

Results of Survey in Central Yucatán, México

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Presented at the Symposium “Regional and Community Organization in the Northern Lowlands: Papers in Honor of the Life and Legacy of Ed Kurjack” celebrated at 76th Annual Meeting of the Society for American Archaeology
San Juan, Puerto Rico, April 29th, 2006

ABSTRACT

In 2005, we performed both purposive and systematic survey in the central portion of the state of Yucatán, México. Our project area extended from Acanceh in the northwest to Yaxuná in the northeast, south to Peto, west to Maní, and then returned north to Acanceh after passing through the site of Mayapán. We investigated approximately 35 sites, most of which were previously unreported, and we systematically surveyed approximately 10 km of transects, finding a relatively high density of rural settlement. The survey provided significant new information about settlement patterns in this key central area of the Maya lowlands.

INTRODUCTION

From July 5th to August 15th of 2005, we conducted an archaeological survey in the central portion of the state of Yucatán. We conducted both purposive site survey and systematic rural settlement survey. We located about 24 sites and visited a dozen previously known sites. The exact count of sites is necessarily imprecise because of inherent problems of site definition in lowland Maya archaeology.¹ In addition, in certain cases, we could not determine whether local archaeologists previously knew of a site. On our systematic survey transects, we found a high density of residential settlement. The ceramic analysis demonstrated that the sites present occupations from the Late Formative through Colonial periods.

Project area

The project area (Figure 1) is the central portion of the state of Yucatán east of Mayapán. The northwest corner of the project area is at the town (and site) of Acanceh. From there, the border runs south through Mayapán to the town of Maní. From

¹ For example, because of the random exigencies of the survey process, we observed a large platform or *basamento* built on a natural rise outside the town of Sotuta at a place called Hochtunch'en. We recorded it as a site, but there were no monumental public buildings clearly visible. As in most of the Maya lowlands, there are residential structures scattered all over this region. Was Hochtunch'en really a “site,” or was it just one of the ubiquitous rural homesteads?

Maní the southern edge of the project area runs east to Peto, where it turns to the north-northeast and runs to the site of Yaxuna. There, it turns west to the town of Yaxcabá, then passes northwest of Tibolon to the town of Huhí, whence it returns to Acanceh. The project area contains part or all of quite a few *municipios*, including Acanceh, Tecoh, Tekit, Mama, Chapab, Maní, Teabo, Tekax, Chumayel, Mayapán Pueblo, Cantamayec, Tixméuac, Kinil, Chacsinkin, Peto, Tahdziu, Yaxcaba, Sotuta, Huhí, y Homun. The need to coordinate our survey efforts with a large number of municipal governments increased the amount of time effort necessary to conduct the research. Similarly, an even larger number of *ejidos* were involved, which required many additional meetings. Note that we did not conduct any research at Acanceh, Mayapán, Maní, or Yaxuna.

The project area contains few known sites, but holds the key to understanding the social and economic organization of the later prehistory of the northern Maya lowlands. The project area has been defined to include the eastern half of Mayapán's hinterland as well part or all of several adjacent provinces. The significance of this choice will become clear in the next section.

PROBLEMS

We are interested in this area for a slew of reasons. We do not have space here to discuss them all, but we will highlight the most salient. At the most basic level, we were concerned with collecting essential cultural historical data on the archaeology of the project area. We wished to record the settlement patterns of the area, including the presence of sites of different sizes, the density of rural settlement, and the chronology of those sites. We believe the settlement pattern data are inherently important for testing various theories of ancient Maya settlement (e.g., Central Place Theory, fractal theory), which in turn carry implications for the structure of the ancient Maya economy and politics.

We are also interested in this region because some investigators have claimed there are few or no sites in this area for environmental reasons, particularly because of the water quality (i.e., the presence of high sulfate ground water). In fact, before our survey, relatively few sites (about 38) had been identified in the project area. Most of those were located either along the edges of the area and/or corresponded to the existing towns, such as Mama, Teabo, Tipikal, Chumayel, Kimbila, Kinil, Xaya, Tixméhuac, Tixcaltuyub, Cuzama, Huhí, Houmn, and Sotuta. Thus, the central part of the project area was largely a blank. We were concerned with determining whether this *terra incognita* was truly empty or whether its apparent vacancy was a result of lack of survey.

