work.

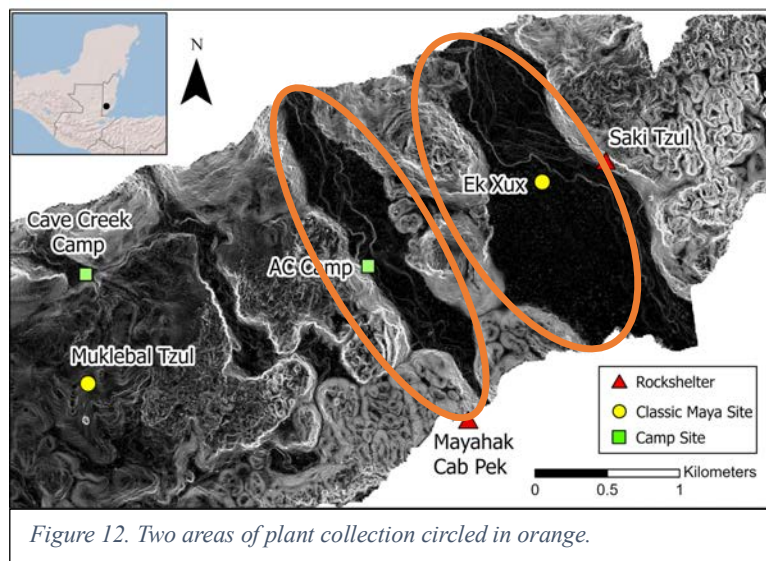


Figure 12. Two areas of plant collection circled in orange.

All plant samples were preserved using silica gel powder in the field and then dried using a plant dehydrator before sealing for exportation after leaving the Bladen Nature Reserve.

In the intervening months we have analyzed a large sample of the plants collected using carbon and nitrogen bulk tissue stable isotope analyses, and carbon amino acid stable isotope analysis. Based on these results, all known wild plants collected are classified as C₃ plants, which are isotopically distinct from C₄ plants such as maize. We have identified several varieties of palms that have higher protein content (based on the quantified amount of nitrogen in their tissues) than even some varieties of legumes. This evidence supports the conclusion that among other wild plants, palms were very likely uniquely important to past human diets. In addition to this, statistical analyses on plant amino acid stable isotope values indicates that we can accurately separate and identify wild vs domestic plants and quantify the contributions from these groups to past diets on individual and community levels.

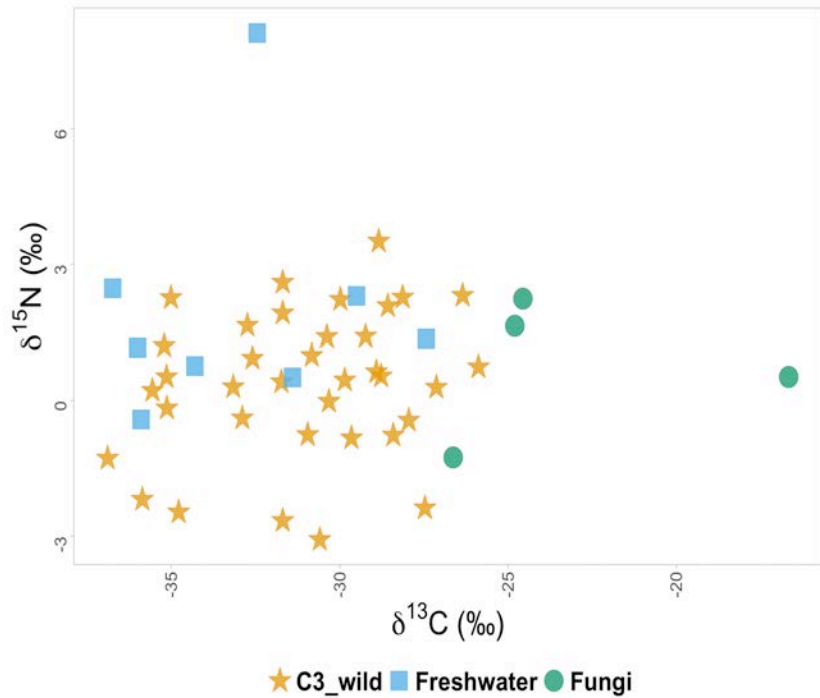


Figure 13. Preliminary bulk stable isotope biplot of plants collected in the Bladen Nature Reserve during the 2023 field season. Results demonstrate the variation in baseline isotope values of wild plants and fungi.

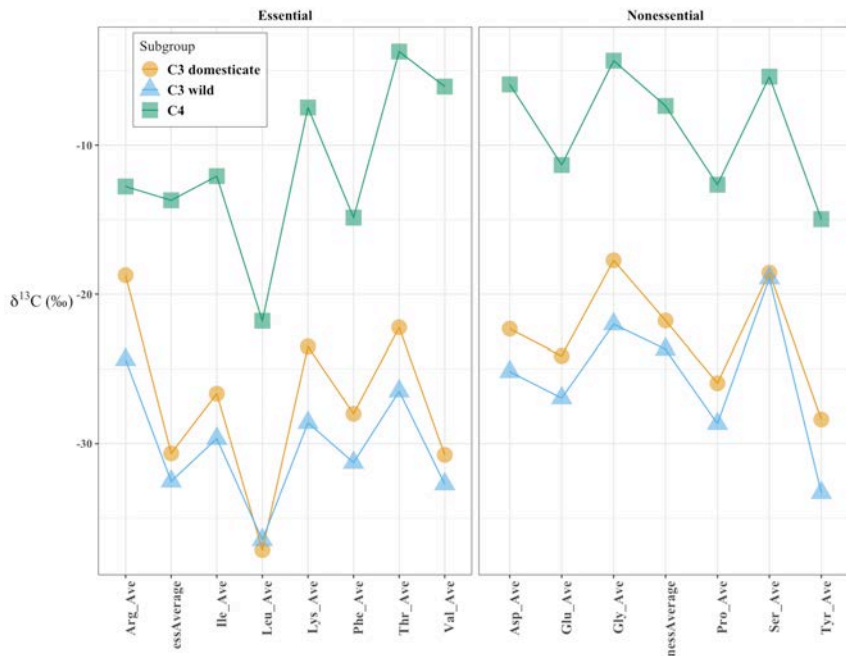


Figure 14. Plot of carbon isotope values of individual amino acids of plant groups. C₄ and C₃ domestic plants were collected near Santa Cruz village in the Toledo District of southern Belize. C₃ wild plants were collected in the Bladen Nature Reserve. These preliminary results demonstrate that wild and domestic plants can be identified isotopically.

Table 14. List of plants collected in 2023

Sample ID	Scientific name	Plant part collected
MM.01.23.05	Chamaedorea tepejilote	Root
MM.02.23.05	Maranta sp.	Root
MM.3.23.05	Curcuma longa	Root
MM.4.23.05	Curcuma sp.	Root
MM.5.23.05	Unidentified	Root
MM.6.23.05	Heliconia bihai	Root
MM.7.23.05	Dioscorea bartlettii	Root
MM.9.23.05	Synecanthus fribrosus	Fruit
MM.10.23.05	Calathea lutea	Flower, root
MM.11.23.05	Astrocaryum mexicanum	Fruit, stalk
MM.12.23.05	Piper aequale Vahl	Root
MM.13.23.05	Synecanthus fribrosus	Stalk
MM.14.23.05	Anacardium sp.	Fruit
MM.15.23.05	Araceae sp.	Root, flower
MM.16.23.05	Maripa micaraguensis	Fruit
MM.18.23.05	Piper umbellatum	Leaf
MM.19.23.05	Erythrina standleyana	Fruit
MM.20.23.05	Renealmia alpinia	Flower
MM.22.23.05	Annona squamosa	Fruit
MM.23.23.05	Garcinia intermedia	Fruit
MM.24.23.05	Attalea Cohune	Fruit
MM.25.23.05	Manilkara zapota	Flower
MM.30.23.05	Pleurotus sp	Flower
MM.31.23.05	Calathea sp.	Root
MM.32.23.05	Heliconia mariae	Root, stalk
MM.33.23.05	Heliconia vaginalis	Root, flower
MM.34.23.05	Vriesea gladioliflora	Root
MM.35.23.05	Colocasia sp.	Root
MM.36.23.05	Theobroma bicolor	Fruit
MM.37.23.05	Theobroma bicolor	Fruit
MM.38.23.05	calyptrogone ghiesbreghtiana	Root, fruit
MM.39.23.05	Tradescantia zebrina	Flower
MM.40.23.05	Philodendron grandipes	Root
MM.41.23.05	Malpighia	Fruit
MM.42.23.05	Armillariella mellea	Flower
MM.43.23.05	Pleurotus sp	Flower
MM.44.23.05	Annona sp.?	Fruit

The 2023 Survey at Uxbenká

Introduction

Uxbenka is a Classic Maya (250-800 CE) polity located in the foothills of the Maya Mountains in southern Belize (Figure 11). Situated on a major trade route connecting the Caribbean Sea to the southeastern Peten (Hammond 1978; Prufer et al. 2017), it is the earliest founded center in the region (Prufer et al. 2011). Early farmers resided near the banks of the Rio Blanco by 4400 BCE. By 400 BCE, farmers were using the lands near Uxbenka (Culleton 2012), likely residing in perishable buildings with dirt floors. By 100 BCE, massive anthropogenic landscape alterations and the first stone architecture is documented (Prufer et al. 2011; Prufer and Thompson 2016) along with burials in house mounds that continued to be used for centuries (Prufer et al. 2017; Thompson and Prufer 2021). From 200 to 750 CE, the population grew, and newly founded households expanded into the hinterlands of Uxbenka. By 800 CE, as political disintegration swept across the region (Ebert et al. 2014), Uxbenka fell into decline. Nonetheless, some resilient communities persisted on the landscape, with sporadic evidence of human occupations from 1000 to the 1880s CE, when historically documented Maya communities occupied the region (Downey 2009; Thompson 2019; Wilk 1997). Today, Uxbenka is located on the land of the modern Mopan village of Santa Cruz.

