

THE 2007 SPRING MAPPING PROJECT
OF THE
KA'KABISH ARCHAEOLOGICAL RESEARCH PROJECT (KARP)

Submitted to

The Institute of Archaeology, NICH
Archaeology Museum and Research Centre
Culvert Road
Belmopan, Belize

Prepared by

Dr. Helen R. Haines
Research Associate
Trent University Archaeological Research Centre (TUARC)

Permit Number IA/H/2/1/07(03)

Department of Anthropology
Trent University
2000 Simcoe Street North
Oshawa, Ontario L1H 7L7, CANADA

16 Clanwilliam Court
Toronto, Ontario
M1R 4R2 CANADA

Mobile: 416-209-2028
E-mail: helenhaines@trentu.ca

Home: 416-444-2643
E-mail: hrhaines@ca.inter.net

TABLE OF CONTENTS

LIST OF FIGURES.....	iii
LIST OF PROJECT PERSONNEL.....	iv
INTRODUCTION.....	1
HISTORY OF RESEARCH AT KA'KABISH.....	4
DETAILS OF THE 2007 FIELD WORK.....	6
The Ka'Kabish Site Core – South.....	7
<i>Group A</i>	7
<i>Group B</i>	8
<i>Group C and Aguada</i>	9
<i>Group D</i>	9
<i>Group E</i>	17
Ka'Kabish Settlement Zone.....	18
Inter-Site Settlement Zone.....	19
DISCUSSION OF THE KA'KABISH SITE.....	20
FUTURE RESEARCH.....	23
CONCLUSIONS.....	25
ACKNOWLEDGEMENTS.....	26
REFERENCES.....	27
FIGURES.....	30
APPENDIX I: PRELIMINARY REPORT ON THE SETTLEMENT ZONE OF KA'KABISH, BELIZE: 2007 SEASON.....	44
APPENDIX II: KA'KABISH CERAMIC REPORT 2007.....	64

LIST OF FIGURES

Figure 1. Map of Northern Belize and North-Eastern Guatemala Showing Key Archaeological	31
Figure 2. Photo of Ka’Kabish from Lamanai.	32
Figure 3. Original Map of Ka’Kabish Core Zone as based on 1994 MRP Survey	33
Figure 4. Aerial Photo Showing Archaeological Sites and Modern Towns.	34
Figure 5. 2007 Map of Ka’Kabish Southern Core Zone (Groups A to E)	35
Figure 6. Photo of Cocoon Tomb.....	36
Figure 7. Illustration of Cocoon Tomb. (By L. Belanger).	36
Figure 8. Sketch map of cleared fields around the Ka’Kabish Site Core.....	37
Figure 9 Jaime Yanes in Chultun	38
Figure 10. Map of Chultun in Group B.....	38
Figure 11. Jose Perez Standing on Top Edge of Aguada.	39
Figure 12. Photo of Clifford Patterson with Ball Court Marker.	39
Figure 13. Map of Vaulted Rooms, Structure D14.	40
Figure 14. Photo of Front Chamber of Vaulted Structure North End, Structure D14.....	40
Figure 15. Fallen Corbel Vault Stone, Structure E5.	41
Figure 16. In Situ Vault Stones, Structure E5.....	41
Figure 17. Map of Ka’Kabish Settlement Zone. (By C. Patterson).	42
Figure 18. Photograph of Settlement zone in surrounding cane fields.	43

LIST OF PROJECT PERSONNEL

Project Director: Dr. Helen R. Haines
Trent University Archaeology Research Centre

Student Assistants: Clifford Patterson
Department of Anthropology
University of Western Ontario

Lorelei Friesen
Department of Anthropology
University of Toronto – St. George

Belizean Field Crew: Jaime Yanes
Indian Church

Jose Perez
San Carlos

Oscar Reyes
Indian Church

INTRODUCTION

Ka'Kabish, is a presumed second tier site in north-central Belize located almost exactly 10 km from the larger centre of Lamanai at 311 degrees magnetic north (Figure 1). From the top of the High Temple at Lamanai, Ka'Kabish is clearly visible on the horizon (Figure 2). In contrast to the extensive research conducted at Lamanai (cf. Graham 2004; Pendergast 1981, 1985, 1986), little is known about the site of Ka'Kabish (Guderjan 1996; Haines 2006, 2008a, 2008b).

Situated at approximately 17^o 48' 58" north latitude by 88^o 43' 47" west longitude¹ the core area of Ka'Kabish was separated roughly in half by the construction of a road connecting the village of Indian Church to San Filipe (Figure 3). Using this road as a dividing point the site is broadly referred to in terms of the North Complex and the Group D. Although work conducted during the 2007 season resulted in the renaming, and in many cases naming, of the various complexes encountered using an alphabetic system, for the purposes of general discussion the site is still referred to in terms of the North Half, and South Half.

Constructed on a limestone ridge, one of several that undulate across this part of north-central Belize (Hammond 1973; Romney et al. 1959). The site sustained damage during the construction of a modern road that links the towns of San Filipe and Indian Church; at least one building was completely destroyed and two other structures along with a section of the south plaza were removed during the brief succeeding use of the site as a quarry for road fill (Guderjan 1996). Additional damage to the site was caused by extensive illicit looting operations, although currently the greatest danger to the site is from the encroaching farmland. This last situation is undoubtedly exacerbated by the sites proximity to four growing communities – one in every direction (Figure 4).

This report details the work conducted by the Ka'Kabish Archaeological Research Project (KARP) under the direction of Dr. Helen R. Haines during the 2007 field season. During this year research was focused primarily on mapping the area of the site that lies to the south of the

¹ This reading was taken from the centre of the road that bisects the site using a Magellan 100 handheld GPS unit.

aforementioned San Filipe-Indian Church road on land owned by Don Manuel Blanco of the Town of San Lazero, Orange Walk District. A serendipitous event also allowed for the mapping of a large, recently ploughed corn field in the south-east corner of the junction of the San Filipe-Indian Church and Shipyard-Indian Creek roads. The latter work is detailed in Appendix I.

Investigations during the 2007 field season revealed that the site of Ka'Kabish is far larger than initially predicted based on earlier survey work. An additional two plazuela groups and two courtyard complexes were added to the architectural corpus for the site (Figure 5). Although elite occupation at the site had been surmised based on the presence of monumental architecture and several looted tomb additional evidence for an elite occupation came with the discovery of two residential structures each with large corbel vaulted ceilings.

Several non-elite or lower-status residential house mounds and house mound clusters were discovered in the fields immediately adjacent to the site. While ceramics from the site core yielded a date range for the monumental architecture spanning the Late Formative period (BC 400 – AD 250) through to the Terminal Classic period (AD 750 – 900), material collected from the adjacent settlement zone indicated a residential population existing in the area into the Middle Post-Classic period (ca. AD 1250 – 1450). Both revelations were surprising as the former evidence indicated that, contrary to previous ideas, architectural construction at the Ka'Kabish was not part of a Late Classic period influx of elites but rather was a long-term and continuous activity. The evidence from the residential zone was equally surprising as it suggested that the Post-Classic period occupation for the area was larger and more long-term than initially anticipated.

Consequently, interpretations of the role of Ka'Kabish in the North-Central Belizean landscape are being revised. Previously, the site had been assumed to be a small and somewhat insignificant secondary centre that grew during the early facet of the Late Classic period as a result of elite migration most likely from Lamanai. Currently, the data suggests that the site had a long history of elite occupation and a separate history of monumental architectural construction. New theories are

investigating the potential autonomy or at least greater political and/or social prominence of Ka'Kabish during the Classic period.

HISTORY OF RESEARCH AT KA'KABISH

The first known visit to Ka'Kabish by an archaeologist was in the early 1980's by David Pendergast, who visited briefly while working at Lamanai. He reported finding Early Post-Classic ceramics on low mounds in recently cleared milpa fields immediately outside of the site core (Pendergast 1997: personal communication). In the mid-1990s, Ka'Kabish was visited by archaeologists from the Maya Research Program (including this author) who produced a functional, although rudimentary, map of the site core (Guderjan 1996).

A total of 27 structures (dividend into two areas by the modern road) have been documented in previous reports (Figure 5). During the reconnaissance by the Maya Research Program team, ceramic and architectural evidence was uncovered that suggested Ka'Kabish had enjoyed a long history of occupation, spanning the Late Preclassic period (ca. BC 400 – AD 250) through the end of the Late Classic period (ca. AD 600 – 900) (Guderjan 1996). This preliminary inspection also encountered five looted tombs (two of which were vaulted and another with a plaster dome roof [Figure 6]), all of which were originally dated tentatively to the Late Classic period (Guderjan 1996). One of these tombs initially had red painted walls with dark red glyphs, but looting and subsequent exposure has rendered them indecipherable (Simon Martin 1997: personal communication). The size, and proximity of, the site to the larger site of Lamanai, similarity in architectural arrangements all suggest that Ka'Kabish was a secondary centre within the larger Lamanai polity, occupied by a cadre of elite personages. A ball court, complete with a circular marker, provides supporting evidence for an elite occupation at Ka'Kabish.

In June of 2005, Dr. Helen R. Haines applied for a permit to conduct a reconnaissance of the site to assess the viability of future work at the site. Working with two men from the village of Indian Church (Luis Gonzales and Jaime Yanes) the land-owners were located and the site was surveyed over a three-week period (Haines 2006). This survey work took the form of an informal assessment of the area with minimal clearing, restricted to those areas necessary to create egress and exit points.

Using the original 1995 Maya Research Program map as a guide the majority of the structures on the site core were relocated. Additionally, due to the clearing of the areas immediately adjacent to the site core since 1995 several outlying courtyard groups and low residential mounds were also identified.

The conclusion of the 2005 assessment was that, while the site had suffered additional looting in the intervening decade, it retained sufficient integrity to contribute valuable information regarding the organization of pre-Hispanic Maya polities in North-Central Belize. Furthermore, the recent exposure of a residential settlement zone in the surrounding area – that appear to include structures from a wide range of social strata – would permit future research to be conducted on a multi-scalar level not previously possible for the area.

DETAILS OF THE 2007 FIELD WORK

Based on the 2005 preliminary assessment, the site of Ka'Kabish was deemed to be considerable larger than initially predicted based on the earlier maps of the site core. Consequently, the decision was made to start mapping the monumental architecture to the south of the road, with the expectation of moving to the northern half either later in the season or as part of a subsequent 2008 field season. Initially, work for the 2007 field season was slated to occur only at the site core. However, upon arrival in the area it was discovered that a large field at the corner of the Shipyard and Indian Church roads recently had been ploughed and planted with corn. In the open field, numerous house mounds were clearly visible and a decision was made to take advantage of the opportunity to record a purely residential section. An application was made to, and granted by, the Institute of Archaeology to have this field included in the 2007 field season permit (IA/H/2/1/07(03)). Consequently, work during the 2007 field season was conducted in two areas, the Ka'Kabish site and the new settlement zone identified as Chomokiel (the place in the middle) (Appendix I). Additionally, survey work was conducted in the cleared and recently planted cane fields immediately adjacent to the Ka'Kabish site core where evidence of residential house mounds were also observed. This area is referred to as the Ka'Kabish settlement zone to distinguish it from the area of monumental architecture.

The 2007 field team consisted of three men from the local villages of Indian Church and San Carlos (Jamie Yanes, who had assisted with the 2005 reconnaissance of the site, Oscar Reyes, and Jose Perez), a doctoral student from the University of Western Ontario (Clifford Patterson), and an undergraduate student from the University of Toronto (Lorelei Friesen). Work at the site commenced January 30, 2007, and lasted for four weeks, concluding February 23, 2007. An additional week was spent processing artefacts in the laboratory at Lamanai. All artefacts are stored in the Lamanai bodega pending future funding for the construction of an additional storage facility.

THE KA'KABISH SITE CORE – SOUTH

Work conducted at Ka'Kabish in 2007 concentrated on the area of the site that lies to the south of the San Filipe-Indian Church Road (Figure 5). This area of monumental architecture is contained within a large forested area surrounded by cane fields. Both the forested area and those fields clear enough to be traversed were surveyed. In the course of the 2007 field season, five architectural groups of varying sizes were mapped as was evidence for fourteen potential domestic residence in the settlement zone (four mounds, three multi-mound groups, and seven scatters [see Appendix I]) and an aguada. The architectural groups were identified alphabetically with Group A being the furthest south; within these groups structures were identified numerically. The remainder of this section will summarize these structures by Group in alphabetic order.

Group A

Group A is a small plazula group roughly 180 metres south of the main plaza (Group D) (Figure 5). This plazula consists of at least eight structures, although the presence of a bulldozer laid truck track immediately to the north of the group raises the possibility that additional structures may have been destroyed. The plazula group was constructed on a noticeable hill, clearly demarcated from the surrounding lower fields; consequently, the inability to distinguish a clear northern limit for either the rise or the group supports the likelihood that structures were damaged or lost during the creation of the vehicle access road. Further evidence for the likely destruction of the northern portion of this group was supplied by the landowner, Senor Blanco, who informed us that during the process of bulldozing the road the Mennonite drivers reported moving a large rectangular slab that Sr. Blanco believes was a stela. The supposed monument is still in the area to the west of the rise, however, our examinations failed to identify any object fitting the description of a stela.

Of the eight identified structures remaining, two are of particular note; these two are Structures A3 and A1. Structure A3, located on the east side of the plazula, appears to be a small pyramidal structure, and may have served as a residential temple. The building is the largest of the

structures in the complex. It has been badly looted with a large trench, possibly collapsed, leaving a gash down the west side from top to plazula surface.

Structure A1, although possessing a square footprint is likely a range structure. This assessment is based on the presence of a long, rectangular flat upper surface. The unusual configuration of this structure, coupled with the fact that it is the largest and tallest of the range structures (and second in height only to A3) suggests that it was possibly the primary residential structure on the plazula.

Four buildings, Structures A2, A4, A5, and A6 are all small low (less than 1.5 metre high) mounds with what appear to be wide flat tops; these may have been platforms for small perishable structures. Structure A7 is a taller (roughly 2.5 metre high) range building that forms the western boundary of the group. It is joined to Structure A1 by another structure (A8) of equal height although narrower. Speculation is that this is a low range structure and wall combination.

Group B

Group B is located immediate to the north of the bulldozed road that separates Group A from the main forested zone. This is a small group consisting of two oddly configured structures and two chultuns. The first structure, B1, is a u-shaped building with what appears to be two small cell-like rooms on the west side. Structure B2 is an F-shaped structure of indeterminate design or function. Two chultuns were found to the east of Structure B2. One was partially filled and inaccessible, while the second was partly filled but still accessible through the 0.6 metre wide entrance. The almost perfectly circular nature of the entrance suggests that the chamber was modified if not completely constructed (Figure 9). The interior of the chultun consisted of two oval chambers. The western chamber was roughly 3 by 3 metres while the eastern chamber was roughly 2.5 metres along the east/west axis and 3.2 metres along the north/south axis (Figure 10). Both rooms were partially filled with 1.2 metres of clear space between the ceiling and the fill in the west room and 1 metre of clear space between the ceiling and the fill in the east room. The fill material was soft flaky whitish-grey

fill that was not investigated; survey of this chultun was complicated by the presence of bats and layers of bat guano.