We also are considering the possibility that the gap in settlement may be related to the presence of the "Cenote Zone". The Cenote Zone is an area of small lakes in sinkholes or dolines. It runs in an arc from the north coast of the Peninsula near the Bocas de Dzilam to the northwest coast near Celestun. The Cenote Zone is the surficial expression of the famous Chicxulub impact crater. Kevin Pope has shown that the Cenote Zone is associated with a shallow topographic trough (Pope et al. 1997).

We also noted that the region lacked known large sites, and that in fact, the project area encompasses a large gap in the spatial distribution of major sites in the northern lowlands. (Figure 2). If we define “major” sites as Rank 1 and 2 sites in the ranking system of the *Atlas Arqueológico del Estado de Yucatán* (Garza y Kurjack 1980), then there seems to be a large gap in the project area.

Another possible explanation for the lack of settlement, if indeed there is a gap, might be that this was a boundary area in the past, with a consequent “no man’s land” between more densely settled regions to the east and west. At the time of the Spanish conquest, the province of Maní to the west and the province of Sotuta to the east were in a state of constant hostility. Ralph Roys, the pioneering ethnohistorian, mapped part of this area as a disputed area (Figure 3). Specifically, the area between Cantamayec, and Cholul was marked by Roys as the no man’s land or buffer zone between the warring provinces.

Even in earlier times, this same area was a boundary region. The project area straddles part of what was the boundary between East Cehpech, West Cehpech, and Sotuta ceramic spheres in the Late and Terminal Classic periods. In the same period, this same area was the complex boundary between Puuc and Northern Peten architectural spheres (and possibly the Chichén Itzá sphere as well). We would like to be able to trace these boundaries in the hope understanding them better.

In the Late Postclassic period, this region was under the hegemony of Mayapán and its famous “mul tepal” joint government. One of the most important reasons that we decided to survey this area is to address the question of whether Mayapán was a disembedded capital. The project area generally represents the eastern part of Mayapán’s hinterland including parts of several of the provinces that composed the Mayapán state, such as Maní, Sotuta, Hocaba, Homun, and Hunactí. We believe that we can understand the political and economic relationship of Mayapán to its constituent states through analysis of the contemporary settlement patterns and artifact distributions. We will be able, we believe, to answer the question, “Was Mayapán embedded in its social and political landscape, or was it disembedded?” This is a long-term goal of the project that will rely heavily on artifact analyses.

Finally, because of our interest in the later prehistory of Yucatán, we note that our project area presents the opportunity to investigate that shadowy, poorly known period called the Chikinche phase between the fall of Mayapán in the mid-fourteenth century and the Spanish conquest a century later. Similarly, the Early Colonial Chauaca period is very poorly known archaeologically. Sites dating from those periods include Hunactí and Otmal.

METHODS

As mentioned earlier, we performed both purposive and systematic survey. The purposive survey consisted of consulting with local expert informants about the location of ruins in each area. For example, in Tekit, the Presidente Municipal sent the Municipal Ecologist and the chief of Public Safety out with us to show us ruins. The town ecologist bears some responsibility for the nature reserve around the lakes of the Cenote Zone and apparently knows that area particularly well, although the larger lakes fall in the *municipio* of Homun. In other towns we received similar assistance, which we acknowledge with sincere gratitude. In a few cases, local people were reluctant to share information about ruins with us. This seems to have occurred when ejiditarios were concerned about possible interference with the use of their lands. In addition to consulting with town authorities, we also consulted with the elected officials of many of the *ejidos* in the area. Because most *municipios* include multiple *ejidos*, of necessity we consulted with a large number of *ejidos*. We also spoke with any number of individual *ejiditarios* and private landowners who frequently guided us to ruins.

