22 SETTLEMENT AND RESOURCE DEVELOPMENT AT ALABAMA, BELIZE: PAST, PRESENT, AND FUTURE INVESTIGATIONS

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Alabama is a small major ceremonial centre nestled against the Maya Mountains, approximately 20 km inland from Placencia Lagoon. Located by the Stann Creek Project in the 1970s, investigations in the 1980s by the Point Placencia Archaeological Project determined that the epicenter was constructed and occupied by the Maya during the Late to Terminal Classic periods (ca. 600-900 AD). In 2014, the Stann Creek Regional Archaeology Project returned to the site to investigate settlement biography and its relationship to local resource development. The Phase I Reconnaissance had three goals: 1) to collect and assess as much data as possible regarding the 1970s and 1980s investigations, 2) to assess the condition of the Alabama epicenter for the first time since the 1980s, and 3) to initiate the first systematic settlement survey in the area. Combined results of investigations in the 1970s, 1980s, and 2014 suggest a biography for Alabama that is reminiscent of an instance of rapid resource-based urbanism, known colloquially as "boomtown".

This contribution is dedicated to Elizabeth Graham and J. Jefferson MacKinnon, whose pioneering work in the area of Alabama made possible the line of questioning presented in this article.

Introduction

In July 2014, the Stann Creek Regional Archaeology Project (SCRAP) conducted its inaugural field season at the site of Alabama in east-central Belize (Figure 1). A small major ceremonial centre (Hammond 1975) or Middle-Level Settlement (Iannone 2004), Alabama is nestled in an alluvial valley among the eastern foothills of the Maya Mountains in the southern portion of the Stann Creek District. Referred to in the literature and surrounding communities as Alabama or Alabama Ruins, meaning "cleared forest" in Muskogen, the site and surrounding settlement occupy the location of the old Waha Leaf Banana Company plantation, in operation after World War II until the late 1960's by the Greene and Atkins Banana Co. (who named the area) based out of Mobile, Alabama (Moberg 1997:34-35). The plantation consisted of groves and workers' barracks (site of the Old Alabama Village), an airstrip, and was connected by road to Alabama Wharf for shipping purposes. In the mid 1980s, Alabama was translated by archaeologists into Mopan and renamed *Chacben Kax* (*C'hacben K'ax, Ch'akben K'aax, Ch'akbe'en K'aax*), meaning "recently-cleared forest" (MacKinnon 1988) or, more literally, "forest that has been cleared on someone's behalf" (Marc Zender, personal communication, 2014).[1]

Alabama is located approximately 20 km inland from the Placencia Lagoon, along the upper tributaries of the Waha Leaf Creek[2] that flow from the mountains out to the lagoon. It is situated approximately 35 km from the Hummingbird Corridor to the north, and roughly 65 km from Nim Li Punit to the south. Currently, the site is part of the Greene Groves and Ranch Ltd. Property (citrus orchards), north of the village of Maya Mopan. This village was established in the 1970s by Maya families from San Pedro Columbia in Toledo to facilitate employment in the area. Since then, it has grown in population due to various industries further attracting families from Toledo and the recent shifting of local communities due to land disputes and hurricane damage (Woods et al. 1997; Residents of Maya Mopan, personal communication, 2014).

In this article, the author recaps past archaeological investigations from the 1970s and 1980s, the goals and results of the SCRAP 2014 investigations, and future avenues of research at Alabama and surrounding areas.

Past Research: SCP and PPAP

In 1976, Elizabeth Graham (1983) briefly visited the area of Alabama as part of the Stann Creek Project (SCP), at which time she noted two mounds over 5m tall near the plantation airstrip, and suggested the likelihood of other structures in the vicinity. Additionally, she provided the earliest assessment of resource availability and distribution in the region, including more detailed analyses of available