The odd arrangement of these structures suggests that they might originally have been part of the plazuela group to the south (Group A). These two structures are situated on what appears to be the same ridge as Group A.

Group C and Aguada

Between Group B and Group C is a large oval depression believed to have served as an aguada (Figure 11). As the area was mapped during the dry season it is currently not possible to ascertain if the area is still capable of retaining water.

Immediately to the east of this depression is Group C. This is a small cluster of three mounds on a limestone rise. No evidence of masonry super structures were visible on any of the structures suggesting that they may have functioned as platforms for perishable structures. Two chultuns were discovered in the centre of the group; as both chultuns were almost completely filled investigations into the interiors of these were not possible. One (Chultun C1) was located immediately to the south of Structure C2. This chultun had a regular round opening and cut limestone was visible around the opening. The second (Chultun C2) had a ragged oval entrance that may be the result of a partially collapsed roof as the area around the southern side of the mouth was sloped inward and unstable.

Group D

In earlier survey reports, this section of the site was previously identified as the Southern Group (Haines 2006). The area was extensively overgrown and considerable effort was necessary to clear the area for mapping. A permanent datum point composed of concrete and PVC pipe was situated roughly half-way between Structures D1 and D4 in the north-west quadrant of the group.

Structure D1, a long range structure, defines the east side of the Group D. The east side (rear) of the structure is considerably taller and steeper than the west side of the building. It appears that the building was constructed immediately adjacent to the edge of the plaza with the rear wall forming part of the plaza side, an architectural duality that was noted at several other structures around this complex. Structure D1 was damaged during the aforementioned quarrying activity and the north end of the building is absent, making estimates of the building's original length problematic. A single looters' trench was found in the approximate centre of the structure. This trench penetrates deep into the centre of the building along the primary access then branches out laterally into two tunnels that extend a short visible distance to the south and an undetermined length to the north. During one of the early visits by the Maya Research Program team this composite trench was explored and a looted tomb was reported at the terminus of the north tunnel (Renaud personal communication 1995).

The second structure encountered (Structure D2) defines the north-east edge of this complex. Like the previous building, Structure D2 was designed so that the rear of the building forms part of the plaza wall. It too was damaged by quarrying, and the east edge of the structure was removed. Despite, or perhaps because of, its visibility from the road this structure appears to have been unaffected by looting activity.

A small structure (Structure D3) was located to the west of Structure D2. This tiny building, roughly 1.5 metres in height from the plaza floor, was missed on the previous map. It appears to have been spared from looting by virtue of its small size and near invisibility in the dense foliage. Its size and shape (low with a wide flat top) is atypical of the other structures in the group, and its odd location suggests that it might be a late addition to the complex.

The Group D is dominated by Structure D4, a large, abnormally steeply-sided pyramidal mound that towers over the surrounding structures. Roughly 33 metres in height the structure is clearly the focal point of the group. The building suffered severe looting and the entrances to five trenches were noted around the perimeter – three trenches on the east side level with the plaza, a fourth on the west side level with the plaza, and a fifth high on the west side near the summit of the

structure. The centre trench on the east side appears to connect with the trench noted low on the west side.

The original map depicts the structure as being somewhat lopsided, with the north-west corner out of alignment with the south-west corner. Examination of the structure in 2005 revealed that the foliage on the west side was significantly different from that on the other surfaces; it was comprised largely of fern-like plants rather than the hard wood trees seen on the other sides of the building and throughout the site. It is believed that this is possibly due to the west wall being damaged and the underlying fill being exposed. Mapping of this structure in 2007 revealed the building to be roughly square (rather than apsidal) and more in keeping with the expected dimensions of a pyramid temple.

To the south-east of Structure D4 is another long range building, Structure D5, that serves to isolate the north-west quadrant of Group D making it a separate plazuela inset into the larger Group D configuration. This structure is a very tall (approximately 20 m high) building that, despite possessing a square foot-print, appears to have been a range structure rather than a temple. This assessment is based on the overall angle of sides which meet to form a straight ridge along the top of the building rather than narrowing to a small, pyramidal form. The building was pierced along the central axis exposing a unique tomb (Figure 6).

The tomb appears to have been constructed using a hooped framework probably made from wood which has decayed and is now absent. This hooped framework was placed over the body then covered in fabric and layers of plaster creating a domed space around the body (Figure 7). Surrounding this inner tomb construction were layers of loose, fist-sized stone fill, and larger side stones; all of which was sealed with large capstones. This “cocoon-type” tomb was first identified in structure N9-56 (the Temple of the Masks) at Lamanai by Pendergast, where, based on the associated ceramics it was dated to AD 500 (Pendergast 1981:38).

A similar tomb, (S.D. P2B-2), was found at Santa Rita Corozal (D. Chase and A. Chase 1989, 2005). At Santa Rita Corozal Diane and Arlen Chase recovered the remains of a woman who had

been wrapped in a large quantity of cloth and placed in a small east-west chambers (A. Chase, personal communication 2007). The walls of the burial chamber were stuccoed and curved over the body in a manner very similar to that at Lamanai and Ka'Kabish (A. Chase, personal communication 2007), although there appears to be some differences in the construction and design of the tomb area external to the hooped and plaster casing. Ceramics associated with this burial place the interment in the Early Classic period (D. Chase and A. Chase 2005: 112-114), contemporary with the Lamanai grave. Although no artefacts currently have been found in association with the tomb at Ka'Kabish, based the fact that the only other examples of this tomb type both date to the Early Classic Period, we believe it is fair to assume that the Ka'Kabish tomb also dates to this period.

Immediately south of Structure D4, west of Structure D5, and outside the confines of this inset plazuela group, were two parallel structures arranged on a north-south axis. These structures were originally identified as a ball court complete with ball court marker (Guderjan 1996). Our investigations of the structures confirmed this identification as well as the presence of a large circular marker roughly one metre in diameter and 50 centimetres thick located in the centre of the playing alley (Figure 12). These two buildings (Structure 6 on the east and Structure 7 on the west) were affected by the illicit activity although to differing degrees.

Only one trench was noted in Structure D6. This trench penetrated the building's west side and extended into the playing alley, slightly displacing the central marker. The marker appeared raised on the north end and it is possible that the looters looked underneath the monument for a cache. Despite being disturbed, the marker appeared in remarkably good shape. No carving was discerned on the surface, although it is possible that some images may be found with the correct lighting.

Structure D7 suffered considerably more damage than its twin. Four trenches were noted in this structure, one entered the playing slope from the north, a second penetrated the building from the south side, while a third trench was excavated on the west side roughly along the primary axis. The fourth trench effectively removed most of the north-west portion of the structure.

Immediately to the north of these structures was a large mound of earth roughly half the height of the ballcourt buildings (Structures D6 and D7). It is unclear if this was a structure. The location of the mound (blocking the alley way and partially obscuring the passage between Structure D4 and the Ball Court, coupled with the presence of a deep trench in the ball court suggest that this might be back dirt from illicit activities. Further investigations would be required to securely ascertain the nature of this mound.

To the south of these structures was a single small range structure (Structure D8). Initially considered to be “disassociated” from the surrounding structures, comparison of the arrangement with that of the Lamanai temple/ballcourt complex suggests that this building was deliberately placed so as to form the southern boundary of the ball court. One looter’s trench was found in the south side of the building along the primary axis.

Structure D9 is a large pyramidal structure in the south-east section of Group D. A large looter’s trench pierces the building from the west side roughly half-way up the structure. This trench exposes at least five sequences of occupation. The inner most exposed construction possess a thick smooth layer of white plaster roughly 20 cm thick. Curiously, no tombs appear to have been discovered in the course of the looting. The only potential human remains encountered were noted in the north wall of the trench and had been squished flat beneath a plaster floor.

The south side of Group D is defined by a long range structure (Structure D10). Three looter’s trenches were discovered in this building, all located at the east end. One trench was located on the east side of the structure and is quite shallow and appears to have been abandoned early into the excavation. The second trench was located on the south side of the building, close to the summit. This trench also appears to have been a half-hearted attempt and is probably more aptly described as a small pit rather than a trench. The third trench was the deepest and penetrated into the structure from the north side on a downward angle. As all of these illicit excavations are located away from the primary axis of the structure it is believed that the informational integrity of the structure remains intact.

Structure D10 rises approximately 5 metres from the floor of the plaza, but like the other structures build around the edges of the plaza, it appears constructed immediately adjacent to, or as part of, the plaza wall thereby doubling the height of the structure in the back. This plaza edge is roughly five metres high and extends west from the south-west corner of Structure D10 north-west to the south-east corner of Structure D12. The plaza edge also extended north-east incorporating the rear walls of both Structure D9 and Structure D1.

Structure D11 was a very low, small range structure that was covered in dense foliage and appeared undamaged. It is possible that the structure's unimposing nature compared to its larger neighbours to the west spared it from looting. Structures D12, D13, and D14, form a closely interconnected unit. As with Structures D10, D9, and D1, the rear walls of this set of buildings appear to merge into, and extend down, the wall of the plaza. Structure D12 appears unaffected by illicit activity but both Structure D13 and Structure D14 show evidence of looting. In addition, damage to the south side of Structure D14 where it joins with Structure D13 show evidence of bulldozing. It is believed that a logging or access road was constructed in this area resulting in the curving sloped feature noted in the map.

A single trench found on the west side of Structure D13 was quite deep and exposed beautifully cut masonry blocks. Structure D14 was penetrated by two tunnels; a very deep tunnel on the west (rear) of the building and a second, slightly shallower tunnel on the north side of the structure. Investigation into the west trench revealed that the tunnel extended approximately 10.5 metres into the centre of the building where ended at a masonry wall after having passed through two vaulted chambers (Figure 13). The first (rear or western) chamber bisected by the trench was roughly 2 metres wide while the front (eastern) chamber was slightly narrower at only 1.5 metres wide. Although the trench broke through the rear wall of the structure it serendipitously passed through an original doorway when passing between the rear and front rooms thereby minimizing damage to the medial retain wall. This door was just over 2 metres wide. The rear (western) wall of the structure was 1.36 metres thick and the medial wall was 0.88 metres thick.

The looters left the rear room largely unexcavated and concentrated on clearing the front room which they did to an extent of approximately 7 metres. The original floor was not visible in the trench although the ceiling was clearly exposed revealing a corbel vault (a vault was also present in profile of the rear room). The front room is estimated to be just over 3.5 metres in height, with the exposed section of wall being 2.3 metres high and 1.2 metres being above the soffit stone (Figure 14). The south edge of what is believed to be the front door was noted in the extreme north end of the trench. A second door was noted in the medial wall 2 metres further north of the one incorporated into the looters' trench. This second door was considerably narrower than the first door, measuring only 0.92 metres in width. The walls and vault of the front room were painted red, and while the section of the rear room exposed in the looter's access trench also appeared to have red paint the extent of this colouring is unknown. The two doors in the medial wall suggest that there might have been several different rear chambers. This is likely the large red-painted room mentioned in the original report (Guderjan 1996:118).

The smaller trench on the north side of Structure D14 also exposed a section of a corbel vaulted room, the location and dimensions of which matched the rear room of the first trench. In this case the room appeared to have been unpainted although the plaster was blackened. A small section of plaster was examined by Claude Belanger who noted that the colouration and depths to which the plaster was impregnated was more suggestive of a fire than merely smoke (Belanger 2007, personal communication). As both rooms were carefully packed with layers of small rocks and fill it is possible that this room was burned before being buried. However, the front, red-painted chamber, appears to have been unaffected by this activity; at least in the southern section exposed in the main trench.

Extending north from Structure D14 is a long low edifice that resembles a high thick wall, identified as Structure D16; it is currently only an assumption that this is a 'wall' as no looters trenches were noted that would provide evidence as to the true function of this construction. This 'wall' aligns with the edge of the plaza and runs for a considerable distance north before making an

approximate 90 degree turn east and connecting with Structure D15, a short range structure located to the west of Structure D4. The west side of this structure, as with those of Structures D13 and D14, forms the west side of the plaza, descending steeply to another large open space.

Between Structures D14 and D16 is another possible small building or room. Identified as Structure D19 the original form of this construction is unclear; it is clearly attached on both the south and north sides into the surrounding structures and, like the other structures on the west side, serves to delineate the edge of the plaza. The dimensions of the structure are square suggesting that it may have been a single roomed edifice.

Structure D15 is located in the north-west corner of Group D. On the west side it appears to be joined to Structure D16, while the east side of the building may have been damaged. The aforementioned road believed to have been bulldozed along the south side of Structure D14 appears to have passed through this area as well. A single long trench, more like a groove, was located on the south side of Structure D15 and may be the result of this road. The area to the north (behind) Structure D15 appears to be level with the main plaza surface. A large deep looters trench penetrated the north side of the structure.

On the north side of Structure D16 evidence of a potential wide staircase was encountered. This lead down to a flat open platform which cut away suddenly along the north edge. The area was densely foliated with paw-paw trees suggesting that the area had been cleared and possibly altered. As this area is located adjacent to the modern road it is likely that this section of the site was also damaged during construction of the modern San Filipe-Indian Church road.

A new platform was discovered attached to the north-west corner of Group D. This platform (Structure D18) is at a lower elevation than the rest of Group D and attaches to the west wall of the plaza. The north edge of Structure D18 was somewhat amorphous and may have been damaged along with much of the north side of the Group D plaza as discussed previously. Several low mounds were noted on the surface of this platform but the amorphous nature and irregular positioning of the

mounds raises the possibility that they are in fact not ancient structures but remnants of modern activity. Future investigations will be required to determine the exact nature of these mounds.

Group E

To the east of Group D, lies a large flat open space now densely forested with tall hardwood trees and cohune and majestic palms. On the eastern side of this potential plaza is Group E. Currently, this is the second largest group identified at the Ka'Kabish consisting of ten structures, one partly damaged by bulldozing. Structures E1 to E4 are located on a high platform that defines the southern edge of this group. All of these structures are low (less than one metre high) platforms that likely supported perishable structures. This construction style contrasts sharply with that of Structure E5 to the west.

Structure E5 backs along the west side of the platform; situated roughly 10 metres in from the tree line it was spared damaged from the bulldozer that partially destroyed its northern neighbour Structure E10 (discussed below). This building was, however, damaged by illicit excavations which left a long deep tunnel penetrating the south side of the structure. The trench was placed high on the building, and examination of the walls to the room of the trench show that it appears to have entered the building roughly level with the top of the stone walls to the room and cleared the area above the soffit stones. Stones scattered around the base of the looter's trench as well as those shifted, but still *in situ* in the wall of the trench, indicate that this building was constructed with a corbel vault (Figures 15 and 16). This is the only structure on this platform that was looted and as such is the only evidence we have for the architectural style used in the group.

