The 26th annual report of the
Blue Creek Archaeological Project

Edited by Thomas H. Guderjan and C. Colleen Hanratty

Submitted to the Institute of Archaeology
National Institute of Culture and History, Belmopan, Belize

Maya Research Program and the Center for Social Science Research, University of Texas at Tyler

May 2018
Chapter 6
2017 Survey and Mapping Activities at Tz’unun
Joshua J. Kwoka

Introduction

The site of Tz’unun sits on the eastern margin of the Alacranes Bajo, approximately 2 km from the border with Mexico in the far northwest corner of Orange Walk District, Belize (Figure 1). It was discovered by the author in 2016, along with Justin Telepak (Maya Research Program, Board of Directors), and two research associates from San Felipe – Pete Magana, and Fidel Cruz. The name – “hummingbird” in Yucatec Mayan – is derived from the large populations of multiple hummingbird species that served as daily companions while working in the area. The broader settlement area occupies approximately 8 km², spanning three privately owned parcels. The majority of the site core is found on the land of John Rempel and family of Blue Creek, who graciously provided permission to work at the site. Ceramics recovered from a bulldozed mound indicate the site was occupied from at least the Late Preclassic (400 B.C.) through Late Classic A.D. 800). The following sections detail survey and mapping activities conducted by the author, Fidel Cruz, and Simón Acosta between June and July of 2017.

Figure 1. Location of Tz’unun. Dots represent archaeological sites.
Methodology

Instrumentation

Architecture and human-modified landscape features were surveyed using a Trimble Geo 7X\(^1\) handheld GNSS (Global Navigation Satellite System) system, with 1,058 data points collected during the 2017 field season. Although this product advertises centimeter accuracy, in the absence of a base station Tz’unun’s remote location and forest canopy proved challenging for the instrument. The vast majority of survey points were recorded with a sub-50 cm accuracy, though when transiting between survey points the accuracy level would plummet to less than 5 m. However, a pause of less than 30 seconds before recording a point was sufficient for the Trimble to return to sub-50 cm accuracy. Accuracy was further improved by post-processing the data using Trimble’s CenterPoint RTX\(^2\) correction technology. The level of precision provided by the Trimble was more than sufficient for recording large architectural features, such as basal platforms and structure bases, though smaller superstructures were difficult to survey accurately. The use of an electronic total station (ETS) would have produced a more accurate map, but at significantly greater cost in terms of time and labor. The benefit of the Trimble was that a crew of three people were able to map almost the entirety of the site core during a two-month span. If the site is excavated in the future, those operations should be accompanied by ETS survey of associated structures.

Methodology

Traditional archaeological survey methods, such as random block or transect sampling, were eschewed in favor of a targeted approach, a decision based on prior research and local topography. Much of the architecture in the site core had been recorded via GPS during a reconnaissance trip in 2016. This trip also demonstrated that settlement was largely restricted to a series of small hills supporting high-canopied broadleaf forest that stretched in an east-west chain. Surrounding these hills are areas of mixed palm-transitional forest populated with large numbers of escoba palm, which in turn give way to areas of corozo and scrub bajo. Only small housemounds comprising the satellite settlements, discussed below, were located within bajo. In terms of process, while the author mapped a structure, Acosta and Cruz would explore the surrounding area for additional structures.

Tz’unun and Satellite Settlements (Figure 2)

The locations of 110 structures have been recorded at Tz’unun, 35% (n=39) of which comprise three small satellite settlements. Approximately 2 km southeast of the site core, the presence of 26 destroyed mounds were recorded in a field that is being actively cultivated. The author was fortunate to visit the area in 2016 just after plowing, when the mound remnants were visible as white limestone stains accompanied by artifact scatters, surrounded by dark bajo soil. As what remains of these structures is now level with the surrounding terrain, it is probable they would not be detectable under vegetation. Based on the minimal available data, these structures appear to have been modest housemounds.

Another satellite settlement, comprised of 9 small mounds occupying a hill, is located approximately 2 km southeast of the site core. The area has been largely cleared for pasture, resulting in damage to the structures. An additional cluster of 4 structures is located on a hill 900 m east of the site core. The center of the hill is marked by a significant drop in elevation that

---

\(^1\)Trimble Geo 7X specifications: https://drive.google.com/file/d/0BxW3dqQ5gdnTRkx0STNzUTF3b0k/view  
\(^2\) Trimble CenterPoint RTX specifications: http://www.trimble.com/positioning-services/centerpoint-rtx.aspx
leads to a large aguada. One of the structures sits on the ledge of the depression, overlooking the aguada. This area remains forested and the structures are intact.

To date, seven aguadas and a perennial pond have been identified within the Tz’unun settlement area. There is also a stream oriented north-south located approximately 1 km east of the site, parts of which have been channelized. It is unclear if this modification is attributable to the Maya or contemporary irrigation practices. Two reservoirs have been documented within the site core, and reconnaissance efforts suggest there may be a third. Based on these data, it is clear that water management was an important component of site planning at Tz’unun.

