

29 THE PALEOINDIAN CHRONOLOGY OF TZIB TE YUX ROCKSHELTER IN THE RIO BLANCO VALLEY OF SOUTHERN BELIZE

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With very little known about preceramic occupations in Belize we present the chronology of a small rockshelter in southern Belize that has clear evidence of human activity extending back to the late Pleistocene. The shelter is located along the Rio Blanco valley less than 2 km from the site of Uxbenká. Data collected from four seasons of excavation indicate that the first humans began exploiting local resources, including freshwater snails (jute) by 10,500 BC and were drawn to the rockshelter by its location near fresh water and stone tool resources. Jute processing was a major part of the use of the shelter and continued likely through the Classic Period. Unfortunately, the upper levels of the archaic and Classic Maya period are mixed or were removed, possibly for the carbonate jute shells, likely during the occupation of Uxbenká.

Introduction

This paper discusses the earliest known human occupations in the Rio Blanco Valley, located in the foothills of the Maya Mountains in the Toledo District of southern Belize. This region is well known for its Classic Period Maya developments and is home to several important political centers including Uxbenká, Nim Li Punit, and Lubaantun. The Rio Blanco valley (Figure 1) is the location of the earliest known of these political centers (Uxbenká), which was occupied as an agricultural community by 300 BC and developed into a major regional polity that was occupied continuously until at least 900 AD, before cycling back to a rural agricultural community following depopulation and political disintegrations across the southern Maya lowlands (Prufer et al. 2017).

Previous research has suggested robust preceramic occupations in the region. A highly reworked Paleoindian fluted point was recovered from a farmstead in Big Falls Village (Lohse et al. 2006) and geomorphological excavations near Uxbenká produced evidence of land clearing in the Late Archaic (Culleton 2012). A handful of preceramic Lowe type projectile points have been reported from surface contexts in the Toledo District (Stemp et al. 2017). In this paper we present AMS ¹⁴C dates from a small rockshelter with stratified Paleoindian deposits spanning at least 5,000 years in the Late Pleistocene and earliest Holocene.

Regional Setting

As part of a decade of research in the region the Uxbenká Archaeological Project

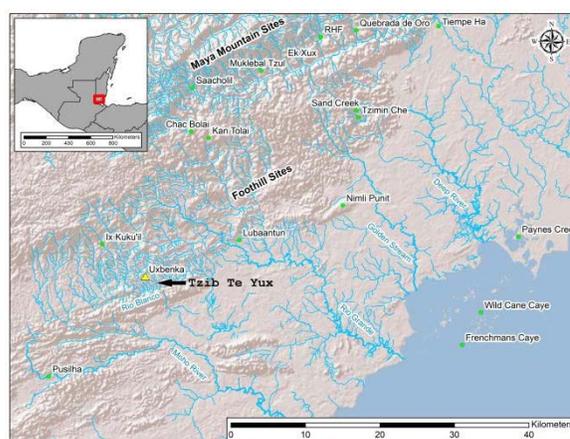


Figure 1. Regional map showing the location of the Rio Blanco Valley and major Classic Period sites in southern Belize as well as significant watercourses and hill-shaded topographic features.

(UAP) has examined a number of cave and small rockshelter sites in the Rio Blanco river valley (e.g. Moyes et al. 2016; Moyes and Prufer 2014). Like our studies at Uxbenká a major focus of this research has been to better define the sequence, or chronology, of occupations as well as human impact on the landscape (Culleton et al. 2012; Prufer et al. 2015; Prufer and Thompson 2016).

This paper specifically discusses the chronology of Tzib Te Yux (TY) a small rockshelter first discovered in 2009 by the UAP and subsequently excavated in 2012-2015 (Figure 2). In a region with few known preceramic occupation sites, and even fewer Archaic and Paleoindian contexts, this paper demonstrates that there were active populations of hunter-gatherers in the Rio Blanco valley



Figure 2. Photograph of excavations at Tzib Te Yux showing the flat surface and significant overhang that offers protection from the elements. Note that this is not a very large shelter, but provides direct access to the river below.