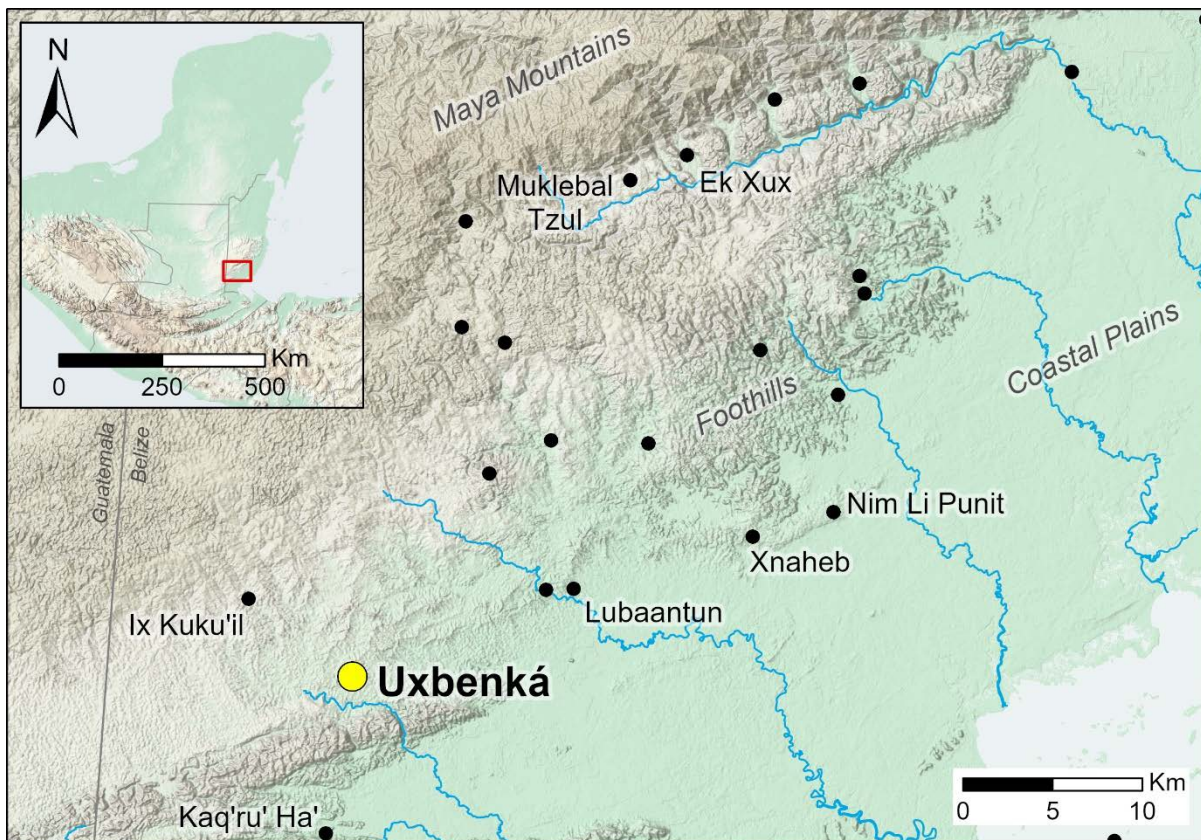


Figure 15: Location of Uxbenka in relation to other Classic Maya political centers in southern Belize.

The 2023 field season survey of the Uxbenka Archaeological Project (UAP) is built upon the previous surveys of the UAP. The UAP initiated survey of residential areas during the inception of the project in the mid-2000s, with concerted efforts focused on survey in the subsequent years (Kalosky and Prufer 2012). In total since 2005, more than 470 residential buildings among 180 residential *plazuela* groups across a 21km² area have been documented and built into a GIS database (Thompson 2019; Thompson, Feinman, Lemly, et al. 2021). In conjunction with household excavations focused on multi-proxy chronology building, the UAP has evaluated topics from the foundations of Uxbenka (Culleton

et al. 2012; Prufer et al. 2011), shifts from more corporate or collective forms of governance to more autocratic or despotic forms of governance over time (Prufer et al. 2011, 2017; Thompson, Feinman, and Prufer 2021; Thompson and Prufer 2021), evaluating the utility of lidar for understanding the impacts of vegetation on archaeological survey and ancient Maya anthropogenic landscapes (Prufer et al. 2015; Prufer and Thompson 2016; Thompson 2020), modeling smaller social units with the ancient city including neighborhoods and districts (Prufer et al. 2017; Prufer and Thompson 2014; Thompson et al. 2018, 2022; Thompson, Feinman, and Prufer 2021; Thompson and Prufer 2023, 2024), household production and trade networks based on ceramics and obsidian (Jordan and Prufer 2020a, 2020b, 2017; Nazaroff et al. 2010), differential access to social and environmental resources and variations in wealth among the occupants of Uxbenka (Prufer et al. 2017; Thompson, Ebert, et al. 2013; Thompson, Feinman, and Prufer 2021; Thompson, Feinman, Lemly, et al. 2021; Thompson and Prufer 2021, 2023, 2024), and the impacts of climate on the local populations through time (Kennett et al. 2012; Prufer et al. 2022). The additional survey work conducted in 2023 will continue to build on this knowledge.

This research was funded by a National Science Foundation grant awarded to Prufer, Thompson, Richards-Rissetto, and Newton. We used the previously surveyed data with the lidar relief visualizations and 3D point cloud as inputs for a deep-learning model to predict the locations of ancient Maya plazuelas and house mounds. Through an iterative approach, we will incorporate the 2023 survey data into the model, refining it for the brief 2024 field survey.

Field Methods



Figure 16. Chris Ploetz working with Santa Cruz village leadership and community members while conducting pedestrian survey on the Uxbenka Archaeological Project. Photo by AE Thompson.



Figure 17. Monica Warner and Chris Ploetz mapping an ancient Maya house group at Uxbenka. Photo by AE Thompson.

We conducted targeted pedestrian survey in two of the three proposed survey zones covering a total area of 3.5km² in Santa Cruz village. We transversed the landscape, focusing on hilltops and ridge-tops, which were preferred settlement locations for the ancient Maya in Southern Belize (Hammond 1975; Jamison 1993; Kalosky and Prufer 2012; Kindon 2002; Thompson 2019, 2020), and beyond (Canuto and Auld-Thomas 2021). We used Garmin 66i and Garmin 700i handheld GPS units (Figure 16) or our phones using the Avenza app to mark the location of plazuelas and each structure within a plazuela and mapped structural platforms using pace and compass mapping (Figure 17). Additional

details regarding the structures' architectural complexity, size, orientation, and construction materials were noted during pedestrian survey. Surface finds were collected by survey team members, and catalogued and analyzed in the Big Falls Research Facility during the field season by Thompson and BPAAP team member, Horvey Palacios using the UAP Ceramic Typology (Jordan 2014).

Survey occurred over the course of three weeks from May 22 to June 8, 2023. We began as one team while Amy

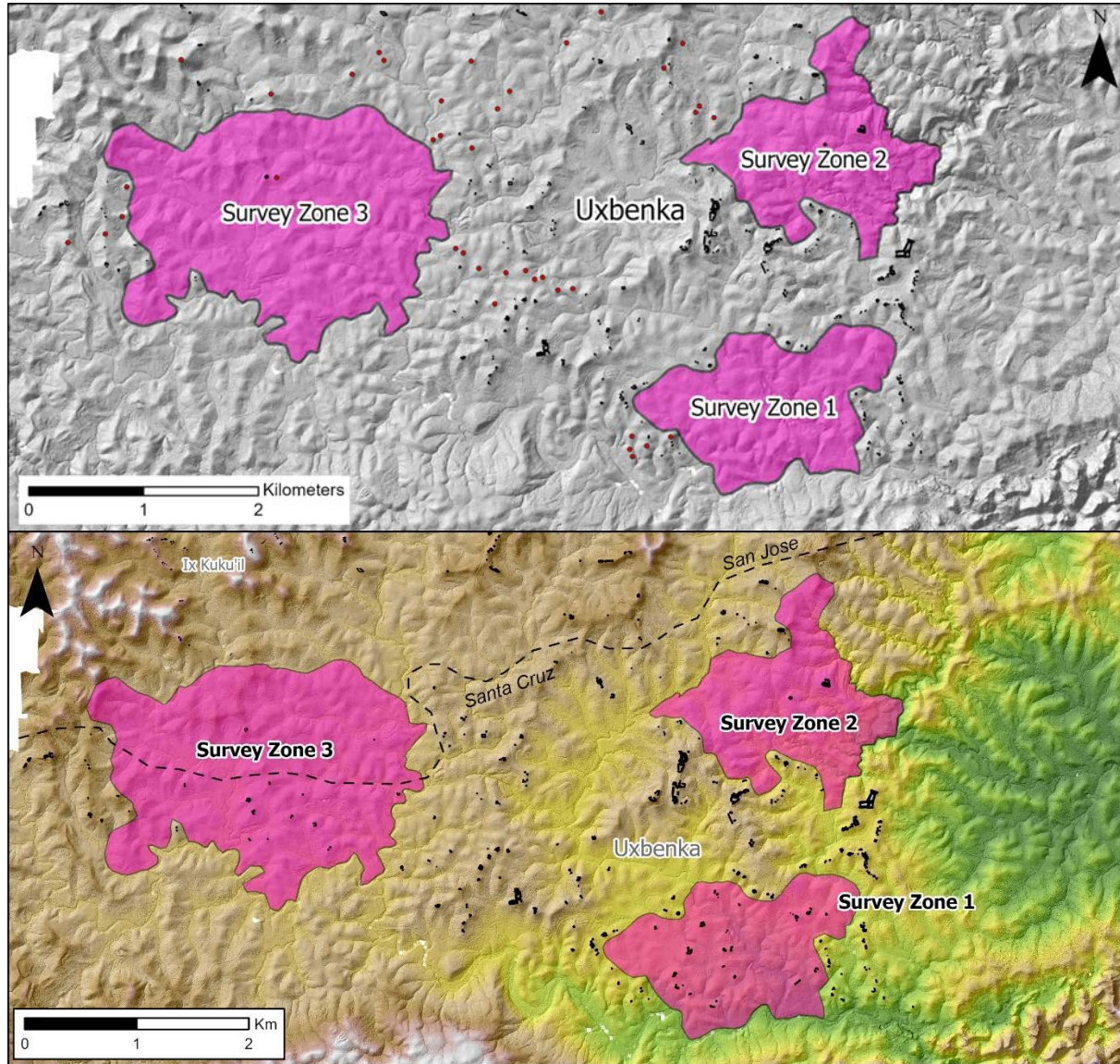


Figure 18. Survey zones from the 2023 UAP field season with digitized archaeological features before the 2023 field season (top) and after the 2023 field season (bottom). Surveyed areas focused on Zone 1 and the southern portion of Zone 3 on the lands of Santa Cruz Village. Maps by AE Thompson.

Thompson trained other team members in how to conduct archaeological pedestrian survey, adhering to the established UAP protocols. After several days, we split into two teams, one led by Thompson and the other led by Chris Ploetz with assistance from Heather Richards-Rissetto, Monica Warner, and Sanyam “Sam” Agrawal. Upon returning to The University of Texas at Austin, GPS points were downloaded from the GPS units and uploaded to ESRI’s ArcGIS Pro. Combined with the lidar data (see Pruffer et al. 2015; Pruffer and Thompson 2016; Thompson 2020), survey data was digitized in the Spatial and Environmental Archaeology (SEA) Lab at UT Austin.