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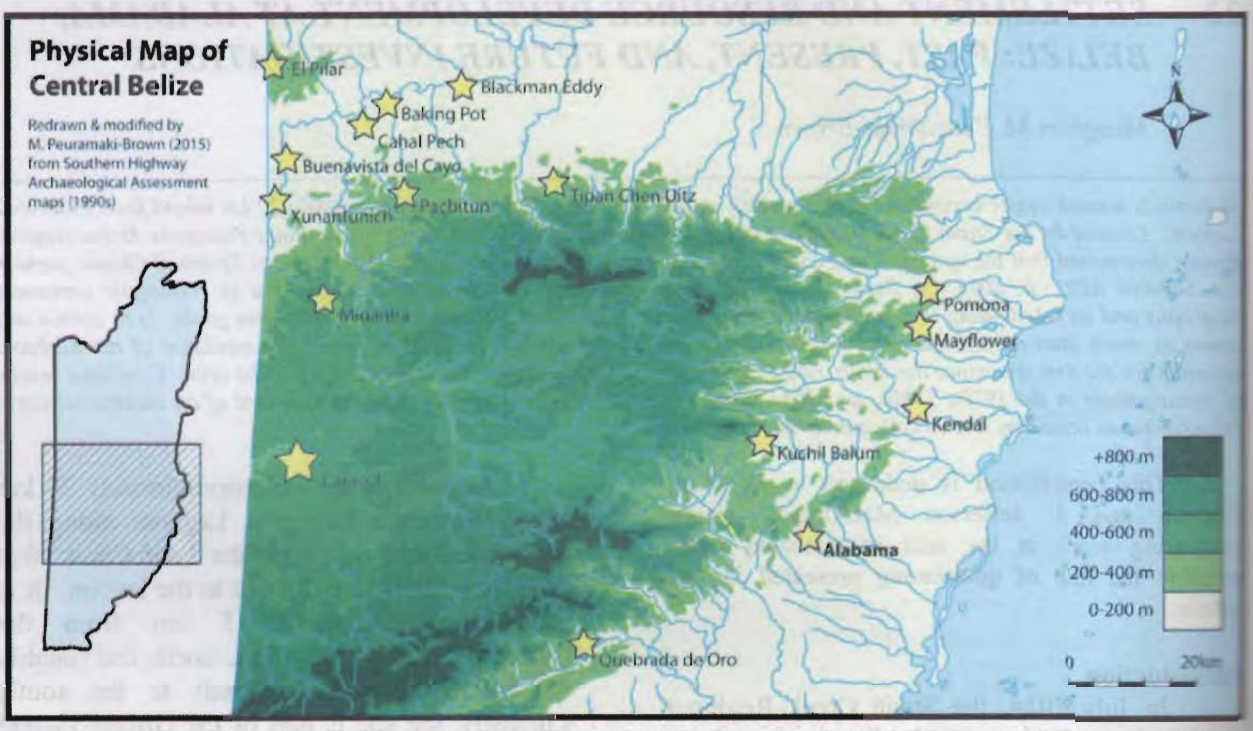

Figure 1. Elevational map of east-central Belize showing location of Alabama. Redrawn and modified from Southern Highway Archaeological Assessment maps (1990s).

soils, stones, clays, etc. (Graham 1987, 1994; see also MacKinnon et al. 1999; McKillop 2002; MacKinnon and May 1988, 1990). Archaeologists did not revisit the area until January 1985, when members of the Point Placencia Archaeological Project (PPAP), under the direction of J. Jefferson MacKinnon, located the site epicentre.

PPAP was initiated in 1983 to examine ancient Maya utilization of the coast and cayes of central and southern Belize. In particular, project members were interested in examining the development of ancient Maya lime and salt producing sites during the Early Classic and Late Classic periods, respectively, the latter of which coincided with population booms occurring inland in the Belize Valley, Peten, and elsewhere in the Maya lowlands (MacKinnon and May 1988, 1990). As part of these investigations, MacKinnon (1989a) argued that because most coastal areas were unsuitable for the construction of large centres due to their low-lying and marshy nature (Pendergast 1979:7), there must have been an important inland centre that served as a focal point for settlement and trade between the coastal salt, fish, and lime producing sites and inland areas leading to the Maya Mountains and beyond. Using locational geography and the 1970s survey data, MacKinnon located the site 1.3 km north of Graham's mounds, nestled against the Maya Mountains and immediately south of the Cockscomb pluton: one of three principal granite sources in the Maya Mountains. Smaller secondary sites were also located to the south, including the Danto and Lagarto Ruins (MacKinnon 1989a).