![Tz’unun & Satellite Settlements](image)

**Figure 2.** Tz’unun and satellite settlements. Site core in center shown in white.

**Tz’unun Site Core (Figures 3 and 4)**

Tz’unun’s site core sits in a stand of intact forest bracketed by an active agricultural field to the north, and a fallow pasture to the south. Settlement is clustered in two areas, the Western Group and the eastern Acropolis, that are separated by a 250 m stretch of mixed palm-transitional forest and corozo bajo. Of the 70 structures recorded in the site core, 83% (n=58) were mapped during the 2017 season. Detailed descriptions of the different groups are provided below.
Figure 3. Tz'unun site core overlying satellite imagery.
Figure 4. Tz'yun site core.
Eastern Acropolis (Figure 5)

The eastern acropolis is comprised of 16 structures (Structures 42-57) that share an approximately 21,000 m² basal platform. One of the sites largest aguadas is located 20 m south of the southwest corner of the basal platform. Access to all interior spaces is restricted. This is particularly so for the eastern cluster of buildings, where access to three interior courtyards is blocked by structures with high elevations. The western portion of the group is comprised of a 2,100 m² (51 m x 53 m) plaza that is accessed by three narrow pathways, including one in the north between Structures 51 and 56, and two in the south on the sides of Structure 52. The northern and southwestern access points are 4 m wide, while the southeastern plaza entrance is 10 m in width.

Structure 52, the tallest within the group, is a pyramidal structure with a rectangular base measuring 40 m x 20 m. It has experienced significant damage by looting in the form of a large trench through the front, stretching from the structure’s midpoint to maximum elevation. These elicit activities revealed at least one large room, with the side and back walls intact, that likely was a vaulted chamber. Upon hitting the back wall, the looters dug a vertical trench into the structure’s interior. There is also a looter’s trench penetrating the front of Structure 47. Despite the significant damage to Structure 52 and the smaller tunnel in Structure 47, the remainder of the structures comprising the acropolis are remarkably intact.

Tz'runun - Acropolis
Orange Walk District, Belize
Maya Research Program 2017

Surveyed by: Joshua J. Kwoka, Simón Acosta, and Fidel Cruz
Drawn by: Joshua J. Kwoka

Figure 5. Eastern Acropolis.
**Western Group** (Figure 6)

To date, 42 structures have been mapped in the Western Group. The locations of an additional 11 structures located in a line stretching north from the plaza between the ballcourt area and E-group have been recorded via GPS for future mapping. The presence of a large reservoir has also been confirmed in this area, and there may be a second, bringing the total number of reservoirs at the site to three. One of the most striking features of the Western Group is the extensive basal platforms. For example, the eastern portion of the group sits on a two-tiered platform with an area of 28,500 m² (300 m x 100 m). The eastern portion of this platform sits directly adjacent to a bulldozed road, suggesting that at least a portion of it was removed by these operations.

**Ballcourt Area** (Figure 7)

Structures 1-7 and 9-12 sit on the highest tier of the large eastern basal platform of the Western Group. With an approximate height of 17 m, Structure 1 is the tallest building at the site. It is a pyramidal structure that has been significantly damaged by illicit excavation (Figure 8) in the form of a large trench into the structure’s eastern side. Multiple construction phases are visible in the trench profile. The looters penetrated to the midpoint of the building, at which point they hit the face of a *talud*. They then broke through the *talud* and excavated a tunnel down and
Figure 7. Tz’uunun, Western Group, ballcourt area.

to the south. Alex Pastrana (Maya Research Program) explored the entirety of the tunneling operation and reported that it appeared the looters had successfully breached a tomb. Further exploration was prevented by the overall poor condition of the looters’ trench and tunnel system. Fracture lines are evident between overhanging fill layers, and a hole in the floor of the temple’s summit indicates that there has already been collapse. Without consolidation, the eastern portion of Structure 1 is likely to collapse in the near future.

Sitting directly in front of Structure 1 is Structure 2, a smaller pyramidal structure. It has also been extensively damaged by looting activities in the form of large trenches dug into its eastern side and northeast corner. Structure 7 has also been damaged by a curiously placed looters’ trench, beginning at the base of the platform and extending into the structure’s interior. An examination of this trench reveals that the vast majority of it was restricted to platform fill.

Figure 8. Structure 1 looters' trench.
There is sufficient evidence to suggest these looting activities are relatively recent. The Structure 1 backdirt pile was light in color, and the stones removed from the fill were devoid of lichen. Multiple 5-gallon plastic buckets, water jugs, and glass jars were encountered in what appeared to be a small campsite on the northern end of the ballcourt. The remaining structures in this area, including what appears to be a ballcourt (Structures 4 and 5), have survived intact.

To the west of the ballcourt the basal platform drops to a lower tier, marking the eastern edge of a largely empty 5,500 m² plaza. A series of mounds (Structures 8, 13-15, and 18-19) bound the plaza to the north and south. While relatively modest in height in relation to the plaza, they are quite tall when viewed from the base of the basal platform. Two low platforms (Structures 16 and 17) located near the southeastern corner of the plaza do not match the orientation of the other structures, perhaps indicating that they are significantly later in date.

