BLADEN PALEOINDIAN AND ARCHAIC ARCHAEOLOGICAL PROJECT

Report of the 2017 Field Season

Prepared for the
The Alphawood Foundation

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ROCKSHELTER EXCAVATIONS AT MAYAHAK CAP PEK (MHCP) AND SAKI TZUL (ST) IN THE BLADEN NATURE RESERVE, MAYA MOUNTAINS, BELIZE

By: Keith Prufer, Mark Robinson, Asia Alsgaard, Willa Trask, Emily Moes, Carol Woodland, Shelby Magee, Sebastian Breitenbach, Ola Kweicien, and Catriona McKenzie

Introduction

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 from May 17 – June 16, 2017. The research presented here is conducted with permits issued by the Belize Institute of Archaeology by researchers from the University of New Mexico, Exeter University, Bochum University, and Texas A&M University.

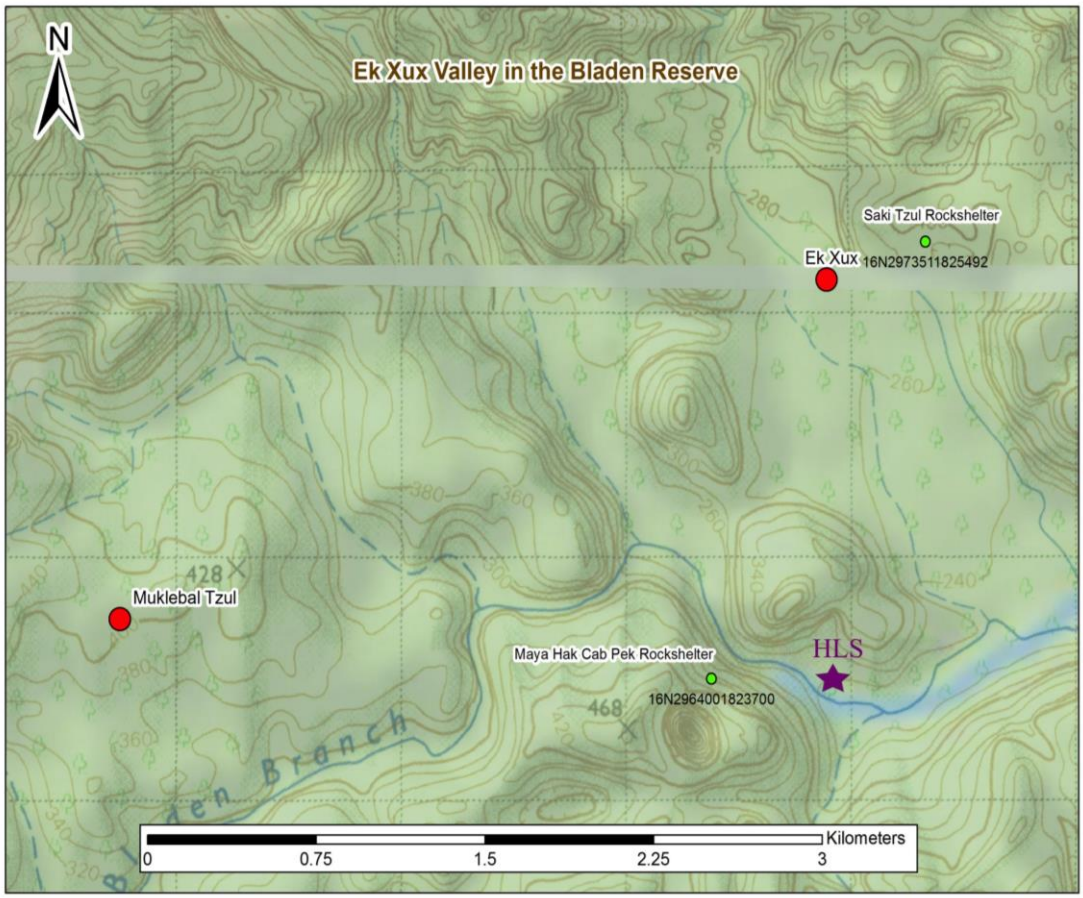

Figure 1. Location of Mayahak Cab Pek and Saki Tzul rockshelters in relation to nearby Classic Period Maya centers, Muklebal Tzul and Ek XUX as well as AC Camp and the HLS. Map A.E. Thompson

We detail the information gathered from three test unit excavations conducted at Mayahak Cab Pek (MHCP) and Saki Tzul (ST) rockshelters. MHCP and ST are located in the Ek Xux valley of the Maya Mountains, within the uninhabited wilderness of the Bladen Nature Reserve (BNR), in the Toledo District. The purpose of this study is to explore the earliest presence of humans in Central America, and more specifically Belize, during the Paleoindian (10,500-8,000 BC) and Archaic Period (8,000-2,500 BC). Previous research conducted by project PI Dr. Keith Prufer during the 1990s and the 2014 and 2016 BPAAP field seasons indicate that these earliest pioneering hunters and gatherers occupied this region, and this project explores their presence through limited excavations in two rockshelters in the upper Bladen for a comparative analysis of early human occupations.

Archaeological Context: Early New World Colonization

Initial New World colonists that arrived in Central America by at least 12,500 BC (Braje et al. 2017) where they encountered a very different, and far less "tropical", environment than today. The landscape likely comprised "heterogeneous, even patchy, vegetation across small distance scales; and stretches of forest alongside water courses in regions where forests were significantly reduced" (Piperno 2006:286). Pollen and macrofossil plant data suggest the structure of forests may have already been tropical, but the distribution of these was less than in the modern climate regime and vegetation was more diverse than simple Pleistocene grassland / Holocene forest dichotomies would suggest (Piperno 2011). Confronted with a greater diversity of large mammals and a wider range of riparian forest and grasslands humans would have initially adapted to ecosystems that were far different than today. By 9,000 BC conditions were becoming wetter and warmer and, in the Petén, there is evidence that closed canopy forests were undergoing anthropogenic burning (Anderson and Wahl 2015; Renssen et al. 2009) with mixed herbaceous and woody plants being represented in charcoal records. Pre-agricultural burning peaks between 6,000 and 4,000 BC (Schüpbach et al. 2015) during the Holocene Thermal Maximum, arguably the warmest and wettest period of the Holocene (Renssen et al. 2009), and likely reflects increased anthropogenic burning. After 8,500 BC the abundance of higher-ranked plant and animal resources declined as rainforest overtook many Pleistocene open areas where game would have fed on scrub and grasses (Piperno and Pearsall 1998).

The Paleoamerican Period (> 13,500 BC – 7,000 BC) is one of the least known in the archaeology of the Maya region. Initial colonists into the New World arrived prior to 13,500 BC, spreading rapidly along the Pacific coast, and reaching southern Chile by 13,000 years ago (Braje et al. 2017; Dillehay et al. 2017). This rapid southward migration was accompanied by significant eastward movements in North America, evidence of which has recently emerged in Florida and Montana (Halligan et al. 2016; Rasmussen et al. 2014). The now well documented early colonization of tropical South America, perhaps as early as 12,000 BC (Brandini et al. 2017; Suárez 2017) necessitated the movement of people through middle and lower Central America. Human presence has been well documented in Panama (Ranere and Cooke 1991) and Costa Rica (Snarskis 1979; Swauger and Mayer-Oakes 1952), Nicaragua (Waters 1985), Honduras (Kennett et

al. 2017; Scheffler et al. 2012), and Highland Guatemala (Brown 1980; Gruhn et al. 1977).

In Mesoamerica, drier conditions to the north of the tropical Maya lowlands have facilitated the identification of Paleoamerican surface sites, including locales in central, west, and north Mexico (Gonzalez et al. 2015; Ochoa 2012; Sanchez and Carpenter 2012). In the Maya Lowlands, with high precipitation and extensive tropical foliage, fewer surface sites have been identified and almost no stratified sites are known. One exception is El Gigante rockshelter (Kennett et al. 2017; Scheffler et al. 2012), a large rockshelter in western Honduras on the periphery of the Maya Lowlands. There, stratified deposits document occupation from 7,000-9,000 cal BC, and include well preserved macrobotanical remains as well as evidence of hunting and food preparation. In the northern Yucatan peninsula, a near-complete human skeleton was found with extinct fauna in a submerged cave (Chatters et al. 2014). The minimum age of this skeletal material is 10,000 BC based on U-series dates of small calcite florets that had precipitated on bone before the skeleton was submerged by rising sea and ground water levels. Those dates are supported by an abundance of Pleistocene faunal remains also found in the submerged chamber.

The Archaic Period is better documented, particularly outside of the Maya area in central and western Mexico, where studies have examined the origins of agriculture, diet changes in coastal settlements, and the emergence of social complexity (Flannery 2002; Kennett et al. 2010; Lesure 2011; MacNeish and Nelken-Terner 1983; Rosenswig 2014; Rosenswig et al. 2015; Smith 1997; Voorhies et al. 2002). In the arid regions of northern Mexico, where ground visibility and site detection is not hampered by dense tropical vegetation, there is a long history of research into Archaic Period adaptations (Guadalupe and Carpenter 2012). In the tropical Maya region however, far less is known about tropical adaptations during this time (Kennett et al. 2010). Recent studies suggest a gradual adoption of domesticated plants by 4,000 BC (Rosenswig et al. 2014), although in the Soconusco full-scale maize agriculture may not have been adopted before 1,000 BC (Rosenswig et al. 2015) even though sedentary agricultural communities are present by 1,500 BC. Between 8,000 – 3,000 BC the gradual processes of plant domestication were underway in Central America with evidence for human cultivation of native crops including maize (*Zea*), manioc (*Manihot*), arrowroot (*Maranta*), and yams (*Dioscorea*) in parallel with the exploitation of wild resources by transitional hunter gatherers (Greaves and Kramer 2014; Piperno 2011). Recent studies have also emphasized the importance of the transition to the Archaic as a time of mixed and flexible subsistence economies, as evidenced by a broad range of wild plant foods and early domesticates at El Gigante rockshelter in Honduras (Kennett et al. 2017; Scheffler et al. 2012).

The "spotty nature" of Archaic period stratified sites from tropical regions of Central America means that what we lack even general knowledge of human behaviors and adaptations (Rosenswig 2014:142) and problem that increases as we move back in time (i.e. Early Archaic 8,000-5,000 BC). A wide range of cultural changes occurred during the Archaic, with a general trend towards increased reliance on plants as a source of food, and changing environmental conditions that may have favored plant tending and

agriculture. Thus, social changes were likely mediated by subsistence changes, and these were driven by demographic pressure, environmental change, and socioeconomic competition (Winterhalder and Kennett 2006). The period from 8,000 to 6,000 BC is generally considered to have been wetter and warmer, prior to a drier interval lasting until 3,500 BC (Mueller et al. 2009). This suggests that the transition to agriculture spanned several phases of significant climate and environmental change with the relationships between them poorly constrained.

Paleoclimate context

Paleoclimate data strongly suggest that climate conditions are significantly different today than when the first humans arrived in the region. The Cariaco shallow marine record off the coast of Venezuela (Haug et al. 2001; Peterson et al. 2000) provides a proxy for changes in the position of the ITCZ. The Cariaco reflectance and Ti concentration data suggest that the climate context for the first human movements into the neotropics was during a period that was dryer (Haug et al. 2001) and cooler (Grauel et al. 2016) than conditions during the Holocene. Shallow lake records from Petén (Escobar et al. 2012) also show a dry Late Pleistocene to Younger Dryas interval. This is supported by numerous studies in lower Central America and tropical South America (Piperno 2011; Piperno and Jones 2003).

Archaeological Context: Site descriptions and excavations

Mayahak Cab Pek and Saki Tzul are two large rockshelters located in an interior valley of the Maya Mountains in the Bladen Nature Reserve, a protected wilderness area where there has been minimal human disturbance of archaeological sites. Both rockshelters were first investigated in 1998 by the Maya Mountains Archaeological Project (MMAP). At that time, shallow excavations at both sites produced numerous burials and demonstrated excellent preservation of human and faunal remains (Saul et al. 2005). Recent work by the PIs from 2014-2017 has demonstrated that the occupation of these rockshelters began prior to 10,000 BC (Figure 2) and continues through AD 1,000. This complements previous work we have conducted in the Rio Blanco Valley. There, excavations in the small rockshelter Tzibte Yux from 2012-2015 documented an Archaic to Paleoindian chronology and cultural materials dating to before 10,500 BC (Prufer et al. 2017). Combined with geomorphological testing we have evidence of an occupation lasting well over 10,000 years in that small interior valley (Figure 3). Though the two rockshelters in the BNR they are located 1.4km apart, both have similar stratigraphic sequences and contain similar assemblages of artifacts and biological remains dating to the late Pleistocene. Both rockshelters have dry sediments and large overhangs, reflecting that little if any direct rainfall affects their contexts. This also helps to explain the excellent preservation of unburned bone other organic materials and only a minor presence of root activity. Mayhak Cab Pek is an east facing shelter with approximately $160m^2$ sheltered, while Saki Tzul has a south aspect and has approximately $890m^2$ sheltered. Both have approximately 3.5m of deposits that primarily consist of midden fill replete with faunal bone, carbonized plant materials, chipped stone, ground stone, terrestrial snail shells, and many millions of small spire-lopped *jute* (Pachychilus sp.)