Survey Findings

In total, we documented 41 plazuelas across the Uxbenka landscape (Figure 18). Additional plazuelas on nearby hilltops and ridges are visible in lidar data, and we will continue our survey for 1 week in 2024. Plazuelas ranged in size and complexity, from small plazuelas with only 1 structure that were located in the middle of long ridgeways (e.g., Plazuela 174) to plazuelas with six buildings situated around a central plaza with buildings of varying size and complexity (e.g., Plazuela 140). Below, we detail the findings from our survey. Plazuela descriptions are based on numeric ordering.

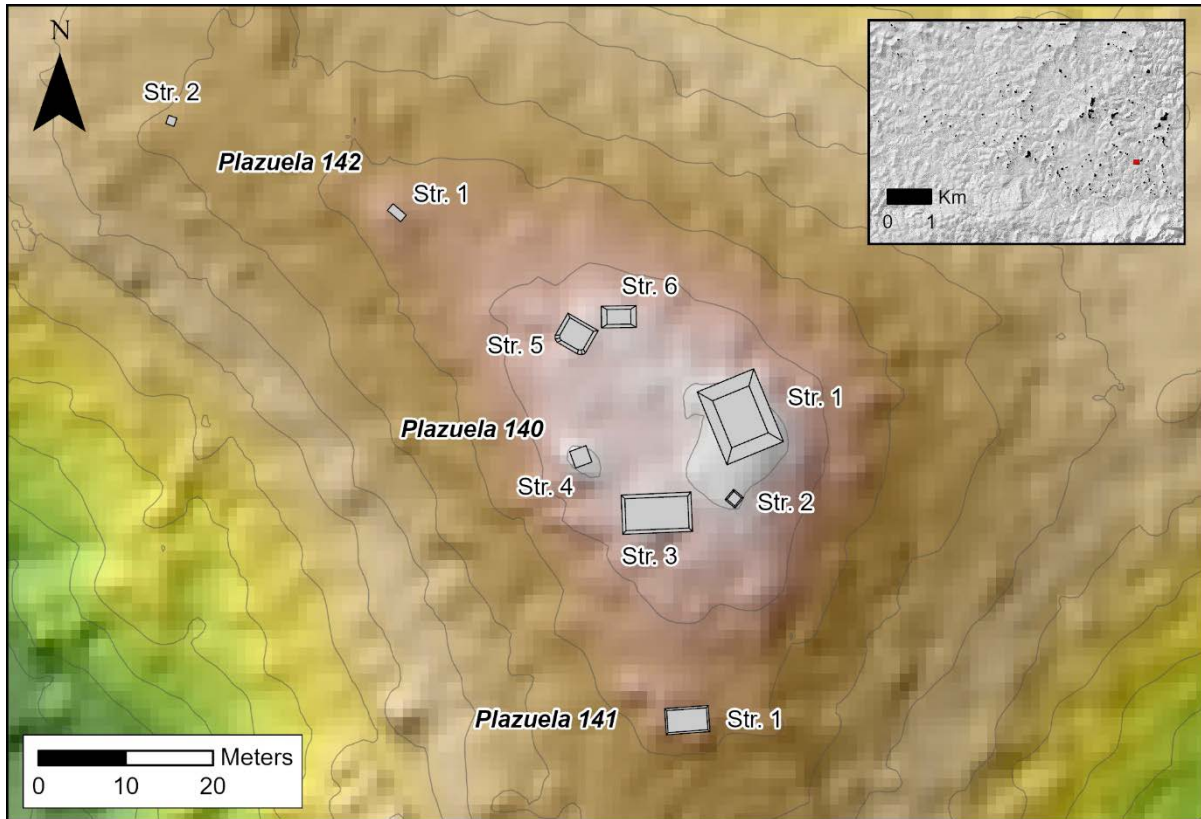


Figure 19. Plan view map of Plazuelas 140, 141, and 142. Map by AE Thompson.

Plazuela 140

Plazuela 140 is located 1.2 km southeast from Group A and is situated on an anthropogenically modified hilltop. The plazuela group consists of six structures situated around a shared central plaza (Figure 19). Downslope to the south and north of Plazuela 140 are Plazuelas 141 and 142, respectively (see below). Structure 1 is the largest building and is located on the eastern edge of the plaza. It is a rectilinear feature with a north-south orientation measuring 9m-x-7m with a height of 75cm above the plaza floor. Structure 2 sits between Structures 1 and 3 in the southeast corner of the plaza group. It is a smaller square structure approximately 1.5m-x-1.5m. Structure 3 is a long rectilinear building with an east west orientation located on the southern edge of the plaza. It measures 8m-x-4.5m and has 2 courses of stone visible on the surface. Structure 4 is a small, low platform that measures 2m-x-2m. Structures 5 and 6 are located adjacent to one another on the northern edge of the hill with a small space between the two buildings. Structure 5 appears to have rounded corners on its western side, a trend visible at nearby Lubaantun and Uxbentun (Hammond 1975; Joyce 1926; Thompson 2024). Structure 5 measures 3m-x-4m. Structure 6 measures 4m-x-2.5m. An abundance of artifacts were identified on the hilltop given that it was a milpa during survey. Artifacts included ceramics (91703) and lithics (91704). Lithics included chert debitage and cores. Ceramics included six rim sherds, and ceramic types included Chaaclum, Better than Puluacax, and historic (Jordan 2014) or potentially Coconut Walk Postclassic (Jordan, personal communication) sherds, alluding to a Late Classic occupation with potentially Early Classic occupation and either Postclassic occupation or re-occupation during the Historic period. This is not surprising given that Plazuela 140 is in the vicinity of the previously documented *alkilo* near SG 25.

Plazuela 141

Plazuela 141 is a small plaza group located directly south of Plazuela 140. It consists of a single low building, Structure 1, located on the edge of a natural bedrock outcrop (Figure 19). No artifacts were recovered from this group.

Plazuela 142

Plazuela 142 is located on a knoll extending north and at a lower elevation than Plazuela 140. It consists of two small structures (Figure 19). Structure 1 measures 1m-x-2m and is in the middle of the hill along a natural slope of bedrock. Further downslope to the north is Structure 2, which measures 1m-x-1m. A single ceramic sherd (91705) was collected from Plazuela 142 but it was too eroded for obtaining chronologic information. Given the proximity to Plazuela 140, it may have been outbuildings or extended kin of the Plazuela 140 occupants.

Plazuela 143

Plazuela 143 is located on the adjacent hill to the northeast of Plazuela 140. It is 1.2 km southeast of Group A. This plazuela group consists of six structures of varying sizes (Figure 20). The largest structure on the hilltop is Structure 1 which is a complex tiered building. At its base, it measures 11m-x-8m. The taller portion of the building on the east measures 6m-x-8m and the western wing measures 5m-x-5.5m. To the east of Structure 1 is Structure 2, which has an angled orientation and measures 3m-x-2m and is a single coursing of stone about 25cm high. Structure 3 is a tiered building measuring 7m-x-7m at its

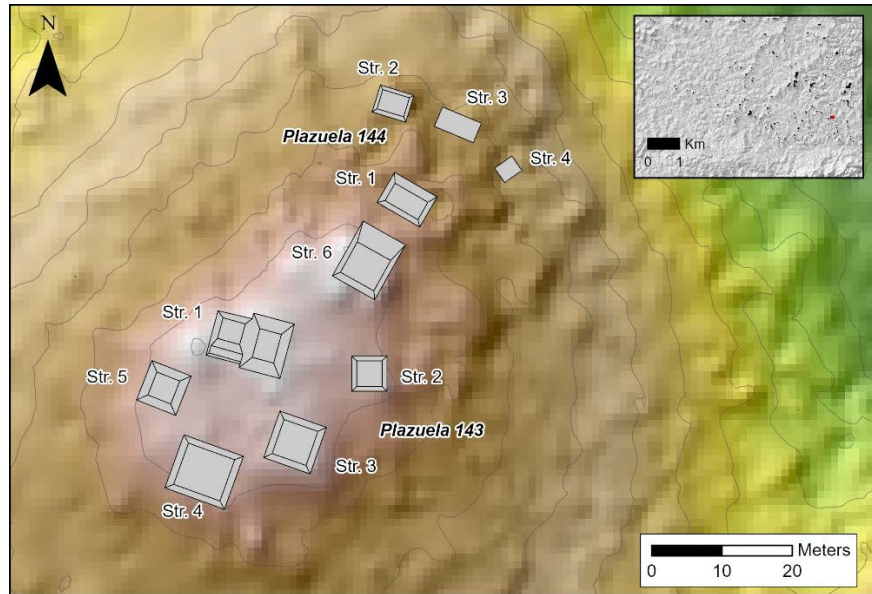


Figure 20. Plan view map of Plazuelas 143 and 144. Map by AE Thompson.

foundation and has a large looter pit in the center of it. On the southern edge of the hill is Structure 4, which is a large platform measuring 8m-x-9m. Linear rocks are clearly visible on the surface. Structure 5 is the final building around the central plaza, which measures 6m-x-6m. The building has a large looters pit in it where the looters removed rocks and soil, excavating well into bedrock (Figure 21). Human remains (91712) were identified on the surface along the northern edge of Structure 5, which may indicate that the looters hit a burial feature, tossing the bones to the side. Structure 6, which is 10m-x-5m, is located on the northern side of Structures 1 and 2, and acts as an entryway into Plazuela 144, which is on a flattened lower platform to the north of Plazuela 143. This plazuela was a milpa during the 2023 survey. In addition to large architectural features, an abundance of artifacts were identified on the surface including ceramics (91706), lithics (91707), a serpentine celt (91708), a small ceramic whistle (91709, Figure 22), a mano fragment (91710), slate (91711), a metate fragment (91714), a hammerstone (91758), and two obsidian blades (91716). Ceramics included one unit-stamped Remate sherd with an animal motif, an incised sherd, a sherd with double incised triangle appliques, four basal sherds, Puluacax sherds, and a Turneffe sherd. A variety of sizes and shapes of bowls and jars were present as well as one potential plate sherd. The ceramic types indicate a Late to Terminal Classic occupation (600- 900 CE). The variety of ceramic and artifact types, including non-local items such as slate and serpentine, as well as larger architecture allude to the higher socioeconomic status of the Plazuela 143 occupants.

Plazuela 144

Plazuela 144 is attached to Plazuela 143 but is spatially separated from 143 by elevation, wherein Plazuela 144 is at an elevation of approximately 213masl while Plazuela 143 is 216masl. The plazuela group consists of four buildings situated around a central plaza (Figure 20). Structure 1 is connected to Plazuela 143 Structure 6, acting as an entryway in the upper plazuela group. It measures 7m-x-5m. Structures 2 and 3 are located on the northern edge of group and both are small, low buildings. Structure 2 is 4m-x-5m and Structure 3 is 6m-x-3m. There is a small 2m space between



Figure 21. Looters pit and exposed bedrock of Plazuela 143 Structure 5. Note the construction blocks on the surface above the pit. Photo by AE Thompson.