Structures E6 to E9 are small low platforms that delineate the east and north-east side of the group. These are considerably smaller and lower than Structure E5, each possessing a flat upper surface. Structure E10 was likely similar in size or possibly larger than Structure E5, however, a large section of the building that now extends beyond the tree line is destroyed; this likely occurred during the clearing that created the fields to the west.

KA'KABISH SETTLEMENT ZONE

Although the site core is still under forest coverage, the area surrounding the site to the east, south, and west have been cleared for agricultural purposes (Figure 8). Much of this land was cleared using bulldozers or the Mennonite technique of “chaining” (dragging a large anchor chain between two bulldozers) . Consequently, the ancient Maya domestic structures in this area are now recognizable only as rocky white-cobble lumps in the otherwise rich black soil.

The fields to the south of the road (and in the 2007 area of study) are currently being used to grow sugar-cane; according to the landowner Don Blanco the black soils are too moist for other crops and they suffer from root-rot. The practice of growing sugar-cane involves staggering the planting of crops to maximise the potential growing season. Consequently, the fields were in various stages of activity, ranging from newly planted through to being in the process of harvesting, therefore making many fields were available for survey (Figure 17).

Using a system of transects, our team walked the ploughed furrows at 5 metre intervals. Survey pin flags were used to record the location of artefacts. When an artefact was found the surveyors working in concentric circles flagging all the visible artefacts to form a visible distribution of the scatter. This scatter was then photographed, measured, and a GPS reading of the centre was taken before the artefacts were collected for analysis. A total of four mounds, four mounds, three multi-mound groups, and seven scatters were mapped (Figure 18; see Appendix I for a detailed account). Material collected from the Ka'Kabish settlement zone included a total of 1322 sherds and 55 lithic artefacts. Preliminary analysis of the ceramics was conducted by Dr. James Aimers during the summer of the 2007 (see Appendix II).

INTER-SITE SETTLEMENT ZONE

The early nature of our field season (January/February) serendipitously overlapped the planting of a large field in the south-east corner of the junction between the San Filipe-Indian Church and Shipyard-Indian Creek roads. Numerous white marl-mounds were made clearly visible by the recent clearing and ploughing of this field by the Mennonites of Indian Creek. The area was dubbed Chomokiel by Dona Perez, a Maya term meaning 'place in the middle' or 'people in the middle', as the settlement is almost exactly half-way between the sites of Lamanai and Ka'Kabish.

Working with the permission of the Institute of Archaeology and the assistance of Mr. Claude Belanger of the Lamanai Archaeological Project, we were able to secure permission from Mr. Jacob Klassen of Indian Creek to survey this field. Survey of this field was conducted using the same process employed for the area surrounding the Ka'Kabish site core (see preceding section and Appendix I). In total 8 single mounds, 1 multi-mound complex (possibly originally a small courtyard), and 16 scatters were documented. Ceramics were collected for analysis by Dr. Aimers, however, the nature of the surface expose resulted in many of the pieces being unidentifiable (see Appendix II).

DISCUSSION OF THE KA'KABISH SITE

Investigations during the 2007 season revealed that Ka'Kabish is considerably larger and more complex than initially assumed. This work expanded the site beyond the initial 1995 and 2005 surveys with the discovery of four new groups of structures (two plazuela structures, Groups A and E, and two small clusters Groups B and C). It also discovered remnants of scattered domestic residences in the cleared fields to the south and south-east of the site.

The presence of domestic structures in the fields surrounding the site core is not unexpected as this arrangement has been documented at virtually all Maya sites. Analysis of the ceramics by Dr. James Aimers (Appendix II) provided dates ranging from the Late Classic to the Middle Post-Classic periods. The presence of Tulum Red Wares from the Early and Middle Post-classic periods were slightly surprising as little Post-Classic material has been previously documented beyond the immediate Lamanai area. Pendergast had reported finding Early Post-Classic ceramics on low mounds in recently cleared milpa fields outside of the Ka'Kabish core area while working at Lamanai in the early 1980s (Pendergast 1997: personal communication), however, due the altered landscape the precise original location of these collections is uncertain.

Ceramics recovered from the site core yielded dates from ranging from the Late Formative period through the Terminal Classic period. It is worth noting that no Post-Classic ceramics were recovered from within the site core, although collections from this area were restricted to a limited number of pieces collected from the walls of looters trenches. The rationale for these limited collections was to take only what was absolutely necessary to provide a rough temporal framework for the site and to leave the majority for collection after section lines of the architecture were complete. To further add in the architectural placement of the these pieces nails and flagging tape documenting the collection number were left in the collection locations for future correlations. Additionally, material that was found in the looters backfill was collected for analysis. While it is

recognized that this material cannot be used to securely date an architectural phase it is useful for helping to identify the broader temporal range during which activity was occurring at the site.

It is clear, based on the new data provided by Dr. Aimers (Appendix II) that the previously held assumption that “the architecture was constructed or elaborated upon during the Late Classic period (A.D. 600 – 900)” (Haines 2006; see also Guderjan 1996) is no longer valid. The monumental architecture (specifically Temple 9) appear to have been constructed at least by the Late Formative. Construction at the site appears to have been relatively continuous and no gaps or hiatus in the record has currently appeared although this work is preliminary. Consequently, the work conducted during the 2007 season has also called into question the central premise of our assumption that Ka’Kabish may have been a retreat for the Maya elite from Lamanai during the rise of warfare in the early Late Classic. Rather it now appears that the two sites were occupied contemporaneously, changing our question from “did elites from Lamanai move to Ka’Kabish during the early Late Classic period?” (Haines 2006) back to the more general question of “who were the elites living at Ka’Kabish and how did they relate to the occupants of Lamanai?”.

It is clear from the nature of the residential architecture discovered during the 2007 season, particularly the evidence of corbel vaulted structures in plazuela groups, that considerable investment was being made in at least some of the residential architecture; indicative of elites of some stature. However, the close proximity of the two sites makes it unlikely that Ka’Kabish was an independent polity capital. Moreover, the “cocoon tomb” discovered in Structure D5 (detailed above) is of a unique design previously documented only to Lamanai (Pendergast 1981). It’s appearance at Ka’Kabish shows the clear ties between these two sites. Ties that are also mirrored in the temple/ballcourt architectural arrangement at the two sites.

Although many secondary sites in the Maya area went through fluctuating periods of autonomy and subordination (Culbert 1991; Grube 2000; Hammond 1991a; Iannone 2005; Martin and Grube 2000). I no longer believe such was the case for Ka’Kabish as these sites are not only located at considerably greater distance from their primary centres than Ka’Kabish is to Lamanai, but

their monumental architectural constructions appear to be more episodic in nature. Although the evidence is still preliminary the construction of monumental architecture at Ka'Kabish appears to have been more stable, with regular minor additions and modifications through the lifetime of the site.

Consequently, we are now looking at the possibility that Ka'Kabish may have either been an early "Bedroom Community" from which Maya elites may have "commuted" to Lamanai (Haines and Patterson 2008) or that the site was a ritual or political capital in a heterarchical political system in which Lamanai formed the economic (and perhaps military) centre (Haines 2007).

FUTURE RESEARCH

It is my intent to apply to the Institute of Archaeology, NICH, Belize, for a permit to continue investigating the site and surrounding area of Ka'Kabish. The next field season will continue to map the site core, focusing on the area to the north of the San Filipe-Indian Church road. This mapping project will continue the work design used in the 2007 season on the southern portion of the site; it will attempt to record all structures, monuments, and ancillary features (i.e., looters' trenches and plaza edges) in the northern section of the site.

I plan to apply for a permit for the 2008 summer season to conduct a six-week mapping project of the site core. As the goal of this work is to create a precise map for future work at the site I will seek permission from the Institute of Archaeology and the land-owners to remove all secondary growth from the plazas, including the forest deadfall that now obscures several of the looters' trenches. The removal of this under-brush will greatly increase the accuracy of the map, facilitate identification of any new features and monuments, and allow for the accurate identification and recording of damaged to the structures resulting from looting or other causes.

Allowances will be made in the mapping schedule to take advantage of any fields in the surround settlement zone which may be open for survey. As this work is dependent on the fields being cleared, ploughed, and/or not yet under dense crop it is difficult to predict how much, or if any, of the surrounding area will be mapped.

I expect this mapping project to consume the entirety of the 2006 field season, however, in the event that this work moves more rapidly than anticipated I will also apply to the Institute of Archaeology for permission to being surveying cleared fields beyond the immediately adjacent area. Our work during the 2007 season revealed that the Mennonite farmers in the Indian Creek and Shipyard communities are actively engaged in land clearing activities that reveal numerous ancient Maya settlement zones. Willey famously argued that "a king and his subjects may both be understood only in their relationships to one another" (Willey 1983:46). In keeping with that research

model we feel that that by surveying the area beyond the immediate region as it becomes available we can increase our understanding of the larger, multi-scalar factors that integrated Ka'Kabish and Lamanai, and contribute to the larger discussions of the core-periphery relations that create a unified polity (Chang 1968, 1983; Willey 1983).

Ultimately, Dr. Elizabeth Graham of the Lamanai Archaeology Project (LAP), and I would like to conduct a transect survey from Ka'Kabish to Lamanai to map the settlements between these sites. However, this work is projected for three to five years in the future. In the interim it seems wisest to take advantage of the cleared fields as they become available. Not only would this approach maximize both research resources and time it would also serve to build a collaboration between the Mennonite communities and the Ka'Kabish Archaeological Research Project. The gradual nature of this work, one that stresses complimentary goals (cleared land for the Mennonites and visible sites to map for the archaeologist) if not ideally unified objectives (undamaged archaeological sites), is likely to have long-term advantages for future research objectives.

I expect that work in this area (site core, immediate settlement area, and extended settlement area) will, with the permission of the Institute of Archaeology, continue over the course of the next decade. To fund the various aspects of this research will continue to apply to various funding organizations such as the Foundation for the Advancement of Mesoamerican Studies Inc. (FAMSI), the Heinz Foundation, the Werner Gren Foundation and the Social Science and Humanitarian Research Council of Canada for financial assistance.

CONCLUSIONS

Ka'Kabish affords a unique opportunity to simultaneously add to the limited corpus of excavated sites in north-central Belize, and to investigate the dynamics of intra-polity socio-political organization. Recent evidence from the site suggests that the political structure for the polity may have been different from originally surmised; rather than being a secondary administrative centre which may have also functioned as an elite refuge in a typical hierarchical political organization, Ka'Kabish and Lamanai may have participated in a more heterarchically political system. A system of political organization that is currently being postulated for other areas of the Maya world as well (see Scarborough et al. 2003).

By virtue of the extensive research previously conducted and currently underway at Lamanai, future work at Ka'Kabish (under the Ka'Kabish Archaeological Reconnaissance Project [KARP]), presents the perfect situation for exploring and re-evaluating the nature of Classic period polity organisation. This work will contribute greatly to our understanding of the socio-political structure at both sites as well as yielding considerable information regarding Late Classic Maya polity dynamics in this part of the ancient Maya world.

ACKNOWLEDGEMENTS

I would like to thank the wonderful support I have received from the Institute of Archaeology, NICH. In particular I would like to thank Drs. John Morris and Jaime Awe for the advice and support. I would also like to extend my gratitude to Dr. Thomas Guderjan of the Maya Research Project for the loan of a vehicle and survey equipment. My fellow archaeologists at the Lamanai Archaeology Project, Dr. Elizabeth Graham and Linda Howard, also have been a great source of support and inspiration, and I owe a debt of gratitude to Dr. James Aimers for being willing to take on the Ka'Kabish ceramics; I look forward to future collaborations between our two projects.

As archaeological work would not be possible without the co-operation of the local people who have as much invested in our work as we do, if not more, I would also like to thank the following individuals: Srs. Blanco, Che, and Magana, and Herr Klassen for allowing access to their land; Jaime Yanes, Jose Perez, and Oscar Reyes for helping to clear, map, and survey the site; Sandy Perez for sharing her house with us; the ladies of Las Orchidas for keeping us well fed; Ben and Margaretha Dyck of the Blue Creek Community for helping with the logistics; Lorelei Friesen for being a good sport and continuing to work in the lab processing artefacts even after it became clear that she was allergic to the Belizean landscape; Clifford Patterson for his hard work in the hot sun surveying Chomokiel; and all the members of the various community that provided us with information and assistance in a variety of ways.

REFERENCES

- Chang, K.C.
1968 Toward a Science of Prehistoric Society. In *Settlement Archaeology*, edited by K. C. Chang, pp. 1-9. National Press Books, Palo Alto.
- 1983 Settlement Patterns in Chinese Archaeology: A Case Study from the Bronze Age. In *Prehistoric Settlement Patterns: Essays in Honor of Gordon R. Willey*, edited by E. Z. Vogt and R. M. Leventhal, pp. 361-374. Cambridge, MA, University of New Mexico Press and Peabody Museum of Archaeology and Ethnology.
- Chase, Arlen F., and Diane Z. Chase
1986 Late Classic Maya Political Structure, Polity Size, and Warfare Arenas. In *Anatomía de una civilización aproximaciones interdisciplinarias a la cultura maya*, edited by Andrés Ciudad Ruiz, Yolanda Fernández Marquínez, José Miguel García Campillo, M. Josefa Iglesias Ponce de León, Alfonso Lacadena García-Gallo, Luis T. Sanz Castro, pp. 11-29. Sociedad Española de Estudios Mayas, Madrid.
- Chase, Diane Z., and Arlen F. Chase
1986 *Offerings to the Gods: Maya Archaeology at Santa Rita Corozal*. University of Central Florida, Orlando.
2005 The Early Classic Period at Santa Rita Corozal: Issues of Hierarchy, Heterarchy, and Stratification in Northern Belize. In *Research Reports in Belizean Archaeology, Vol 2*, edited by Jaime Awe, John Morris, Sherilyne Jones, and Christopher Helmke, pp. 111-129. Institute of Archaeology, Belmopan, Belize.
- Culbert, T. Patrick
1991 Maya Political History and Elite Interaction: A Summary View. In *Classic Maya Political History*, edited by T. Patrick Culbert, pp. 311-346. Cambridge University Press, Cambridge, UK.
- Graham, Elizabeth A.
2004 Lamanai Reloaded: Alive and Well in the Early Post-Classic. In *Research Reports in Belizean Archaeology*, edited by Jaime Awe, John Morris, and Sherilyne Jones, pp. 223-242. Institute of Archaeology, NICH, Belmopan, Belize.
- Grube, Nikolai
2000 The City-States of the Maya. In *A Comparative Study of Thirty City-State Cultures*, edited by Mogens Herman Hansen, pp. 547-565. Royal Danish Academy of Sciences and Letters, Copenhagen.
- Guderjan, Thomas H.
1996 Kakabish: Mapping of a Maya Center. In *Archaeological Research at Blue Creek, Belize. Progress Report of the Fourth (1995) Field Season*, edited by T. H. Guderjan, W. D. Driver and H. R. Haines, pp. 117-120. Maya Research Program, St. Mary's University, San Antonio.
- Guderjan, Thomas H. (ed.)
1991 *Maya Settlement in Northwestern Belize: The 1988 and 1990 Seasons of the Rio Bravo Archaeological Project*. Maya Research Program and Labyrinthos Press, San Antonio, TX.