Over the course of four seasons of PPAP investigations, the epicentre was found to consist of 16 major structures, including an 'acropolis' and ballcourt, arranged around three plazas with a *sacbe* leading into the site from the southwest. Fourteen plain stone, granite monuments were also noted. Based on ceramic[3], carbon-14[4], and obsidian hydration[5] dates from excavations at many locations within the epicenter (Figure 2), as well as assessments of looters' trenches, MacKinnon determined that the buildings were constructed in a single phase during the Late Classic, with occupation extending into the Terminal Classic (MacKinnon 1989; MacKinnon et al. 1993). Only Str. 3, the so-

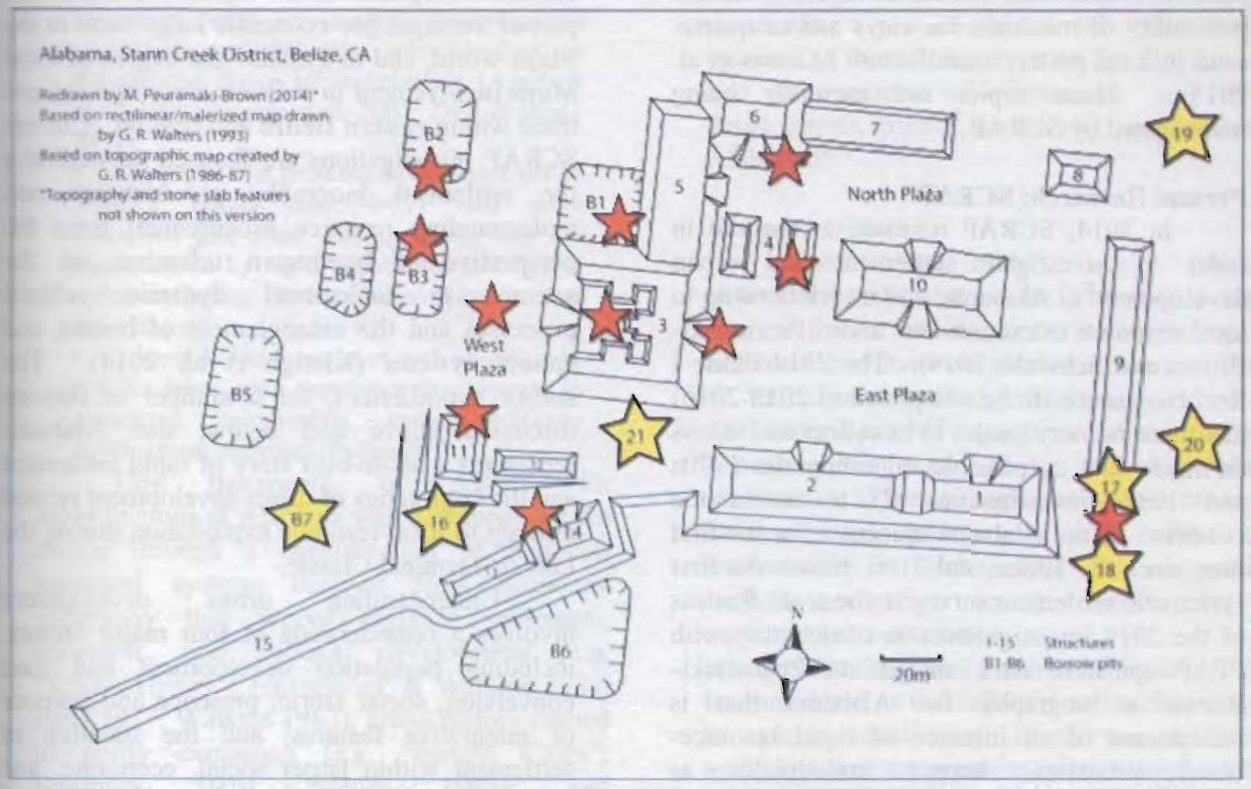

Figure 2. Epicentre map of Alabama, showing locations of known PPAP excavations (orange stars) and new structures located by SCRAP (yellow stars). Topographic mapping of the centre is currently underway. Redrawn and modified from PPAP maps.