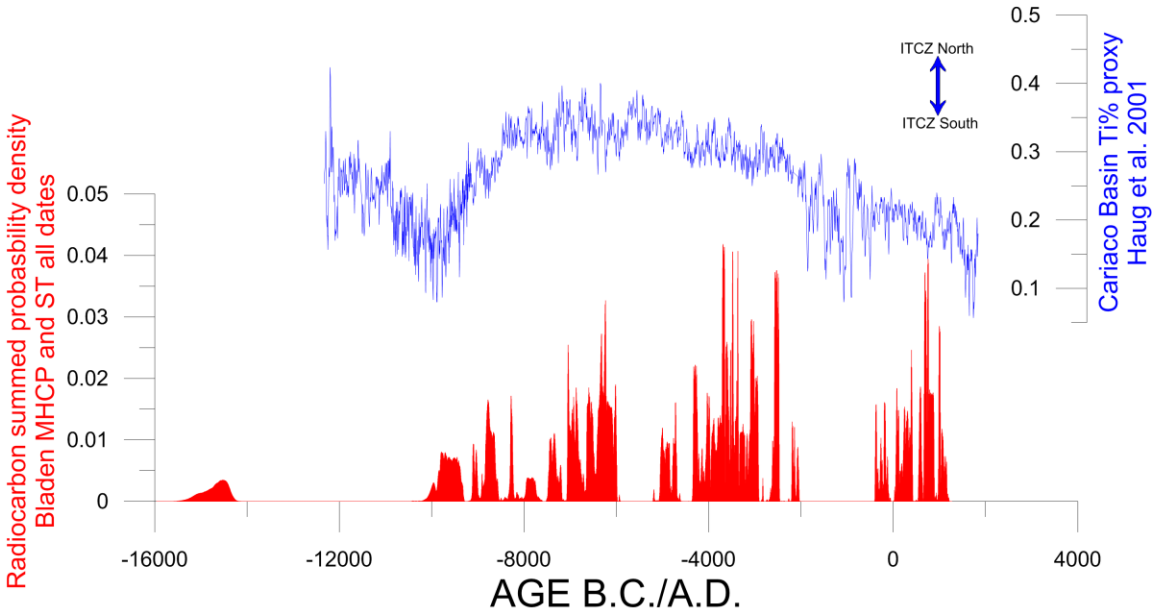

Figure 2. Summed probabilities of ^{14}C AMS dates from MHCP and ST rockshelters (red) based on dates on charcoal and human bone. The climate context (blue) of a drying interval around the time of sustained occupation (ca 10,000 BC) is consistent with a dryer interval

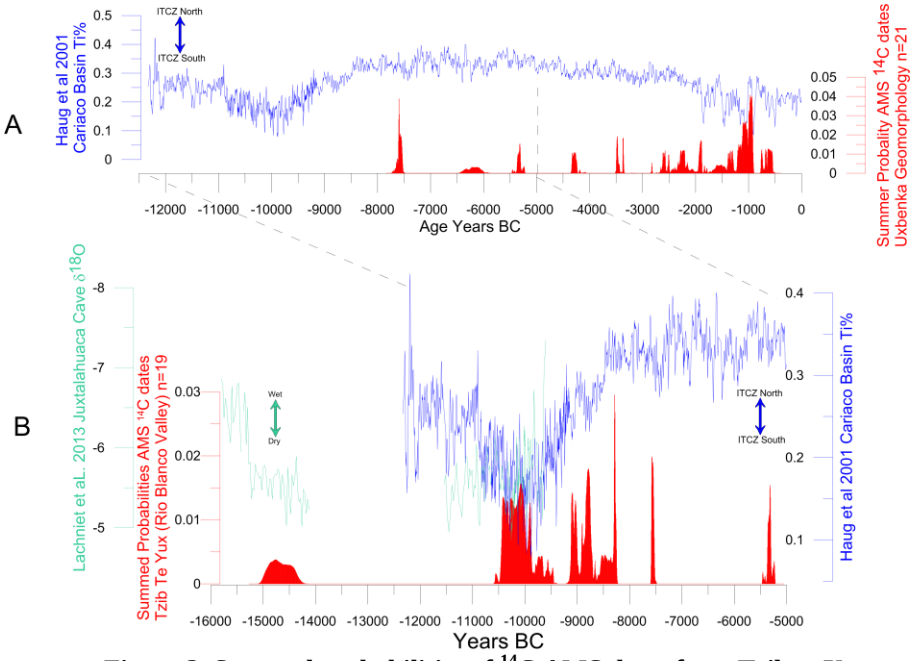

Figure 3. Summed probabilities of ^{14}C AMS dates from Tzib te Yux rockshelter and geomorphological testing in the Rio Blanco Valley (red) based on dates on charcoal. Again, th climate context (blue and green) of a drying interval around the time of sustained occupation (ca 10,000 BC) is consistent with a dryer interval

riverine snail shells, all of which appear to have been consumed as a food. Stratigraphy at both rockshelters is relatively undisturbed and consists of Classic Period Maya deposits overlaying dense *jute* midden fill dating to the middle and late Archaic (5k-2.5k BC). Below this are early Archaic and Paleoindian contexts with a gradual decline in *jute* shell but abundant faunal, human, paleobotanical, and lithic remains. Human burials have a

wide range of orientations, positions, and degrees of completeness, but are mostly primary interments that were places in very shallow depressions and covered with either sediments or small river cobbles. Burials are found in all time periods and consist of males and females and range from neonates to older adults. Preliminary analysis of faunal remains suggests only small shifts in species composition over the Holocene, but a likely change in selection or preference from larger mammals in the early part of the record to smaller mammals in the later part (Orsini 2016). To date, only 8.4m^2 at MHCP and 6.6m^2 at ST have been excavated to pre-human Pleistocene levels.

Bulk bone collagen $\delta^{13}C$ data for both humans and associated fauna (Figure 4) indicate shifts in diet of humans from the Bladen over time and identify the origins of agriculture in a human population. As expected, human bone collagen $\delta^{13}C$ values show a significant switch to a (C_4) maize-based diet indicated of intensive agriculture in this region by (3–1kybp), while human collagen dating to the Archaic period (> 4kybp) indicate a diet dominated by natural (tropical forest) C_3-based resources. As expected, native fauna from all time periods have $\delta^{13}C$ values indicative of C_3-based tropical forest foodwebs. There are a few human individuals in our pilot dataset with intermediate $\delta^{13}C$ values indicative of a mixed C_3/C_4 diet, but bulk collagen analysis does not enable us to assess where these individuals are obtaining dietary protein and carbohydrates.

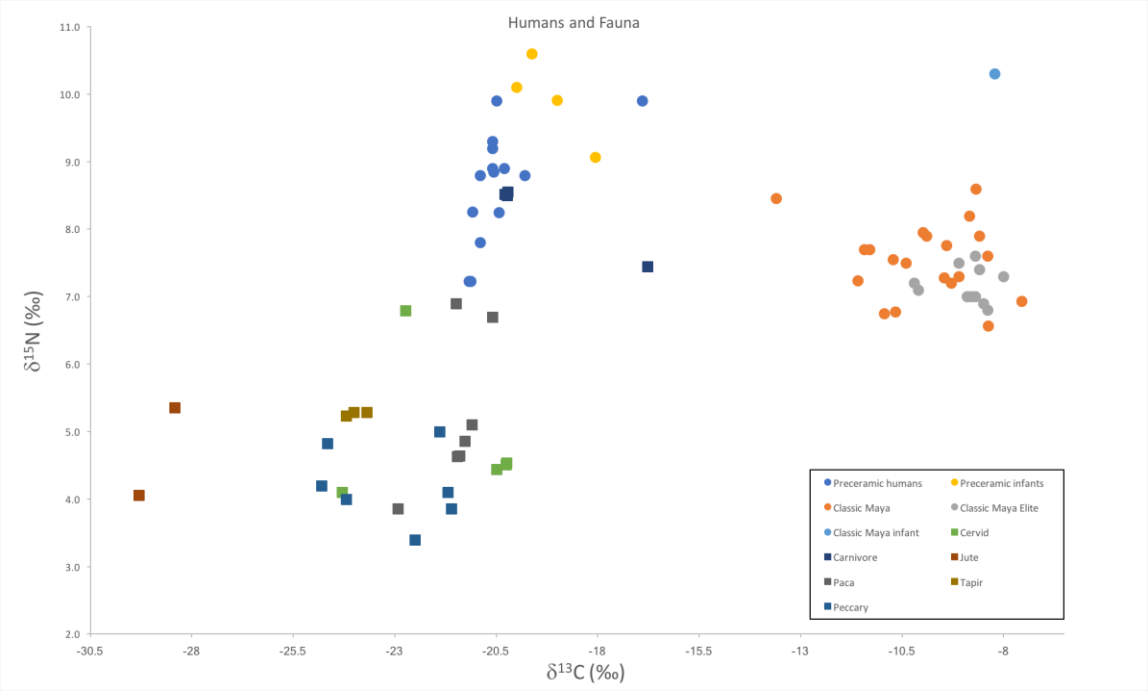

Figure 4. Scatter plot of the carbon and nitrogen isotopes from human remains in southern Belize. Foragers are from the Bladen, while agriculturalists are from Bladen and Rio Blanco Valley. Faunal isotopes show animals having a C_3 diet consistent with forest structure.

Project Logistics and Personal

This project consisted of camping in the Bladen Nature Reserve (BNR) for 27 nights. While most of the crew hiked in and out from Golden Stream (Figure 5), several crewmembers, supplies, and equipment were brought into the BNR via Astrum Helicopter. There was one helicopter resupply during the field season on the 4th of June during which S. Breitenbach, O. Kweicien, and E. Moes were replaced by W. Trask and C. McKenzie. Prior to the field season, the patch of land (approximately 1 km^2) that was initially cleared at the beginning of the 2016 field season for the safe transportation of field equipment (referred to as the Helicopter landing spot or HLS) was cleared prior to the 2017 field season by Rangers from Ya'axché Conservation Trust (YCT). The HLS is approximately 1.5km southeast of AC Camp. This was the location of the resupply and was used again at the end of the project to remove all equipment, additional supplies, and archaeological materials from the BNR. AC Camp, which was established by archaeologists in the 1990s and was also used during recent field seasons in 2014 and 2016; the camp is adjacent to AC cave (Figure 2). At the end of the season, all equipment, archaeological samples, personal gear, and garbage was removed from the BNR. Fire pits were deconstructed and buried and the ash was buried in the latrines. The project consisted of ten professional archaeologists and paleoclimatologists, four local archaeological assistances, and a ranger from the Ya'axché Conservation Trust [Table 1]. Rangers from the YCT rotated out on a 10-day schedule.

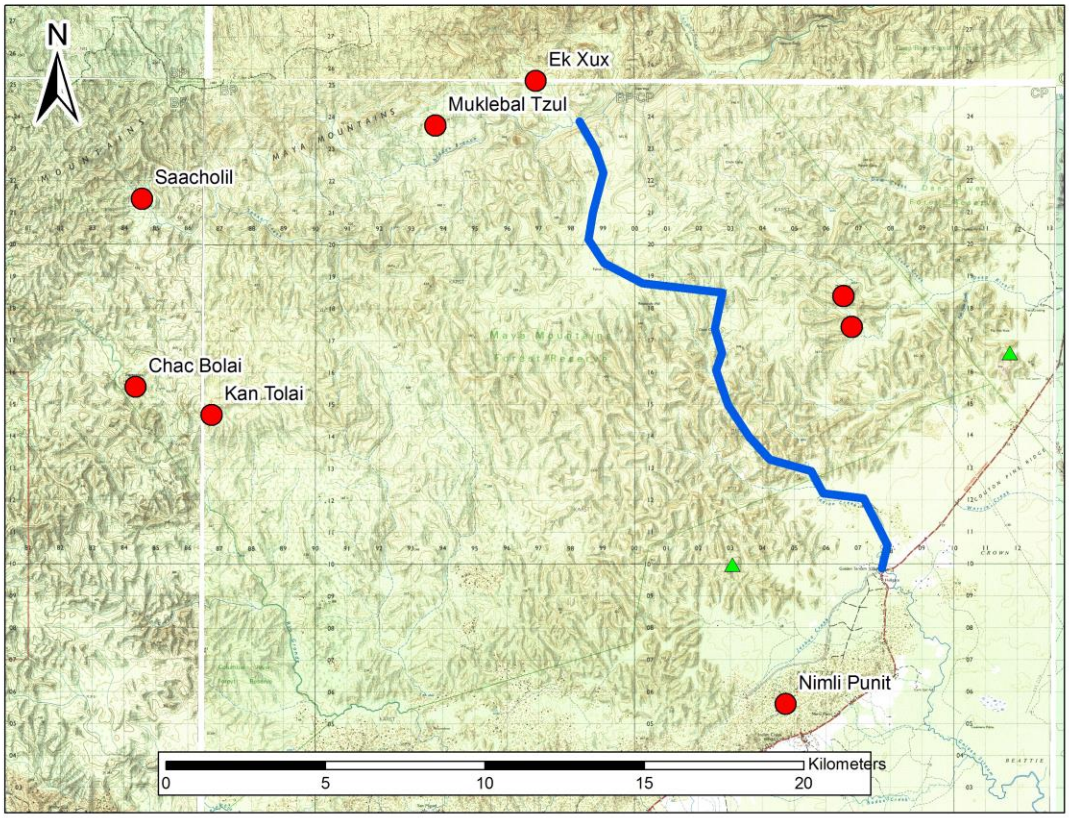

Figure 5. GPS track of the hike from Golden Stream village to AC camp, which is located near MHCP. (Map by A. Thompson)

Table 1. Personal that participated in the BPAAP 2017 field season

Name	Affiliated Institution
Dr. Keith M. Prufer	University of New Mexico
Dr. Mark Robinson	University of Exeter
Ms. Willa Trask	Texas A&M University
Dr. Sebastian Breitenbach	Ruhr-Universität Bochum
Dr. Ola Kweicien	Ruhr-Universität Bochum
Dr. Catriona McKenzie	University of Exeter
Ms. Asia Alsgaard	University of New Mexico
Ms. Emily Moes	University of New Mexico
Ms. Shelby Magee	University of New Mexico
Ms. Carol Woodland	University of New Mexico
Mr. Andres Chen	Ranger, Ya'axché Conservation Trust
Mr. Juan Cal	Ranger, Ya'axché Conservation Trust
Mr. Ramon Sanchez	Ranger, Ya'axché Conservation Trust
Mr. Marcus Cholom	Ranger, Ya'axché Conservation Trust
Mr. Raymundo Sho	Archaeological Assistant, Santa Cruz Village
Mr. Oligario Sho	Archaeological Assistant, Santa Cruz Village
Mr. Mateo Rash	Archaeological Assistant, Golden Stream
Mr. Pablo Rash	Archaeological Assistant, Golden Stream

Excavations at Mayahak Cab Pek Rockshelter

Mayahak Cab Pek (MHCP) is located in the Ek Xux valley of the Maya Mountains (Figure 1). The closest ancient Maya centers are Ek Xux and Muklebal Tzul. MHCP rockshelter is located on the western side of the valley, near the Bladen River, and is a 20m high outcrop of bedded limestone. The drip line extends 8m from the cliff face and the dry surface area of MHCP is approximately 150m^2. The excavation locations in MHCP were based on previous studies from the 1990s, and the 2014 and 2016 field seasons.