Haines, Helen R.

- 2006 Report to The Institute of Archaeology, NICH, Belize, of the June 2005 Reconnaissance of Ka'Kabish, Orange Walk District. Report on file with the Institute of Archaeology, Belmopan, Belize.
- 2007 Permit Application to Begin Reconnaissance of the Archaeological Site of Ka'Kabish, Orange Walk District, January 22, 2007 – March 3, 2007. On file with the Institute of Archaeology, Belmopan, Belize.
- 2008 Causeway Terminus, Minor Centre, Elite Refuge, or Ritual Capital? Ka'Kabish, A New Puzzle on the Ancient Maya Landscape of North-Central Belize. In *Research Reports in Belizean Archaeology Volume 5*. Institute of Archaeology, NICH, Belize.

Haines, Helen R., and Clifford Patterson

- 2008 Suburbia, Maya Style?: Results of the Preliminary Investigations at Ka'Kabish and the Intermediary Settlement Zone in the Lamanai Periphery. Paper presented at the 73rd Annual Meeting of the Society for American Archaeology, Vancouver, British Columbia.

Hammond, Norman

- 1973 *Corozal Project: 1973 Interim Report*. Centre of Latin American Studies, University of Cambridge, Cambridge.
- 1991a *Cuello: An Early Maya Community in Belize*. University of Cambridge Press, Cambridge.
- 1991b Inside the Black Box: Defining Maya Polity. In *Classic Maya Political History*, edited by T. Patrick Culbert, pp. 253-284. Cambridge University Press, Cambridge, UK.

Iannone, Gyles

- 2005 The Rise and Fall of an Ancient Maya Petty Royal Court. *Latin American Antiquity* 16:26-44.

Martin, Simon, and Nikolai Grube

- 2000 *Chronicles of the Maya Kings and Queens*. Thames and Hudson, London.

Pendergast, D. M.

- 1981 "Lamanai, Belize: Summary of Excavation Results, 1974-1980." *Journal of Field Archaeology* 8: 29-53.
- 1985 Lamanai, Belize: An Updated View. *The Lowland Maya Postclassic*. A. F. Chase and P. M. Rice. Austin, University of Texas Press: 91-103.
- 1986 Stability Through Change: Lamanai, Belize, from the Ninth to the Seventeenth Century. *Late Lowland Maya Civilization: Classic to Post Classic*. J. A. Sabloff and E. W. Andrews V.: 223-249.

Romney, D.H., A.C.S. Wright, R.H. Arbuckle, and V.E. Vial

- 1959 *Land Use in British Honduras, Report of the Land Use Survey Team*. Her Majesty's Stationary Office, London.

Scarborough, Vernon L., Fred Valdez Jr., and Nicholas Dunning, eds.

- 2003 *Heterarchy, Political Economy, and the Ancient Maya*. The University of Arizona Press, Tucson.

Willey, Gordon R.

- 1983 Settlement Patterns and Archaeology: Some Comments. In *Prehistoric Settlement Patterns: Essays in Honor of Gordon R. Willey*, edited by E.Z. Vogt and R.M. Leventhal, pp. 445-463. University of New Mexico Press and Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge, MA.

FIGURES

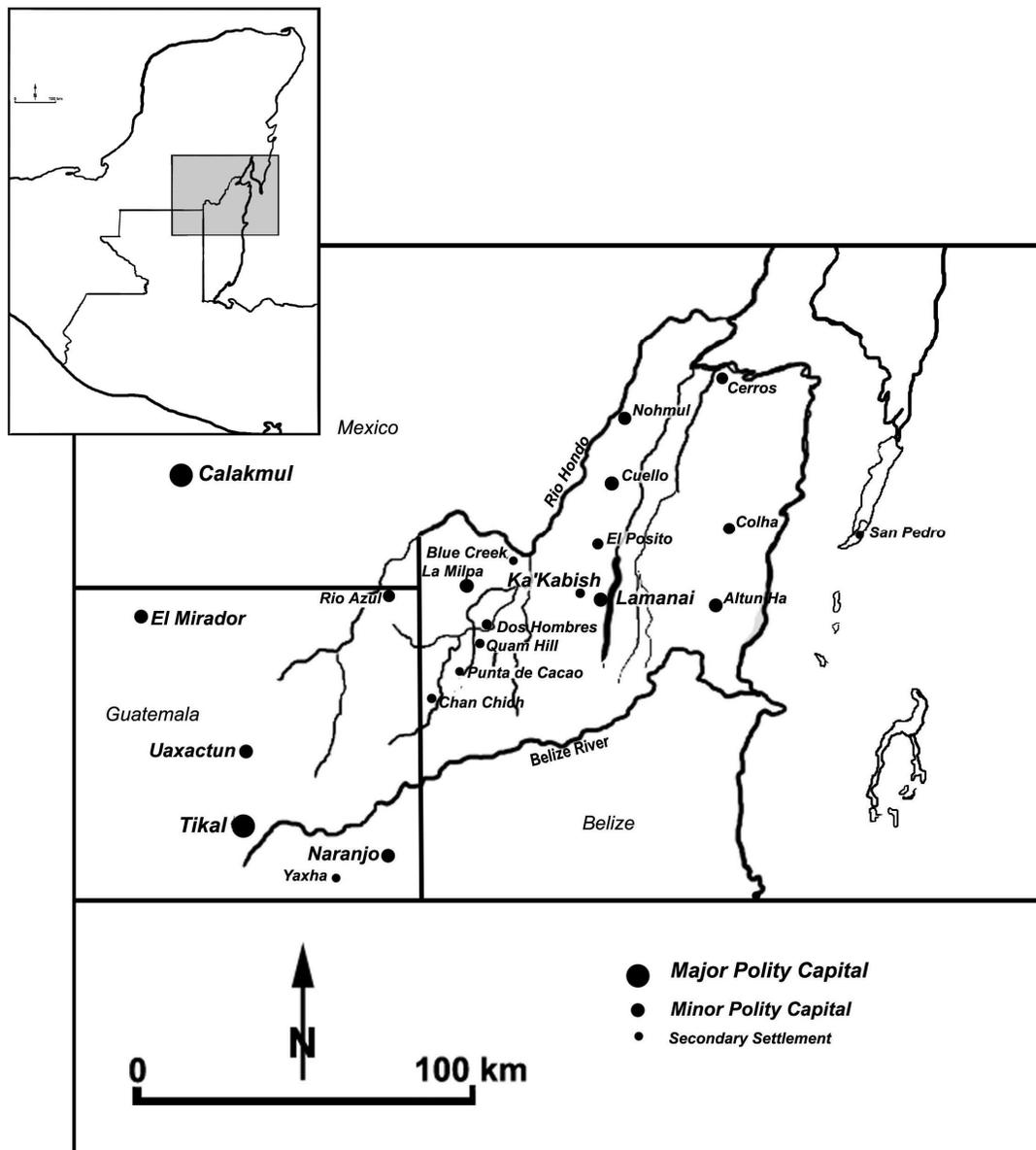


Figure 1. Map of Northern Belize and North-Eastern Guatemala Showing Key Archaeological



Figure 2. Photo of Ka'Kabish from Lamanai.

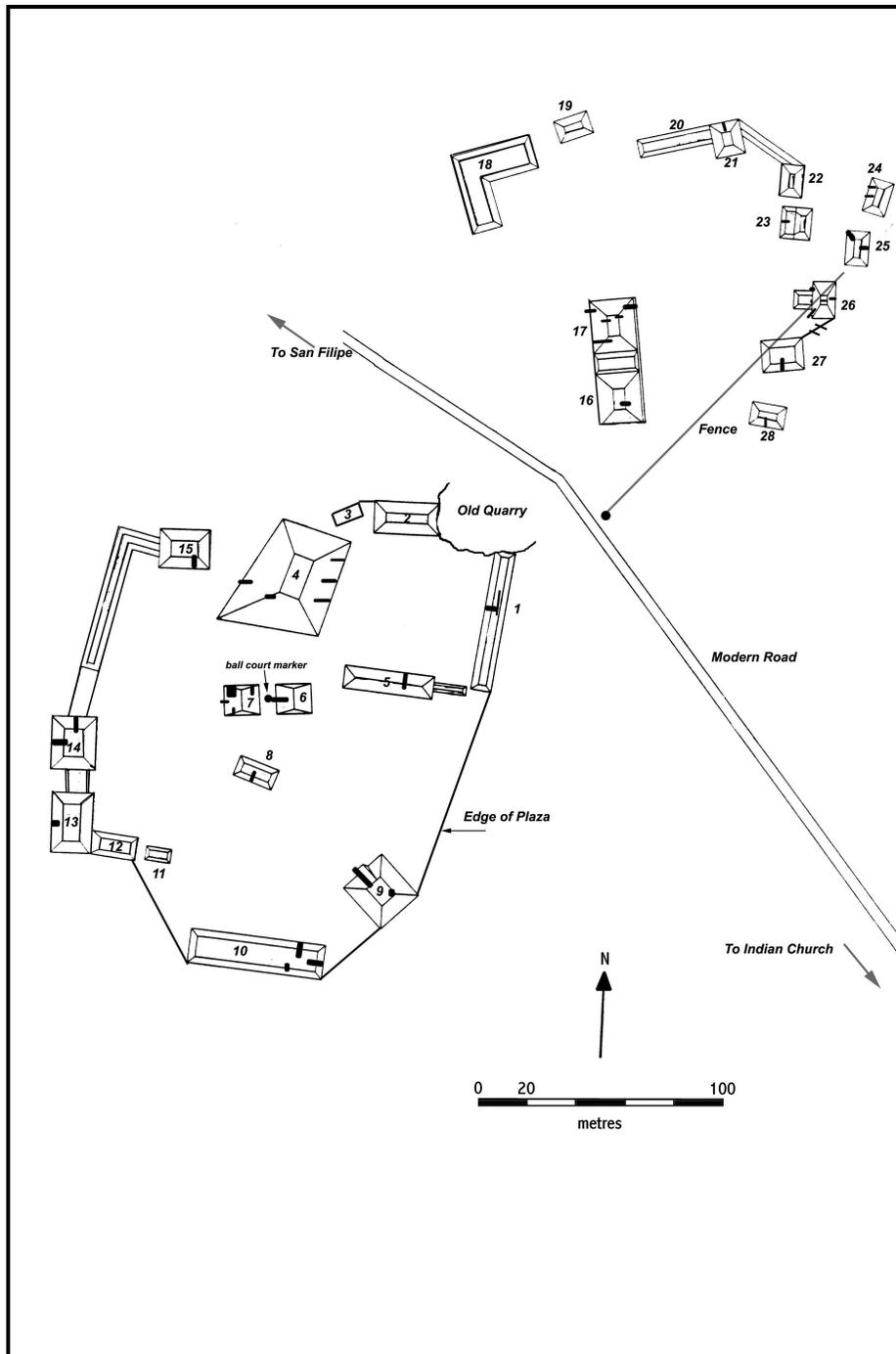


Figure 3. Original Map of Ka' Kabish Core Zone as based on 1994 MRP Survey



Figure 4. Aerial Photo Showing Archaeological Sites and Modern Towns.

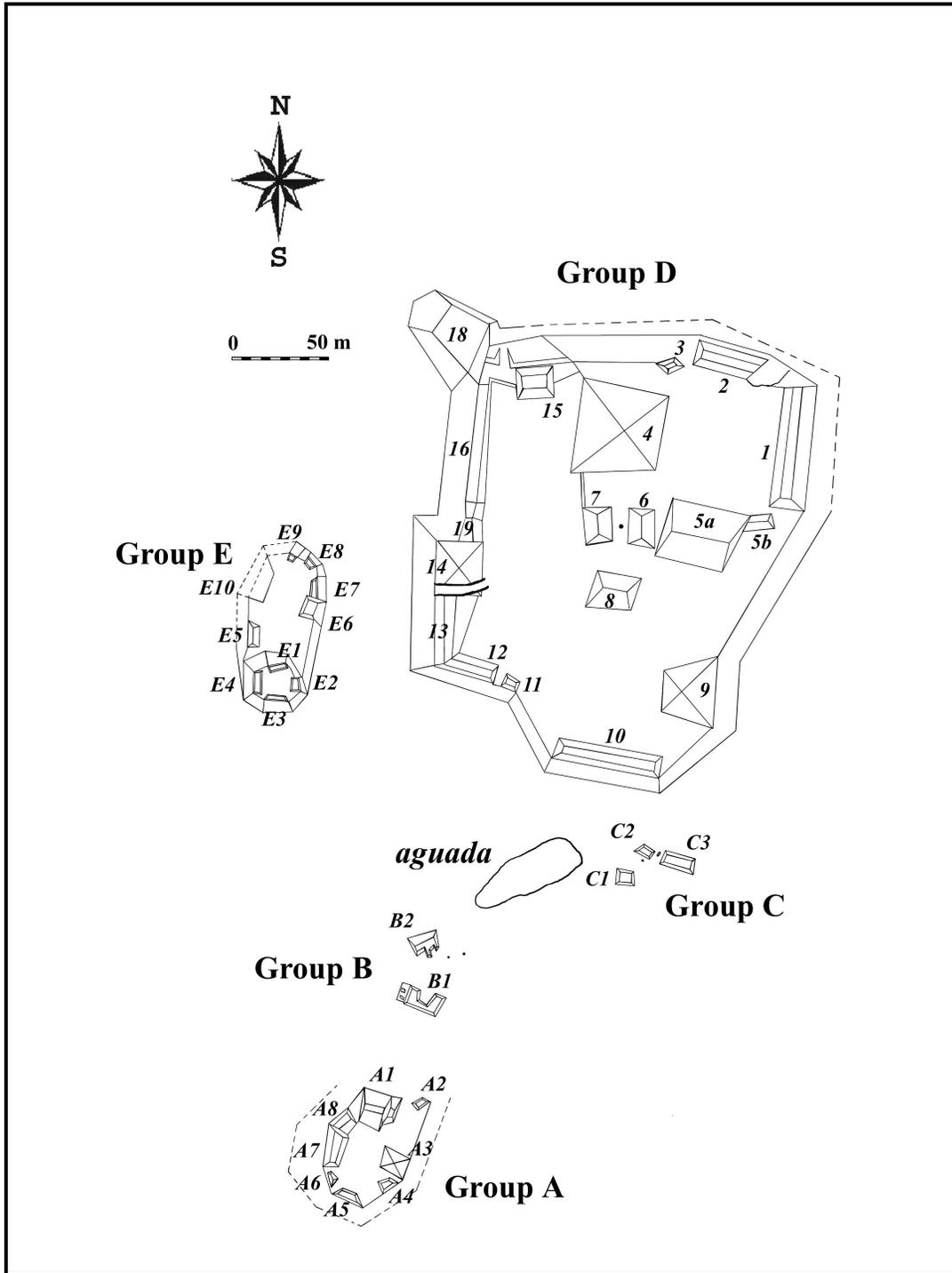


Figure 5. 2007 Map of Ka' Kabish Southern Core Zone (Groups A to E)



Figure 6. Photo of Cocoon Tomb.