called 'acropolis,' contained multiple phases, although all within the Late/Terminal Classic. Some Late Postclassic material was recovered in disturbed cache contexts below granite slabs found lying on the surface of a plaza (suggested by MacKinnon to be a situation of revisiting following abandonment), and two possible Early Classic jar fragments were found at surface east of the epicentre. No Preclassic material was encountered, unlike at the Kendal, Mayflower, and Pomona sites to the north (Graham 1994). No settlement investigations were conducted by PPAP (except for the testing of a set of housemounds across Waha Leaf Creek from the epicentre and the consolidation of Mound 13-1[5]), as it was believed that too much alluvial deposition and modern agricultural activity damage had occurred.

The best-known investigations by PPAP involved their excavations and consolidation of the site's ballcourt and other "megalithic" architecture (MacKinnon 1989b; MacKinnon and May 1991; MacKinnon et al. 1993). The rather large and oddly situated ballcourt (closely surrounded by large architecture on all sides), dates to the Late Classic. The use of granite slabs and blocks as facing stones in the architecture (found throughout the site and settlement), some weighing over 900 kg, is rare in Maya architecture, which is normally composed of the limestone that is so abundant throughout the lowlands (McCurdy 2014). Although no limestone is found near Alabama, the ballcourt markers and cornerstones of many buildings at the site are made of the material, likely brought in from quite a distance and reflecting the importance that the Alabama Maya associated with this material.

Another interesting feature noted were large borrow pits surrounding the epicentre. PPAP tested some of these features and suggested they were the source of core fill materials for the granite-faced buildings of the epicentre. The possibility of additional functions, such as the delineating of plaza areas and the altering of perceived building heights were also suggested (MacKinnon 1988); however, water management does not appear to

have been addressed (based on reports), nor the possibility of materials for clays and/or quartz-sand in local pottery manufacture (Aimers et al. 2015). These topics are currently being investigated by SCRAP.[7]

Present Research: SCRAP

In 2014, SCRAP returned to the site in order to investigate settlement and urban development[8] at Alabama, and its relationship to local resource extraction and trade (Peuramaki-Brown and Schwake 2014). The 2014 Phase I Reconnaissance (to be completed in 2015-2016) had three primary goals: 1) to collect and assess as much data as possible regarding the 1970s and 1980s investigations, 2) to assess the condition of the Alabama epicenter for the first time since the 1980s, and 3) to initiate the first systematic settlement survey in the area. Results of the 2014 investigations, in conjunction with PPAP epicentre data, suggest to Peuramaki-Brown a biography for Alabama that is reminiscent of an instance of rapid resource-based urbanism, known colloquially as "boomtown".

Rapid resource-related settlement and urbanism

When urban centres[9] flower rapidly in response to resource development or colonial initiatives, "instant cities" arise (Barth [1975] traces these forms of development back to ancient Greek times). Often described as "boomtowns"—communities that undergo sudden and rapid population and economic growth, or that are started from scratch because of an influx of people—these settlements are remarkable in that they typically emerge in severely disadvantaged or isolated frontier zones, often on the boundary between shifting geo-political entities (Barnes 1988; Burghardt 1971). These centres can boom then bust after a short period of time, boom indefinitely without interruption, or not boom at all—dependent on where they are located relative to resource extraction and distribution activity (Rodriguez 1982). In essence, these include "spaces of temporally compressed transformations marked by planned and unplanned radical spatial reconfigurations" (Woodworth 2011:14).

The overarching research goal of SCRAP has been to understand the nature of ancient urban development in the Stann Creek District, part of a unique geo-economic hinge zone in the Maya world, and to evaluate the degree of local Maya involvement in resource development and trade within eastern Belize and beyond. Current SCRAP investigations are focused on outlining the settlement biography at Alabama and understanding resource procurement from the perspective of boomtown urbanism, in the attempt to understand dynamic cultural processes and the entanglement of human and natural systems (Kintigh et al. 2014). The author hypothesizes, for a number of reasons discussed above and below, that Alabama represents a boom-bust story of rapid settlement and the beginnings of urban development related directly to local resource exploitation during the Late to Terminal Classic.