Methods

The excavations of MHCP followed the 2014 and 2016 units and protocol. Excavation units were established on a north-south grid. The uppermost levels were excavated based on stratigraphic layers while deeper levels were excavated based on 5 to 10cm arbitrary levels. Horizontal provenience control was maintained using excavation unit corner nails, and vertical control relied on a permanent line level embedded in the rockshelter wall that was 25cm above ground surface. All sediment was screened through $^1/_4$ inch mesh screen and screened artifacts were bagged separately by artifact/ecofact classification (e.g. flaked stone, ceramics, and fauna). Diagnostic artifacts, radiocarbon samples, large faunal elements, unusual or unique artifacts, and burial materials (human remains and associated artifacts) were point plotted using hand tape measures for northing and easting coordinates and line levels for elevations. Due to the depth of the unit, at various points

secondary datums were established that were linked to the primary datum. All datum values included here are corrected to reflect the primary datum depth. All artifacts and ecofacts (except *jute*) were collected. Charcoal for radiocarbon dating and species identification, and sediment samples were taken from each level as well as from burials. Two soil samples were taken from each context, one bulk sample that was exported for further laboratory work and one sample that was sieved through metal soil sieves. At the conclusion of this field season's work, the excavation units were lined with tarps and back filled.

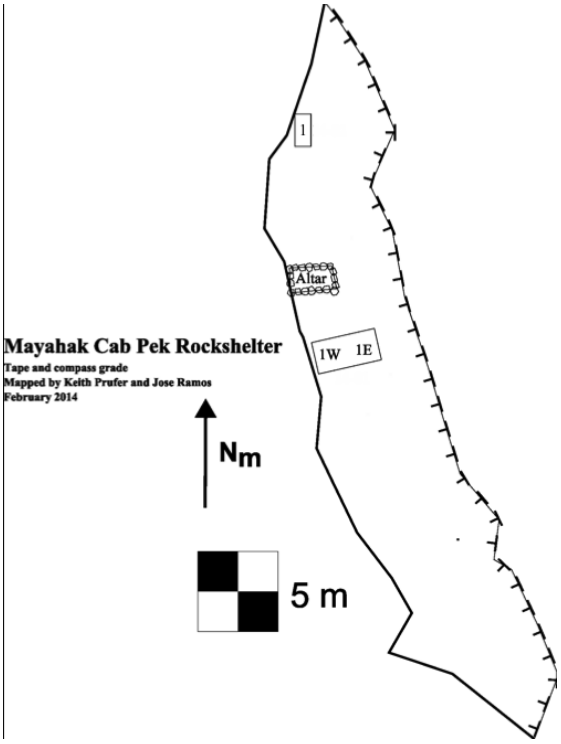

Figure 6. The location of 2014, 2015 and 2016 units at MHCP. Units 1E, 1W, 1, and 2 were reopened in 2017 as 17-01. Unit 2 (not pictured here) was added to the north of 1E and 1W. (Digitized by C. Meredith)

MHCP 2017 Excavation Descriptions

<u>Units 1E, 1W, & 2</u>

**Note: the 2016 report labeled Unit 1E and Unit 1W as Unit 1; however, Unit 1 is a distinct unit first opened in 2014 and reopened in 2017. See the 2014 report for further information.*

Unit 1E, 1W, & 2 were reopened on May 21, 2017 following excavations in 1998, 2014 and 2016 (Figures 6, 7, 8). In 2016, excavations of 1E and 1W concluded along the eastern wall at a depth of 145cmbd and along the north wall at a depth of 18cmbd. Unit 2 (50cm N-S, 250cm E-W) was opened as an extension of Unit 1E and 1W. The objective of the 2017 field season (sub-operation 17-01) was to reach bedrock or sterile in the 1E portion of the excavation by successively stepping down the excavation. Separate units were brought down to the same depth THEN excavated together as a single context. Levels were numbered continuing to use the system utilized in 2016 beginning with 118 in the south-east portion of Unit 1E under the tarp placed at the end of the field season in 2016. While multiple secondary datums (A, B, C, and D) were used during the excavation due to the depth of the unit, all depths presented here have been corrected to the Master 1998 Datum.

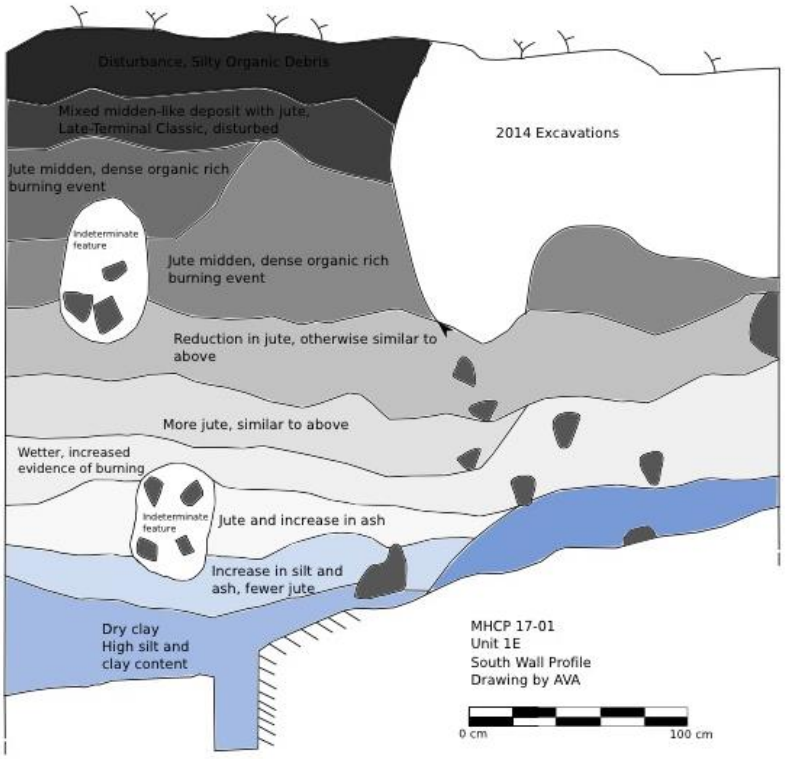

Figure 7. The south wall profile of Units 1E and 1W. (Digitized by A. Alsgaard)

In Unit 1W, the remaining bulk left over from the excavations in 2014 was excavated in natural stratigraphy labeled as levels A-D due to the lack of ability at the time to correlate the present depth with those excavations occurring in 2014. It should be noted that later excavations extend from 1E into 1W and Unit 2; however, this distinction is not maintained in the notes and everything is subsumed under 1E due to the goal of excavating the entire unit as a single context rather than two distinct units.

Level A (7.5YR 3/2-dry, 7.5YR 3/1-wet) was a loamy clay silt with inclusions of small pebbles, burnt clay, some burnt plant material, and *jute*. The level extended from 75-97 cmbd to 94-98cmbd; the top of the bulk was rounded, accounting for the changes in depths across the level. At the bottom of the level, burnt red clay nodules began to appear along with an abundance of lithic chert tools, flakes, and heat-treated materials. While a soil sample was taken for this level (83010), we decided not to take additional soil samples from the bulk due to the small size of the bulk and the currently unclear association with previous levels (ie this needs to be rectified with the 2014 excavations and it is likely previous soil and float samples were previously taken). Snails (*83002*), fauna (*83004*), and lithics (*83005*) were recovered.

Level B (10YR 3/2-dry, 10YR 3/1-wet) was a silty loam with sand with *jute*, increased charcoal, and burnt red clay inclusions. The level extended from 94-98cmbd to 119-124cmbd. The level change was based on the soil change noted in the previous level along with the decrease in *jute*. Disarticulated human remains were found and point plotted. A change in the end of the level was noted with an increase in the dryness of the sediment and a potential change to a lighter soil color. Lithics (*83011*), human remains (*83013*), snails (*83015*), faunal remains (*83019*), and a wood (*83018*) were recovered from Level B.

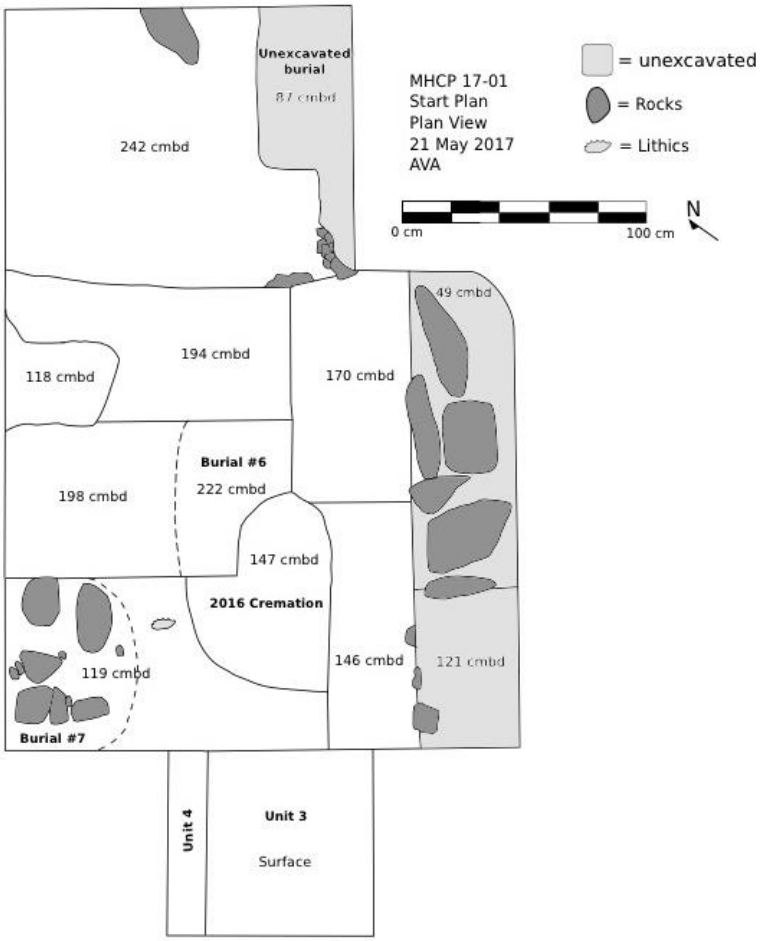

Figure 8. The location of the 2017 excavation units at MHCP at the start of the field season. (Digitized by A. Alsgaard)

Level C (10YR 3/2-dry, 10YR 3/1-wet) was a silty clay with a decrease in sand and inclusions of charcoal and small pebbles. The level extended from 119-129cmbd to 136-141cmbd. The level change was based on an increase in soil dryness. This level was associated with an increase in burnt faunal remains and the presence of charcoal in the matrix (both larger and smaller flecks). The end of the level was marked by the fact that a slight extension on the western side of the bulk was reached and we wanted to include the extension continuing on in the excavation. Lithics (*83040*), faunal remains (*83041*), shell (*83042*), human remains (*83043*), and macrobotanical materials (*83044*) were recovered.

Level D (10YR 3/2-dry, 10YR 3/1-wet) was a clayey loam with inclusions of sand, some *jute*, and burnt clay. The level extended from 138-154cmbd to 155-161cmbd. This level represents a potentially buried soil with more burnt clay and charcoal present. The sand particles are almost gravel size, similar to stream carry load. Achieving the same depth as the platform beneath and directly to east of this bulk marked the end of this level. Excavations in this area continue later as part of the larger 1E excavation. Snails (*83045*), faunal materials (*83056*), lithics (*83047*), macrobotanical materials (*83048*), and human remains (*83025*) were recovered.

Excavations in Unit 1E began with level 118 (10 YR 3/2-dry and 10 YR 3/2-wet) was a sandy silt matrix with *jute* and charcoal inclusions; it began at 120-126cmbd and concluded at 135-146cmbd. Shell (*83014*), fauna (*83016*), human remains (*83020*), obsidian (*83026*), snails (*83017*), and lithics (*83003)* were recovered from Level 118. Level 118 was initiated on the highest portion of Unit 1E following the 2016 excavations

in the southeast corner (Figure 5). Loose human teeth (*83020*) were encountered immediately above, but are not associated with Feature #1, Burial #7.

Feature #1, Burial #7 (10 YR 3/2-dry and 10 YR 3/2-wet) (noted as 1E-bulk on forms) was a loose fine silt with *jute* and chert inclusions. The matrix is characterized by little charcoal. The feature was delineated by the cluster of rocks in the southern portion of Level 118 and extended from 123-129cmbd to 128-131cmbd. A burnt feature that may be associated with Burial #7 was found to the north of the legs of Burial #7. Burial #7 was excavated as a separated feature within Levels 118 and 119. Level 118 concluded once it reached the same depth as the base of the 2016 cremation burial. The artifacts are associated with Burial #7.

The cut for Burial #7 (human remains (*83050*) and grave goods (*83049*)) was encountered in 2016 at approximately 50cmbd and the burial capstones were noted at the end of the 2016 excavation season. This is a simple grave with a primarily interred, articulated individual covered by approximately two courses of large river cobbles. The matrix (10 YR 3/2-dry, 10 YR 2/2-wet) was a loose, fine silt with *jute* and chert inclusions. The individual was lying in a flexed, supine position, turned slightly to the right with their face oriented to the west. Other artifacts associated with Feature #1 were lithics (*83000*), unassociated human remains above the cap stones (*83001*), macrobotanical materials (*83007, 83022*), faunal remains (*83009, 83053*), and shell (*83006*).