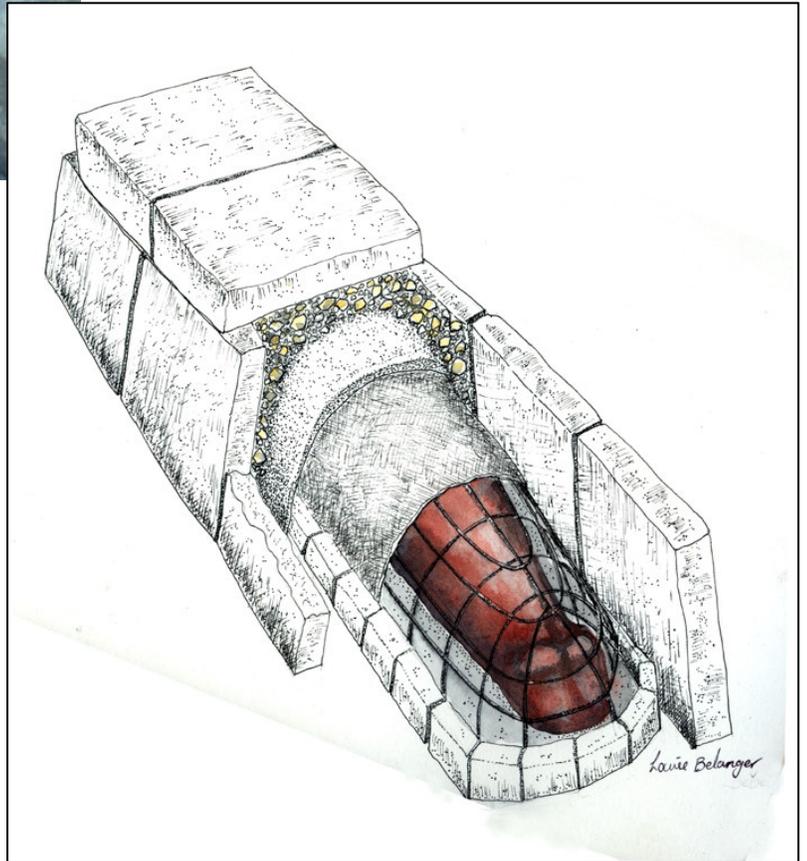


Figure 7. Illustration of Cocoon Tomb. (By L. Belanger).

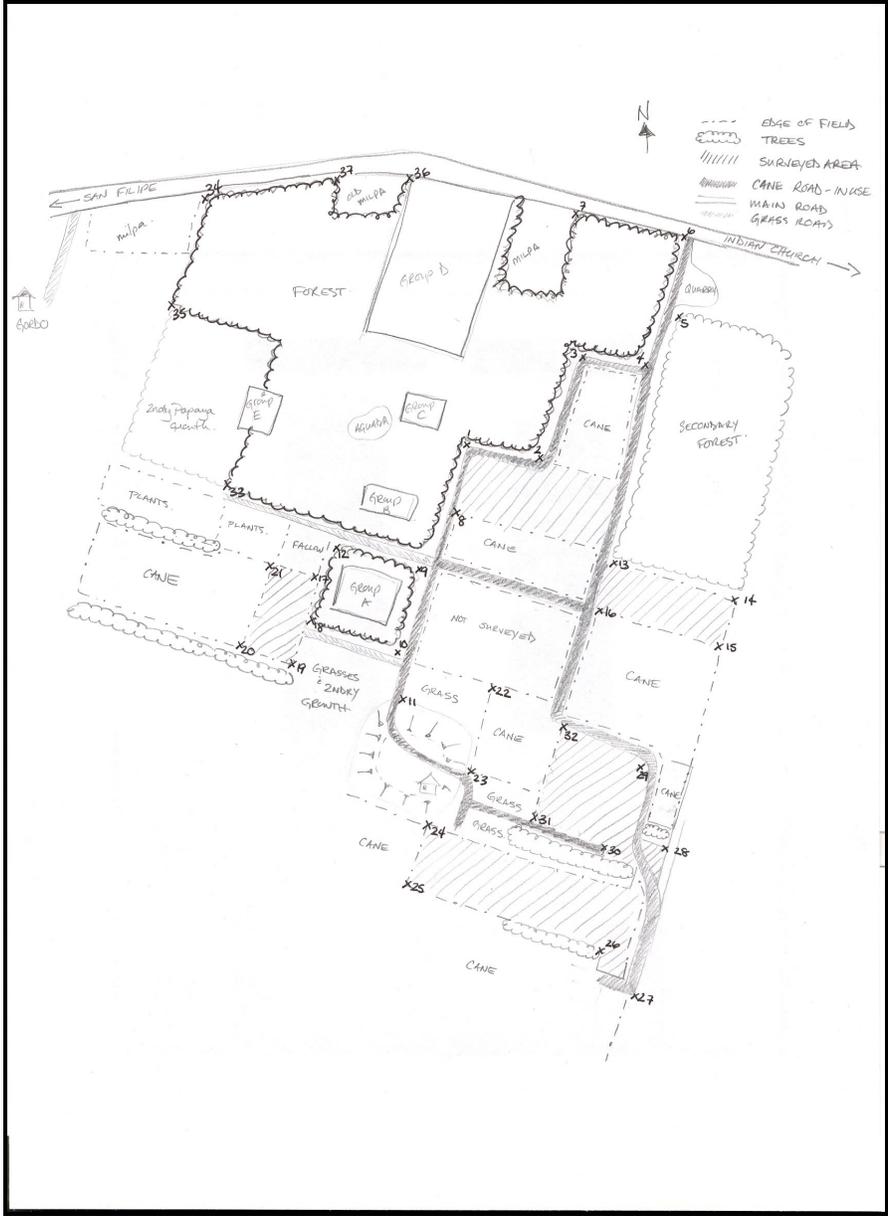


Figure 8. Sketch map of cleared fields around the Ka'Kabish Site Core



Figure 9 Jaime Yanes in Chultun

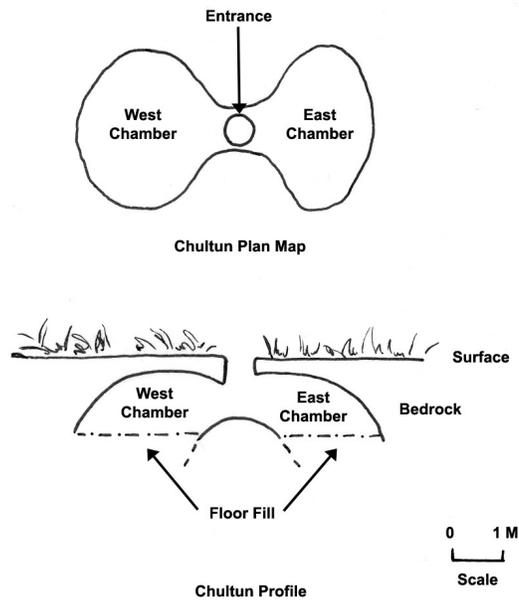


Figure 10. Map of Chultun in Group B.



Figure 11. Jose Perez Standing on Top Edge of Aguada.

Figure 12. Photo of Clifford Patterson with Ball Court Marker.



Figure 13. Map of Vaulted Rooms, Structure D14.

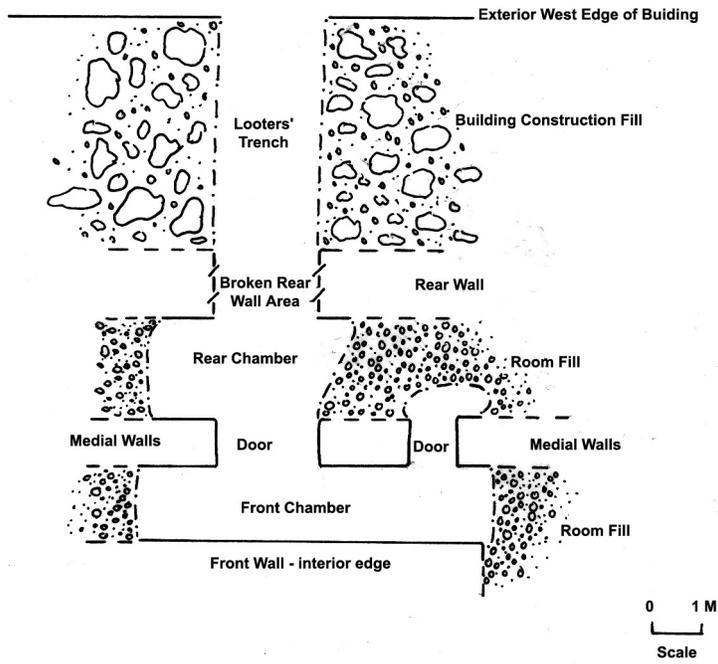


Figure 14. Photo of Front Chamber of Vaulted Structure North End, Structure D14.

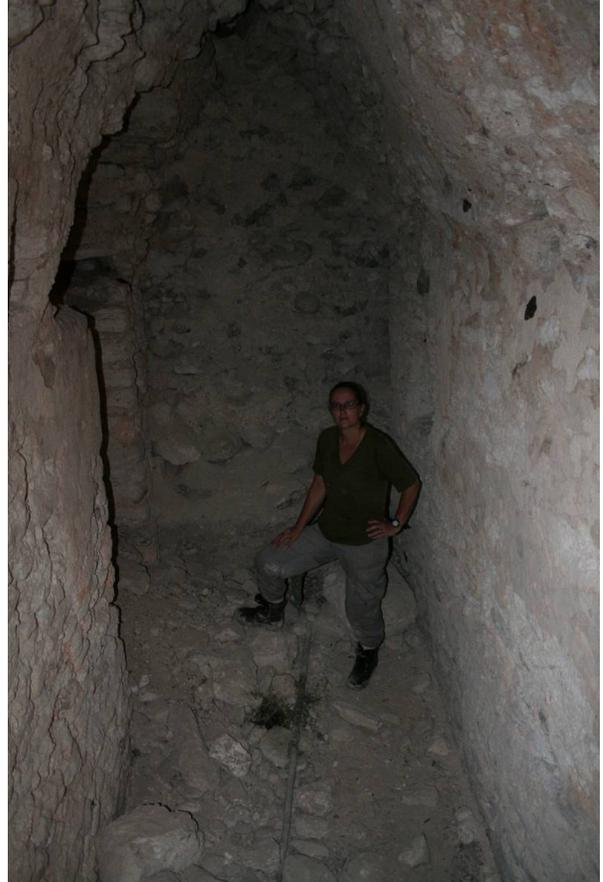




Figure 15. Fallen Corbel Vault Stone, Structure E5.



Figure 16. In Situ Vault Stones, Structure E5.

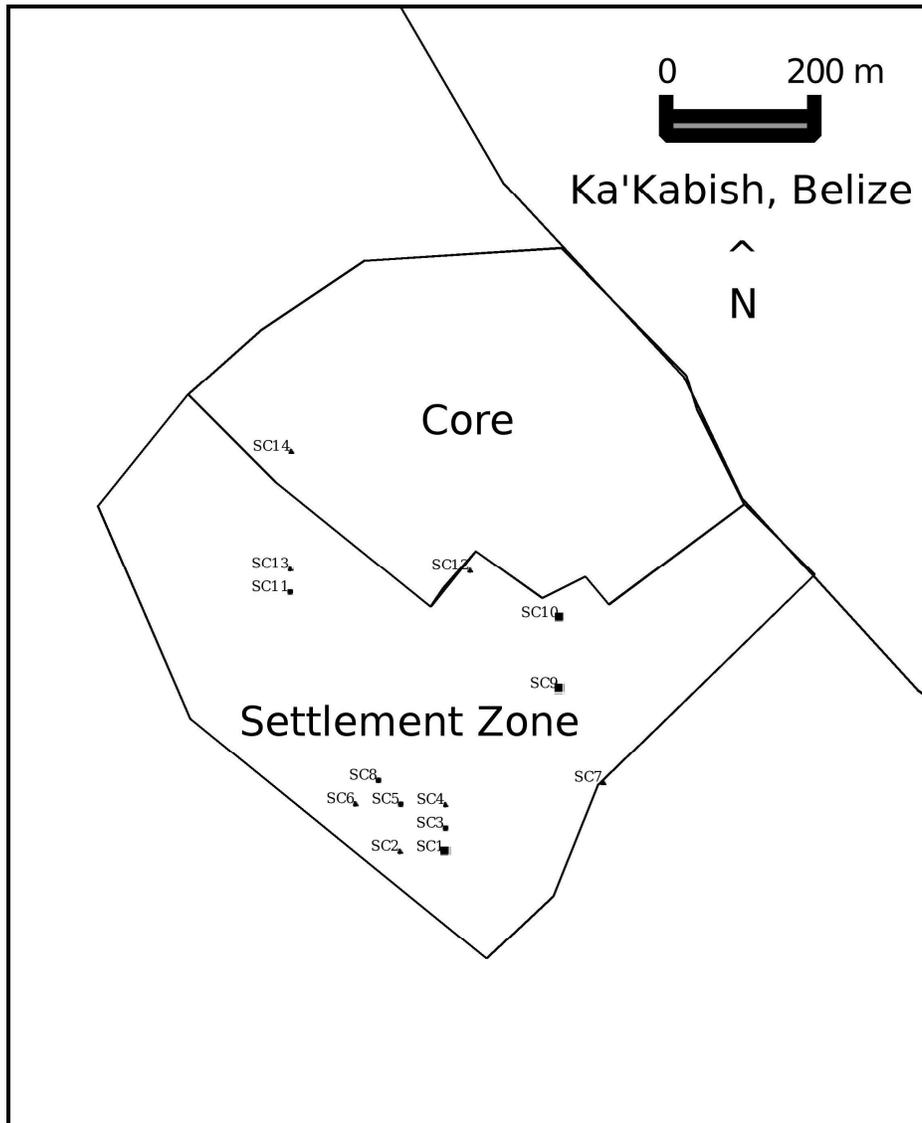


Figure 17. Map of Ka'Kabish Settlement Zone. (By C. Patterson).



Figure 18. Photograph of Settlement zone in surrounding cane fields.

APPENDIX I

PRELIMINARY REPORT ON

THE SETTLEMENT ZONE OF KA'KABISH, BELIZE: 2007 SEASON

Preliminary Report on The Settlement Zone of Ka'Kabish, Belize: 2007 Season

By Clifford B. Patterson
The University of Western Ontario
London, Ontario

Under the supervision of Dr. Helen Haines, and under her permit from the Belize Institute of Archaeology, NICHE, a survey of two areas in the periphery of Ka'Kabish was conducted from Jan. 28 to Feb. 16, 2007. In this report, we shall distinguish between the two areas as follows: the term "Chomokeil" (Mopan Mayan for middle) will be used for the site located on an agricultural field along the south side of the road from San Fillipe to Indian Church at 17°46'48"N 88° 41' 43"W; and the term "core settlement area" will be used for a series of agricultural fields to the south and east of the Ka'Kabish core (Figure 1). Both these areas were surveyed primarily by Clifford Patterson, a PhD Student at the University of Western Ontario, and a team ranging from one to five individuals (a combination of volunteers and local workmen from Indian Church and San Carlos).