Understanding urban development involves a consideration of four major factors, including population development and land conversion; social fabric; presence and purpose of integrative features; and the situation of settlement within larger social, economic, and political organizations. Key points of consideration also include the adoption of multi-level perspectives, from the individual, to the local, regional, and interregional scales. Differentiating rapid resource-based development from other ancient settlement and urban processes involves:

- Criteria 1: Distinguishing a *frenetic* pace and scale of population growth and land conversion, related to rapid in-migration. In other words, rapid development relative to the norm. In the case of the Maya, this might consist of development over a few centuries rather than a thousand years or more, as is the norm (Houk 2015).
- Criteria 2: A *unique and changing social fabric*, also related to rapid in-migration. Determining who arrives? Who was already present? How were they organized in relation to each other? In particular, a transition within communities when residents shift from having strong social bonds that crosscut individual groups to only tenuous bonds that link internal groups, leaving a more "patchwork quilt pattern" of social fabric (Greider & Krannich 1985a, 1985b), often characterized by scattered residential sites versus clustered neighbouring organizations (Arnault et al. 2012; Smith 2011; Smith et al. 2014). This sudden decline in the

density of acquaintanceship, due to rapid in-migration, can be highly disruptive to socialization mechanisms, often leading to destabilizing forms of organization (Agnitsch et al. 2006; Putnam et al. 2003; Zolli & Healy 2011).

- Criteria 3: The presence of *hallmark urban features* (Houk 2015:20-21) that meet functional and place making needs, and are characterized by rapid appearance and hybrid styles reflecting foreign administration and local factors.
- Criteria 4: The location of such processes in *frontier zones*, with population involvement in associated colonization and/or resource development activities (Pullan 2011).

This framework of criteria for investigations at Alabama was developed by the author through a consideration of regional-historical systems theories from economic geography that weave together settlement, economic, and political development (e.g. "Staple Theory"; Easterbrook & Watkins 1984; Innis 1977; Watkins 1963); urban history related to polity expansion (e.g. "Instant Cities"; Bradbury 1979; Stetler 1985); and environmental sociology that considers the social implications of community development in relation to resource extraction (e.g. "Rapid Growth Communities"; Freudenburg 1979, 1982, 1986), alongside methods adopted from archaeology and geology.

Together, these ideas offer a means to consider the impact of staple resource extraction, manipulation, and distribution—commodities that were in constant demand, and often limited in source location—on ancient Maya settlement development and state expansion at local, regional, and inter-regional levels. Of particular interest is the role of grinding stones (granite *manos* and *metates*), clays/ceramics, salt, obsidian (volcanic glass), and crops such as cacao (Sharer & Traxler 2006). Each of the aforementioned theories and models help contribute to a richer understanding of rapid settlement development and provide a context for questions about whether the Maya were truly urban, what forms this may have taken, and the relationship between their dispersed settlements and centralized monumental architecture; therefore, the primary research question guiding SCRAP investigations is as follows: "What was the relationship between the dynamic commodity procurement and distribution systems of the eastern front of the Maya world and the nature of settlement and civic development, growth, complexity, and decline at Alabama?"

Evidence to-date

Based on PPAP work, various observations suggest to the author that rapid resource-based settlement and the beginnings of urbanism may have occurred at Alabama. Three of the aforementioned criteria are addressed. The frenetic pace of population and scale of land conversion is suggested by the single-phase architecture of the epicentre, as well as the large borrow pits. Additionally, little refuse was encountered in architectural fill, suggesting limited occupation in the area prior to monumental construction.

Hallmark urban features in the area could be considered as the ballcourt and sacbe, as well as plaza areas and other non-residential architecture of the epicentre. Interestingly, these features may reflect a lack of knowledge concerning their role (e.g. the odd positioning of the ballcourt), and their rapid construction may be more for placemaking concerns rather than actual functional purposes. This might be similar to boomtowns of the North American Wild West, often no bigger than "villages" or "towns", where the façades of buildings were made to look like their "big city" counterparts (libraries, town halls, etc.), but were in fact false fronts and often not providing of the entire suite of urban services expected of them (Heath 1989). Additionally, the almost "revered" use of limestone within the architecture may be similar to the use of materials from far away in western towns as well – often from important state quarries. This could also suggest a more "colonial" administrative influence. The large slab architecture is also reminiscent of that used at sites such as Tipan Chen Witz and Naranjo (Andres et al. 2014). MacKinnon (1988) suggested colonization by Maya from the interior, based on the lack of use of marine resources at the site and odd use of limestone. These lines of evidence for foreign administration will be pursued in future research; although, the nature of locally

available building materials must also be considered.