Level 119 (10 YR 3/2-dry, 10 YR 3/1-wet) began at 135-146cmbd and concluded at 135-145cmbd at the conclusion of Burial #7. It is a less sandy, silty matrix with ash streaks present in in the northern half of the level and potentially associated with the end of the 2016 cremation as the matrix was paired with a large amount of burnt bone and charcoal fragments similar to the cremation matrix. Faunal remains (*83056*), lithics (*83057*), macrobotanical materials (*83058*), human bone (*83059*), and shell (*83032*) were recovered from the level.

Feature #2 (10 YR 3/2-dry, 10 YR 3/1-wet), a small hearth, was encountered in Level 119 starting from 141-144cmbd and ending at 147-151cmbd. The matrix consisted of a sandy silt matrix with charcoal and burnt faunal remains inclusions; ashy streaks were noted outside of the hearth rocks. Charcoal (*83027*), shell (*83034*), faunal remains (*83035*), and lithics (*83036*) were recovered.

Level 120 (10 YR 3/2-dry, 10 YR 3/1-wet) was a sandy silt matrix with limestone cobbles, charcoal, ash, *jute*, burnt limestone, and root inclusions extending from 137-150cmbd to 165-169cmbd. The northwestern portion of the level continued to have ash and the beginning of Feature #3 was noted along the northern wall going into the bulk of Unit 2. Charcoal (*83031, 83038, 83061*), faunal remains (*83028*), shell (*83033*), lithics (*83029*), obsidian (*83039*), and human remains (*83060*) were recovered from Level 120. This level most likely represents the beginning of the matrix of disarticulated human remains that continues in Levels 121 and 122, Feature #4. The relationship between the 2016 cremation burial and the matrix of disarticulated human remains is unclear;

however, the matrix associated with the 2016 cremation had a much higher concentration of ash and faunal remains; however, that does not necessarily preclude an association between the two deposits. The level concluded upon becoming in phase with another portion of the 1E Unit.

Feature #3 (10 YR 3/2-dry, 10 YR 3/1-wet) was encountered in Level 120 extending from 160-174cmbd with a loamy matrix with very little clay, and *jute*. The feature was initially defined on the appearance of a highly dense cluster of human remains associated with the northern wall extending under Unit 2. This feature likely represents part of the large matrix of disarticulated human remains. The disarticulated human remains do not appear to be in anatomical association and the matrix was very similar to that of Feature #4. Charcoal (*83082*), lithics (*83068*), faunal remains (*83069*), and human remains (*83060*) were recovered from Feature #3.

Level 121 (10 YR 3/2-dry, 10 YR 3/1-wet) was a silty loam due to an increase in clay with a decrease in *jute*, a presence of burnt limestone and charcoal inclusions extending from 165-169cmbd to 163-174cmbd (Figure 9). It consists mainly of the remainder of the Level 120 matrix under Feature #3 and the surrounding matrix prior to encountering a sediment change. In this level, isolated human bones were encountered south of Feature #3. The presence of human remains, chert lithics, and a sediment change was designated as Feature #4. The presence of a hearth feature in the far southern end of the level was designated as Feature #5. In Level 121, charcoal (*83070*, *83071*), obsidian (*83067*), lithics (*83065*), faunal remains (*83063*), shell (*83064*), macrobotanical materials (*83066*), and human remains (*83083*) were recovered.

Feature #4 (10 YR 3/2-dry, 10 YR 3/1-wet) is a silty loam with charcoal inclusions, burnt limestone, and *jute* from 163-174cmbd to 182-197cmbd. The level was initiated on the basis of a matrix change and was defined horizontally by Level 122 in the northwest and Feature #5 in the south. The feature was defined by the presence of disarticulated human bone in conjunction with chert points, seemingly without regard to orientation. In some cases, the bones and lithics are vertical as if they had been in a matrix of sediment that was then dumped onto the surface of the rockshelter. There are also instances where the bone appears to have been stacked in antiquity. The end of the feature was defined by the lack of human bone and a decrease in the number of inclusions, but the continuation of the softer soil matrix. Lithics (*83074*), faunal remains (*83075*), snails (*83076*), macrobotanical materials (*83077*), human remains (*83080*), obsidian (*83086*), and possible coral (*83099*) were recovered.

Feature #5 (7.5 YR 3/2-dry, 7.5 YR 3/1-wet) was a sandy silt hearth feature with burnt bone and ash extending from 167-180cmbd to 182-193cmbd. The matrix was marked by a much softer, ashy texture and was filled with lithics and burnt bones. While it was recorded as a hearth feature, though there were no rocks defining the edge and only one burnt limestone at the base of the feature. The feature likely continues into the southern and eastern walls with the bottom of the feature being defined by a soil change. This feature is likely contemporaneous, to some extent, with Feature #4. Lithics (*83088*), faunal remains (*80389*), obsidian (*83090*), and shell (*83091*) were recovered.

Level 122 (10 YR 3/2-dry, 10 YR 3/1-wet) was a sandy silt layer extending from 163 - 174cmbd to 172-195cmbd. It represents the northwestern most portion of the unit and while it is in the same vertical strata as Features #4 and #5, it lacks the presence of disarticulated human remains and chert lithics. This level represents the beginning of Feature # 6. Lithics (*83100*), faunal remains (*83101*), human bone (*83102*), shell (*83103*), macrobotanical materials (*83104*), and obsidian (*83107*) were recovered from Level 122.

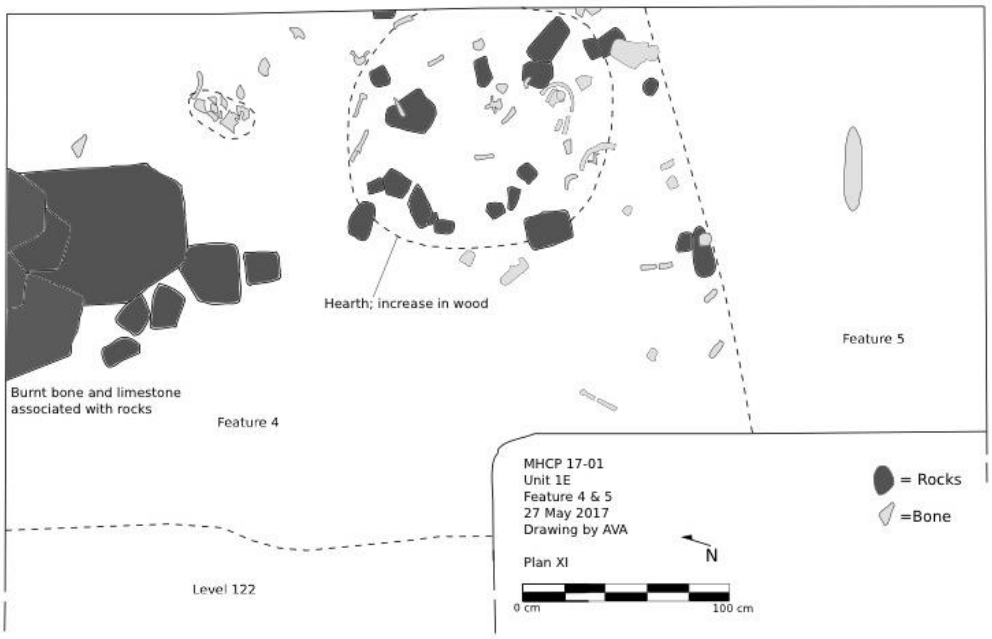

Figure 9. Levels 121, 122, Feature #4 and Feature #5; disarticulated human and faunal remains. (Digitized by A. Thompson, E. Ray, and A. Alsgaard)

Feature #6 (7.5 YR 2.5/3-dry, 7.5 YR 2.5/1-wet) was a hearth feature with a hard-packed silty loam matrix with gravel-sized rocks, red burnt clay, charcoal, *jute*, and burnt limestone extending from 163-174cmbd to 171-189cmbd. The hearth is immediately west of Feature #4. Macrobotanical materials (83110), lithics (*83108*), faunal remains (*83109*), and shell (*83113*) were recovered.

Level 123 (10 YR 3/2-dry, 10 YR 3/1-wet) is a silty loam layer with charcoal inclusions and *jute*, but with generally fewer of these inclusions than the previous level. The level extends from 182-195cmbd to 195-199cmbd. The level was extended to encompass a portion of the 1W Unit the soil matrix throughout the level is soft with less faunal remains, lithics, and clay. The majority of the recovered lithics and burnt clay was concentrated around rocks, which were concentrated along the northern wall and were likely associated with later Feature #7 or an unexcavated feature further north. Faunal remains (*83114*), lithics (*83115*), shell (*83116*), macrobotanical materials (*83117*), and obsidian (*83122*) were recovered from this level.

Level 124 (10 YR 4/2-dry, 10 YR 4/2-wet) was a clayey loam with large pebble clasts between 195-199cmbd to 213-221cmbd. The level was initiated on the basis of a marked

change in soil color and an increase in the proportion of lithics and fauna. A lowe point was recovered (*83133*) along with associated charcoal samples (*83134*, *83135*, *83136*, *83137*, *83138*). A burnt limestone cluster was found in the southwest corner that may be associated with the heat-treated lithics associated with that region. During the excavations of this level, a definite increase in faunal remains and lithic materials were noted near the cluster of rocks in the north wall. During these excavations, we defined the increase in faunal remains and lithic materials as Feature #7. Lithics (*83124*), faunal remains (*83125*), shell (*83126*), macrobotanical materials (*83127*), obsidian (*83130*), human remains (*83132*), a possible *mano* (*83146*), and charcoal samples (*83131*) were recovered.

Feature #7 encompasses the matrix between 183-203cmbd to 206-224cmbd and is likely associated with Level 124, marked only by a difference in the relatively larger proportion of fauna, lithics, and charcoal recovered from this region. Another lithic point (*83139*) was recovered from this feature approximately 2 cm above the lowe point. Lithics (*83141*), faunal remains (*83142*), shell (*83143*), macrobotanical materials (*83144*), human remains (*83145*), obsidian (*83162*), and charcoal samples (*81357*, *83161*) were recovered. The end of the feature was marked by the presence of Feature #8/Burial #8 going into the eastern wall of the unit. While Extensions 3 and 4 were being dug, excavation on Feature #7 stopped and only the region surrounding the feature was excavated.

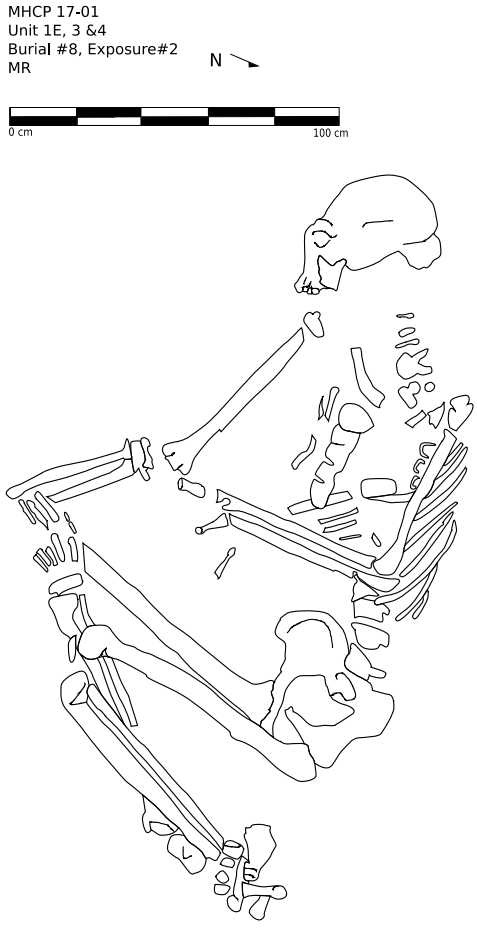

Figure 10. Burial 8, Exposure 2 (Drawing by M. Robinson) (Digitized by E. Ray)

Feature #8, Burial #8 (Figure 10), from 220 to 233cmbd, was a primary inhumation of a flexed, articulated individual, laying on the right side with the head to the east, facing south. Human remains (*83180*), snails (*83176*), faunal remains (*83177*), lithics (*83179*), and a quartz crystal (*83178*) were recovered. Only a portion of the burial was recovered from Unit 1E, the majority being recovered from Units 3 and 4. Thus, the context will be described in more detail in the section describing Units 3 and 4 below.

Level 125 (10 YR 3/3-dry, 10 YR 3/2-wet) was a silty clay matrix with charcoal and *jute* inclusions extending from 213-221cmbd to 216-221cmbd in an arbitrary 5cm level. We began excavating in 5 cm levels while still accounting for the natural stratigraphy in order to (i) maintain a higher degree of spatial control and (ii) account for an increased compression of time per level due to slow

accumulation of materials and compression based on the assumption that natural level differentiation may be more difficult to identify. Lithics (*83149*), faunal remains (*83150*), shell (*83151*), obsidian (*83160*), macrobotanical materials (*83152*), a quartz crystal (*83158*) and charcoal (*83159*) were recovered from Level 125.

Level 126 (10 YR 3/4-dry, 10 YR 4/2-wet) was a silty loam with charcoal and burnt limestone inclusions extending from 216-221cmbd to 220-226cmbd. Other than a slight change in soil color and texture, no other differences were noted from the level above. Lithics (*83163*), faunal remains (*83164*), shell (*83166*), macrobotanical materials (*83165*), and charcoal (*83169*) were recovered.

Level 127 (7.5 YR 4/2-dry, 7.5 YR 4/1-wet) was a sandy clay with fist-sized cobbles and a marked decrease in *jute* extending from 220-226cmbd to 226-229cmbd. Artifacts recovered included lithics (*83170*), faunal remains and shell (*83172*), and macrobotanical materials (*83173*).