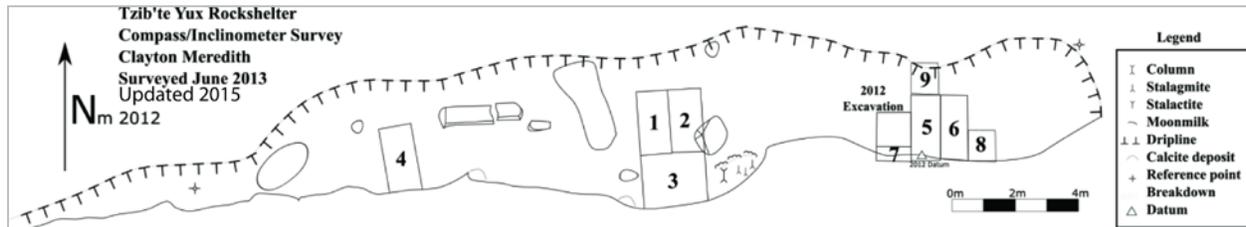


Figure 3. Plan view of the surface of Tzib Te Yux and the locations of excavation units from 2012-2015.

throughout the Paleoindian period and well into the Archaic.

The Rio Blanco valley is defined by a shallow waterway that originates in the interbedded tertiary sand- and siltstone formations known as the Toledo Uplands (Wright et al. 1959). The Rio Blanco flows southward before sharply diverting eastward as it intersects the Xpicilha Hills, a Cretaceous limestone section of the Campur formation consisting of craggy karst hills (King et al. 1986) known locally as the Rock Patch. After intersecting the Xpicilha Hills the river follows a fault eastward until it submerges into a massive cave known locally as Okebl'ha, reemerging south of the limestone hills near the village of Blue Creek. The fault that runs along an east to west trend is visible at least 500 m to the west of TY and continues east of the river for some distance though it reaches its steepest point above a pool in the Rio Blanco where the rockshelter is located. The river is highly sensitive to precipitation changes, making it very

active in a region of over 4000 mm of rainfall annually. During major rainy season storms we have observed the river rise over 6 m in less than 12 hours. The pool below the rockshelter is filled with water-rounded cobbles many of which are silicified limestone or chert. Some of these are likely transported downstream during flood events, but others are likely eroding from the fault zone and may be parts of coarse massive conglomerates deposited during the lower Paleocene (Keller et al. 2003).

Rockshelter Description

TY was first excavated during geoarchaeological investigations at the Rio Blanco in 2012. The rockshelter sits at the base of a cliff and is 8 meters above the river during low flow. It is 37m long and 4.5m wide at its widest point and is protected by a silicified limestone and conglomerate overhang (Figure 3). Due to piping along the fault, the matrix and clasts of this conglomerate have taken a siliceous texture such that they are workable and

produce sharp, though coarsely textured cutting edges. The floor of the rockshelter is relatively flat and composed of sediments dominated by culturally deposited *Pachychilus spp.* (jute) shells, found in abundance in the river below, interrupted only by large breakdown from the rock face above. The vast majority of the jute shells were culturally modified in the past as evidenced by the removal of the distal end spire of the shells to facilitate consumption, as detailed in Halperin (et al. 2003). While jute densities vary from >50% of the matrix to less abundant, they are found in significant numbers in every level of the excavations.

Excavations

Initial excavations in 2012 focused on exploring the chronology of TY and determining if deposits were intact and had stratigraphic integrity. We were also interested in whether TY functioned as a mortuary site, as has been the case for rockshelters in the Bladen Branch of the Monkey River, some 50km to the north of TY (Saul et al. 2005). While the site is not a cemetery per se, some human remains have been recovered from what do not appear to be formal burials. A full discussion of the nature of rockshelter mortuary behavior is outside the scope of this paper.