When we found a previously unknown site, we would record the coordinates of the site using our Global Positioning Receiver (GPS). In most cases, we then made a sketch map of the site using GPS receivers, tape and compass. In a few cases, we did not have time to return to a site that we had located to make a map. As the survey is obviously incomplete, we hope to complete this work in future seasons.

We made surface collections of artifacts at most sites. In a few cases, we were unable to find any artifacts in the time available to us. Typically, the most insignificant sites produced large quantities of artifacts, while the most outstanding sites were reluctant to yield any material. We made our surface collections in 2 x 2 m or larger squares.

We surveyed linear transects systematically to record the density of settlement. We had hoped to survey three relatively long transects. We started two transects but didn't finish either one. Cutting the *brechas* for the transects turned out to be far slower and more labor-intensive than we had anticipated. In addition, we were stymied in several cases by the presence of private property. In some cases, we could not locate the landowners to obtain permission to cross their land, whereas in other cases the landowners denied us permission. The *brechas* were normally straight and about 1 m wide, that is, just wide enough to permit movement through the bush. Archaeological visibility varied widely depending upon the vegetation. When visibility was poor, we were less likely to observe ancient structures, and in some cases, we may have misidentified natural piles of stone as the remnants of ancient structures. We recorded the number, location (using GPS) and rough dimensions of structures visible along the *brecha*. We recorded *albarradas* separately. Terraces and retaining walls were often part of the constructions on and around hilltops, sometimes indistinguishable from them, and we recorded the terraces as structures too. We did not draw a map of each structure individually. In a few cases, we made surface collections of artifacts from the structures along the transects.

RESULTS

Systematic survey

We surveyed segments of two transects. We began the systematic survey with Transect 2, which we had laid out to run from the site of Hunactí to the town of Catamayec (Figures 4 and 5). As originally planned, the transect was approximately 20.3 km long at an azimuth of 355°. Of course, we could not start in the plaza of Cantamayec, so we chose to start at a point 3 km south of the plaza, where the transect crossed the road to Nenelá. This avoided the inhabited part of Cantamayec. Between Catamayec and that same point, the transect ran parallel to and very near the main road south out of town. This section of the transect seemed likely to be disturbed by construction, so by starting south of that point, we avoided surveying that heavily affected area. Proceeding south from the road, we cut brecha and surveyed for 510 m before running into private land, the owner of which we could not contact. We called this 510 m section “Segment 1”. We recorded 8 structures in this segment, which equals 1 structure every 64 m or 15.7 structures/km. We also noted a chultun this segment, which was unusual. It was one of very few we observed during the project.

Segment 2 of the transect runs 3454 m from the Chuchub-Kinil road just west of Chuchub south to a bees’ nest. We had to work our way around the bees’ nest, which left a gap of 362.5 m and gave rise to the separation between Segments 1 and 2. We identified 125 structures in Segment 2, which equals an average of 1 structure every 27.6 m or 36.19 structures per kilometer. This segment probably had the best visibility of all the transect segments. It was surveyed after we had fully developed our methodology and after we had learned to identify ancient constructions efficiently. Thus, in several respects, this is our highest quality data. It is the area with the densest settlement.

Segment 3 stretched 4350 m from the base of main pyramid at Hunactí to the southern edge of the “bee gap.” We identified 87 structures in this segment, reflecting an average density of 1 structure every 50 m or 20 structures per kilometer. It is perhaps somewhat surprising that this area, which presumably contains the residential settlement zone of the large site of Hunactí, has a lower density of settlement than the next segment further north. Although visibility was somewhat lower in Segment 3 than in Segment 2, it seems unlikely that this fact alone would account for the lower settlement density in the former.

Transect 1 (Figure 6) was planned to run from the recently abandoned town of Yax Ic in the *municipio* of Tekit to Zavala in the *municipio* of Sotuta, a distance of approximately 14 km. We were only able to survey 1.29 km of this transect before private landowners required us to stop surveying. We identified 21 structures in this stretch, yielding an average of 1 structure per 61.4 m or 16.3 structures per kilometer.