**E-Group** (Figure 9)

A cenote-style E-group (Chase and Chase 1995) occupies the western end of the main platform. This designation is attributable to the variation exhibited by Structure 20; the central portion is significantly taller and wider than the northern and southern segments. The western pyramid, Structure 22, is one of the largest at the site in terms of volume. There is a clearly definable outset staircase on the front, or eastern side. However, this structure is heavily eroded, and it may have been a radial pyramid. A small looters’ tunnel oriented east-west near the apex passes entirely through the structure, within which the looters excavated a vertical shaft into the building’s core. A large talus pile indicates the tunnel was dug from the rear of building. The extremely small vertical tunnel was not explored due to safety concerns.

**Figure 9.** Tz'runun, Western Group, E-group.
A small pyramidal structure with a rectangular base (Structure 21) occupies the northern boundary of the E-group. It has been heavily damaged by looting; a trench bisects the northern half of the structure. In 2017, Kim Cox (Maya Research, Program Board of Directors) discovered two stela that had been set in front of Structure 21. The base of Stela 1, the eastern monument, remains set in the ground with the remainder lying face down. It appears that upon hitting the ground, Stela 1 suffered multiple transverse fractures. The same fate befell Stela 2, though the monument remained intact upon contacting the ground. Both stelae are made of low-quality limestone, and are in poor states of preservation. No imagery or text is visible on the backs or sides, and it is unlikely that anything is preserved on the fronts. Again, this could be an issue of preservation, or they may have been erected as uninscribed monuments. However, an inscribed four-glyph panel (Hanratty et al. 2016) discovered recently in a nearby agricultural field may have come from Tz’ unin. David Stuart (2017) believes this panel to be part of a much longer text, the remainder of which could be located at Tz’unun.

Reservoir Area (Figure 10)

Originating from the northern side of the E-group, an elevated causeway runs for 35 m to the northeast, terminating at a cluster of small mounds (Structures 32-37) that sit upon a two-tiered basal platform. To the east of this group are a series of large range structures, three of which (Structures 24-26) along with Structure 27 enclose a small plaza. The latter is one of the largest buildings at the site by volume, and has a complex design. Two small L-shaped buildings extend from its northern façade and connect to create an enclosed courtyard. Aside from a small trench and tunnel into the northern portion of Structure 27, all structures in this area remain intact.

Figure 10. Tz’unun, Western Group, reservoir area.
The northern boundary of the site core in this area is marked by the presence of a large reservoir, measuring approximately 60 m x 70 m. There is a clear drainage channel located between Structures 23 and 24 that would have channeled rainwater into the reservoir. In contrast to the surrounding high-canopied broadleaf forest, the interior floor of the reservoir represents a distinct microenvironment characterized by corozo bajo. Cohune palm, which requires deep, well-drained soils (Kunen 2004), is the dominant tree species.

Conclusions

In the absence of excavation data, it is difficult to say much about Tz’unun, but some general impressions can be provided. First, ceramics collected from a bulldozed mound in the northern agricultural field demonstrate that the site’s long occupation history, spanning at least the Late Preclassic through Late Classic. It is clear that natural topography greatly shaped the site’s settlement pattern. The absence of small residential structures within the site core is notable. The limited upland areas were reserved for the construction of large buildings, while smaller housemounds are found in lower elevations, including bajos, around the site periphery. As such, the impact of seasonal rains and flooding would have been relative to the socioeconomic position of individual households. Along these lines, water management appears to have been a major concern at the site. Satellite imagery shows that most of the aguadas in the region hold water during the rainy season, though these were all dry during June and July when the site was mapped. Rainstorms caused extensive flooding in the area around the site core during the field season, though these waters would largely dissipate within 24 hours. The presence of two, possibly three, reservoirs would have helped ensure that sufficient water was available throughout the dry season.

In terms of future work, a number of survey objectives have been identified. First, the reservoir and structures extending north from the E-group need to be mapped, as do the structures located in the northern agricultural field, some of which are quite significant. There is also a patch of upland forest located to the southwest of the site core, on the southern side of the fallow pasture, which could contain further settlement. The opportunities for exploring the site’s occupation history and internal dynamics through excavation are vast, though a few small projects could provide important information for minimal investment. Both of the stelae should be excavated and checked for inscriptions. Cleaning and documenting Tz’unun’s illicit excavations could assist in delineating site chronology and histories of individual architectural programs. Recalling the nearby discovery of the Tz’unun glyph panel, exploring looters’ trenches may reveal additional inscribed monuments.

References Cited:
Chase, Arlen F., and Diane Z. Chase

Hanratty, Colleen, Bruce Love, Stanley Guenter, and Thomas Guderjan
2016  First Evidence of the Ka’an Dynasty in Northern Belize. Mexicon XXXVIII(6):142.
Kunen, Julie L.

Stuart, David