Chapter X

AL18-01: Continuing Investigations of Ancient Maya House lots

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In July of 2016, areas within the community of Blue Creek and Rio Bravo Conservation and Management Area were surveyed via LiDAR on behalf of the NSF-funded (BCS # 1550204, 0924501, 0924510; Luzzadder-Beach and Beach, PIs; CNH #1114947 Brokaw, PI) Northwest Belize LiDAR Consortium. An unexpected result of the survey was the detection of extensive networks of linear stone features. Digitization efforts are ongoing, but as of December 1, 2018, 83.4 linear km of these features have been recorded. Based on LiDAR-derived slope gradient data and ground-truthing, it appears that the majority of these features are agricultural terraces and boundary walls. Although terraces have a clear agricultural function (Beach et al. 2002), they can also serve as expressions of human territoriality (Sack 1986:19) by demarcating space. Many of the terraces and boundary walls form patterns that are morphologically similar to contemporary Maya house lots, or solares (Batun Alpuche 2009). As such, it is possible that the ancient Maya employed both types of linear stone features to define house lots and communicate restricted land rights. Beginning in the summer 2017, the Maya Research Program initiated a project to investigate these presumed house lots within the 40 km² Xnoha LiDAR survey block (Figure 1). Results of those efforts are described in the 26th annual report of the Blue Creek Archaeological Project (Kwoka et al. 2018). The following paragraphs detail activities conducted during the 2018 field season.

Objectives

House lot investigations were an ancillary focus of the 2018 field season, with efforts limited to the study of a single house lot over the course of six days. In order to expand the geographical extent of the sample, a house lot located 1 km west of Xnoha’s central plaza was selected for study. Activities were designed to achieve the following research objectives:

• Obtain chronological data and establish occupation history of house lot
• Detect off-structure activity areas within interior house lot boundaries

Methods

The first objective was pursued through the excavation of a 1 x 1 m test pit located within the interior patio of a residential group. Provenience and contextual data were recorded on standard Maya Research Program lot forms. Soil was screened through ¼” mesh, and all artifacts were collected. A semi-quantitative phosphorus survey was conducted in order to identify activity areas. Common sources of pre-modern anthropogenic phosphorus (P) include human waste, organic refuse (e.g., plant and animal byproducts), burials, and ash from fires (Holliday and Gartner 2007:302). Of importance to archaeologists is that P is relatively immobile upon entering the soil system, thus providing a spatial indicator of past human activity. Soil samples were collected in a grid pattern at 10 m intervals at an average depth of 20 cm, though in some cases shallow bedrock necessitated the collection of material closer to the surface. Due to testing protocol, all samples were removed off-site and processed in the Maya Research Program field laboratory. Available P (Pav) was measured using the Luster Leaf Rapitest Soil P test kit. Soil was mixed with distilled water at a ratio of 1:5, stirred, and then left to settle for 24 hours due to the high clay content of the soils. After settling, the solution was extracted and placed within a container consisting of individual testing and reference chambers. The Rapitest powdered agent was then added to the testing

chamber, the resulting solution mixed, and after ten minutes, the color was recorded using the reference chamber. Colors ranged from light blue for soils deficient in Pav to dark blue for those with a surplus. Detailed results of the soil P survey are presented below.

Figure 1. Locations of 2017 (AL17) and 2018 (AL18) houselot operations
Excavation Nomenclature:
Format: Site Abbreviation/Year – Operation – Suboperation – Lot

AL18-01-A: 1 x 1 m test unit, interior patio of residential group (Figures 2 – 4). Datum SW corner, 8 cm above ground surface.

AL18-01-A-1: Lot consisted of humic layer. Soil was a silty loam, with 25% pebbles and 5% cobbles, 10YR 2/1 Black. Lot terminated upon reaching soil change between 21 cm (SE and SW corners) and 27 cm (NE and NW corners). A single obsidian proximal prismatic blade fragment and 11 (70 g.) sherds were recovered.