Thus, the lowest density of settlement was Segment 1 of Transect 2, near Cantamayec. The second lowest density of settlement was Transect 1. Segments 2 and 3, near Hunactí, had the highest density of settlement.

The general pattern of residential settlement we observed is related to the topography. Throughout this region, these northern plains are characterized by ridge-and-swale, or knoll-and-valley, karst topography. The archaeological structures are most commonly located on the ridges and hilltops where drainage is excellent and breezes more common. Structures do occur on lower terrain, but not often. This is the pattern throughout the larger region and was even remarked upon by the early Spanish observers (de la Garza et al. 1983: I: 218). As in most of the Maya lowlands, residential settlement in this area is organized in patio groups or *plazuelas* (Figure 7). Most of our archaeological structures are less than a meter high, composed of one or a few courses of stone (Figure 8). The building stones are usually large (> 25 cm) and unworked. Squared stones do occur but only rarely (Figure 9). Most structures are rectangular and are often supported by low platforms. There were also a surprising number of circular structures. These were usually small with thick walls made of large stones (Figures 10-11) and usually rested upon low rectangular platforms.

Both the architecture and the ceramics lead us to believe that the overwhelming majority of the settlement recorded is Classic period in date. All the ceramics recovered from the transects were Late/Terminal Classic in date.

Purposive survey

As mentioned earlier, we investigated about a dozen known sites and located about two dozen new ones.

We do not have space here to describe all of the sites investigated. Instead, we will mention those sites that allow us to address the main problems that motivated our investigation.

First, compare the settlement known before our project with the addition of the new sites as shown in Figures 13 and 14. Obviously there are sites out here. In fact, we identified several more sites that we do not even have on the map because we did not develop enough information on them to merit listing. In addition, several sites were reported to us that we did not get to visit, so it is clear to us that there are more sites than those that we have plotted here. A number of sites are rather large, including for example Hunactí, Sutup, K'optela, and Ochil. The sites range in age from Late Formative through Colonial.

Second, some of these are directly in the Cenote Zone. Specifically, K'optela (Figures 14-16), Ochil, and Chumul (Figures 17-20) are both relatively large sites that fall in the Cenote Zone regardless of how one defines it. These lie directly in the ring of cenotes and boast large structures. There are of course a number of smaller sites in and about the Cenote Zone.

Third, we can also address the issue of boundaries. For example, we have observed Puuc style architecture at sites like Hunactí, Cacalchen, and San Francisco

(Figure 21-22), which are relatively far east. Interestingly, we found Cehpech East type ceramics at Hunactí (Figure 23). Sotuta sphere ceramics occurred exclusively in the eastern portion of the project area at sites such as Kanakom, Cacalchen, and Tibolon.

Fourth, we have located a number of Mayapán period sites in the project area. In fact, many of the sites have Hocaba-Tases phase ceramics and a number also have Mayapán style architecture (e.g., Usumal, Xcatzimil), but we see no evidence that Mayapán is embedded in a proper rank-size hierarchy of sites or a Central Place style lattice.

Finally, we can also begin to address the question of what was happening during the Chikinchel and Chauaca phases. We investigated two sites with important occupations from these periods. Hunactí has a major Early Colonial period occupation (Hanson 1995; Roys 1952). The open chapel there has been known for some time, but there is also an extensive early colonial settlement including structures that seem to syncretize aboriginal and Hispanic architectural concepts (Figures 24-25).

Otzmal also dates from this mysterious period. It is not a terribly large site, but it is one of the most important we investigated. Otzmal was the site where Nachi Cocom massacred the Xiu ambassadors in 1536. The story is repeated by several Colonial period historians and seems to be referred to in the Maya Chronicles of the Books of Chilam Balam as well. The story is this: There was a drought in Mani. The Xiu lords decided to make sacrifices at the Sacred cenote at Chichen Itza to try to break the drought, but they had to pass through the Cocom territory of Sotuta to get there. Because of the enmity that existed between the Xiu and the Cocom (because of the final battle at Mayapan), the Xiu contacted the Cocom and requested safe passage through Sotuta. The Cocom offered safe passage and in addition invited the ambassadors to a celebration at Nachi Cocom's settlement at Otzmal, which is on the route between Mani and Chichen. When the Xiu arrived at Otzmal, they were first lavishly entertained, and then they were all killed, including Napot Xiu, the halach-uinic of Mani.