METHODOLOGY

All fields were surveyed using a hand-held GPS unit which was set to give coordinates in latitude and longitude from datum WGS84. Surveyors were positioned about 5m apart and were directed to signal each other when they saw more than one artifact every five faces. When more than one member of the team began to see higher densities, the team would flag the location of artifacts. Once the area (be it a mound, multi-mound group, or scatter) was sufficiently flagged, the area was photographed, measured, and the geographic position was attained using the GPS receiver. The latitude and longitude attained would thereafter be used as the unit number. All artifacts were then collected and placed into plastic bags whereupon the bags would be tagged with the unit number, type (scatter, mound, or multi-mound group), and number of bags. The collected material was subsequently washed, pre-sorted (e.g. rims, basal rim flares, bifaces etc.), photographed, re-bagged, and databased.

In order to map the site using Quantum GIS, an open-source geographic information system, it was essential to convert the unit coordinates into degrees decimals, then convert those values into Universal Transverse Mercator (UTM) grid reference. The converted locations were then mapped over LANDSAT 7 satellite images, and a series of vector layers were created (e.g. roads, waterways, field boundaries etc.). The maps included in this report are preliminary, and will be changed in the future as more data is acquired.

CHOMOKEIL: THE PEOPLE IN THE MIDDLE

During a routine drive from Indian Church to San Filipe, Dr. Haines and Clifford Patterson noticed a recently planted corn field on the south side of the road which contained (what looked to be) numerous mounds. The field is located almost exactly midway between Lamanai and Ka'Kabish at 17°46'48"N by 88°41'43"W (Figure 1 and Figure 2). At this point it is impossible to state the size of Chomokeil, but roughly 0.18 km² were surveyed in which we located and mapped 8 mounds, 1 multi-mound group, and 16 scatters. These 25 units have been numbered by their geographic location, but to facilitate discussion new alphanumeric designations are being employed (Table 1).

Mounds at Chomokeil

A total of 8 mounds were mapped at Chomokeil from which 369 sherds and 10 lithics were recovered from the surface (See Tables 1-3). The mounds were easily distinguished from the surrounding field by three characteristics: (1) a higher concentration of white limestone rocks; (2) mounds were anywhere from 0.5m to 2m above an otherwise level field; and (3) in certain instances there was differential growth on mounds, no doubt due to presence rocks. All the mounds surveyed were severely damaged from agricultural activity, so it is likely that many of the subsequent scatters of artefacts located in close proximity to mounds were the result of post-deposition activity, not necessarily the remains of an ancient household without a stone platform. However, this by no means excludes the possibility that some of the scatters were the remains of ancillary structures without

platforms. Further analysis through excavation is needed to assess the relationship between mounds and scatters.

Unit Ch01-07 is a slightly elliptical mound about 1m high with the long axis running east-west at 15.57m by 12.26m giving it an area of 149.92m². A total of 85 ceramic sherds and 2 lithics were recovered from the surface of the mound giving it a total artefact density of 0.58/m². The mound is in the southeast corner of the surveyed area, and oddly had no scatters anywhere in the vicinity. This would suggest that either the surveyors missed the presence of artefacts, thus warranting a second pass next season.

Unit Ch03-07 is a mound with a scatter associated directly with it located in the southwestern corner of the survey area. The scatter and mound are slightly elliptical, aligned north to south and measure 20.98m by 19.05m giving it a total area of 313.9m². The mound at the center of this area is about 0.5m high, slightly aligned from the east to west, and measures 10.14m by 10.42m, giving it a total area of 82.98m². It is located in an area where there is a large quantity of chert and white limestone rocks mixed with dark black soil. The collection, which includes material from the surface of the periphery and the mound contains only a total of 50 sherds and 1 lithic artefact, giving it a total artefact density of 0.16/m².

Unit Ch07-07 is a small round mound located in the relative center of the surveyed portion of Chomokeil. It is a low mound with no apparent scatter around it, and it is located on black soil containing white limestone rocks. The long axis runs north-south and measures 9.62m and the short axis is 8.54m giving it an area of 64.52m². Perhaps attributed to its small size, there were only 16 sherds found on the surface of this mound, and no lithic artefacts were recovered. As such, the total artefact density is 0.25/m².

Unit Ch08-07 was recorded as a single mound because it is severely damaged, but it is likely that it was once a multi-mound group because of its size and because one portion is about 1-2m above the rest. It has an east-west alignment and a total area of 327.38m². The mound is composed of black

soil and white limestone rocks, and it is surrounded by black soil. A total of 64 sherds and 1 lithic artefact were recovered from its surface making the total artifact density $0.2/m^2$.

Unit Ch12-07 is a mound about 0.5m high, severely damaged due to agricultural activity, and located on black soil with many limestone rocks. It is axially aligned east-west, and has an area of $256.79m^2$. A total of 39 sherds and no lithics were recovered from the surface of the mound, making the total artefact density $0.15/m^2$.

Unit Ch16-07 is a severely damaged mound located on black soil which contains white limestone rocks. The mound is less than 0.5m high, and there is a clear difference between it and the immediate periphery which has no white stone, only black soil. The mound is axially aligned north-south, though it is nearly circular with the north-south axis measuring 9.87m and the east-west axis measuring 9.28m. The total area is $71.94m^2$ wherein 24 sherds and 1 lithic were recovered, so the total artefact density is $0.35/m^2$.

Unit Ch18-07 is another small mound axially aligned to east-west and measuring 7.69m by 10.9m. Due to the presence of a scatter connected to the northeast side of the mound, artifacts were collected from an area measuring 13.67m northwest-southeast by 13.41m northeast-southwest, with an area of $143.98m^2$. Only 26 sherds and a single lithic were recovered from the surface of the mound and scatter, so the density of artifacts is only $0.2/m^2$.

Unit Ch19-07 is a large mound with a north-south axial alignment. It measures 26m by 21m, giving it an area of $428.83m^2$; as such, it is the largest mound located thus far at Chomokeil. Due to its dimensions, it is possible that this mound is the remains of a multi-mound group. A total of 63 sherds and 4 lithic artefacts were recovered from the surface of this area, giving it a total artefact density of $0.16/m^2$.

A Multi-Mound Group at Chomokeil

A single multi-mound group, Ch22-07, was located at Chomokeil. It is located on the northern side of the surveyed area, and is visible from the road when the field is not under corn. There

are clearly four elliptical mounds connected by their short ends to form a single elliptical plazuela group. The total length of this group is 28.78m (east-west) by 27.76m (north-south), giving the group a total area of 627.48m², and the mounds are about 1-2m high. In the center of the group is a small courtyard area which appears to have had access to the the exterior of the group via an opening to the southwest where there is a substantial dip between two mounds.

A total of 212 sherds and 8 lithics were recovered from this area, and the total artefact density is .35/m². Of particular interest was the recovery of a biface and several diagnostic pieces of pottery, including many rims and bases. Chert, in the form of loose pebbles on the surface mixed with limestone, was noticeably absent from this group whereas it was clearly present at Ch03-07, located nearby.

Scatters at Chomokeil

Interspersed between the aforementioned mounds and multi-mound group were 16 scatters of artifacts. As mentioned above, scatters were collected when team members arbitrarily noticed high concentrations of artefacts within a contained area. A total of 728 artifacts (672 sherds and 56 lithics) were collected from 2742.5m², the total area of the 16 individual units. There is considerable range within this group of units in terms of artefact densities and area; densities range from 0.14-0.63 artefacts per m², and the area of the units range from 44.23-559.18m².

Located in the most northerly part of the Chomoeil nowhere near a mound, scatter Ch25-07 is a very small scatter measuring 48.2m². Only 13 sherds and 7 lithic artifacts were recovered from this area, giving it a low total artifact density of about 0.4 artifacts per meter squared. During the survey, it was observed that a possible mound was located on the opposite side of the road to the west, so it seems likely that this mound, and several others along the western side of the field which are located beside the road, are associated with ancient habitation to the west. No surveys were conducted to confirm or refute these speculations, but future work in this area will be needed.

Scatters Ch23-07 and Ch24-07 are both located at the same GPS point; this is an error caused by the inherent inaccuracy non-calibrated GPS readings and the inability to measure sub-meter differences with latitude and longitude. They are located about 59m west Ch22-07, the multi-mound group, so it is possible that these are the remains of ancillary structures or the result of post-depositional activity in the area. It was also noted that the area had a high concentration of white rocks which might suggest that a mound once stood in this area, but is now destroyed due to agricultural activity. Both scatters vary in terms of size and axial alignment: Ch23-07 is 46.85m² aligned east to west, and Ch24-07 is 241.68m² and aligned north to south. It is noteworthy that both have similar artifact densities per meter squared (0.51 compared to 0.37) even though the we recovered 24 artifacts from the former and 90 from the latter.

Scatters Ch20-07 is located 29m west of mound Ch19-07, and Ch21-07 is located about 30m west of Ch20-07. It is therefore likely that both scatters were related to the mound, but given the relative distance between each, it is likely that each scatter is the remains of an independent feature. Ch20-07 is 197.7m² and 37 sherds and two lithics were recovered from the area. The presence of a slight rise above the field and a high density of limestone rocks suggests that this scatter is a destroyed mound. Likewise, Ch21-07 is 156.22m² and 59 sherds and 7 lithics were recovered from the area. Like Ch20-07, Ch21-07 is found on a slight rise with a high density of limestone rocks suggesting again that this is the remains of a destroyed mound.

Due to the location of scatter Ch17-07 30m south of mound Ch18-07 and 30m west of mound Ch16-07. This 100m² area only contained 19 sherds and no evidence of a mound, such as a high density of limestone rocks. It is therefore likely that these sherds came from one or both of the nearby mounds.

Scatter Ch11-07 is located less than 30m east of mound Ch12-07. A total of 96 sherds were recovered in a 168.15m² area. Except for the presence of a few limestone rocks in the area, there is no direct evidence that a mound once stood in this area, however the close proximity to Ch12-07

suggests that this might have been the location of an ancillary structure, or the result of post-depositional activity.

To the immediate west and/or northwest of mounds Ch08-07 and Ch12-07 are five scatters: Ch09-07 and Ch10-07 are 29m west of mound Ch08-07, Ch13-07 and Ch14-07 are both located 42m northwest of mound Ch08-07 and 59m west of Ch12-07, and scatter Ch15-07 is located 60m west of scatters Ch13-07 and Ch14-07. Scatters Ch09-07 and Ch10-07 were both probably mounds that had been destroyed by agricultural activity; the former is 223.42m² with a density of 0.15 artifacts per squared meter, and the latter is 125.84m² with an artifact density of 0.18 artifacts per square meter. Scatters Ch13-07 and Ch14-07 are both located at the same GPS point, and cover an area of some 600 squared meters. Both scatters had a similar density of 0.16 and 0.09 artifacts per square meter. The area contains higher densities of limestone rocks, but there was no evidence that there was once a mound in this area. The last scatter in this area is Ch15-07, located on the west side of the field along the road. It has an area of 69.16m² and a relatively high density of 0.43 artifacts per square meter. In total, this area in the central part of the field measuring roughly 8000m² contains six scatters and two substantial mounds. This high level of ancient activity would make this area suitable for test pits.

Immediately to the south of this area, we found a group of segregated scatters. Scatter Ch05-07 is located 67m southwest of mound Ch07-07, and measures 44.23m² with a density of 0.63 artifacts per meter squared. About 92m west of this scatter is another one, Ch06-07, which measures 224.17m² with a density of 0.22 artifacts per square meter. It is likely that the this was a mound that was destroyed when the road was built. Lastly, 130m to the southeast of this scatter is another large scatter measuring 384.05m² with a density of 0.16 artifacts per square meter.

Scatter Ch02-07 is located between mounds Ch01-07 and Ch03-07 in the southern part of the field. There are tired ruts running east to west over the scatter area and many types of rocks and rubble which suggest that this was once a mound. With a total area of 559.18m², this is the largest scatter surveyed at Chomokil in 2007. A total of 79 artifacts were recovered giving it a density of

0.14 artifacts per square meter. Given its size and location between two substantial mounds, this area would also be opportune for test pitting in the future.

THE KA'KABISH CORE SETTLEMENT

During the 2007 season, four recently harvested cane fields located to the immediate south and southeast of Ka'Kabish were surveyed (Table 8, 9, and 10). Though the fields were harvested at the time of survey, burnt remnants of cane decreased visibility to as low as 0% in some areas. Though this posed a considerable problem when trying to identify individual artifacts, mounds were still visible. In total we mapped the location of four mounds, three multi-mound groups, and seven scatters from which 1322 sherds and 55 lithics were collected. This settlement zone expands considerably the area of Ka'Kabish, especially considering the furthest mound from the core in the southern settlement is 691m from temple D4. Though this survey is only the first step towards a fuller understanding of the urban plan of Ka'Kabish, it is nonetheless important because it confirms that the site was considerably larger than once thought. Further studies will be necessary to determine if the site had boundaries, or if it simply merged with the settlement radiating from the Chomokeil area.

Mounds from the The Ka'Kabish Core Settlement

About 19% of the recovered artifacts from the Ka'Kabish settlement zone came from the surface of four mounds: units SC11-07, SC5-07, SC8-07, and SC3-07. The first was found beside a single scatter, while the latter three mounds were found in the southern area where there is a considerable concentration of mounds, a multi-mound group, and three scatters.

Mound SC11-07 was a collection made over a bulldozed area. It was clear that the area was once a mound due to the presence of a high concentration of limestone rocks and a high density of artifacts, but the area had been so thoroughly destroyed that it was difficult to measure its dimensions. A total of 109 sherds and 1 lithic were collected from this area.

Three mounds in the south of the settlement zone, SC5-07, SC8-07, and SC3-07, are all roughly 200m² with varying artifact densities: 0.08, 0.93, and 0.35 respectively. They are all located within a 127m radius of a large multi-mound group, unit SC01-07. Mound SC08-07 was probably considerably larger than the 205m² recorded since it was located at the edge of a field, and only half of it was exposed for survey. The presence of such a high density of mounds in such a small area means that this area is opportune for future test pitting as it was probably the location of a multi-structure household group (or groups). It also suggests that the population surrounding Ka'Kabish was quite dense.

Multi-Mound Groups in the Ka'Kabish Core Settlement

Three multi-mound groups were located south of the Ka'Kabish core: SC01-07; SC09-07; and SC10-07. The three structures produced some of the highest densities of artifacts in the core settlement zone; from their surfaces we recovered 629 artifacts, which represents over 45.68% of the total collected from the entire core settlement zone. Test pitting in these three, especially around SC01-07, would be advantageous.