Feature #9 (7.5 YR 4/2-dry, 7.5 YR 4/2-wet) was a sandy loam with no inclusions extending from 228-231cmbd to 246-252cmbd. The feature is an animal burrow in the eastern portion of the unit, extending into the wall starting at approximately 180cmbd. The lithics (*83181*), faunal remains (*83182*), shell (*83184*), and macrobotanical materials (*83183*) that were recovered likely represent a mixed context.

Level 128 (7.5 YR 4/2-dry, 7.5 YR 4/2-wet) was a sandy loam with sand and fist-sized cobbles extending from 226-229cmbd to 231-233cmbd. The soil is very soft and there appears to have been a decrease in the proportion of lithics and faunal remains from previous levels. Lithics (*83188*), faunal remains (*83189*), shell (*83190*), macrobotanical materials (*83191*), and charcoal (*83196*, *83197*, *83199*) were recovered.

Level 129 (7.5 YR 4/3-dry, 7.5 YR 4/3-wet) extends from 231-233cmbd to 232-236cmbd and was a sandy loam with a cobble-rich region in the northwestern corner. This cobble-rich region most likely represents (i) rock fall from the rockshelter and (ii) and ancient surface cutting under the more silty layers further east. The immediate goal was to excavate the overlying silty layers and thus, unless noted, excavations of the cobble, pebble, and gravel layer paused. Lithics (*83200*), faunal remains (*83201*), shell (*83202*), and charcoal (*83206*) were recovered from this level.

Level 130 (7.5 YR 4/2-dry, 7.5 YR 4/2-wet) was a sandy loam with fist-sized cobbles, lithics, and burned fauna extending from 232-236cmbd to 233-237cmbd. The goal of the level was to continue to expose the underlying cobble, pebble, and gravel layer and thus represents an extension of Level 129. Immediately under the sandy loam layer, a sandy clay layer was present likely representing an ancient surface along with the presence of chert lithics, charcoal, and burnt faunal remains immediately on the surface. These were collected as part of Level 130. Most of the burnt faunal remains were burnt black pieces approximately 2 to 3 cm in length. Limestone cobbles and gravel, likely associated with rock fall from the rock shelter, begin to appear immediately under this sandy loam layer.

Artifacts recovered from this level included lithics (*83009*), faunal remains (*83210*), and shell (*83211*).

Level 131 (10 YR 4/4-dry, 10 YR 4/3-wet) was a sandy clay matrix with charcoal, chert lithics, and burnt faunal remains extending from 233-237cmbd to 234-249cmbd. This level represents excavations into the sandy clay surface discussed above in Level 130. Excavations continued until a decrease in the chert lithics and charcoal was noted along with a soil color change and the appearance of larger cobbles. Lithics (*83219*), faunal remains (*83218*), snails (*83220*), and macrobotanical materials (*83221*) were recovered.

Feature #10 (10 YR 4/4-dry, 10 YR 4/3-wet) was a sandy clay deposit with inclusions of cobbles and gravel extending from 243-252cmbd to 249-257cmbd. The feature represents a slightly lower continuation of Level 131 resulting from the drop off of the rock fall immediately west of this feature at approximately 249cmbd. Lithics (*83248*), faunal (*83249*), macrobotanical materials (*83252*), and snails (*83254*) were recovered.

Level 132 (7.5 YR 4/4-dry, 7.5 YR 5/4-wet) was a sandy clay with pebbles, gravel, and cobble inclusions extending from 234-249cmbd to 259-270cmbd. The level has less sand than Feature #10 and Level 131, but with an increased amount of clay. It has approximately the same number of lithics and fauna as Feature #10. The level ended on the basis of (i) an increase in clay and (ii) an apparent paucity of cultural material. Lithics (*83185*), faunal remains (*83186*), and charcoal (*83256*) were recovered. It should be noted that there is not a Level 133 (see AVA notebook pg. 92).

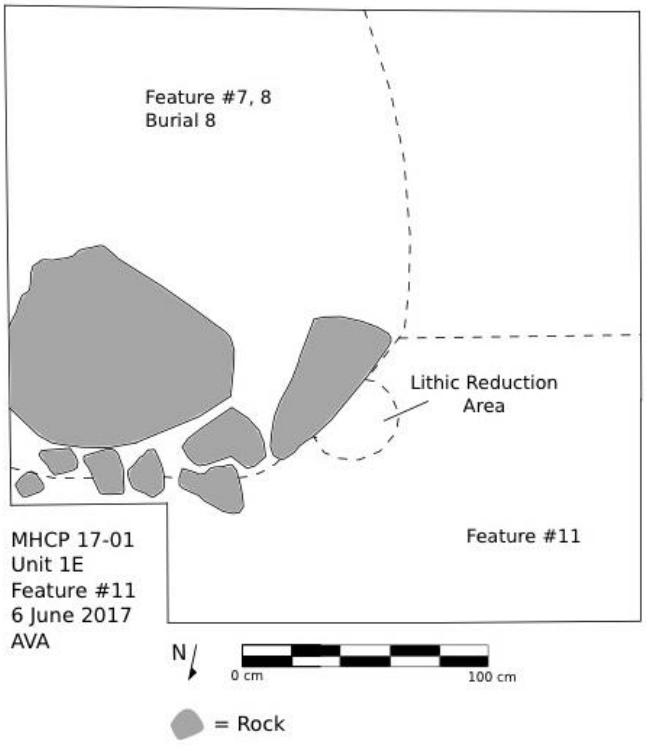

Figure 11. Location of lithic reduction. (Digitized by A. Alsgaard)

Level 134 (7.5 YR 4/4-dry, 7.5 YR 4/4-wet) was a sandy clay with inclusions of cobbles, pebbles, and decaying limestone extending from 260-268 to 280-284cmbd. The goal of the level was to confirm we had reached sterile. No artifacts were recovered.

Feature #11 (7.5 YR 4/4-dry, 7.5 YR 5/4-wet) is a sandy clay with gravel, pebble, and cobble inclusions extending from 234-245cmbd. The matrix is immediately east of the rock in the western-most portion of the unit. Lithics (*83257*), faunal remains (*83258*), and macrobotanical materials (*83261*) were recovered. A lithic reduction area was recorded (Figure 11). The level was dug until sterile was reached.

Feature #12, Level 1 (7.5 YR 3/4-dry, 7.5 YR 3/2) is a silty loam with inclusions of burnt clay extending from approximately 206-228cmbd to 231-248cmbd. The level is the continuation of excavations in the area previously recorded as Feature #7 and thus the depths are higher than some of the later levels. The matrix contained burnt bone. Artifacts are mostly concentrated on the western portion of the feature. Within Feature #12 was Feature #13. The distinction for these features was based on a color and texture change in the soils and a decrease in artifacts. Due to time constraints, excavations of this unit were terminated.

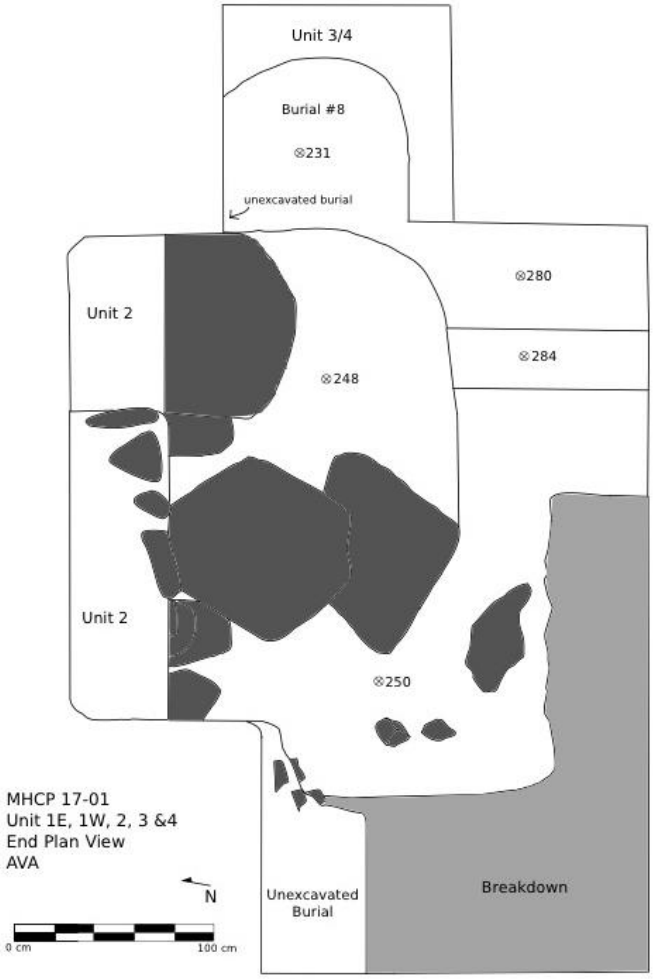

Figure 12. MHCP Unit 1E, 1W, and 2 final plan with depths. (Digitized by A. Alsgaard)

Feature #13 (7.5 YR 4/2-dry, and 7.5 YR 4/3-wet) was a clayey loam with no inclusions and an extremely soft matrix extending from 231-248cmbd. There were very few artifacts aside from faunal remains (*83367*). Lithics (*83368*) were also recovered. The feature is a possible hearth, but contains very little charcoal (*83361*). The ending depths may not be the actual depth of the feature, as the softer sediment seemed to continue deeper; however, due to temporal constraints, we were unable to excavate any further. Excavations will not be continued in this unit for the 2018 field season (Figure 12).

<u>Units 3 and 4</u>

Units 3 represents an extension excavated upon encountering Burial #8. During excavations of Unit 3, Unit 4 was dug as an extension to capture the entirety of Burial #8. Upon the recovery of Burial #9, the remainder of Unit 4 was excavated in bulk to reach equilibrium with the bottom of Unit 3. Thus, after Levels 1 and 2, Units 3 and 4 are combined into Unit 3/4.

Unit 3, Level 1 began at surface depths of 42-41cmbd and ended at 59cmbd. This level began at the surface and concluded when a change in the natural stratigraphy was identified. No soil samples were taken. Lithics (*83194*), faunal remains (*83195*), lithic debitage (*83198*), and human remains (*83205*) were recovered from Level 1.

Unit 3, Level 2 extended from 59-134cmbd. Lithics (*83207*), fauna remains (*83208*), and obsidian (*83217*), were recovered.

Unit 4, Level 1 began at 20-24cmbd and ended at 59cmbd. Unit 4 is a 20cm north-south expansion to the south of Unit 3. The ceramic period levels of this unit expansion were not recorded. Level 1 represents the beginning of the preceramic period. Burial #9 was recovered in the western portion of this expansion. Fauna bones (*83241*), human remains associated with Burial #9 (*83243*), and lithics (*83240*) were recovered.

Unit 4, Level 2 extended from 33-44cmbd to 102-125cmbd and began below Burial #9. Lithics (*83265*), fauna bones (*83266*), human remains (*83267*), and obsidian (83268) were recovered from this level.

Unit 3/4, Level 3 (10yr 3/3, 10yr 3/4) has a fine, loose matrix with some compact portions and inclusions of roots, cobbles, burnt clay, and some charcoal. It extends from 113-134cmbd to 146-147cmbd. This level roughly corresponds to Feature #7 in Unit 1E and is characterized by a concentration of disarticulated human remains with horizontal and vertical chert flakes, some charcoal, and small amounts of *jute*. A soil change in the northwest corner may be associated with the unexcavated burial in the northwest wall. Human remains (associated with Unit 3 only (*83234*)) were recovered along with fauna bones (*83269*), lithics (*83270*), and human remains (*83271*).

Level 4 (10yr 3/3, 10yr 3/4) was a loose, silty loam with inclusions of minimal *jute*, some charcoal, and burnt clay. The level extended from 146-147cmbd to 154-155cmbd. This level represents a continuation of the same context above associated with Unit 1E, Feature #7. Chert flakes were present throughout along with disarticulated human remains (83275). Additionally, fauna remains (*83272*), lithics (*83273*), and obsidian (*83274)*were recovered.

Level 5 extended from 154-155cmbd to 156-178cmbd. The south end is noticeable for the abundant *jute* in contrast to the paucity of *jute* in the north end. Lithics (*83277*) and fauna remains (*83278*) were recovered from Level 5.

Level 6 (7.5yr 3/2-dry, 7.5yr 3/2-wet) was a silty matrix extending from 154-178cmbd to 166-170cmbd. This level represents the beginning of the burial cut for Burial #8. The burial cut fill includes lithics and cobbles whereas the general matrix of the Level 6fill has more gravel inclusions with fire cracked rock and *jute*. Several large rocks appeared in the northern end of the unit. Lithics (*83279*), fauna remains (*83320*), human remains (*83321*) associated with the burial fill as well as lithics (*83322*), fauna remains (*83323*), and human remains (*83324*) associated with the general fill were recovered.

Level 7 (7.5yr 3/2-dry, 7.5yr 3/2-wet) is a continuation of Level 6, extending from 166-170cmbd to 164-175cmbd. However, in this level, only the burial cut was excavated in order to retain a platform for excavation. The burial cut contained abundant black chert and numerous finishing flakes. The burial cut runs from east to west. Lithics (*83325*),

fauna remains (*83326*), obsidian and a quartz crystal (both-*83329*), and human remains (*83331*) were recovered.

Level 8 marks the level associated with the first exposure of Burial #8 which extended from 164cmbd to 175cmbd. Artifacts associated with the Burial #8 cut are lithics (*83336*), fauna bones (*83337*), macrobotanical remains (*83338, 83341*), and obsidian (83339). After the removal of Burial #8, the remainder of Unit 3/4 was left unexcavated. Post field analysis indicates that Burial #8 was a highly robust adult male with an estimated age of 32-45 years. Dentition shows evidence of significant periodontal disease.