Figure 22. Small ceramic whistle (Lot number 91709). Photo by AE Thompson.

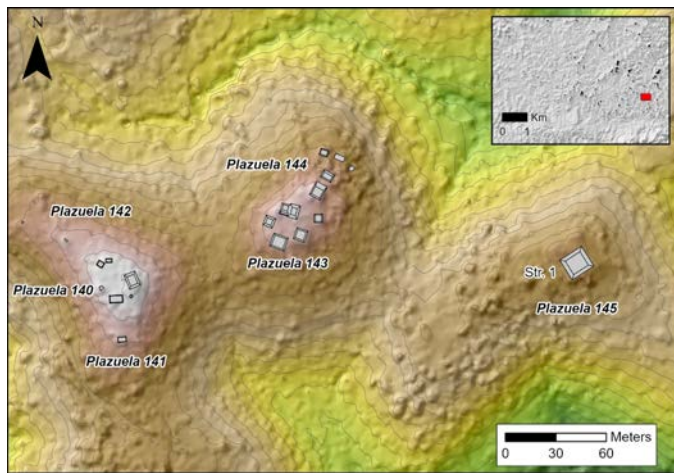


Figure 23. Plan view map of Plazuela 145 and nearby Plazuelas 140-144. Map by AE Thompson.

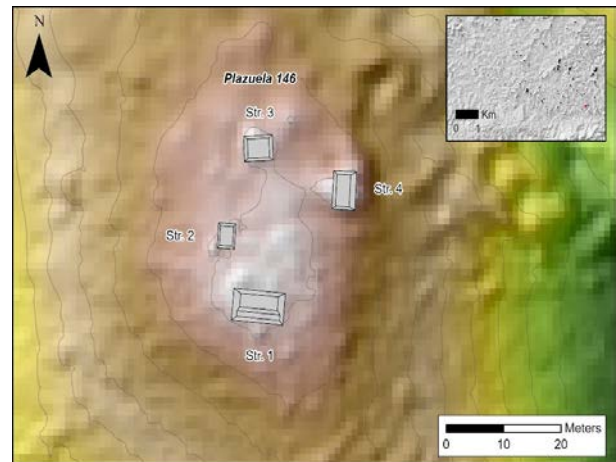


Figure 24. Plan view map of Plazuela 146. Map by AE Thompson.

the buildings, which likely acted as a formal entrance into the group as well as Plazuela 143. Structure 4 is a small platform on the eastern edge of the hill that measures 2.5m-x-3m. Ceramics (91713) found on the surface were eroded but were potentially Remate bowls, indicating a Late Classic occupation.

Plazuela 145

Plazuela 145 is located 1.32 km southeast of Group A. It is situated upon a flat hilltop with one 15m-x-20m building that has been looted (Figure 23). The hilltop is covered in what appears to be natural bedrock that resembles pavers. Ceramics (91715) recovered from inside the looters pit included one large rim fragment from a Remate Red bowl indicating a Late Classic occupation.

Plazuela 146

Plazuela 146 is located 1.7 km to the southeast of Group A. It is a flat hill with four building platforms situated around a central plaza (Figure 24). Structure 1 is a large building measuring up to 2m high and is located on the southern edge of the plazuela group. It is a tiered building that measures 9m-x-7m. Structure 2 is located along the western edge and measures 3m-x-4m. Structure 3 is on the northern side of the hilltop and measures 5m-x-4m. Structure 4 measures 3m-x-6m and forms the eastern side of the plazuela group. The plazuela had several broken ceramic sherds (91717) on the surface including sherds from a Late Classic Remate Red bowl and Postclassic or Historic bowl.

Plazuela 147

Plazuela 147 is located 1.74 km southeast of Group A on an elongated northeast-southwest oriented hill with no clear central plaza. The three structures are aligned in a linear fashion on the hilltop with the largest structure (Structure 1) situated at the northernmost edge of the hilltop (Figure 25). Structure 1 measures 12m-x-6m and is a tiered building with a smaller lower platform descending from the top of Structure 1 down toward Structures 2 and 3. Structures 2 and 3 are similar in size, measuring 5m-x-6m and 5m-x-6m, respectively. A *cuxlin ha* (natural spring) is located to the east at the bottom of the hill. No artifacts were documented at this plazuela during the survey.

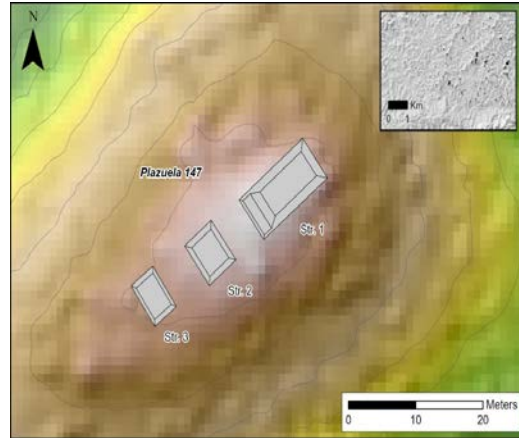


Figure 25. Plan view map of Plazuela 147. Map by AE Thompson.

Remapping of SG 63

Settlement Group 63 (see Thompson, Mustain, et al. 2013:171–172) was revisited during the 2023 field season as TB4 (Target B4). It is located 1.36 km southwest of Group A on a small, modified hilltop. The plazuela consists of four

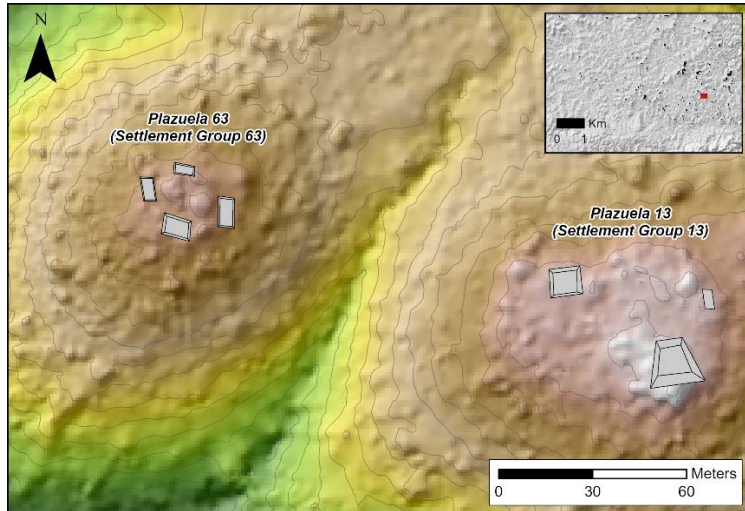


Figure 26. Plan view map of Plazuela 63, originally mapped in 2011. Map by AE Thompson.

small buildings around a central plaza (Figure 26). Structure 1 is a square building measuring 4m-x-4m which has been heavily looted in the center. Structures 2 and 3 are small structures built on a shared basal platform measuring 10 meters in length connecting the two with a north-south orientation. Structure 4 is located between the other structures and measures 6m-x-4m. Artifacts recovered during the survey included ceramics (91719), lithics (91720), and a metate fragment (91721). Ceramics included one tripod foot, one Chacluum sherd, two Remate Red bowl sherds, three Turneffe jar sherds, and one basal sherd. The Chacluum, Remate, and Turneffe sherds all indicate a Late Classic occupation.

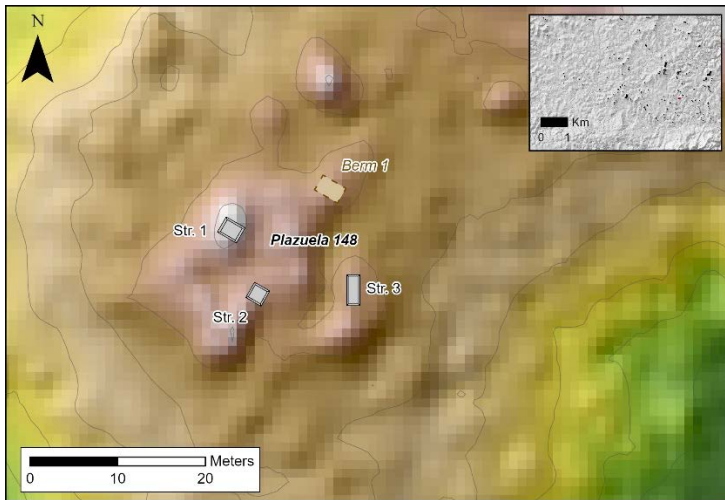


Figure 27. Plan view map of Plazuela 148. Map by AE Thompson.

Plazuela 148

Plazuela 148 is located 1.36 km southwest of Group A on a small, modified hilltop. The plazuela consists of three small buildings (Figure 27). This was mapped as T5 (Target 5) in Thompson's notebook and designated with a plazuela number during digitization. A modern footpath traverses across the hilltop. Structure 1 is located along the western side of the hill. It is a small building measuring 2m-x-2.5m, with rocks visible on the surface. Structure 2 is located on the southern side of the plazuela and measures 2m-x-2m. Two courses of stone are visible on the surface from the edge of the hill, but the plaza side of the structure is quite low, less than 10cm above the plaza surface. On the other side of the modern footpath along the eastern side of the hill is

Structure 3, which measures 3.5m-x-1.5m. It is also a small, low mound, with an estimated height of 10cm above the plaza surface. A berm was noted along the northern side of the plaza, but no rocks were visible so it was not mapped as a structure. The hill was very bushy during the survey and therefore, no artifacts were recovered.

Plazuela 149

Plazuela 149 is a large, modified hilltop located 1.66 km southwest of Group A. The hilltop consists of seven structures with a loosely defined central plaza (Figure 28). The largest structure, Structure 1, is positioned as the northern-most structure on the hilltop. It is 8m-x-6m and has three large looter pits in it. No artifacts were observed within the looters pit. Structure 2 is located along the western side of the hilltop and is a small platform, measuring 3m-x-2m. Structure 3 has a looters pit in it and measures 6m-x-5m while Structure 4 measures 5m-x-4m. Structure 5 is located on the eastern side of the group, measuring 4m-x-3m. Structures 6 and 7 are located to the north of Structure 5 and the east of Structures 1 and 2. Structure 6 is 4m-x-3m and Structure 7 is 5m-x-3m. No artifacts were documented at this plazuela during the survey.