The single test unit (Unit 1) excavated in 2012 produced a depositional sequence that in general reflects the overall history of the use of the rockshelter (Figure 4). The uppermost layers consist of unconsolidated sediments over a jute midden deposit that is > 40cm in thickness. This midden deposit has a consistent density throughout of approximately 60% jute shell by volume, and contains an abundance of animal bone and lithic material. Below this sequence is a red clay-rich layer that contains fewer jute. The contact between the layers is indistinct and some mixing may have occurred. Shell material from this level shows more evidence of terrestrial snails, though it is still dominated by jute. Lithic materials, faunal bone, and charcoal are abundant in these layers. Below the red clay and above decaying limestone bedrock is a yellow clay layer with fewer cultural materials. A single date run on charcoal from the interface of the yellow/red clay layers, at 58cm below

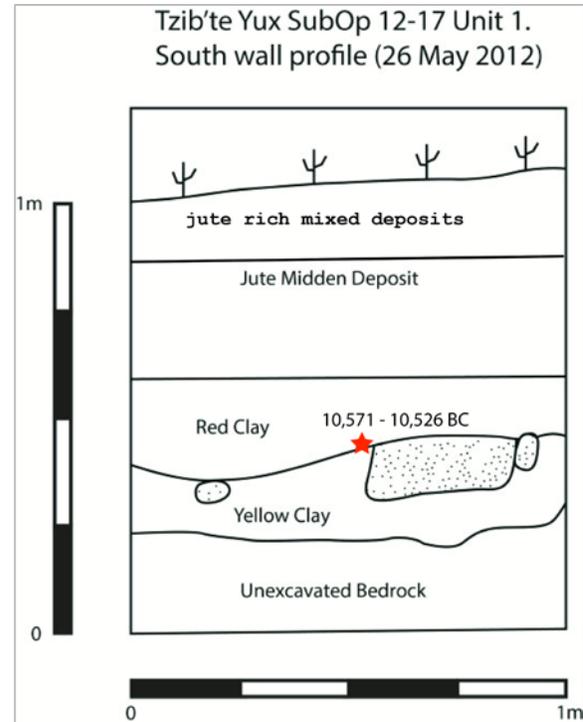


Figure 4. Unit 1 profile. This sequence is generally representative of the overall stratigraphy documented during excavations. The initial late Pleistocene data was a catalyst for additional research.

surface in Unit 1, produced a date of cal. 10,571 - 10,526 BC.

In 2013-2015 a UAP team led by C. Meredith, A. Alsgaard, and T. Dennehy returned to TY for more extensive excavations, opening an additional six 2 x 2m trenches and three 1 x 1m units. Excavations were all conducted in 5cm arbitrary levels (or less when natural sediment changes were observed) to maintain careful stratigraphic control. Artifacts, including lithic, faunal, and organic (burned plant) materials were point plotted and collected and labeled separately. Materials were screened in ¼" mesh, and subsamples of sediments floated. The stratigraphy in these units was comparable to Unit 1, but the lowest, basal, clay layer was not always distinct.

Chronology of Tzib Te Yux Rockshelter

Understanding the modern through Middle Archaic human presence at the rockshelter is confounded by several taphonomic and cultural factors. The upper 20cm of deposits are mixed and represent the remnants of