The location of Alabama at a political and economic frontier might be discussed in terms of shifting core-periphery, reciprocal or non-reciprocal relations (Schortman and Urban 1994; Urban and Schortman 1999) or dynamic centralized-decentralized models of the Maya world (Marcus 1998). An economic frontier zone is suggested by proximity to the eastern coastal trade routes, the Hummingbird Corridor (Chase and Chase 2012), and possible granite extraction and ceramic production in the area, as well as nearby saltworks. Current investigations into obsidian use by the Alabama Maya should help to situate its population within active trade routes of the period.

The 2014 season

Current goals of SCRAP research have been to continue expanding upon the aforementioned framework of criteria, and comparison with other known processes of settlement and urban development in the Maya world. During a 15-day inaugural field season in 2014 (Peuramaki-Brown and Schwake 2014), funded through a successful crowdsourcing campaign, members of SCRAP visited the epicenter to relocate old excavations and document any looting activity. All structures identified on PPAP maps were relocated, and seven new structures were identified. Previous looting identified by PPAP was noted, with only minimal recent activity encountered, and previous consolidation efforts were re-documented (MacKinnon 1989b).

The epicentre architecture is remarkable in its orthogonal layout, consistent orientation (8° east of True North), and large footprints relative to height (tallest structure is only 7m). In fact, it is particularly notable when overall hectares covered (approximately 4.3 ha, excluding sacbe and proximate plazuela group) and number of structures (18 structures, 3 plazas), are compared to those of other sites in Belize (Figure 3) (Andres et al. 2014:Table 1; Houk 2015:Table 10.1). There are far fewer structures than would be expected of a site this size; for example, Altun Ha (3.5 ha, 28 structures), Baking Pot (4.1 ha, 43 structures), Xunantunich (4.7 ha, 32 structures). In order to

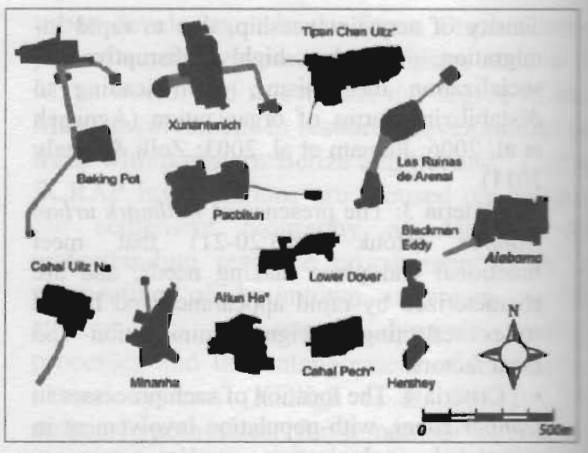

Figure 3. Comparison of Alabama to various "major centres" in Belize. The grey-shaded areas represent plazas and causeways, black represent structures. For the smaller sites, only causeways are shaded in grey, treating structures and plazas in black. Modified from Helmke and Awe 2012: Fig. 4.

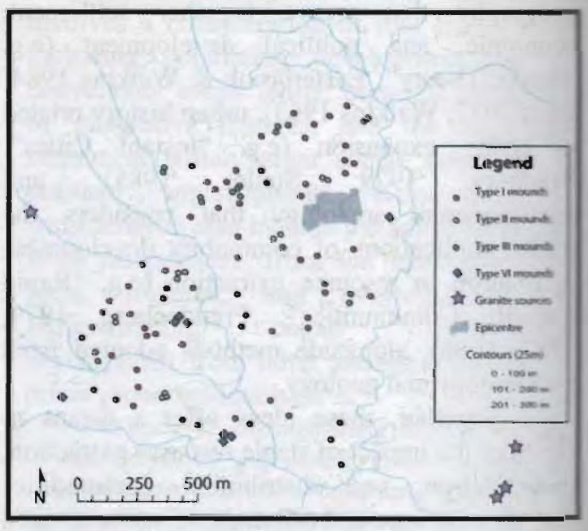

Figure 4. Preliminary GPS map of 1km2 settlement area among the upper tributaries of the Waha Leaf Creek There remains 1.5km2 to survey (limited to Greene Groves property area). Elevation data from LP DAAC (2001).