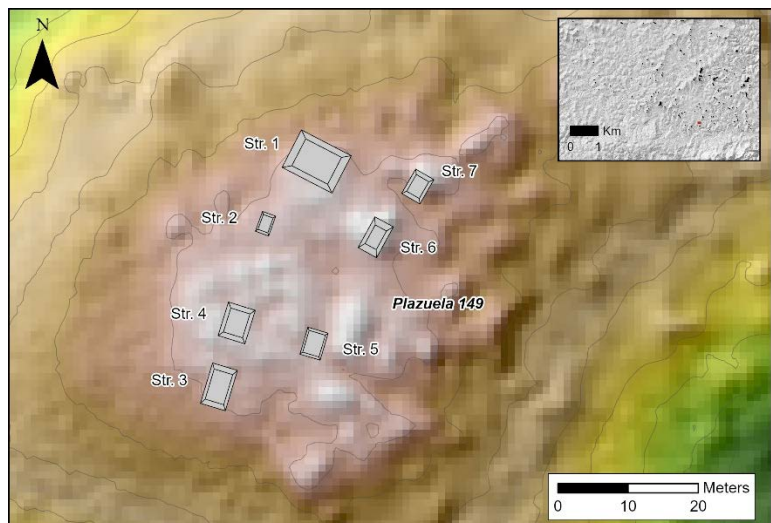


Figure 28. Plan view map of Plazuela 149. Map by AE Thompson.

Plazuela 150

Plazuela 150 is a large, modified hill located 1.42 km southwest of Group A. This plazuela consists of seven buildings of varying sizes situated around a central plaza, with the exception of Structure 7, which is located at a lower elevation on a flanking plaza to the north (Figure 29). The central structure of the group is Structure 6, which has a central staircase on the eastern side entering into central plaza. Structure 6 measures 7.5m-x-11m with a 4m wide staircase

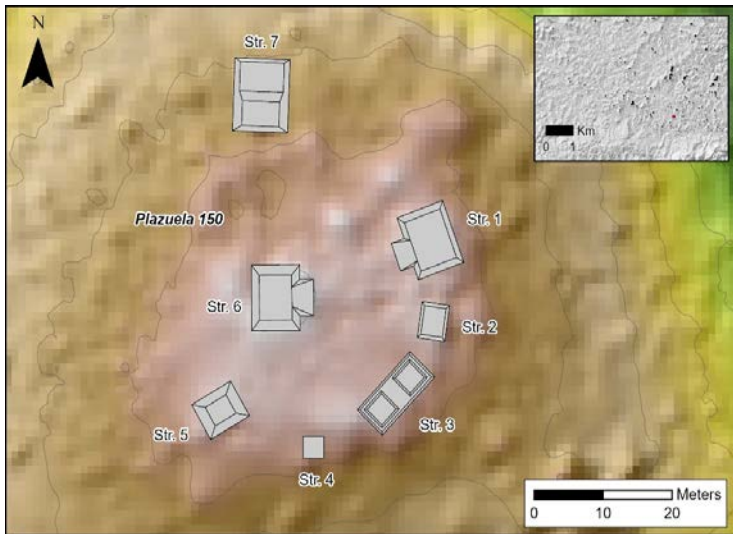


Figure 29. Plan view map of Plazuela 150. Map by AE

approximately 10m-x-9m. Artifacts recovered during the survey included ceramics (91725), an obsidian blade (91757), and bone fragments (91725). Ceramics included an orange on cream polychrome which may date to the Early Classic as well as a Late Classic Remate Red sherd.

Plazuela 151

Plazuela 151 is located 1.16 km southwest of Group A and is situated on a small hilltop. It consists of five structures of varying size around a central plaza (Figure 30). The largest of the structures is Structure 5, located on the southern edge of the plaza. It is a tiered building with a long low platform extending east-west and a small higher extension to the north. Structure 1 is located along the western side of the plaza and measures 7m-x-10m; it is approximately 2m high and has looters pits. Structure 2 is a small platform measuring 2m-x-3m. Structures 3 and 4 are located along the eastern side of the group and measure 6m-x-5m and 8m-x-6m, respectively. Artifacts recovered during the survey included ceramics (91722) and lithics (91723). Ceramics included one basal sherd, one Late Classic Remate Red rim, and a Late Classic Turneffe rim.

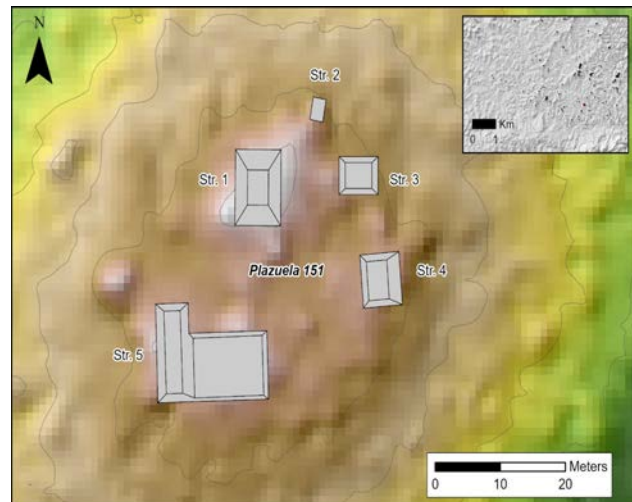


Figure 30. Plan view map of Plazuela 151. Map by AE Thompson.

Plazuela 152

Plazuela 152 consists of two large buildings located just west of a modern footpath (Figure 31). Structure 1 is on the northern edge of the hill while Structure 2 is on the southern edge of the hill; there is a central plaza between the two buildings. Structure 1 measures 11m-x-8m and there is a large looters pit in the center of the building. Structure 2 also contained a looters pit which exposed a small tomb. The base of the building measured 14m-x-12m. Three coursings of stone were visible in the tomb, which had a north south orientation and measured 1.5m-x-0.5m. Thin capstones were discarded on the southern side of the looted tomb. Artifacts recovered included obsidian (91726) and lithics (91727).

Plazuela 153

Plazuela 153 consists of two small buildings located on the edge of a flattened area between two hilltops (Figure 31). Structure 1 is 2m-x-2m while Structure 2, located to the north of Structure 1, is 3m-x-4m. Both buildings are low, with 1 coursing of stone visible for Structure 1, making it less than 25cm tall; and Structure 2 measuring 50cm from the plaza surface. Artifacts recovered included a Late Classic Remate Red ceramic sherd (91740)

Plazuela 154

Plazuela 154 consists of two buildings 60m east of Plazuela 152 (Figure 31). Structure 1 is the larger building while Structure 2 is smaller, measuring 8m-x-4m. No artifacts were documented at this plazuela during the survey.

Plazuela 155

Plazuela 155 is located 1.8 km south of Group A on the knolls overlooking the Rio Blanco. It consists of a single solitary structure, Structure 1, on a small hilltop (Figure 32) with vegetation regrowth in the form of small ferns. Structure 1 measures 6m-x-5m with a looters pit or tree fall depression in the center of it. The south edge of the slope is covered by burned milpa and there were no artifacts observed on the surface. It is located west of a stream at a much higher elevation atop an anthropogenically modified hill. No artifacts were observed due to heavy leaf litter.

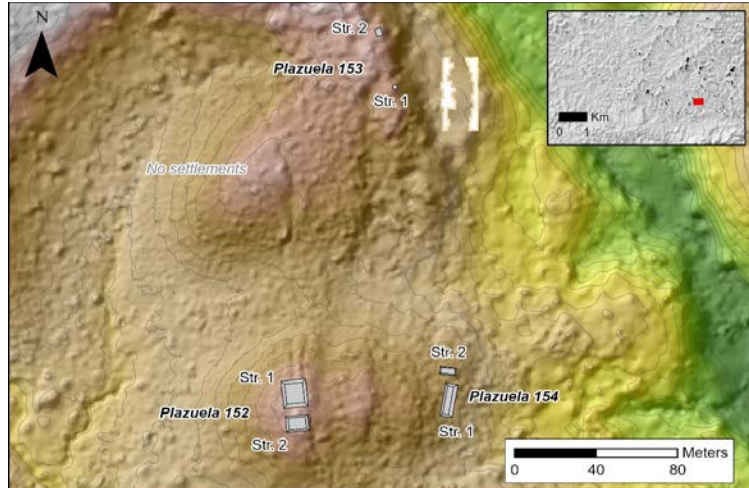


Figure 31. Plan view map of Plazuelas 152, 153, and 154. Map by AE Thompson.

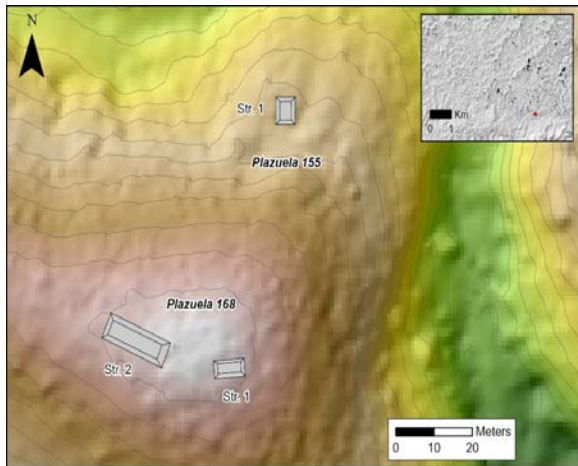


Figure 32. Plan view map of Plazuelas 155 and Plazuela 168. Map by AE Thompson.

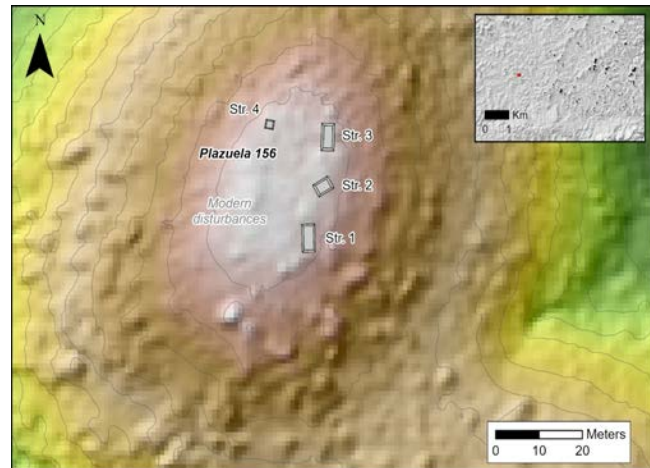


Figure 33. Plan view map of Plazuela 156. Map by AE Thompson.

Plazuela 156

Plazuela 156 is located 3.77 km west of Group A on top of a small ridge with a small foot path running NE-SW bisecting the old plaza. Evidence of bulldozing was present on the western portion of the hilltop. The plazuela is comprised of four structures situated around a central plaza (Figure 33). Structure 1 is located at the southern edge of the plazuela possessing an elongated shape measuring 6m-x-3m. Structure 2 is on the southeastern edge of the plaza and is slightly askew from Structure 1. It measures 4m-x-3m. Structure 3 is located at the northeastern side of the group and also measures 4m-x-3m. Structure 4 is the smallest building and is located on the northwestern edge of the plaza; it measures 2m-x-2m. No artifacts were observed at Plazuela 156.