The multi-mound group located in the southernmost part of the settlement zone was axially aligned north to south with an area of 398.2m². To its west and northwest we found three scatters and three mounds, suggesting that this area was a dense settlement area in the past. We recovered 272 sherds and only a single lithic from this area, making this the second most dense (0.69 artifacts per m²) area surveyed in the core settlement zone. There is reason to believe that even more artifacts would have been recovered from the surface had visibility not been so low in certain areas (as low as 50%).

Multi-mound group SC09-07 is the largest group found in the settlement zone. It is an L-shaped platform that measures roughly 35m by 45m, giving it an estimated 1237m². It is oddly shaped, and damage to it from agricultural activity made it difficult to identify individual mounds in the group. It is isolated in the northwestern corner of a field that yielded no other units when

surveyed. During the survey, we recovered 292 sherds and 3 lithics giving this area a density of 0.24 artifacts per meter squared. Fortunately, several diagnostic pieces of pottery were collected, so this area might be opportune for future investigations.

Lastly, the multi-mound group SC10-07 is another relatively isolated unit located 92m north of SC09-07. It is axially aligned east to west with an area of 287.56m². The mound is higher than the previous two, measuring approximately 1-2m high, though it is severely damaged from agricultural activity. The rubble fill of the mound is diverse, containing various types of rocks and black soil. It is uncertain exactly how many mounds there once were in this group. The area yielded only 61 sherds and surprisingly no lithics.

Scatters in the Ka'Kabish Core Settlement

When mapping scatters in the Ka'Kabish core settlement, it was decided that where there were no clear boundaries for a scatter in a field, a collection would be made for the entire field with a single unit number (a GPS reading from one of the field's corners). This was done for three areas: SC04-07, SC07-07, and SC12-07. Tables 7 and 8 provide the data from these scatters. The remaining scatters are all associated with nearby mounds or other architectural remains

SC14-07 is probably the remains of a structure which was part of Area E, as it was located adjacent to it in an area that had been bulldozed many years ago (wild papaya had now grown over the entire area). Our team collected 42 sherds and 5 lithics from this area, but poor visibility probably prevented us from collecting more.

The scatter SC13-07 was located about 30m north of mound SC11-07. The dimensions of this scatter were not recorded because the area was partially under cane. We were, however, able to collect 110 sherds and 4 lithics.

The last two scatters, SC02-07 and SC06-07, are both associated with a high density remains around multi-mound group SC01-07 in the southernmost part of the surveyed area. A total of 26 sherds and 2 lithics were collected from SC06-07, and 65 sherds and 21 lithics were collected from

SC02-07. During the survey, it was observed that the high density of lithics in this latter unit may be evidence of stone working in the area, further justifying future operations in this area.

CONCLUSIONS

In total, the 2007 season mapped the location of 12 mounds, 4 multi-mound groups, and 24 scatters over a combined area of roughly 0.38km². We collected from the surface of this area 2575 sherds and 129 lithics. Future seasons should focus more attention on the settlement core area where rotating crops will continuously expose more remains, and the area around Chomokeil where we will gather important data relating to the growth and development of the Lamanai polity.

APPENDIX I

Figures & Tables

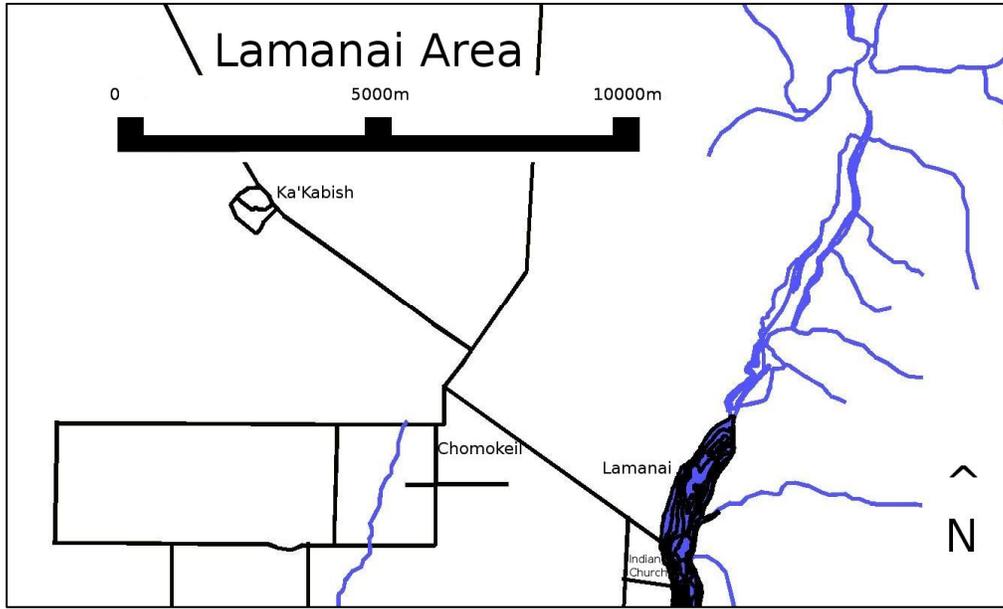


Figure I.1. Map of the Lamanai Area

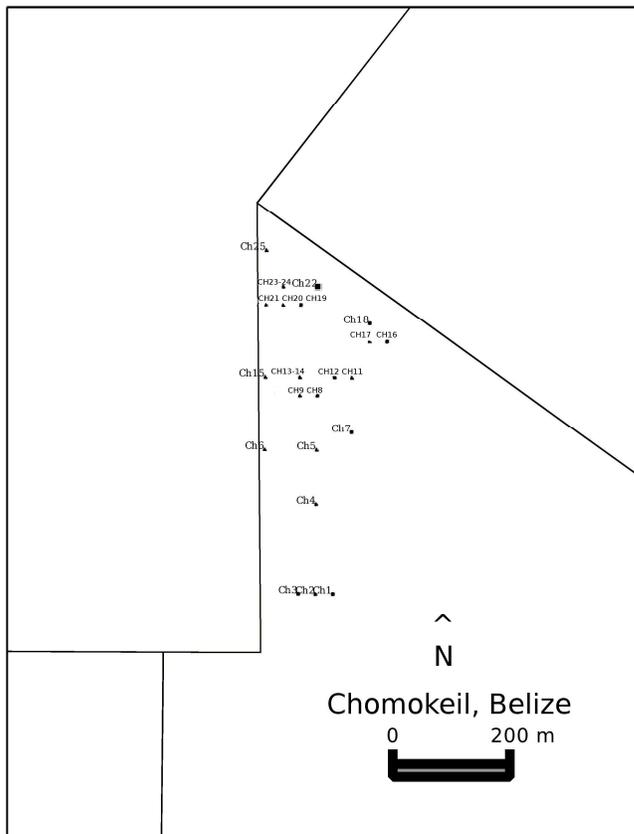


Figure I.2. Map of Chomokeil, Belize

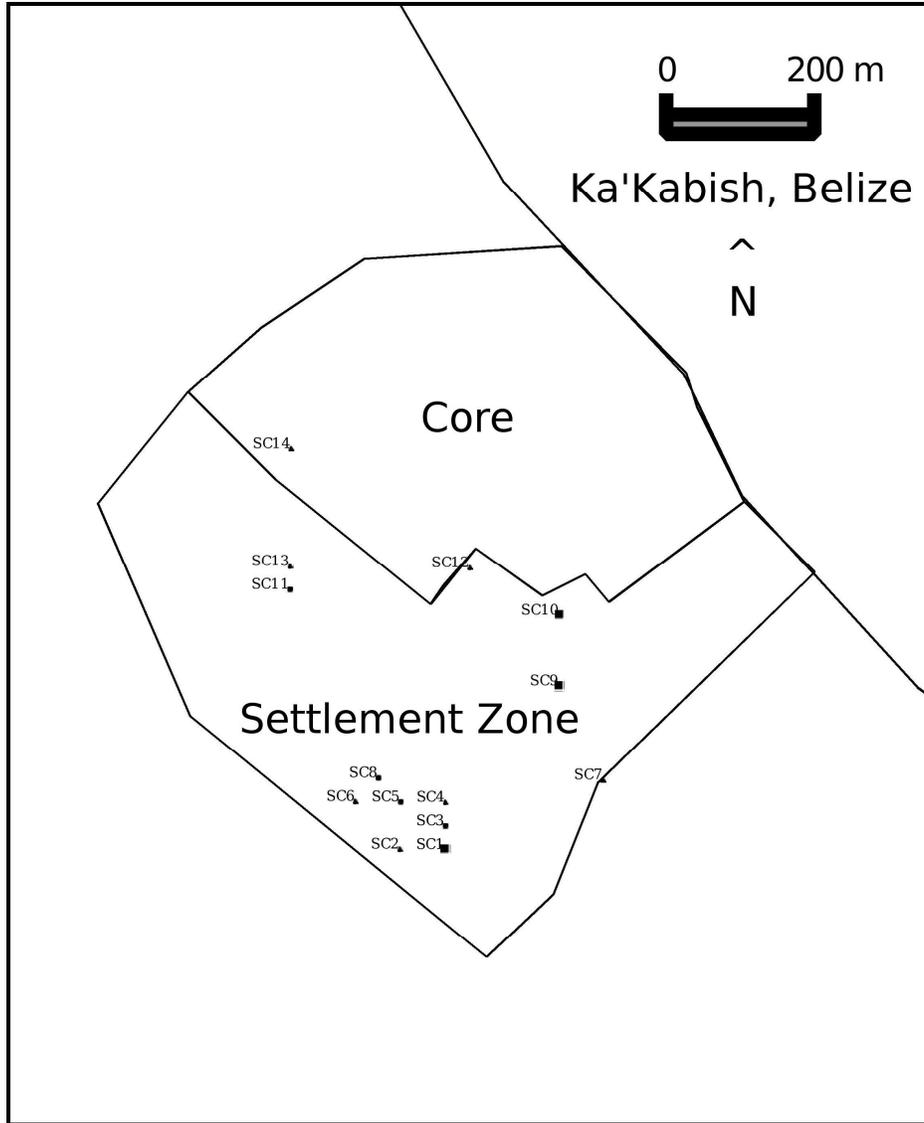


Figure I.3. Map of Ka'Kabish Core Settlement Zone.

TABLES

	ID	GEO ID	Datum	Northing-Y	Easting-X	UTM Zone
Mounds	Ch01-07	17.46.29N 88.41.39W	WGS84	1966072.76201	320403.28681	16
	Ch12-07	17.46.41N 88.41.39W	WGS84	1966441.67270	320406.61812	16
	Ch16-07	17.46.43N 88.41.36W	WGS84	1966502.36003	320495.53328	16
	Ch18-07	17.46.44N 88.41.37W	WGS84	1966533.36847	320466.35754	16
	Ch19-07	17.46.45N 88.41.41W	WGS84	1966565.17505	320348.82226	16
	Ch03-07	17.46.29N 88.41.41W	WGS84	1966073.29399	320344.37892	16
	Ch07-07	17.46.38N 88.41.38W	WGS84	1966349.17906	320435.23876	16
	Ch08-08	17.46.40N 88.41.40W	WGS84	1966411.19615	320376.88704	16
	Ch09-07	17.46.40N 88.41.41W	WGS84	1966411.46220	320347.43360	16
	Multi-mound groups	Ch22-07	17.46.46N 88.41.40W	WGS84	1966595.65155	320378.55317
Scatters	Ch10-07	17.46.40N 88.41.41W	WGS84	1966411.46220	320347.43360	16
	Ch11-07	17.46.41N 88.41.38W	WGS84	1966441.40673	320436.07151	16
	Ch13-07	17.46.41N 88.41.41W	WGS84	1966442.20477	320347.71132	16
	Ch14-07	17.46.41N 88.41.41W	WGS84	1966442.20477	320347.71132	16
	Ch15-07	17.46.41N 88.41.43W	WGS84	1966442.73701	320288.80451	16
	Ch17-07	17.46.43N 88.41.37W	WGS84	1966502.62592	320466.07999	16
	Ch2-07	17.46.29N 88.41.40W	WGS84	1966073.02798	320373.83287	16
	Ch20-07	17.46.45N 88.41.42W	WGS84	1966565.44117	320319.36904	16
	Ch21-07	17.46.45N 88.41.43W	WGS84	1966565.70733	320289.91581	16
	Ch23-07	17.46.46N 88.41.42W	WGS84	1966596.18375	320319.64683	16
	Ch24-07	17.46.46N 88.41.42W	WGS84	1966596.18375	320319.64683	16
	Ch25-07	17.46.48N 88.41.43W	WGS84	1966657.93507	320290.74933	16
	Ch04-07	17.46.34N 88.41.40W	WGS84	1966226.74077	320375.22107	16
	Ch05-07	17.46.37N 88.41.40W	WGS84	1966318.96845	320376.05404	16
	Ch06-07	17.46.37N 88.41.43W	WGS84	1966319.76671	320287.69328	16

Table I.1: Coordinates in Lat/Long and UTM for the 25 units at Chomokeil, Belize

ID	Axial Alignment	Long Side Length	Short Side Length	Area m squared
Ch1-07	east-west	15.57	12.26	149.92
Ch12-07	east-west	19.02	17.19	256.79
Ch16-07	north-south	9.87	9.28	71.94
Ch18-07	northwest-southeast	13.67	13.41	143.98
Ch19-07	north-south	26	21	428.83
Ch3-07	north-south	20.98	19.05	313.9
Ch7-07	north-south	9.62	8.54	64.52
Ch8-07	east-west	21.17	19.69	327.38
Ch9-07	northwest-southeast	16.69	9.6	125.84

Table I.2: Dimension and area data for the mounds at Chomokeil, Belize

ID	Total Ceramic Sherds	Total Lithics	Total Artifacts	% of Ceramic Sherds	% of Lithics	% of Total Artifacts	Sherd Density/m2	Lithic Density/m2	Total Artifact Density/m2
Ch1-07	85	2	87	3.30%	1.55%	3.22%	0.57	0.01	0.58
Ch12-07	39	0	39	1.51%	0.00%	1.44%	0.15	0	0.15
Ch16-07	24	1	25	0.93%	0.78%	0.92%	0.33	0.01	0.35
Ch18-07	28	1	29	1.09%	0.78%	1.07%	0.19	0.01	0.2
Ch19-07	63	4	67	2.45%	3.10%	2.48%	0.15	0.01	0.16
Ch3-07	50	1	51	1.94%	0.78%	1.89%	0.16	0	0.16
Ch7-07	16	0	16	0.62%	0.00%	0.59%	0.25	0	0.25
Ch8-07	64	1	65	2.49%	0.78%	2.40%	0.2	0	0.2
Ch9-07	30	3	33	1.17%	2.33%	1.22%	0.24	0.02	0.26

Table I.3: Density data for the mounds at Chomokeil, Belize.

ID	Axial Alignment	Long Side Length	Short Side Length	Area m squared
Ch22-07	east-west	28.78	27.76	627.48

Table I.4: Dimension and area data for the multi-mound group at Chomokeil, Belize

ID	Total Ceramic Sherds	Total Lithics	Total Artifacts	% of Ceramic Sherds	% of Lithics	% of Total Artifacts	Sherd Density/m2	Lithic Density/m2	Total Artifact Density/m2
Ch22-07	212	8	220	8.23%	6.20%	8.14%	0.34	0.01	0.35

Table I.5: Density data for the multi-mound group at Chomokeil, Belize.