Otzmal is a site that has not been previously reported. The distinguished historian Rubio Mañe visited the site in 1936 (the four hundredth anniversary of the massacre) but found nothing save an abandoned ranch. But there is a site there! It is currently on private land owned by a family of delightful medical doctors in Mérida who were very gracious about permitting us to visit it. The people of Sotuta consider Otzmal to be an important sacred site with its own cenote of sacrifice. They still hold their cha-chaak ceremony there. It is mentioned as a place where the *may* was seated in the books of Chilam Balam.

Otzmal is a small site, but it seems to have many of the characteristics of a central place: pyramids, a palace, Mayapan-style residential dwellings, a possible sacbe, a stela, and a cenote of sacrifice. It is very well preserved. Intact masonry is visible on a number of structures. The architecture is all Mayapan-style and the ceramics include Tases and Chauaca types.

Otzmal is significant for several reasons: It's a complete, single-component Mayapan style site. These are extremely rare. It also dates from a key but poorly known period: between the fall of Mayapan and the beginning of the Colonial period. We know historically that it was inhabited in 1536. We also collected Late Postclassic (Navulá) and Colonial (Yuncú) period ceramics from the site.

It also may represent an unusual type of site. It has been described as Nachi Cocom's "lugar de recreo". The local people seem to consider it "Nachi Cocom's estate". We know it was not the political capital of Sotuta because the "capital" was, first, Tibolon and then, Sotuta.

So, what kind of site is this? Primarily political? Or religious? It seems to be mentioned as a cycle seat in the books of Chilam Balam. It's beautiful and mysterious place that still exudes an aura of sanctity. We ought to learn more about it.

CONCLUSION

Not surprisingly perhaps, there are lots of sites in this area. Although we have obviously not completed our survey, we can demonstrate that 1) rural settlement is quite dense, 2) there are sites directly in the Cenote Zone, and 3) there are large sites in the Black Hole. So, while there are undoubtedly complex variations in settlement (which can be explained by a fractal model of settlement), this area is by no means empty. We must be more specific and nuanced in our speculations about the culture history and ecology of the area.

Acknowledgements: We wish to acknowledge with gratitude the assistance of all those who helped us develop and carry out this project. Ing. Joaquín García Barcena, Presidente del Consejo Nacional de Arqueología, very graciously helped us obtain a permit in time. Arqlgo. Luís Millet Cámara, Director of the Centro INAH Yucatán, very kindly supported us in our work. We also wish to thank the *Presidentes Municipales* of all the *municipios* where we worked. They were all gracious, professional, and helpful. Their secretaries and assistants were equally helpful and earned our gratitude. We sincerely thank the Atocha family for access to their beautiful lands. We also thank our employees, particularly Don Isidro Chan Mena of Telchaquillo, without whom the project would not have been successful. Arqlgos. Pedro Delgado Kú and Bárbara Escamilla Ojeda were also very helpful in many ways, and we thank them. We also thank the Florida Atlantic University Division of Research and the Department of Anthropology for their financial and logistical support the fieldwork.