Unit 1

Unit 1 was initially excavated in 2014 and was reopened in the 2017 season. It was opened at the base of the adult-female burial (P1) from 2014 (**note: a different burial nomenclature was used during the 2014 MHCP excavations. This changed in 2016 and 2017).* Upon opening, human remains were encountered throughout the unit. This is to be expected based on similar notes from the 2014 excavation during the removal of P1. The initial excavation plan was to excavate soils in the northern and southern ends of the unit to a depth (more or less) equal to the center of the unit. WRT noted that at the end of the 2014 season, a thin layer of screened soil was placed over the top of bones in the southern end. These bones were uncovered during the removal of back fill and marked the beginning for Level 5 (based on a continuation of the level designations initiated in 2014).

Level 5 (10 YR 3/3-dry, 10 YR 3/3-wet) was a sandy silt matrix extending from 38-79cmbd to 68-88cmbd. Human remains (Burial #10) were encountered in this level in the southern end. We recovered human remains (associated with Burial #10-*83280),* along with lithics (*83281*), faunal remains (*83282*), ceramics (*83284*), obsidian (*83284*), snails (*83286*), and macrobotanical materials (*83287*).

Burial #10 was excavated as part of Burial #10 Extension (initially labeled Unit 5 (a 50x50cm extension opened on the SE corner towards the eastern side) and Unit 6 (50x50cm extension opened on the SE corner towards the southern side)). Burial #10 extension encompasses Unit 5, Unit 6, and a connecting 50x50cm area. The burial was concentrated in the SE corner; however, it was accompanied by assorted human remains that may or may not be related to Burial #10. All human remains were collected under the same lot number (*83280*). For Unit 5 (of Burial #10 extension), the level was excavated from 18-25cmbd to 43 to 64cmbd in order to expose the entirety of Burial #10; we recovered lithics (*83292*), ceramics (*83293*), faunal remains (*83294*), macrobotanical materials (*83298*), and human remains (*83312*). For the remainder of the Burial #10 Extension (Unit 6), the level extended from 20-23cmbd to 42-67cmbd and was excavated in a single continuum. Artifacts recovered included lithics (*83295*), ceramics (*83296*), fauna (*83297*), macrobotanical materials (*83298*), human remains (*83299*), obsidian (*83300*), and quartz (*83301*). (**Note: While initially noted as distinct Units, Unit 5 and Unit 6 were ultimately dug together as the Burial #10 extension).* After the conclusion of

the Burial #10 extension, the unit and extension were excavated together as Level 6. It should be noted that the Burial #10 remains may be associated with P1 removed in 2014 as well as the human remains later uncovered in Feature #1 (Burial #11). The context in 2014 was unclear and upon re-opening, distinct contexts are difficult to identify.

Level 6 and Feature #1 (10 YR 3/3-dry, 10 YR 3/3-wet) extended from 73-88cmbd. Almost immediately, Feature #1, a circle of rocks and associated human femur, was uncovered and labeled as Burial #11. These initial rocks were associated with the 2014 burial and were excavated separately as Feature #1. From Level 6, lithics (*83288*), human remains (*83289*), faunal remains (*83290*), ceramics (*83302*), human remains [from the wall] (*83302*), and shell *(83303*) were recovered.

Feature #1 encompasses the rocks noted at the bottom of the P1 burial. In 2017, these rocks were removed to uncover human remains (*83305*), and associated burial goods including an axe (*83309*), and chert (*83310*). Lithics (*83306*), faunal remains (*83307*), macrobotanical materials (*83308*), and ceramics (*83311*) were recovered from the general feature matrix.

Units 1E, 1W, 1, 2, 3, and 4 were backfilled on the 15th of June 2017 after the completion of the final profile and plan view drawings.

Conclusions of the 2017 MHCP excavations

Over the course of the 2017 field season, Units 1E/1W/2 and Unit 1 were reopened. The goal of Unit 1E/1W/2 was to reach sterile bedrock and to define the temporal extent of human occupation at the rockshelter. At the conclusion of the field season, Unit 1E/1W/2 had reached sterile in the majority of Units 1E and 1W. The temporal extent of Unit 1E was determined, based on radiocarbon dating, to be approximately 10,000 yr BP. In total, 13 features were identified, including a layer with miscellaneous human remains and lithics (Feature #4) and a lithic reduction area (Feature #11). Charcoal samples (*83244, 83134, 83136, 83137, 83330, 83347, 83236, 83350*) have been submitted for AMS ^{14}C dates (Table 2). Over the course of the season, one subadult (Burial #7), one adult (Burial #8), and one infant (Burial #9) were recovered from Unit 1E/1W. Equally, one Lowe point and one blade were recovered during excavations dating to approximately 8,000 yr BP.

The goal of Unit 1 was to evaluate the state of the unit after the 2014 excavations and determine what further contextual information. Excavations from 2014 suggested that the context was unclear due to multiple different internments and anthropogenic disturbances. This was further confirmed during the 2017 excavations. An additional adult burial (Burial #10) and partial burial (Burial #11) were recovered from Unit 1.

Over the course of the upcoming year, human and faunal remains will be analyzed. Human and faunal remains will be analyzed for bulk and amino acid specific stable isotope values. Furthermore, additional dating will occur of the burial contexts and of specific features.

Table 2. Charcoal samples collected from MHCP. Grey samples were submitted for AMS ^{14}C dates.

Lot Number	Site	Unit	Level/ Feature	X (E)	Y (N)	Z	Context	
83021	MHCP	1E	Feature #1	391	232	129	Burial 7	Charcoal
83023	MHCP	1W	D	219	203	157	General	Charcoal
83024	MHCP	1W	D	247	240	157	General	Charcoal
83027	MHCP	1E	Feature #2	22	98	102	Hearth; Fill associated with level 119	Charcoal
83031	MHCP	1E	120	27	60	147	General	Charcoal
83038	MHCP	1E	120	22	46	153	General	Charcoal
83052	MHCP	1E	Feature #1	366	58	150	Burial 7	Charcoal
83055	MHCP	1E	Feature #1	56	47	141	Base of Feature #1	Charcoal
83061	MHCP	1E	120	3	180	167	Fill in NE area of level	Charcoal
83061	MHCP	1E	120	3	180	167	General (See lvl form)	Charcoal
83070	MHCP	1E	121	381	21	174	Transition between levels 121 and 122	Charcoal
83071	MHCP	1E	121	341	29	171	At the transition between levels 121 and 122	Charcoal
83081	MHCP	1E	122/ Feature #4	386	106	175	General	Charcoal
83082	MHCP	1E	Feature #3	68	222	171	Feature #3 burial	Charcoal
83084	MHCP	1E	Feature #4	77	164	181	General	Charcoal
83085	MHCP	1E	122	156	164	178	Paired Charcoal/crab claw; Crab claw is 10cm E of charcoal	charcoal
83087	MHCP	1E	122/ Feature #5	38	50	175	Burned layer above Feature #4	Charcoal
83094	MHCP	1E	Feature #5	361	32	192	General	Charcoal
83098	MHCP	1E	Feature #4	13	111	195	General	Charcoal
83120	MHCP	1E	123	217	128	190	General	Charcoal
83121	MHCP	1E	123	221	29	161	General (Near point plotted femur, B)	Charcoal
83123	MHCP	1E	123	215	29	161	Associated with point plotted fauna B and Lithic A	Charcoal
83131	MHCP	1E	124	143	49	168	General	Charcoal
83134	MHCP	1E	124	267	17	179	Immediately below the lithic point	Charcoal
83135	MHCP	1E	124	278	16	173	Associated with lithic point	Charcoal
83136	MHCP	1E	124	265	22	175	Associated with lithic point	Charcoal
83137	MHCP	1E	124	237	18	172	Associated with lithic point	Charcoal
83138	MHCP	1E	124	122	20	173	Associated with lithic point	Charcoal
83148	MHCP	1E	124	223	70	180	General	Charcoal
83159	MHCP	1E	125	141	103	215	General	Charcoal
83161	MHCP	1E	Feature #7	96	42	202	Rock pile	Charcoal
83168	MHCP	1E	126	152	52	186	General	Charcoal
83196	MHCP	1E	128	342	32	225	General	Charcoal

83197	MHCP	1E	128	348	41	226	General	Charcoal
83199	MHCP	1E	128	364	37	231	General	Charcoal
83206	MHCP	1E	129	298	74	234	General	Charcoal
83215	MHCP	1E	130	296	68	235	General	Charcoal
83216	MHCP	1E	130	304	58	236	General	Charcoal
83224	MHCP	1	131	123	47	234	General	Charcoal
83225	MHCP	1E	131	278	38	239	General	Charcoal
83226	MHCP	1E	131	283	48	240	General	Charcoal
83227	MHCP	1E	131	309	13	239	General	Charcoal
83229	MHCP	1E	131	308	42	240	General	Charcoal
83230	MHCP	1E	131	313	62	237	General	Charcoal
83231	MHCP	1E	131	328	66	236	General	Charcoal
83232	MHCP	1E	131	320	34	243	General	Charcoal
83233	MHCP	1E	131	329	64	236	General	Charcoal
83235	MHCP	1E	131	335	42	241	General	Charcoal
83236	MHCP	1E	131	343	24	241	General	Charcoal
83237	MHCP	1E	131	347	29	242	General	Charcoal
83238	MHCP	1E	131	340	20	242	General	Charcoal
83239	MHCP	1E	131	348	26	242	Concentrated around rocks associated with s. wall (see level 131)	Charcoal
83242	MHCP	1E	131	335	38	242	General	Charcoal
83244	MHCP	1E	131	339	33	245	General	Charcoal
83253	MHCP	1E	Feature #10	341	10	256	General	Charcoal
83255	MHCP	1E	Feature #10	337	11	257	General	Charcoal
83256	MHCP	1E	132	365	15	260	General	Charcoal
83262	MHCP	1E	Feature #11	144	64	240	General	Charcoal
83263	MHCP	4	1	210	230	70	Burial 9	Charcoal
83330	MHCP	3&4	7	344	65	210	Associated with burial fill	Charcoal
83345	MHCP	3/4+ 1E	8/B8	X	X	228	Burial 8	Charcoal
83347	MHCP	3/4+ 1E	8/B8	X	X	222	Burial 8	Charcoal
83348	MHCP	3/4+ 1E	8/B8	X	X	223	Burial 8	Charcoal
83350	MHCP	3/4+ 1E	8/B8	X	X	223	Burial 8; Inside Crania	Charcoal
83353	MHCP	3/4+ 1E	8/B8	X	X	223	Chest area Burial 8	Charcoal
83354	MHCP	3/4+ 1E	8/B8	X	X	229	Pelvic area Burial 8	charcoal
83355	MHCP	3/4+ 1E	8/B8	X	X	233	Burial 8; Under ribs	Charcoal
83356	MHCP	3/4+ 1E	8/B8	X	X	224	Under Crania	Charcoal
83361	MHCP	1E	Feature #13	275	84	234	Loose soil, faunal deposit	Charcoal
83370	MHCP	1E	X	221	186		Wall Profile	Charcoal
83371	MHCP	3&4	Burial 9	348	190		Charcoal from inside of cranium; found in lab	Charcoal
84346	MHCP	3/4+ 1E	8/B8	X	X	226	Burial 8	Charcoal

Excavations at Saki Tzul Rockshelter

Saki Tzul is a large rock shelter in a rock patch that borders the ancient Maya site Ek' Xux (Figure 1). BPAAP began excavations at the rock shelter in 2016, discovering a well-defined stratigraphy dating back to the Early Holocene, which included multiple burials. Excavations continued in Saki Tzul in 2017, the results of which are reported here. The backfilled Unit 1, from 2016, was emptied. A small, shallow extension (Unit 4) was added to the south west of the unit to explore and recover a cranial fragment visible in the unit wall. The primary excavation was a 2x1 m unit adjacent to Unit 1 (Figure 13). Encountered skeletal material required two further extensions, Unit 6 to the northeast and Unit 7 to southeast.

Figure 13. Location of Unit 5 adjacent to the east of excavated Unit 1, close to the rock shelter wall.

This report documents the stratigraphy and contexts present in the excavations.

ST 2017 Excavation Descriptions

Unit 4

When removing the backfill from Unit 1, a cranial fragment became exposed in the west unit wall (Figure 14). A 0.5 x 1 m unit extension was added to excavate and assess the context of the cranium. The fragment turned out to be solitary, with no directly associated interment. The bone was within the very loose silt of C2 matrix.

Figure 14. Exposed cranium in the west wall of Unit 1 after removal of backfill

Unit 5

Unit 5 is constructed of 18 broad horizontally stratigraphic levels (Figure 15, Figure 16). The lower strata are non-continuous, with a rock deposit close to the rock shelter wall present through a number of strata. All contexts were numbered with a C- number (Table 3). The following description details each context within the broad stratigraphic order from oldest to newest.