AL18-01-A-2: Soil was a silty loam with 40% pebbles and 5% cobbles, 10YR 5/1 Gray. The lot was similar to subfloor ballast, but no plaster floor remnants were detected. Artifacts recovered include 6 (13 g.) pieces of lithic debitage and 23 (342 g.) sherds. Lot was terminated upon reaching a soil change between 43 cm (NE corner) and 48 cm (SW corner).

AL18-01-A-3: Soil color changed slightly to 10YR 6/1 Gray. Soil texture also changed to silty clay loam with larger fill (40% pebbles, 15% cobbles). Lot terminated upon reaching bedrock between 62 cm (SE corner) and 78 cm (SW corner). Artifacts recovered included 3 (44 g.) sherds and 3 (42 g.) pieces of lithic debitage.

Interpretation of AL18-01-A: The terrain around the patio group slopes gently down towards the north and east. As such, the structures that comprise the patio group sit on a leveling platform. Lot A-3 appears to correspond to this platform, and indicates that it was built directly on bedrock after overlaying soil was removed. Although no plaster floor was encountered within the patio, Lot A-2 is similar in composition to subfloor ballast deposits from adjacent sites, suggesting that a plaster floor was present. If this interpretation is accurate, then the leveling platform and patio represent a single construction phase. This stratigraphic sequence mirrors those from the houselot architectural investigations conducted in 2017 (Kwoka et al. 2018). Dating of the construction and use of the patio group is pending the completion of the ceramic analysis. Houselots investigated in 2017 produced pure Early Classic (A.D. 250 – 600) dates.

Figure 2. AL18-01-A: East wall profile.
AL18-01-B: Semi-Quantitative Phosphorus Survey

Table 1 presents semi-quantitative available phosphorous (Pav) values for tested soil samples (n=115). Figure 5 shows two different samples undergoing the Pav measurement procedure. The survey detected multiple areas with surplus Pav. Those located adjacent to structures likely represent midden deposits, while high concentrations not associated with structures may be attributable to agricultural activities. The 2017 Pav surveys produced similar distribution patterns, with high concentrations associated with, and independent from architecture.

Table 1. AL18-01-B: Semi-quantitative Pav values.

<table>
<thead>
<tr>
<th>Pav Values</th>
<th># of Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depleted</td>
<td>12</td>
</tr>
<tr>
<td>Deficient</td>
<td>34</td>
</tr>
<tr>
<td>Adequate</td>
<td>34</td>
</tr>
<tr>
<td>Sufficient</td>
<td>14</td>
</tr>
<tr>
<td>Surplus</td>
<td>21</td>
</tr>
</tbody>
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Figure 4. AL18-01-A: plan view, closing depths.

Figure 3. AL18-01-A-3: bedrock.

Figure 5. Luster Leaf Rapitest Soil P test kits, showing solution extracted from two different soil samples after mixing with Rapitest agent.
Figure 6. AL18-01-B: Pav density map. Green polygon marks location (interior patio, right of center) of excavation unit AL18-01-A.
Discussion

In terms of research objectives, the test unit excavated in the interior patio of the residential group produced ceramics of sufficient quality for chronological assignment. Occupation dates are pending the completion of the ceramic analysis. That the basal platform and patio represent a single construction phase aligns with results from previous houselot excavations. In conjunction with the 2017 houselot data, an Early Classic date would indicate the region experienced significant population growth during the 3rd – 7th centuries. Furthermore, an Early Classic date would provide additional support for the emergence of a system of restricted-use land tenure during this timeframe, as evidenced by the presence of terraces and boundary walls demarcating houselots. Results of the semi-quantitative Pav survey provided further support for the efficacy of this method in identifying activity areas. However, in the absence of additional methods designed to determine the specific activities that produced high Pav values, the utility of this method is limited.

References Cited:

Batun Alpuche, Adolfo Ivan

Beach, Timothy, Sheryl Luzzadder-Beach, Nicholas Dunning, Jon Hageman, and Jon Lohse

Holliday, Vance T., and William G. Gartner

Kwoka, Joshua J., Thomas Ruhl, and Sara Eshleman

Sack, Robert D.