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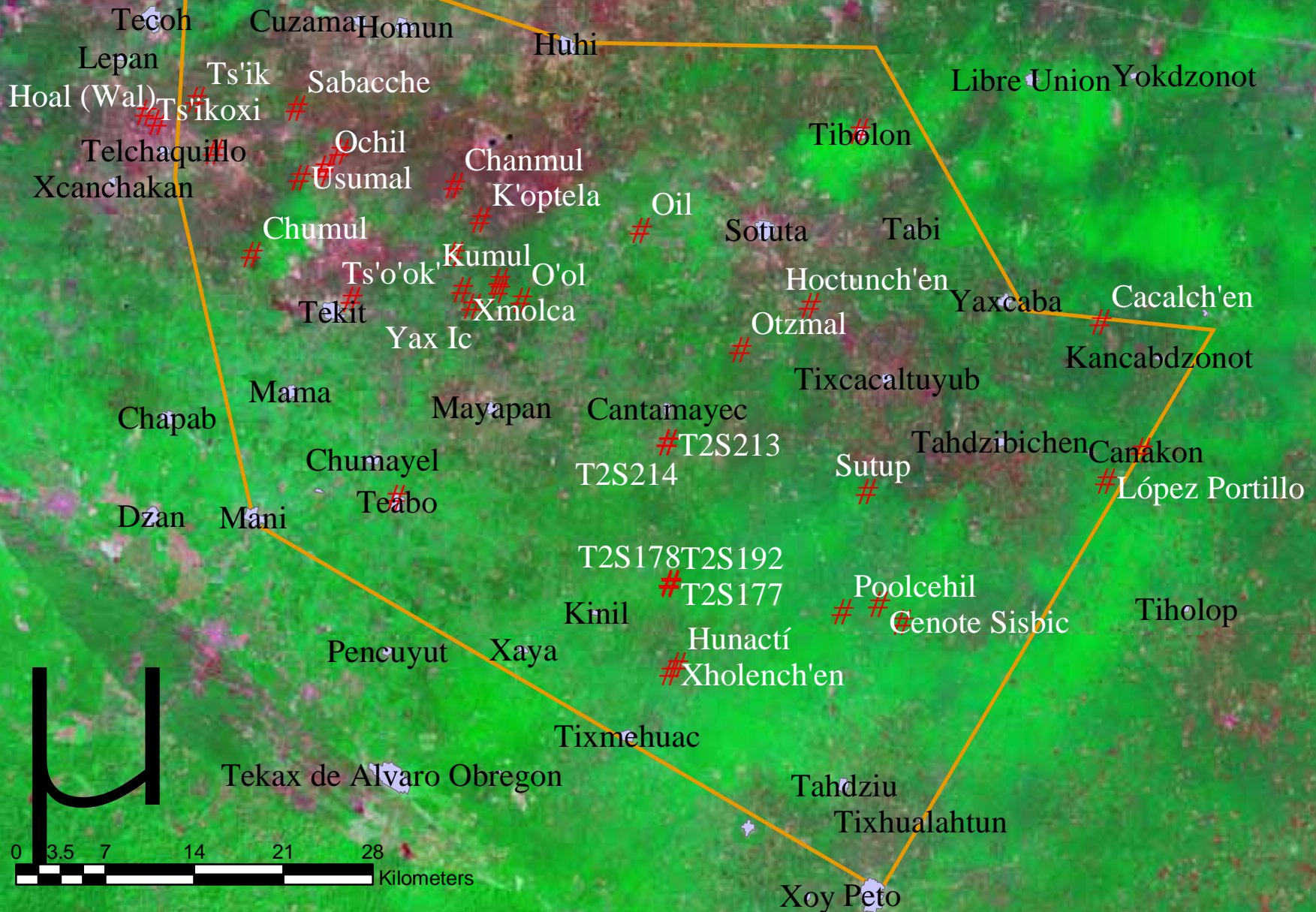
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Sites Investigated by Central Yucatan Project