better examine further details of epicenter layout, organization, etc., it will be subject to full topographic, total station mapping beginning in 2015.

A 1km2 Global Positioning System (GPS) settlement survey was completed around the epicentre by walking orchard rows to confirm the presence of residential features (Figure 4). In total, over 100 individual mounds were identified throughout the area, many with intact granite facings, consisting of over 80 groups including larger Type VI sites spread throughout

Table 1. Percentage of settlement site types in first km2 of Alabama settlement (Property Blocks C1, C2, and D).

Type	Description	n	%
I	Isolated mound less than 2m high.	69	**81.18%**
II	2-4 mounds, informally arranged, all less than 2m high.	6	**7.06%**
III	2-4 mounds, orthogonally arranged, all less than 2m high.	6	**7.06%**
IV	5 or more mounds, informally arranged, all less than 2m high.	0	**0.00%**
V	5 or more mounds, at least 2 arranged orthogonally, all less than 2m high.	0	**0.00%**
VI	1 or more mounds, at least 1 being 2-5m high.	4	**4.71%**
VII	1 or more mounds, at least 1 being higher than 5m.	0	**0.00%**
	TOTAL	**85**	**100.00%**

(Table 1) (based on typology in Ashmore et al. 1994). Additionally, numerous isolated artifact scatters were also encountered (not shown on map), including dense chert scatters, which was not a locally available material. In 2015, the remaining 1.5 km^2 of the property area will be surveyed, in addition to surface collecting at each site in order to develop a preliminary settlement chronology and to conduct a basic clustering analysis. Preliminary surface material assessments in 2014 suggest future excavations of settlement sites have the potential to be productive, as ceramic, chert, obsidian, granite, greenstone, daub, etc. were all present at surface and in reasonable conditions. The formal surface collections in 2015 will guide settlement test excavations in 2016.

An interesting preliminary pattern emerging in the settlement is the apparent lack of clearly distinct clusters of settlement sites, independent from stream-focused organization, which are observed elsewhere in the lowlands and often suggested to be physical manifestations of neighbourhood organization within certain trajectories of Maya urban development (Chase and Chase 2014; Peuramaki-Brown 2014). This is not conclusive and spatial-clustering analyses will be conducted, as well as excavations at individual groups once the settlement survey is completed in 2015; however, it is intriguing as it may allude to a different form of settlement development in this part of the Maya world. Additionally, spacing designations for the assignment of settlement type groups may have to be adjusted (currently settlement site designation is following the Xunantunich Archaeological Project system), as groupings of settlement mounds appear to be more consistently spaced further apart (approx. 40 m), which would decrease the number of Type I mounds present.

Although current planned research into resource development includes clay and granite extraction, as well as possible trade of these materials along with other staples such as obsidian, the author will only discuss the consideration of granite exploitation at this time. Alabama is located in an aureole of metamorphic material surrounding the main body of the Cockscomb granite pluton to the north, and subsource zones to the south (Cornec 2008), with the Waha Leaf Creek tributaries originating from both areas. In 2014, two granite secondary source locales were located approximately 30 minutes by foot from the epicentre. Both areas possess small to massive (some over 2 m tall) boulders of granite that have eroded from higher cliff faces, and rolled downhill. Alternatively, some may also be the result of water movement associated with hurricanes in the past (Dunning and Houston 2011). Samples from each site were collected for export to be geochemically characterized.