Plazuela 157

Plazuela 157 is located 3.65 km west of Group A. The group is composed of two structures on opposite ends of a small ridge (Figure 34). Structure 1 is the larger of the buildings and is on the northern edge; it measures 7m-x-5m. Structure 2 is 4m-x-4m and is located on the southwestern side of the plazuela. Due to dense jungle foliage and ground cover, no artifacts were observed at Plazuela 157.

Plazuela 158

Plazuela 158 is 3.34 km west of Group A on an active milpa hilltop. While there were no identifiable structures on the surface there were many artifacts including ceramics (91728) and lithics (91729). Ceramic artifacts included one ring base sherd, one dish and three bowl fragments, two Remate Red sherds and one sherd with a deeply incised rim. The Remate Red sherd indicates a Late Classic occupation.

Plazuela 159

Plazuela 159 is 3.45 km west of Group A and like Plazuela 158 it was actively being used for milpa. Likewise, it had no discernible structures that were identifiable by the survey team. Artifacts on the surface included ceramics (91730) and lithics (91731) alluding to ancient Maya occupations. A single Puluacax rim suggests a Late Classic occupation.

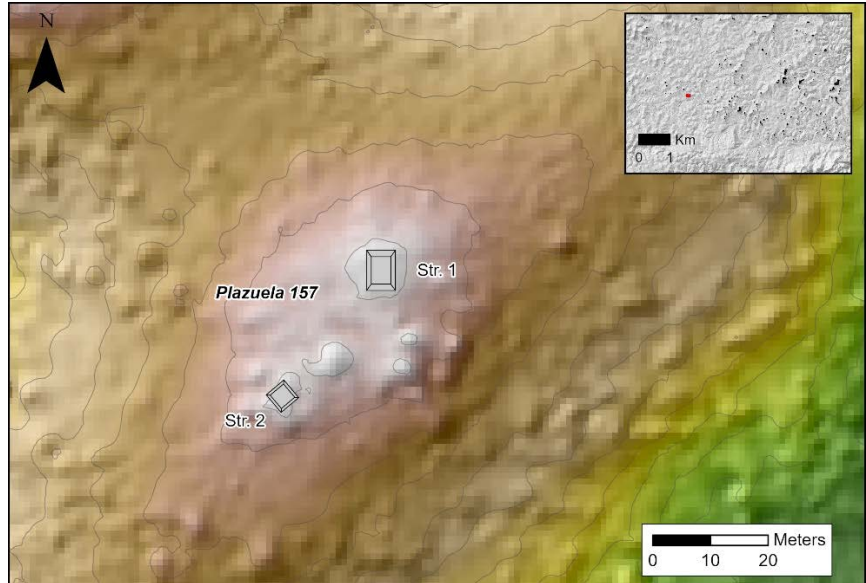


Figure 34. Plan view map of Plazuela 157. Map by AE Thompson.

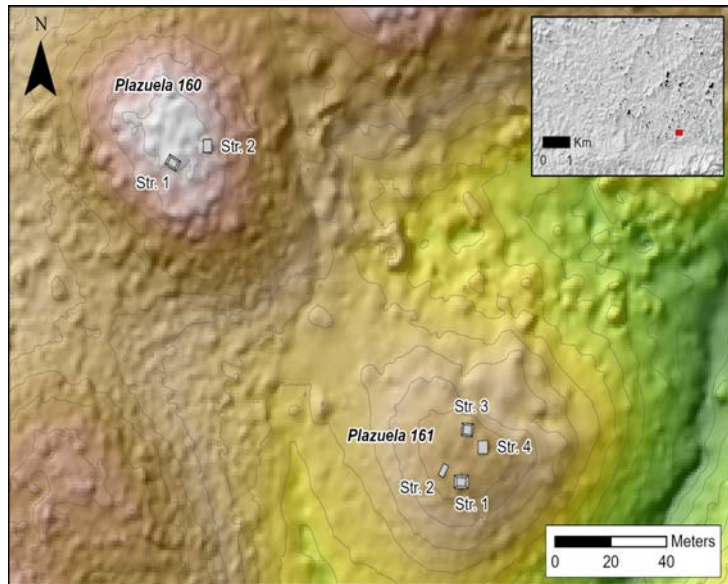


Figure 35. Plan view map of Plazuelas 160 and 161. Map by AE Thompson.

northwest of Structure 1. It, along with Structure 4, are both less than 25cm tall from the plaza surface. Structure 3 is located on the northern edge of the plaza and is 50cm tall, measuring 4m-x-4m. Structure 4 is on the eastern side of the household and is 4m-x-3.5m. Non-diagnostic ceramic body sherds were identified on the surface but not collected, although the paste is dark red and similar in color to Remate Red.

Plazuela 160

Plazuela 160 is located 1.45 km south of Group A. The group is composed of two structures on a small knoll (Figure 35). Structure 1 is the larger of the buildings, measuring 4.5m-x-3.5m. It is approximately 25cm high on the plaza side of the building and 50cm high on the edge of the hill. Structure 2 is 4m-x-3m in size and 25cm high; it is located on the eastern side of the plazuela. Non-diagnostic ceramic body sherds were identified on the surface but not collected.

Plazuela 161

Plazuela 161 is located 1.55 km south of Group A. This plazuela consists of four buildings situated around a central plaza (Figure 35). Located on the southern side of the hilltop, Structure 1 is the largest building and is 1m tall; it measures 4.5m-x-5m. Even in the dense foliage, the house mound platform is visible (Figure 36). Structure 2 is a small platform measuring 1.5m-x-4m and is located to the



Figure 36. Digitized house mound of Plazuela 161 Structure 1 on a photo. Notice the dense foliage and ground cover but clearly visible mound. Photo by AE Thompson.

Plazuela 162

Plazuela 162 is 1.73 km south of Group A. The group is composed of two structures on a small knoll with bedrock outcrops, southwest of Plazuela 163 but separated by a small ravine (Figure 37). Structure 1 is on the eastern side and measures 7m-x-4.5m while Structure 2 is on the southern edge of the plaza and measures 4m-x-3m. Both platforms are less than 50cm tall while standing the plaza but Structure 1 extends down slope, potentially acting as a stairway to enter into the small house group. Due to dense jungle foliage and ground cover, no artifacts were observed at Plazuela 162.

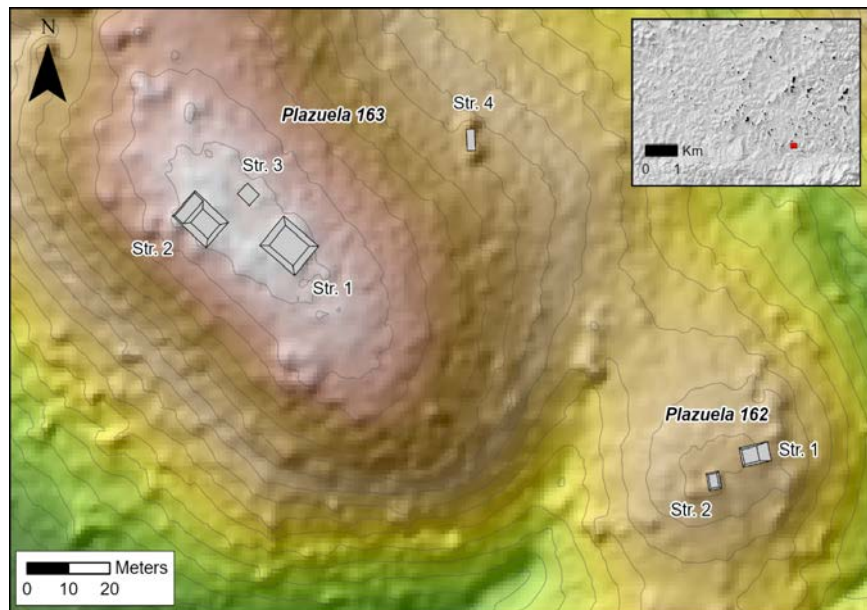


Figure 37. Plan view map of Plazuelas 162 and 163. Map by AE Thompson.

Plazuela 163

Plazuela 160 is located 1.70 km south of Group A. This plazuela consists of three buildings situated around a central plaza and a fourth building on the flank of the hill (Figure 37). Located in the center of the upper platform of the hilltop, Structure 1 is the largest building measuring 11m-x-9m and 1.5m high. It is situated along an area that has an abundance of natural bedrock outcrop that is incorporated into the building platform. Structure 2 is located along the southwestern edge of the hill and it is a tiered building. The basal platform measures 11m-x-8m with the upper platform measuring 6m and the lower platform measuring 4m. Structure 3 is a small building with 2 coursing of stone visible on the surface and is less than 25cm high. It measures 4m-x-3.5m. Slightly downslope to the southeast of Structures 1-3 is Structure 4, which measures 5m-x-2m.

Plazuela 164

Plazuela 164 is composed of three buildings situated on a hilltop 3.04 km west of Group A (Figure 38). All structures were low platforms. Structure 1 was less than 25cm tall and measured 13m-x-3.5m. Structure 2 is a complex L-shaped building measuring 9m-x-7m with the L portion consisting of 4m-x-4.5m. Structure 3 is located on the southern edge of the hilltop and is 3m-x-6m. The buildings are mostly berms with only a few stones visible on the surface. Half of the hilltop was a milpa and half the hilltop was bushy; Artifacts on the surface in the milpa included ceramics (91741), lithics (91742), and ground stone (91743). Ceramics included a basal fragment, an Early Classic Better than Puluacax sherd, two Late Classic Remate Red bowl fragments, and two Postclassic Coconut Walk or Historic sherds.

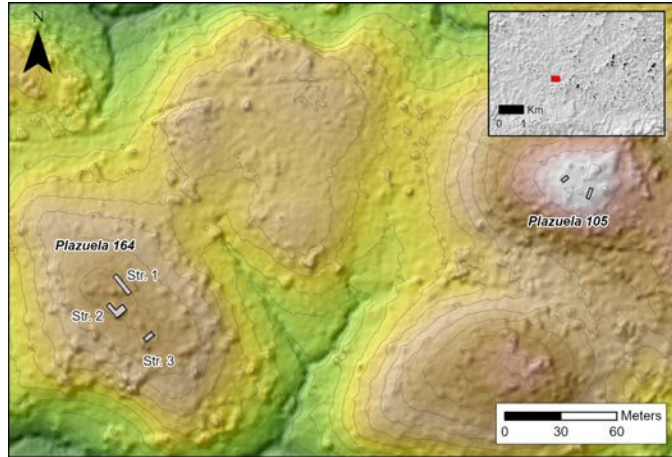


Figure 38. Plan view map of Plazuela 164. Map by AE Thompson.