Figure 15. South Profile with strata marked

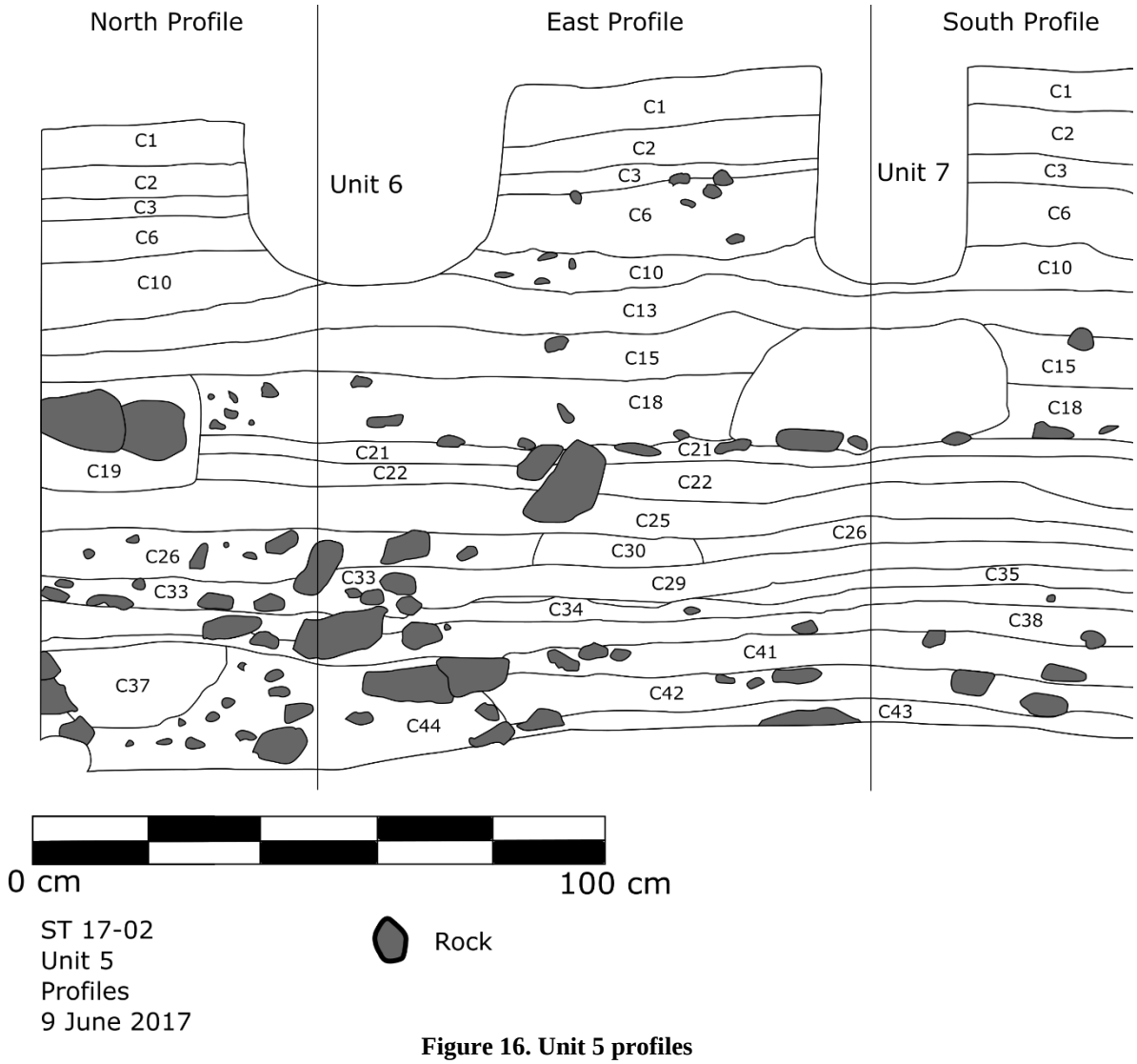

Figure 16. Unit 5 profiles

Table 3. Table of contexts aligned with the broad sequence of stratigraphic levels

Level	Context
1	C1
2	C2
3	C3
4	C6
5	C10
6	C13
7	C15
8	C18
9	C21

Level	Context
10	C22
11	C25
12	C26
13	C29
14	C34, C35, & C37
15	C38 & C37
16	C41, C37, & C44
17	C42, C37 & C44
18	C43 & C44

C43 & C44

The excavation was terminated on a dense sterile rocky matrix (C43) that prevented further excavation. The rocks appear to be breakdown from the rock face, and the absence of obvious cultural activity suggests the context is prior to human arrival. A distinct rock deposit, C44 (Figure 17), which also appears to be breakdown and was probably deposited in a separate earlier rock fall event, is present in the north of the excavation, close to the rock face. C44 is present in the next two broad horizons above, with the other matrices formed around the existing deposit. A large limestone boulder is present on the edge of the C44 matrix, continuing into the higher levels.

Figure 17. Large rock at the edge of C44.

C42, C37 & C44

Above C43 is a light silty clay, C42, with a continuous surface that separates it from the horizon above. C44 is present in the north, but is surrounded by C37, a loose midden consisting of an accumulation of rocks, including lithic debris. The large limestone boulder protrudes above the surface of C42.

C41, C40, C37 & C44

The top of C41, a darker orange silt, is clearly distinguished from C38 above by a distinct surface that includes the C40 feature. C40, in the south of the unit, is a large scapula identified as probable giant sloth (Figures 18), next to a flat rock and surrounded by a lighter matrix. Charcoal is directly associated with the bone. The relatively good preservation of the bone yet absence of more of the skeleton, presence of the flat rock and associated charcoal, all on a distinct stratigraphic horizon, is highly suggestive of human activity.

Figure 18. Photo and plan drawing of scapula of a probable giant sloth.

In the north of the unit, both C44 and C37 continue, although C44 is reduced to a smaller presence just in the northeast. The limestone boulder is covered by C41.

C38 & C37

Above C41 is a rocky matrix (C38) filled by orange silt. No charcoal or obvious artefacts were present in C38. The surface of C38 is continuous. A distinct, small thin grey silt deposit that cuts the surface, (C39) appears to be related to later bug activity.

C37 is largely sealed by C38, with just a small section of the midden poking through in the northeast corner of the excavation.

C34, C35, C37 & C36

C34 is a continuous orangey silt, with frequent pebbles and some small limestone boulders. On the compacted surface of C34 are patches of very black, loose organic soil (C35, Figure 19, Figure 20). The deposit is thickest in the southwest and all but absent in the north of the excavation.

Figure 19. Photo and plan drawing of C34 surface with distinct patches of black organic material (C35) in the south.

Figure 20. Distinct stratigraphic change, with black C35 material under the plaster of C29 and orange matrix of C34.

A small concentration of burnt clay in the north of the unit on the surface of C34, appears to be a hearth (C36). Some faunal bones are present in the surrounding matrix (C33) above the feature that are likely associated with the thermal feature.

C29, C33, C30, C31, C32

C29 is a hard, flat plaster surface (Figure 21). The plaster contains charcoal and some limestone pebbles. The surface was present in Unit 1 and was a primary motivation for extending the excavation area. On the surface is C30, a hearth with rock architecture. The rocks form the outside of the feature, with the interior matrix consisting of soft charcoal

rich, ashy sediment. There are three distinct horizons to the matrix of C30, representing the debris from separate fire events (Figure 22).

Figure 21. C29 plaster surface with C30 hearth in the east. Note the rocks in the north (C33), which interrupts the plaster surface.

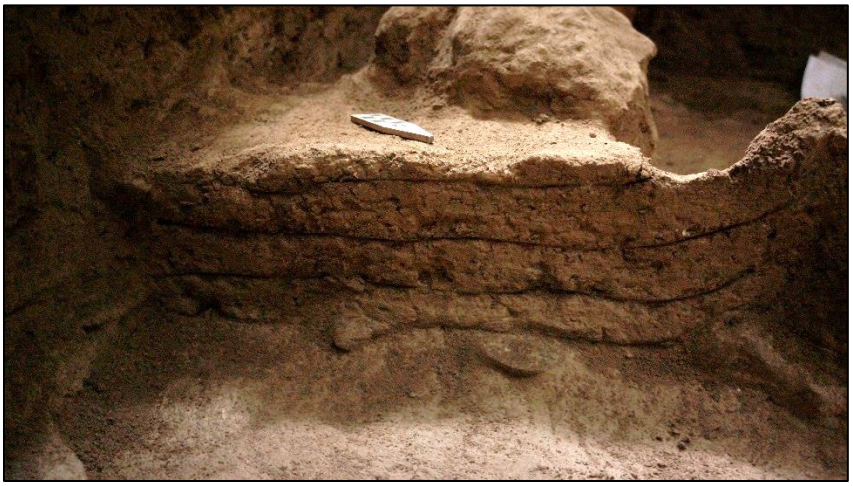

Figure 22. Section of C30 hearth showing distinct layers.

Two circular breaks in the plaster in the south of the excavation (C31 and C32), consist of loose brown sediment, but do not continue into the matrix of the strata below and do not include charcoal. As such they do not appear to be post holes or fire pits and their function remains unknown. It is perhaps more likely that they are disturbances from root or rodent.

The plaster does not continue across the whole unit, but is interrupted by a loose accumulation of small boulders to the north (C33). The boulders sit on top of the continuous surface of C34 below and are sealed by the continuous surface of C26 above.

C33 therefore represents either a deliberate deposit or rock fall that fell after the construction of C34, and was not removed when C29 was laid.

C26, C27

C26 is continuous across the unit and consists of a distinct surface with a high proportion of slaked limestone. The limestone inclusion is not as complete as the plaster of C29, but the white material is a distinct feature of the surface. Charcoal is abundant on the surface and a burnt patch in the west was likely a hearth feature (C27, Figure 23). The 2016 excavation of Unit 1 recovered two individuals from a burial pit that are associated with activity on this surface. The surface of C26 is broken in the northeast corner by a looser sediment that contains a large, flat rock (C23). No other associations are present. The loose sediment continues above into C25, and most likely represents a disturbance.

Figure 23. C26 surface with C27 fire pit marked. Note the large rock in the northeast corner (C23).

C25

The C23 disturbance is present on the surface of C25, an otherwise continuous compacted surface. A small oval orange, burnt patch in the centre of the unit represents a fire event (C24). A small concentration of chert lithics (C28) in the fill of C25 was collected separately, but were not clearly defined as a cached deposit. An accumulation of larger rocks sit on the surface of C25, extending into the eastern wall of the excavation. Although no associations were encountered during excavation, the rocks may relate to a feature that is outside of the unit boundary.

C22, C21, C19, C20

Below a layer of rocks rich in river cobbles (C21) is a compacted sediment surface (C22) littered with charcoal. The rocks are burial architecture for two interments, C19 and C20 (Figure 24). The base of C19 cuts into the surface of C22. River rocks were present

throughout the horizon, but concentrated around the two burials. Larger rocks also distinguished the two burials, acting as capstones.

Figure 24. Photo and plan drawing of rock deposits covering C19 and C20 burials

In the centre of the excavation, C20 consists of a large flat rock, surrounded by smaller cobbles. The rocks were placed on top of a neonate burial (**Error! Reference source not found.**). The skeletal material was particularly delicate and was slightly bioturbated, but appears to be in flexed position. Elements from the axial and appendicular skeleton are present. The cranium is severely crushed. The burial was laid on the surface of C22 and covered by the rocks. There is no pit cut.

Figure 25. C20 Burial

The C19 burial is in the north of the excavation unit. The burial was covered by one large rock, with smaller rocks surrounding it (Figure 26). Part of the cranium was exposed to the east of the large rock, with the rest of the skull severely crushed by the rock. The individual was in flexed position, head to the east, facing north (Figure 27). The legs were tightly flexed to the body, with feet together, and the hands were close to the face. Part of the lower appendages were encountered in the 2016 excavation of Unit 1.

Figure 26. C19 Grave architecture

Figure 27. C19 Burial

The lack of distinct pit cuts, coupled with the large burial "capstones", the rock deposit of C21, and the lack of clear disturbance from the upper strata, it is probable that the entire C21 layer was part of the burial events, covering the burials after interment.

C18

Above the large rocks and river cobbles of C21 is C18, a stratum of smaller rocks in a silt matrix. The rocks are present on the surface of C18, which is defined by a compacted sediment, distinct from the loose sediment above. There is a higher density of rocks in the north. The rocks in the north are also larger, potentially resulting from wall fall.

C15

A silt matrix with a compacted surface and small inclusions, including broken shell, throughout. The horizon is distinguished by a more compacted surface compared to the fill material below and above.

C13, C17

A continuous silty surface and matrix defines C13. Very few inclusions are present in the matrix. In the southwest corner of the unit, sealed within the stratum, is C17, a cluster of rocks, including river cobbles and a large, long, flat rock that extends to the south. The rocks are surrounded by a loose sediment. Above the large flat rock is the fragmentary charred remains of an irregular shaped gourd (Figure 28). The gourd pieces continue into the north wall. The feature is distinctly separated from Burial C14 above, by unbroken stratigraphy.

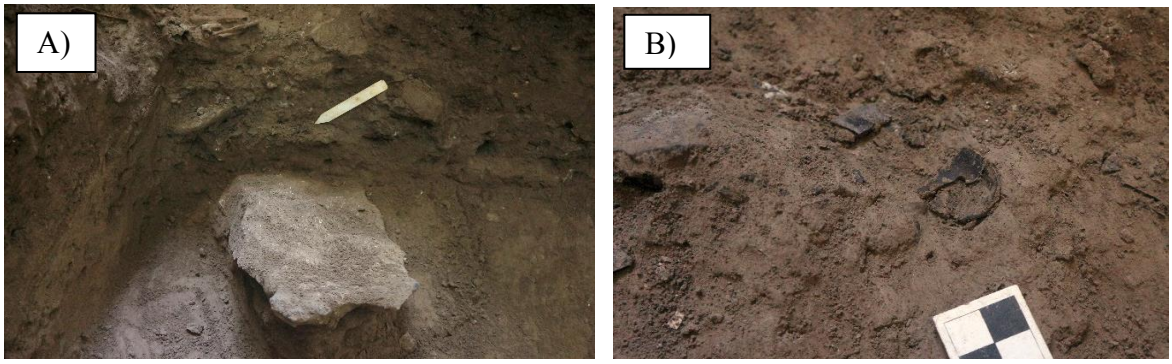

Figure 28. (A) Large flat rock (C17). White arrow marks the location of the charred gourd fragments. The looser associated silt is marked out. (B) Charred gourd fragments in the C17 context

C10

The horizon is a distinct, ashy, *jute* rich matrix, laid on the surface of C13. The stratum is distinct from the C6 *jute* rich matrix above (Figure 29). The *jute* appear more degraded and there are no ceramics in C10. Two distinct shallow deposits of *jute* in a white matrix (C11 and C12) are present on the surface of C10. Deposit C11 in the north of the unit is irregular in shape. The deposit is slightly cut by burial C5 above. C12 is a more circular deposit in the centre of the unit. The deposits probably represent basket loads of dumped material from distinct sources. Although both deposits are below burials, there does not appear to be a direct relationship.

Figure 29. Profile showing two *Jute* rich strata. Missing section Unit 6 extension, following the burial cut of the C7 burials. Upper *Jute* rich horizon (C6) is darker, compared to the ashier C10.