Materials at each of these source zones are characterized by iron seams (thin banding), which occur in beds that run through the material. At the source zone southeast of the epicenter, the eroding iron causes huge sheets to slough off (spall), creating natural 'slab' forms

Figure 5. Natural slabs formed due to eroding iron seams within granite (left image), and slabs aligned in West Plaza of epicenter (right image). Photographs by M. Peuramaki-Brown (2014).

(*plancha* or "parent slab"; Searcy 2011:34), reminiscent of those of the Alabama ballcourt and West Plaza. In fact, the West Plaza slabs consist of a series of granite slabs from the same boulder, based on similarity of outlines though varying in overall size (Figure 5). At the source zone immediately west of the epicentre, many of the massive boulders contain curved iron seams, creating natural "turtleback" *metate* forms: the most common form of *metate* used during the Classic Period (McAnany 2010:111). This seaming would have eased the process of reducing large boulders for construction and artifact materials; a process similar to that described by Hayden (1987) and Searcy (2011:34), as larger blocks of basalt are broken along natural seams and fractures by tapping the slabs with a hammer. Future investigations will focus heavily on this resource development and management, along with clay exploitation and staple crops, as a possible foundation for settlement and civic development at Alabama.

Future Research

The opportunity to study an instance of ancient rapid resource-based urbanism is compelling, as it provides an innovative way of addressing topics such as ancient Maya urban planning, multi-level economic and socio-political organization, and the shifting relationships of households to larger civic and regional authorities. Although SCRAP work at Alabama is preliminary, it is considered by all project members to be an extension of the significant work conducted by Graham, MacKinnon, and others, in the area. A focus on settlement biography, granite and clay resource management, and the interaction of the ancient Maya of Alabama with their surrounding landscapes, will direct the majority of research in upcoming years. However, historic sites also located within the Alabama area will also offer interesting avenues of future inquiry, particularly regarding colonial, agricultural developments in the district.

By focusing on the nature of boomtown settlement and urbanism, and the question of its resiliency or sustainability as it existed in the past, the current SCRAP research has the potential to provide an example from a deep historical narrative to bolster larger, modern-day geo-economic and political discussions surrounding boom and bust cycles of development. Most critically, it might help understand district specific issues, as the Stann Creek District is currently the focus of much

boomtown activity related to the citrus, banana, shrimping, and tourism industries (Key 2002; Moberg 1991, 1996; Woods et al. 1997).

[1]SCRAP has decided to maintain the name Alabama, as few individuals in the region recognize Chacben Kax, including the neighbouring Maya community where it is referred to simply as "The Ruins". Additionally, the name of Alabama records aspects of local history that should be conserved.

[2]This is not to be confused with the Waha Leaf Creek further to the south (location of Waha Leaf Camp), which feeds into the Trio Branch and Bladen Branch.

[3]Much Pabellon molded/carved ware found throughout the site.

[4]Radiocarbon dates from above and beneath an intact plaster floor atop Str. 3 were A.D. 850 +/- 70 years (Wis.-1914) and A.D. 760 +/- 80 years (Wis.-1914).

[5]Obsidian hydration date from Str. 3 was A.D. 874 +/- 77 years (MOHLAB), and a second date of A.D. 1340 +/- 44 years (Diffusion Labs) from an unknown location.

[6]From existing PPAP maps and reports, the exact locations of these mounds remain unclear.

[7]PPAP investigations did not continue at Alabama beyond 1989 due to a shift in focus to other coastal sites (e.g. MacKinnon et al 1999; Gary Rex Walters, personal communication, 2015), and MacKinnon's sudden passing in 1999.

[8]SCRAP adopts the current human geography notion that any society characterized by "villages", "towns", or "cities" is considered "urban" in nature. The terms "urban" and "rural" are not perceived as an opposing dichotomy. Urban is an inclusive term describing the whole society, while "rural" refers only to a set of specialties linked to specific geographical spaces (Leeds 1980). Additionally, Trigger's (1972, 2003) and Pahl's (1966) continuums address the common factors of urban-ness (integration and nucleation) that vary in number and scale of urban functions at different settlement levels and locations, from hamlets and villages through to cities and conurbations.

[9]A location characterized by high human population density and vast human-built features in comparison to the areas surrounding it, and features special buildings representing the separation of functions that one associates with centrality (Renfrew 2008).

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