Plazuela 165

Plazuela 165 is composed of three buildings situated on a very bushy hilltop, which obscured visibility. Plazuela 165 is 3.00 km west of Group A (Figure 39) along a tributary creek that feeds into the Yax Ha river. All structures were low platforms. Structure 1, located on the southern side of the plaza, has 2 courses of stone visible and measured 6m-x-3. m. Structure 2 is on the western side of the group and is a complex platform with a basal structure and two smaller platforms on top. The basal structure measures 3m-x-8.5m. The southern platform on top of the basal structure measures 4m long and the norther platform is 2m long. Structure 3 is 3.5m-x-3.5m and is on the eastern side

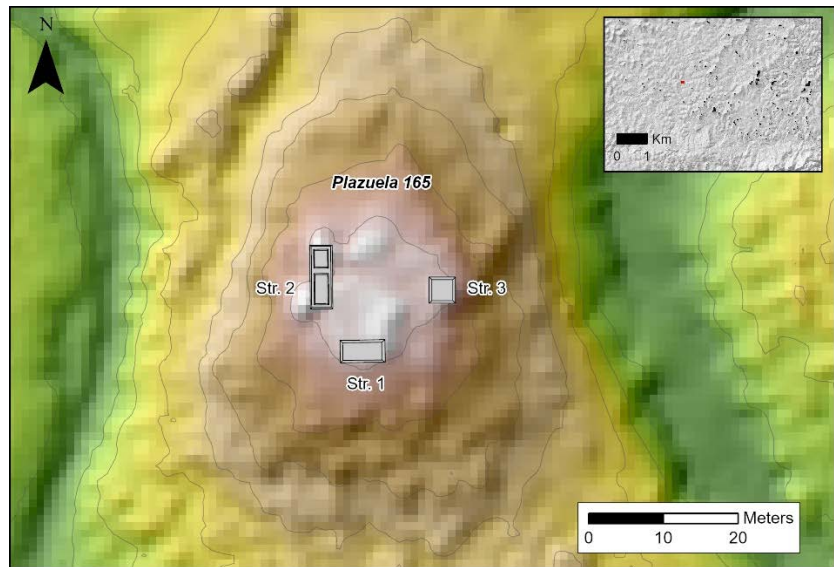


Figure 39. Plan view map of Plazuela 165. Map by AE Thompson.

of the group. While the building is low on the plaza side, the hill steeply drops off the backside of Structure 3. Due to dense jungle foliage and ground cover, no artifacts were observed at Plazuela 165.

Plazuela 166

Plazuela 162 is 4.91 km west of Group A and was a milpa during our 2023 survey. The group is composed of two structures on a small hilltop (Figure 40). Structure 1 is in the center of the hill and measures 3.5m-x-6m. Structure 2

is located on the western edge of the hilltop and measures 4m-x-5m. Both structures were low mounds, less than 25cm tall consisting of berms with no stones visible on the surface. Ceramics, a metate fragment, and lithics were identified but not collected. The ceramic was a bowl rim sherd with two incised lines along the rim and is similar in appearance and form to Remate Red.

Plazuela 167

Plazuela 166 and 167 are in an area where several seemingly modified hills lacked visible architecture on the surface or the architecture was particularly small, less than 25cm high from the plaza surface (Figure 40). The hilltop of Plazuela 167 was covered in low *pepito* (pumpkin) plants, making it difficult to see or measure archaeological features without stepping on pumpkin flowers and ruining the farmer's crop. As such, two structures were noted on this hilltop but not formally mapped.

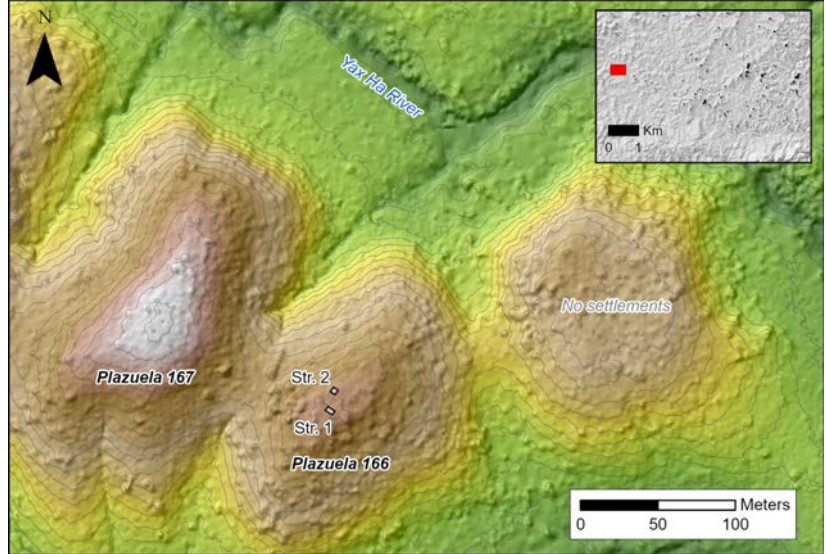


Figure 40. Plan view map of Plazuela 166, location of Plazuela 167, and other hilltops that were modified but no archaeological features were identified. Map by AE Thompson.

Plazuela 168

Plazuela 168 is a small plazuela located 1.87 km south of Group A. It is comprised of two structures and is located uphill from Plazuela 155 (see Figure 32). Structure 1, which measures 8m-x-4m, is located to the east of Structure 2, which measures 17m-x-6m. Due to dense jungle foliage and ground cover, no artifacts were observed at Plazuela 168.

Remapping of SG 18

Plazuela 169 is located 0.64 km south of Group A and was previously mapped as SG 18 (see Kalosky et al. 2012:74). It is perched atop a large anthropogenically modified hill with three structures. The largest of the three structures is

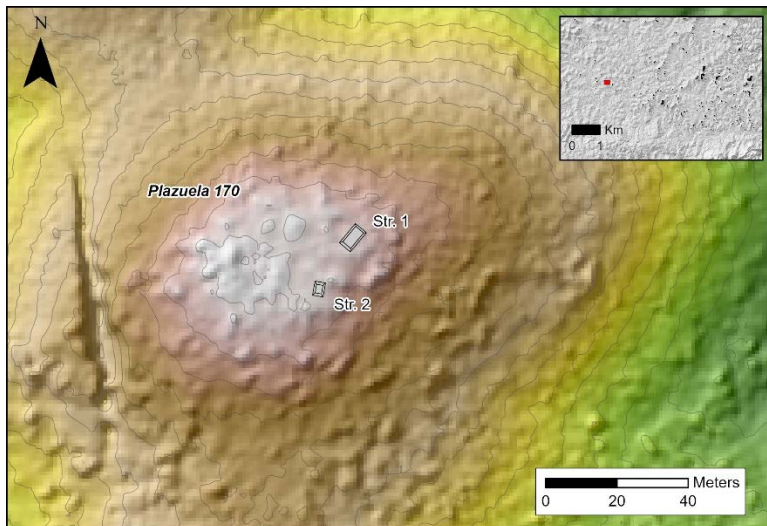


Figure 41. Plan view map of Plazuelas 170. Map by AE Thompson.

Structure 1 located in the southeastern corner of the plaza and measures 25m-x-15m. Two smaller buildings are located on the northwestern corner of the plazuela. Plazuela 169 is on the same hill formation as Plazuela 179, which is on a lower elevation platform to the southeast.

Plazuela 170

Plazuela 170 is a large hilltop that had mixed vegetation including ferns, low shrubs, and wild bananas during the 2023 survey. It is located 3.94 km west of Group A and contained two structures (Figure 37). The two structures on this hilltop are both oriented along a northeast-southwest orientation. Structure 1 is 7m-x-4m and Structure 2 is 4m-x-3m.

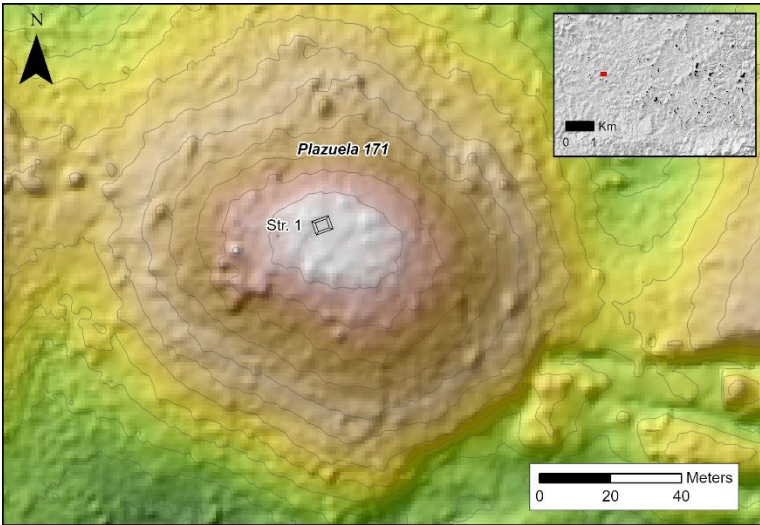


Figure 42. Plan view map of Plazuela 171. Map by AE Thompson.

Plazuela 171

Plazuela 171 is 3.85 km west of Group A and consists of one small structure (Figure 42). Structure 1 is located on the north side of the hill measuring 5m-x-5m. There were no surface finds at this location.

Plazuela 172

Plazuela 172 is 4.35 km west of Group A. The modified hilltop contains four buildings situated around a central plaza (Figure 43). Structure 1 is a large platform located on the northwestern side of the plaza; it measures 15m-x-6m at the base and 10m-x-3m at the top. Structure 2 is located on the northeastern side of the plaza and is 8m-x-8m with the top measuring 7m-x-5m; there is a looters pit in the southern portion of the building. Structure 3 is an L-shaped platform with a looters pit in the center. It measures 12m-x-7m with a low 8m wide platform extending an additional 2m to the northwest. Structure 4 is a square structure located on the western edge of the plazuela measuring 7m-x-7m. No artifacts were recovered.

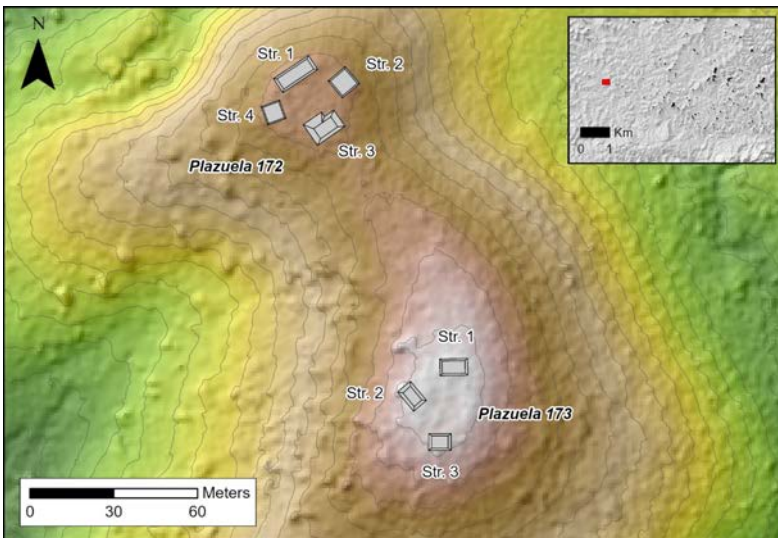


Figure 43. Plan view map of Plazuelas 172 and 173. Map by AE Thompson.