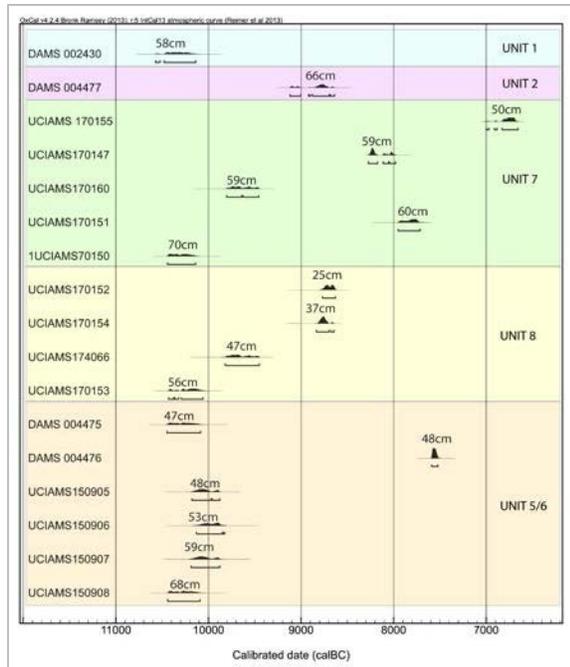


Figure 5. Chronology of Tzib Te Yux, by unit. These dates suggest intensive use between 6500-10500 BC, making TY one of the oldest known sites in Mesoamerica. Depths shown are below the surface as measured for each unit. All errors are two standard deviations.

the last 6000 years of use. A date obtained for unit 7 at 47cm below the ground surface produced a Postclassic date (cal. AD 890-975) just below an intrusive pit containing partial human remains in unconsolidated sediments. Our chronological work has focused primarily on sections of the excavations that were either within the densely packed jute midden or below it in the red and yellow clay layers. In Unit 8 this densely packed midden begins just 25cm below the ground surface, where we obtained the first of a series of dates starting at Cal. 8768-8629 BC.

Our overall observations are that either the rockshelter was not heavily utilized during the Middle to Late Archaic or the Classic Maya period (hence there was little aggradation of sediments). It is also possible that blocks of jute rich sediments were mined from the rockshelter floor, perhaps during the occupation of Uxbenká, located just 2km to the north, perhaps for plaster production, soil conditioning, or food processing. While additional focused radiocarbon studies might better clarify the upper levels, it may be of limited interpretive

value considering they contain mixed Classic Period ceramic and pre-ceramic Archaic materials.

Below the disturbed upper levels, in the dense jute midden and continuing to the yellow clay layers the dates are remarkably consistent in suggesting intensive and sustained activity from the Early Archaic through the initial habitation of the Rio Blanco valley sometime prior to 10,500 BC. We note that there are no intrusive recent dates into the midden or below. A series of 17 high precision AMS radiocarbon dates on charcoal suggest that TY was intensively used as a hunting and animal processing site, and likely a shelter, over a period of at least 4,500 to 5,000 years (Figure 5), based only on intact deposits. These dates suggest that the upper levels of the intact jute midden date to approximately 6000 – 7000 BC, with the lower levels dating to as early as 10,500 BC. While there are some reversals within individual units, they are generally between dates within 1-3cm of each other vertically.

Discussion

Analyses of the lithics, animal remains, and paleobotanical samples from TY are still ongoing. They represent some of the best preserved and oldest products of human culture ever recovered in Belize or tropical Central America. The only comparable published site is El Gigante rockshelter, located in central Honduras (Scheffler et al. 2012) which has evidence of a similar early occupation date.

Initial Paleoamericans are generally believed to have been exclusive hunters and gathers, relying on mobility to acquire seasonally available wild resources (Wheat 1967). It has also been assumed that they were primarily big game hunters, relying on large animals for subsistence and hunting with sophisticated stone spear point. More recent assessments suggest a wider diet-breadth and a more diverse toolkit for exploiting smaller animals and plant (Speth et al. 2013), consistent with the idea of groups of Mesoamerican hunters using expedient technology and non-diagnostic tools composing one of several cultures in the Americas at the end of the Pleistocene (Ochoa 2012). This is supported by our preliminary findings in southern Belize of expedient blades

and scrapers and a paucity of diagnostic tools, and consistent use of jute in well-dated late Pleistocene contexts (Meredith 2014).

Establishing the antiquity of human presence in Belize and in the tropics of Central America is the first step in understanding the long duration of occupation and adaptation that preceded the first sedentary communities and development of food production. The goal of identifying and dating stratified sites from the Paleoindian period has been an elusive target for archaeologists. This paper documents the chronology for the somewhat truncated history of Tzib Te Yux rockshelter and places humans in southern Belize during the terminal Pleistocene serving as an initial step towards a broader understanding of the first peopling of the tropics of Central America.

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