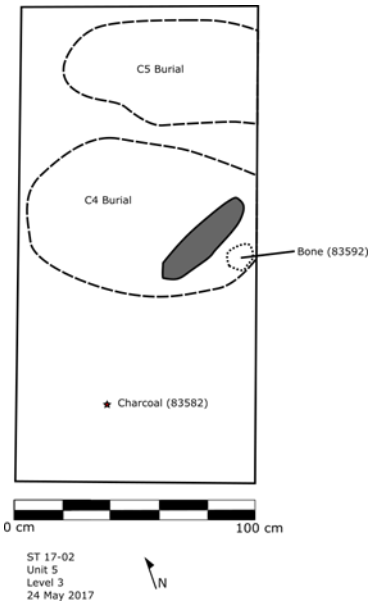

Figure 30. Plan drawing of the location of C4 and C5 burials

C6

A *jute* rich horizon, distinct from C10. The *jute* are not as degraded as C10 and the surrounding matrix is not ashy. The boundary between C6 and C10 is sharp. Ceramics are present in the C6 matrix, although in low density, and with higher frequency toward the top of the horizon. The surface of C6 is slightly cut from above by burials C4 and C5. The two distinct *jute* matrices are also present at Maya Hak Cab Pek.

C3, C4, C5, C7

The C3 fill contains small rocks in a silt matrix. A concentration of ceramics is present on the surface of C3 in the south of the excavation. Within the matrix are the burials C4 and C5 (Figure 30). The rocks were likely a constructed layer to cover C4 and C5 burials and the rocks directly associated with the burials was indistinguishable from those in the rest of the stratum.

C4 is a tightly flexed burial with the head to the east, facing north (Figure 31, **Error! Reference source not found.**). The burial appears to have been re-entered and the cranium removed, leaving the mandible. Some maxillary teeth are still present, as are the axis and atlas vertebrae, and there are no distinct cut marks on the mandibular condyles, suggesting the cranium was present in the burial, but was subsequently removed after decomposition. A large flat rock was placed over the (missing) head, but is positioned standing on upright axis, perhaps as a result of the re-entry. Nine river rocks were placed around the burial. The feet were tightly together, suggesting the burial may have been

bound or wrapped. The hands were placed close to the face. There are no ceramics associated with the burial, but a single piece of obsidian was found next to the pelvis.

Figure 31. C4 Burial with large upright rock over the upper skeleton. Note the location of the mandible, but missing cranium

Figure 32. C4 burial

C5 is an extended burial in the north of the unit, head to the west (Figure 33, Figure 34). The feet extended out of the unit, requiring the Unit 6 extension. The base of the burial cuts into C6 *jute* matrix. The burial is covered by the rocks of C3. Large flat rocks covered most of the cranium and upper torso. The legs of C5 are below the C7 burials

that are in Unit 6, requiring their removal first, although there is a layer of material separating the two contexts, confirming the interments were separate events.

Figure 33. C5 Burial, beneath C7 Burial in Unit 6

Figure 34. C5 Burial, upper skeleton and pelvis

C2

Above the rocks and below the upper stratum is a disturbed silty horizon. The layer contains small pebbles, bone, shell and artefacts. The base is marked by the higher proportion of small rocks that define C3.

C1

The top stratum is a loose, disturbed silt. The surface is littered with leaves that have been blown in and is clearly turbated. Both ceramics and bone are present in this stratum. C2 is slightly more compacted than C1, but similar in composition.

UNIT 6

The extended legs of C5 burial continued outside of the Unit 4 boundary, requiring an extension to the northeast. Another burial context (C7) was encountered, above C5. Initially the C7 burial appeared to be a single individual; however, excavation revealed the presence of a second individual. Where possible bones were assigned to the individual during excavation, designated as C7a and C7b. indeterminate bones were collected as context C7 (Figure 35, Figure 36).

Figure 35. C7 burials. Flexed legs and ribs belong to C7a. Cranium in the centre, close to scales, belongs to C7b

Figure 36. Exposed C7a, showing pelvis, spine, and cranium

C7b was highly fragmented and missing much of the skeleton (**Error! Reference source not found.**), suggesting that C7a was an intrusive burial that disturbed C7b. The cranium for C7b was poorly preserved, although the maxilla and associated teeth are in a relatively good state of preservation (**Error! Reference source not found.**).

Figure 37. C7a right scapula and flexed arm, on top of cluster of C7b ribs and other long bones

Figure 38. C7b excavated cranium

Unit 7

A large stone protruded slightly into the south east corner of Unit 5. Whilst cleaning the unit wall beneath the stone, some small infant bones were discovered. Unit 7 was opened as an extension of Unit 5 to recover the burial. The upper strata followed the same sequence as Unit 5. The burial was marked by three rocks placed as grave architecture, with an additional river cobble as an apparent offering (Figure 39). The burial contained a single infant in a flexed position, head to the south, facing east (Figure 40, Figure 41). The burial feature is cut into C13 matrix and the rock architecture is covered by C10. The excavation was not continued below the burial.

Figure 39. C14 grave architecture

Figure 40. Infant burial C14

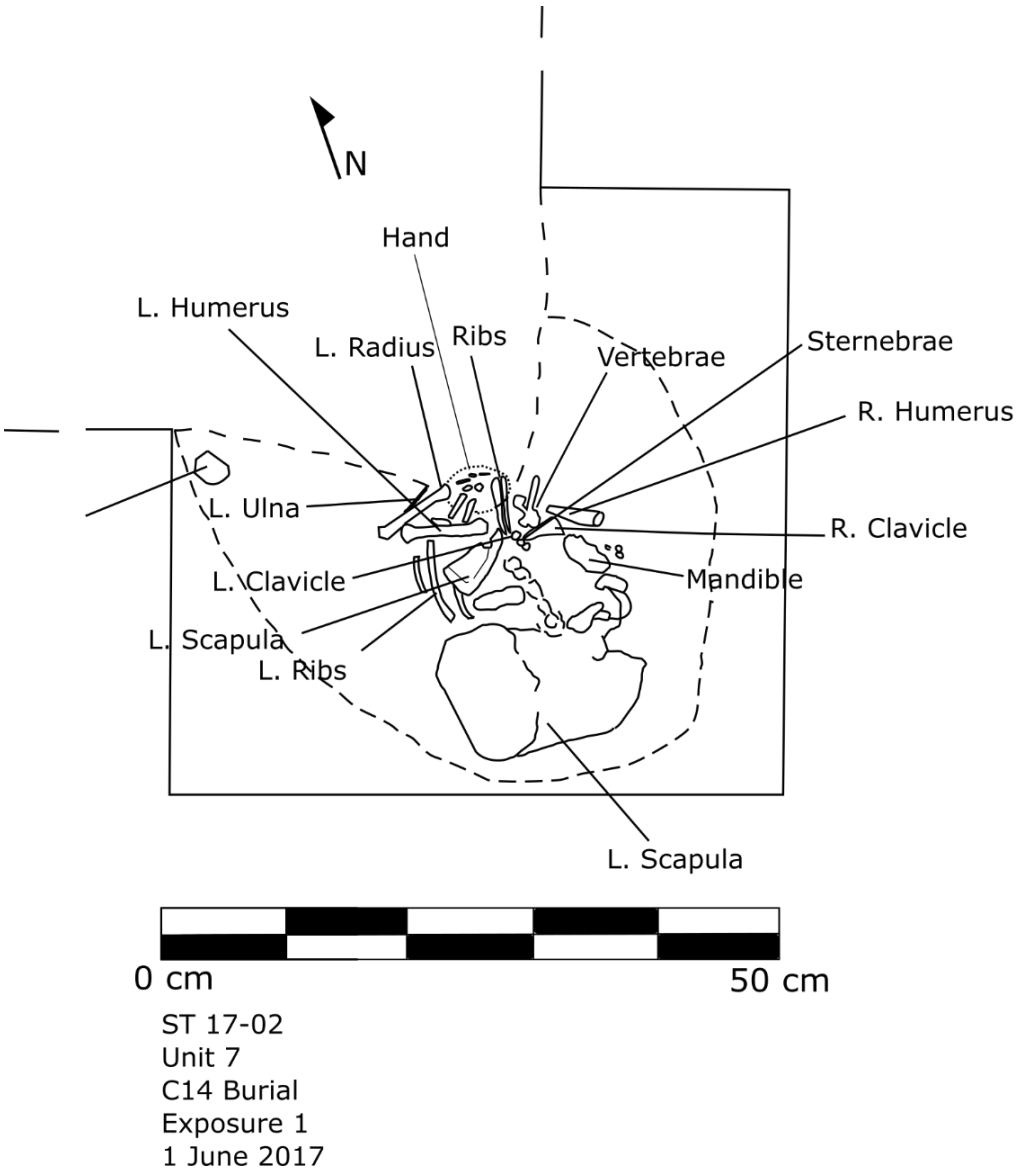

Figure 41. Plan drawing of burial C14

Saki Tzul 2017 Summary

The 2017 excavations provided a distinct stratigraphic profile, which expanded upon that encountered in 2016. The recovery of more burials throughout the stratigraphy reinforces the designation of the rock shelter as a long term, cross cultural, burial ground. Of particular importance is that the high rate of skeletal recovery suggests that the entire rock shelter could be full of burials, which would provide a truly unparalleled assemblage. The presence of numerus Archaic and Paleoindian infants, alongside adults of varying age, provides great insight into the treatments of the dead throughout the Holocene. The confirmation of the plaster surface (C29) is of particular interest as it was constructed thousands of years earlier than plaster technology was assumed to have been

developed. The presence of megafauna, in what appears to be cultural stratigraphy, is also of great importance and can help understand the early relationship between the peopling of the Americas and resource exploitation, and ultimately the megafaunal extinction.

Table 4. Context relationships from Saki Tzul 2017 Excavations

Context	Level	Feature	On surface	Above	Below	Cuts	Cut by	Description
C1	1			C2	-	-	-	very loose silt forming modern surface. Highly disturbed.
C2	2			C3	C1	-	-	More compact silt, with more inclusions, including shell and rock fragments, as well as artefacts
C3	3			C6	C2	-	-	many rocks within a silt stratum
C4		Burial		C6	C3	C6	reentry to remove cranium	flexed burial. reentered and cranium removed
C5		Burial		C6	C3	C6, C11	C7	extended burial, head west
C6	4			C10	C3	-	C4, C5	Upper *Jute* mix. Some ceramics
C7		Burial, Unit 7		C3	C2	C5		Flexed burial. Later determined to be two individuals. As such C7 bags may contain bones from C7a, C7b, and potentially C8 & C9
C7a		Burial a, Unit 7		C3	C2	C5	Probably C7b	main, and superposition flexed burial
C7b		Burial b, Unit 7		C3	C2	C5	probably C7a	non complete burial directly below and mixed with C7a
C8		Burial, Unit 7		C3	C2	C7	-	Femur and hip of burial extending out the east end of Unit 7
C9		Burial, Unit 7		C3	C2	C7	-	Child and adult in north wall of Unit 7. Not fully recovered
C10	5			C13	C6	-	C11, C12	Lower *jute* matrix
C11		ashy concentration of *Jute*	C10	C10	C6	C10	C5	whitish/ashy *jute* deposit in the north of the unit
C12		Small *jute* deposit	C10	C10	C6	C10	-	concentration of grey, broken *jute* in the centre of the unit
C13	6			C10	C15	-	-	silt surface and fill with few inclusions
C14		Burial, infant, Unit 7	C13	C13	C10	C13	-	Infant burial in Unit 7 with stone architecture
C15	7			C18	C13	-	C17	silt matrix with higher density of rocks in the north
C16		Cranium and femur in Unit 7		C3	C3	C3	-	isolated bones under rock
C17		Gourd feature		C15	C13	C15	-	Continues in south of unit. Large rock associated.
C18	8			C21	C15	-	-	silt and pebble matrix
C19		Burial		C22	C18	C21, C22	-	Adult, partly encountered in Unit 1 in 2016. Flexed
C20		Burial, neonate		C21	C18	C21	-	Neonate burial under stone architecture

C21	9			C22	C18	-	-	river pebble surface
C22	10			C25	C21	-	C24	darker silt than C21
C23		Rocky deposit		C26	C25	C26	-	Rocky deposit in NE of unit
C24		Burnt patch	C25	C25	C22	-	-	burnt patch on C25 surface.
C25	11			C26	C22	-	C23	silt and small rocks
C26	12			C29	C25		C23, C27	whitish orange silty clay surface.
C27		fire patch	C26	C26	C25	C26	-	possible fire patch with colour and texture change
C28		lithic concentration		C25	C25	-	-	small concentration of lithics in C25 fill
C29	13	White "plaster" floor		C34, C35	C26, C30	-	C31, C32, C33	Plaster floor with fire feature
C30		Fire pit	C29	C29	C26	-	-	3 strata to fire pit matrix
C31		disturbance on C29	C29	C29	C26	C29	-	disturbance to surface
C32		disturbance on C29	C29	C29	C26	C29	-	disturbance to surface
C33	13			C34	C26	C29	-	Rocky matrix in the north.
C34	14			C38	C29, C35	-	-	orange silty clay
C35		Black soil		C34	C29	-	-	non-continuous very black soil. Denser in the south of the unit
C36		thermal feature	C34	C34	C33	C34	-	small fire feature in the north of the unit
C37	14, 15, 16, 17			C44	C33	-	-	midden deposit in the north of unit.
C38	15			C41	C34	-	C40	rocky matrix
C39		grey deposit/ bug holes	C38	C38	C34	C38	-	fine grey silt, associated with dead bugs
C40		pleistocene fauna	C41	C41	C38	C41	-	scapula next to rock
C41	16			C42	C38	-	-	reddish silty clay
C42	17			C43	C41	-	-	lighter silty clay
C43	18			-	C42	-	-	rocky matrix. Appears sterile
C44	15, 16, 17, 18			-	C38	-	-	Rocky matrix in the north that is likely a breakdown deposit. The deposit increases size with depth, covering more of the unit towards the south.

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