ID	Long Side	Long Side Length	Short Side Length	Area meters squared
Ch10-07	northwest-southeast	16.69	9.6	125.84
Ch11-07	north-south	17.35	12.34	168.15
Ch13-07	north-south	17.05	9.37	125.47
Ch14-07	northwest-southeast	28	25	549.78
Ch15-07	northwest-southeast	10.66	8.26	69.16
Ch17-07	east-west	19.92	6.41	100.29
Ch2-07	north-south	28.32	25.14	559.18
Ch20-07	north-south	16.24	15.5	197.7
Ch21-07	northeast-southwest	15.08	13.19	156.22
Ch23-07	east-west	7.86	7.59	46.85
Ch24-07	north-south	18.09	17.01	241.68
Ch25-07	north-south	12.08	5.08	48.2
Ch4-07	northwest-southeast	22.41	21.82	384.05
Ch5-07	north-south	10.39	5.42	44.23
Ch6-07	east-west	18.18	15.7	224.17
Ch9-07	north-south	17.42	16.33	223.42

Table I.6: Dimension and area data for the scatters at Chomokeil, Belize

ID	Total Ceramic Sherds	Total Lithics	Total Artifacts	% of Total Sherds	% of Total Lithics	% of Total Artifacts	Sherd Density/m2	Lithic Density/m2	Total Artifact Density/m2
Ch10-07	22	1	23	0.85%	0.78%	0.85%	0.17	0.01	0.18
Ch11-07	96	0	96	3.73%	0.00%	3.55%	0.57	0	0.57
Ch13-07	14	6	20	0.54%	4.65%	0.74%	0.11	0.05	0.16
Ch14-07	48	1	49	1.86%	0.78%	1.81%	0.09	0	0.09
Ch15-07	26	4	30	1.01%	3.10%	1.11%	0.38	0.06	0.43
Ch17-07	19	0	19	0.74%	0.00%	0.70%	0.19	0	0.19
Ch2-07	74	5	79	2.87%	3.88%	2.92%	0.13	0.01	0.14
Ch20-07	37	2	39	1.44%	1.55%	1.44%	0.19	0.01	0.2
Ch21-07	59	7	66	2.29%	5.43%	2.44%	0.38	0.04	0.42
Ch23-07	19	5	24	0.74%	3.88%	0.89%	0.41	0.11	0.51
Ch24-07	78	12	90	3.03%	9.30%	3.33%	0.32	0.05	0.37
Ch25-07	13	7	20	0.50%	5.43%	0.74%	0.27	0.15	0.41
Ch4-07	62	1	63	2.41%	0.78%	2.33%	0.16	0	0.16
Ch5-07	28	0	28	1.09%	0.00%	1.04%	0.63	0	0.63
Ch6-07	47	2	49	1.83%	1.55%	1.81%	0.21	0.01	0.22
Ch9-07	30	3	33	1.17%	2.33%	1.22%	0.13	0.01	0.15

Table I.7: Density data for the scatters at Chomokeil, Belize.

	ID	GEO ID	Datum	Northing-Y	Easting-X	UTM Zone
Mounds	SC5-07	17.48.37N 88.43.57W	WGS84	1970044.99638	316374.98077	16
	SC11-07	17.48.46N 88.44.2W	WGS84	1970323.04778	316230.29985	16
	SC8-07	17.48.38N 88.43.58W	WGS84	1970076.01201	316345.81666	16
	SC3-07	17.48.36N 88.43.55W	WGS84	1970013.70842	316433.59360	16
Multi-mound groups	SC1-07	17.48.35N 88.43.55W	WGS84	1969982.96528	316433.30928	16
	SC9-07	17.48.42N 88.43.50W	WGS84	1970196.80600	316582.54134	16
	SC10-07	17.48.45N 88.43.50W	WGS84	1970289.03541	316583.39374	16
Scatters	SC14-07	17.48.52N 88.44.2 W	WGS84	1970507.50690	316232.00807	16
	SC13-07	17.48.47N 88.44.2W	WGS84	1970353.79096	316230.58454	16
	SC12-07	17.48.47N 88.43.54W	WGS84	1970351.61075	316466.16958	16
	SC4-07	17.48.37N 88.43.55W	WGS84	1970044.45158	316433.87793	16
	SC6-07	17.48.37N 88.43.59W	WGS84	1970045.54136	316316.08360	16
	SC07-07	17.48.38N 88.43.48W	WGS84	1970073.28926	316640.30190	16
	SC02-07	17.48.35N 88.43.57W	WGS84	1969983.51007	316374.41194	16

Table I.8: Geographic location and unit ID's for the Ka'Kabish settlement core.

ID	Type	GEO_ID	Axial Alignment	Long Side Length	Short Side Length	Area in meters squared
SC5-07	Mound	17.48.37N 88.43.57W	N/S	19	15	223.84
SC11-07	Mound	17.48.46N 88.44.2W	-	-	-	-
SC8-07	Mound	17.48.38N 88.43.58W	N/S	16.5	11	142.55
SC3-07	Mound	17.48.36N 88.43.55W	N/S	21.8	12	205.46
SC1-07	Multi-mound group	17.48.35N 88.43.55W	N/S	26	19.5	398.2
SC9-07	Multi-mound group	17.48.42N 88.43.50W	se/sw	45	35	1237
SC10-07	multi-mound group	17.48.45N 88.43.50W	e/w	23.38	15.66	287.56
				-	-	-
SC14-07	Scatter	17.48.52N 88.44.2 W		-	-	-
SC13-07	Scatter	17.48.47N 88.44.2W		-	-	-
SC12-07	scatter	17.48.47N 88.43.54W		-	-	-
SC4-07	Scatter	17.48.37N 88.43.55W		-	-	-
SC6-07	Scatter	17.48.37N 88.43.59W		-	-	-
SC07-07	Scatter	17.48.38N 88.43.48W		-	-	-
SC02-07	Scatter	17.48.35N 88.43.57W	e/w	17	11	146.87

Table I.9: Area and dimensions of units in the Ka'Kabish settlement core.

Appendix I:
The Settlement Zone of Ka'Kabish

ID	Type	Total Ceramc Sherds	Total Lithics	Total Artifacts	% of Ceramic Total Sherds	% of Total Lithics	% of Total Artifacts	Sherd Density/m2	Lithic Density/m2	Total Artifact Density/m2
SC5-07	Mound	15	2	17	1.13%	3.64%	1.23%	0.07	0.01	0.08
SC11-07	Mound	109	1	110	8.25%	1.82%	7.99%	-	-	-
SC8-07	Mound	124	9	133	9.38%	16.36%	9.66%	0.87	0.06	0.93
SC3-07	Mound	72	0	72	5.45%	0.00%	5.23%	0.35	0	0.35
SC1-07	Multi-mound group	272	1	273	20.57%	1.82%	19.83%	0.68	0	0.69
SC9-07	Multi-mound group	292	3	295	22.09%	5.45%	21.42%	0.24	0	0.24
SC10-07	multi-mound group	61	0	61	4.61%	0.00%	4.43%	0.21	0	0.21
SC14-07	Scatter	42	5	47	3.18%	9.09%	3.41%	-	-	-
SC13-07	Scatter	110	4	114	8.32%	7.27%	8.28%	-	-	-
SC12-07	scatter	37	0	37	2.80%	0.00%	2.69%	-	-	-
SC4-07	Scatter	12	0	12	0.91%	0.00%	0.87%	-	-	-
SC6-07	Scatter	26	2	28	1.97%	3.64%	2.03%	-	-	-
SC07-07	Scatter	85	7	92	6.43%	12.73%	6.68%	-	-	-
SC02-07	Scatter	65	21	86	4.92%	38.18%	6.25%	0.44	0.14	0.59

Table I.10: Density data for units in Ka'Kabish settlement core.

APPENDIX II

KA'KABISH CERAMIC REPORT 2007

KA'KABISH CERAMIC REPORT 2007

Jim Aimers
SUNY Geneseo

INTRODUCTION

In early August 2007 I examined 663 sherds from Ka'Kabish. The results of this analysis are presented in Table 1. The majority of the sherds were not diagnostic and none were from primary contexts, but the sample did allow a general assessment of the temporal span of occupation at the site. Occupation in the Ka'Kabish site core appears to have spanned the Late Preclassic to at least the Terminal Classic, with minimal indications of Early Post-Classic and possibly Middle Post-Classic occupation in the settlement zone.

METHOD

The number of sherds was larger than I had expected, and the preservation of many these sherds was poor. Given that the contextual/stratigraphic information needed for type-variety assessment was also generally absent, I adopted a very simple method of analysis. Each bag of sherds was laid out and sorted into diagnostic/ non-diagnostic sherds, and then diagnostic sherds were more closely examined. Contexts and type-variety identifications were noted on an index card. Type-variety designations were assigned to the most specific hierarchical level possible (usually Group or Type).

Each bag of sherds and its associated index card were assigned a Lot number, which acts as a serial number for that specific context. Bag tags, tags inside bags, and index cards were all labelled with the Lot number. The result is 30 Lots that represent all the sherds I examined. I would strongly recommend that the Lot system be adopted at Ka'Kabish (see Conclusions).

These data were entered into an Excel spreadsheet after I returned to London. The spreadsheet here (Table 1) is set up as a simplified version of the form I use at Lamanai but this can be revised in line with the future research goals of the Ka'Kabish project.

RESULTS OF ANALYSIS

About 560 of 663 sherds (84%) were non-diagnostic.

The earliest ceramics were from the looter's trench in Structure 9. These sherds were from the Sierra Group, dating from the Late Preclassic. Type designations were not possible since these were only sherds, not full or partial vessels. Some analysts will not even attempt type-variety on sherds, since the system was devised for full vessels, or broken/partial vessels for which the entire shape and surface can be extrapolated.

It may be of interest that there were no identifiable Early Classic sherds in the sample, given that this period is also relatively rare at Lamanai. This must be regarded as pure speculation at this point, however, since it would be easy to miss Early Classic types when working with sherds from uncertain contexts like these

A number of rim sherds from large unslipped jars with outcurving necks and a diagnostic encircling ridge several centimetres below the rim were found in Lots 20, 24, 25, 26, 28, and 29, mostly in the settlement zone. I have also seen these at Lamanai and in the Albion Island collections at the Institute of Archaeology, Belize. These rims are typically from Late Classic striated jars, although this could not be confirmed from the Ka'Kabish rims. This style of jar has been given a number of type designations by different analysts: Dumbcane Striated (Fry), Calderitas Heavy Plain (Ball; Sanders), Sisal Unslipped (R.E. Smith), and Tu-Tu Camp Striated (Valdez). I will need to look into this issue more over the coming years, but for now I have designated them following Fry and Ball as Dumbcane Striated/ Calderitas Heavy Plain. I suspect they will ultimately be classified as Dumbcane Striated.

One interesting sherd was from Lot 30, from Str. 4 in the site core. This sherd appears to be some sort of slate ware, most likely Puuc Slate Ware, but even this assessment is risky with a single body sherd. In any case, slate wares are associated with the Late and Terminal Classic in northern Yucatan. Whether this is an actual import from the northern lowlands (in my mind, likely) or a local

imitation (less likely, I think), this single sherd does indicate some sort of interaction with areas to the north at the end of Classic period. This sort of interaction is evident at Lamanai and Chau Hiix as well.

The latest sherds I saw were a rim from a Tsabak Unslipped unslipped jar, which likely dates to the Early Post-Classic, and a single rim from a Red Payil Group parenthesis rim jar, which likely dates to the Middle Post-Classic. Both of these sherds were from the settlement zone.

Although the ceramics I examined were, not surprisingly, also typical of types found at Lamanai, so far none of the most diagnostic Lamanai Post-Classic types have been identified (particularly those of the Zacpah Group). This is probably simply a sampling issue, but it could possibly reflect a reduced or minimal Post-Classic occupation at the site.

GENERAL COMMENTS AND CONCLUSIONS

The low percentage of diagnostics found in 2007 (about 16%) can be raised by collecting larger, more diagnostic sherds, and ideally full vessels, from better contexts. A 30% diagnostic rate is not unusual for many collections, but my experience with ceramic preservation at Lamanai leads me to believe that with revised collection procedures the number of diagnostics from Ka'Kabish can be raised dramatically. In very few cases should unslipped body sherds be expected to be diagnostic, for example, and even slipped rims from surface or mixed contexts can be very difficult to classify. I would suggest a focus at KaKabish on collecting sherds and especially full or partial vessels from sealed contexts such as burials and caches. Sherd material from sealed stratigraphic sequences can also be useful, for example from below a succession of plaster floors, but this requires a substantial sample of good diagnostics from each stratigraphic level.

As I noted above, I would strongly recommend that the Lot system be adopted at KaKabish. There are a number of reasons for this. Firstly, I found that the recording system used in 2007 was inconsistent and confusing. Categories used included Site, T/Op, Unit, Level, Mat, and Feat. I do not know what some of these mean, and they were used inconsistently. This is a typically cumbersome recording system and an issue I've discussed with many archaeologists over the years. I understand the logic of this system: contextual information is built into the recording. However, the problem I (and others) have encountered with this system is that it involves so many numbers and words that it virtually guarantees mix-ups in the lab, either in labelling, boxing, or the sorting of sherds. The system used in 2007 will work when there are relatively few artifacts, but for Maya archaeology, where samples can be enormous, it is a recipe for trouble.

Essentially the Lot system assigns a unique serial number to each minimal context. So, an entire level of a midden unit of several thousand sherds can be a Lot, but so can a cluster of sherds found on a floor, or a small cache, etc. Thirty years of excavations at Lamanai still have not produced Lot numbers longer than 6 digits (e.g., LA 1064). I would strongly suggest that you consider using some version of the Lot system. In an era of computer files that can be easily copied,

printed, e-mailed, backed up etc, the chance of losing the contextual information for a given Lot number is very minimal. When Lot numbers are assigned a paper list is always kept in any case.

The utility of the Lot system was shown this summer. My assistant Jorge copied the contextual information onto the index cards with the newly assigned Lot numbers, but for some reason he forgot to write down the contextual data for the bag of sherds that I have assigned Lot 15. Because I also labelled the tags on and in the bags in the lab, this can be sorted out quickly at the next visit to the site. Lot numbers thus serve as a double check on contextual data. Without Lot numbers this process would be MUCH more time consuming and confusing.

I know from using both systems that the Lot system drastically reduces errors in labelling, bagging, boxing, and ultimately in analysis. In my opinion any system that makes analysis more complex should be examined and streamlined. I think the system you are using was designed to track contexts in the field, but it hinders analysis—and analysis is the point of all of that excavation. A lot system would also make using the Sort function in Excel much easier as it will only sort by three categories. Adopting the Lot system will make labelling bags, artifacts much easier and faster, and it will reduce the confusion that can occur when you are sorting huge lists that already have multiple contextual categories.