Plazuela 173

Plazuela 173 is 4.3 km west of Group A on a hill south of Plazuela 172. Plazuela 173 is composed of three visible structures identified by the survey team (Figure 43). There was likely a 4th structure on the eastern side that was destroyed by bulldozing activity that occurred 15 years ago; the bulldozing also partially destroyed Structures 2 and 3. The structures are situated around a

distinct plaza area. Structure 1 is on the northern side of the plaza and measures 10m-x-6m. Structure 2 is 9m-x-6m. Structure 3 lies at the southern edge of the plazuela but was partially destroyed, although enough of it remained to make assumptions on its dimensions. It likely measured 8m-x-6m. Ceramic (91733) artifacts were recovered, which allude to a Late Classic occupation based on a Turneffe jar rim and Remate Red body sherd.

Plazuela 174

Plazuela 174 is 4.2 km west of Group A on a recently burnt milpa. Due to the lack of any surface vegetation save for the small seedlings of corn and squash that had just started to sprout, artifacts were visible on the surface. A single structure, Structure 1, is located at the northern end of the hill measuring 4m-x-3m (Figure 44). A second possible structure toward the southern edge of the hilltop was noted but not recorded due to the dense vegetation that made it difficult to decipher whether it was bedrock outcrop, which was abundant on the hill edges and hilltop, or a small platform. Artifacts recovered included ceramics (91734) and lithics (91735). Ceramics included two Better than Puluacax body sherds and one rim.

Plazuela 175

Plazuela 175 is 4.35 km west of Group A. Like Plazuela 174, the hill was under milpa cultivation, which afforded the survey team a high degree of visibility. Plazuela 175 is composed of two small structures (Figure 44). Structure 1 located to the north measures 4m-x-4m while Structure 2 is located to the south and measures 5m-x-3m. Plazuela 175 is on a finger ridge extending north off a modified hilltop, which was not visited due to time constraints and extreme heat. Artifacts recovered included ceramics (91736) and lithics (91737). Ceramics included a Late Classic Remate Red neck and body sherd as well as potential Postclassic Coconut Walk or Historic sherds.

Plazuela 176

Plazuela 176 is 4.14 km west of Group A located on the highest hill central to several other rolling hills. The hilltop is visibly modified based on the lidar data. Two small structures each less than 25cm high were identified on the hilltop (Figure 45). Structure 1 is located on the southern edge of the hill and measures 4m-x-4m, and Structure 2 is 4m-x-3m. Dense foliage resulted in low visibility, but despite the lack of ground visibility ceramics (91738) and lithics (91739) were recovered near Structure 1. Ceramics were non-diagnostic.

Plazuela 177

Plazuela 177 is situated 0.85 km southwest of Group A on a hilltop near the village. Due to the proximity to the village, the area had a lot of soil disturbance due to recent pig activity. This was mapped as T2 (Target 2) in Thompson's notebook and designated with a plazuela number during digitization. The plazuela has an elongated northwest-southeast orientation with five buildings around a central plaza (Figure 46). Three of the buildings were constructed with stones and the other two were berms. Structures 1 and 2 are 25cm tall from the floor of the plaza and measure 5.5m-x-6m and 6.5m-x-7m, respectively. From downhill, the structures appear more grandiose, with hillslope lining extending 1.5m creating the "southern Belize Hollywood style façade" (Leventhal 1990, 1992). Structure 3 is a tiered building measuring 11m-x-7m at the base. The upper platform is 4m-x-3m and the lower platform is 1.5m-x-3m. The building is 1m high from the plaza floor. The two remaining structures, which had no visible stones nor well defined edges were mapped as Berms 1 and 2. Berm 1 is approximately 4m-x-3m and Berm 2 is 2.5m-x-4m. A nondiagnostic ceramic body sherd (91700) was collected on top of Berm 2.

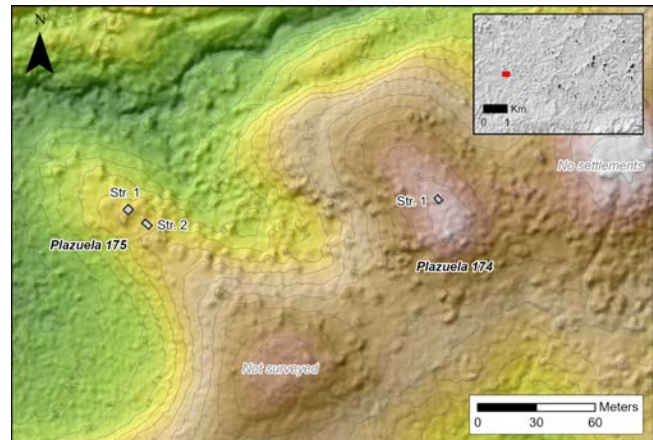


Figure 44. Plan view map of Plazuelas 174 and 175. Map by AE Thompson.

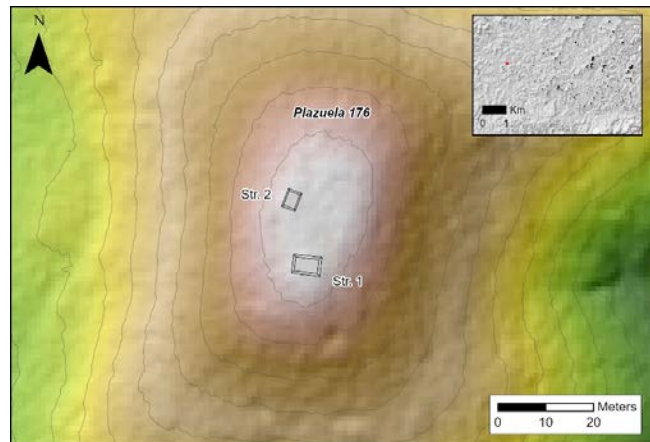


Figure 45. Plan view map of Plazuela 176. Map by AE Thompson.

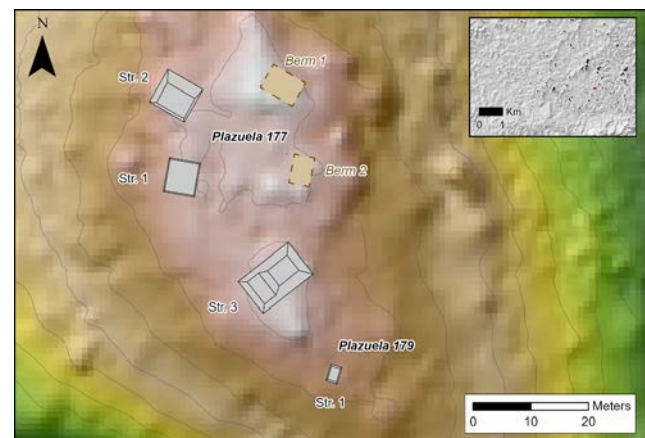


Figure 46. Plan view map of Plazuelas 177 and 179. Map by AE Thompson.

Plazuela 178

Plazuela 178 is 0.7 km south of Group A and situated atop a small hill. It consists of three small buildings to the southeast of the large structure located at Plazuela 169 / Settlement Group 18 (Figure 47). Structure 1 is in the southwestern corner of the hill and measures 6.5m-x-5m. Structure 2 is located between Structures 1 and 3. It is a two-platform level structure measuring 12m-x-3m. Structure 3 is located at the easternmost edge of the plaza and measures 5m-x-4m. This was mapped as T4_B (Target 4_B) in Warners's notebook and designated with a plazuela number during digitization. Artifacts recovered included ceramics (91702), which included a Remate Red body sherd, indicating a Late Classic occupation.

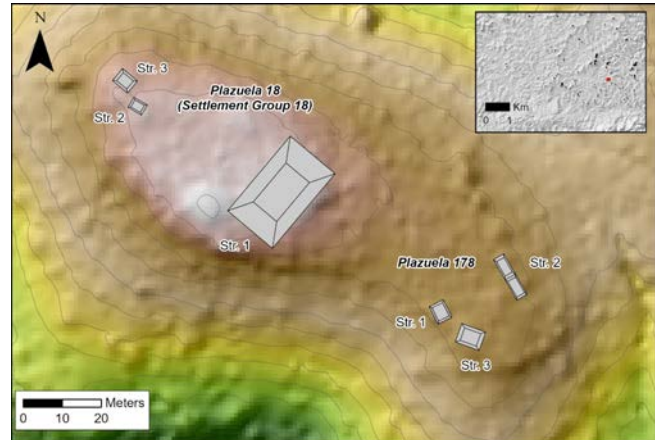


Figure 47. Plan view map of Plazuela 178. Map by AE Thompson.

Plazuela 179

Plazuela 179 is located on a lower platform just south of Plazuela 177 (Figure 46). It is 20m south of Structure 3 but at a lower elevation with a retaining wall separating the plazuelas which are 2m apart in elevation as well. Structure 1 is a small building measuring 2m-x-3m. The plazuela has a low retaining wall surrounding it, delineating the space. This was mapped as T2A (Target 2) in Thompson's notebook and designated with a plazuela number during digitization. Ceramics (91701) were found on the surface including Turneffe jar neck sherds and body sherds, indicating a Late Classic occupation.

Concluding Remarks

In total, 40 residential plazuelas were documented during the three-week field season, bringing the total number of Uxbenká residences mapped with pedestrian survey to 220. The lidar data reflects additional households distributed across the landscape, potentially more than doubling the number of documented houses (Thompson 2020). Importantly, the 2023 survey connected the majority of the Uxbenká settlement to an area in the west surveyed in 2015, showing low-density yet continuous settlement (see Figure 18).

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Appendix A: UAP 2023 Field Forms

UAP Artifact/Ecofact/Sample Card
(2023 IA Accession #10562)

Site _____
 Group _____ SubOp _____
 Structure _____ Unit _____ Fea# _____
 Lot # _____ Level _____
 Excavator(s) _____ Date(s) _____
 Material _____
 XY: Easting _____ Northing _____ from _____
 Z: Relative *or* Absolute Datum _____
 Context: _____

UAP LOT NUMBER FORM (2023)

Excavator(s) _____

Lot #	Group	SubOp	Str.	Unit	Level	Context	Artifact Type

2023 IA Accession Number: 10562