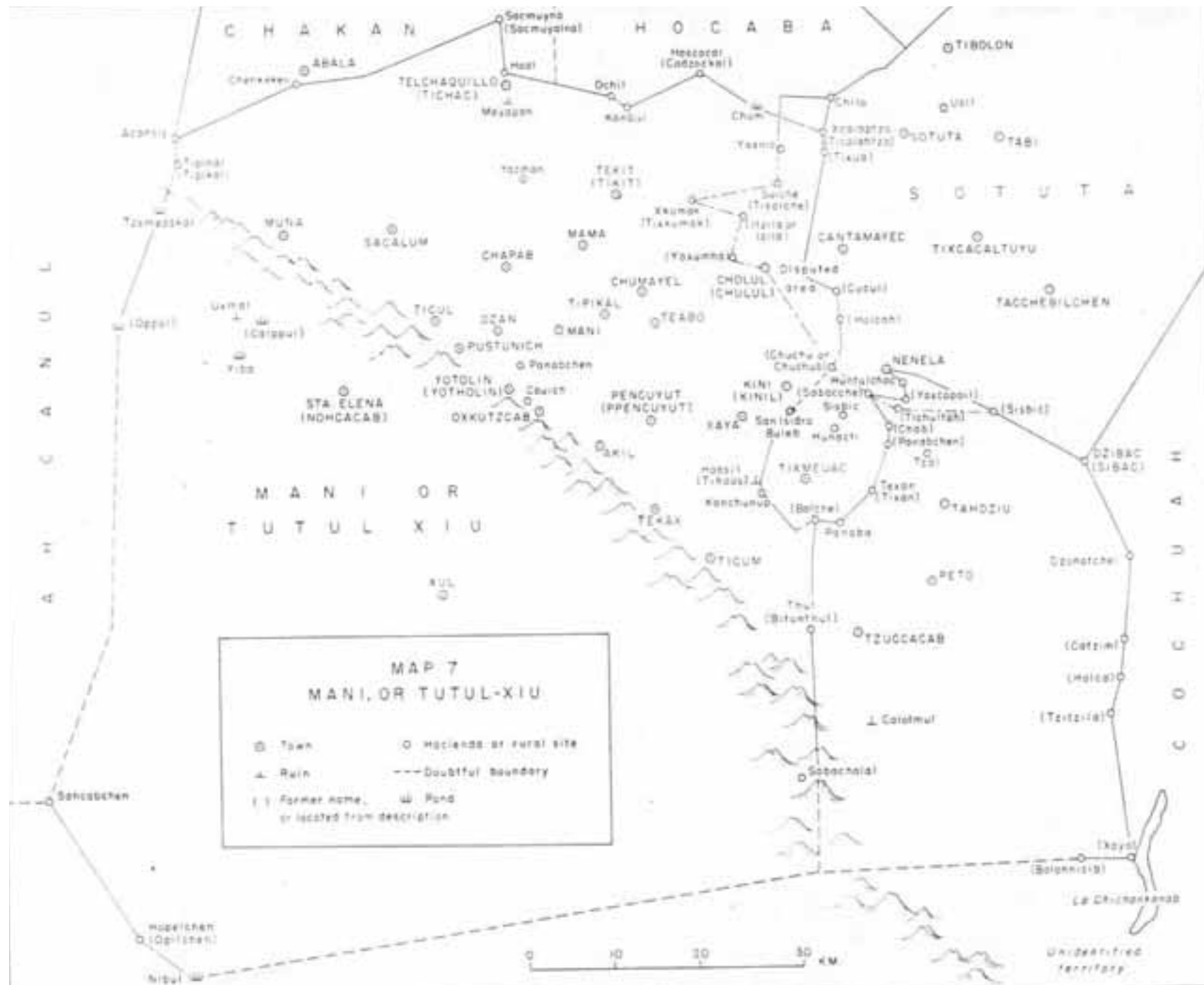
Field Survey Research Questions

- Settlement patterns in the area
 - Some have claimed that there are no large sites in this region
 - Known site distribution shows gap in major (Atlas Rank 1 and 2) sites
 - Is the gap a consequence of soils and hydrology, possibly associated with the Cenote Zone?
 - Or is the apparent gap a consequence of missing data?
 - In general, is this area really as empty as it seems?
- This is a boundary area
 - Between East Cehpech-West Cehpech-Sotuta ceramic spheres
 - Between Mani and Sotuta
 - Between Puuc architecture and Northern Peten architecture
 - Can we identify the boundaries and buffer zones?
- What does the Postclassic landscape look like?
 - Is Mayapan perhaps a disembedded capital?
 - Is it embedded in its hinterland?
 - Central Place lattice of sites?
 - Rank-size distribution of sites?
- What was happening during the Chikinchel and Chauaca phases?

Maya Project Study Area

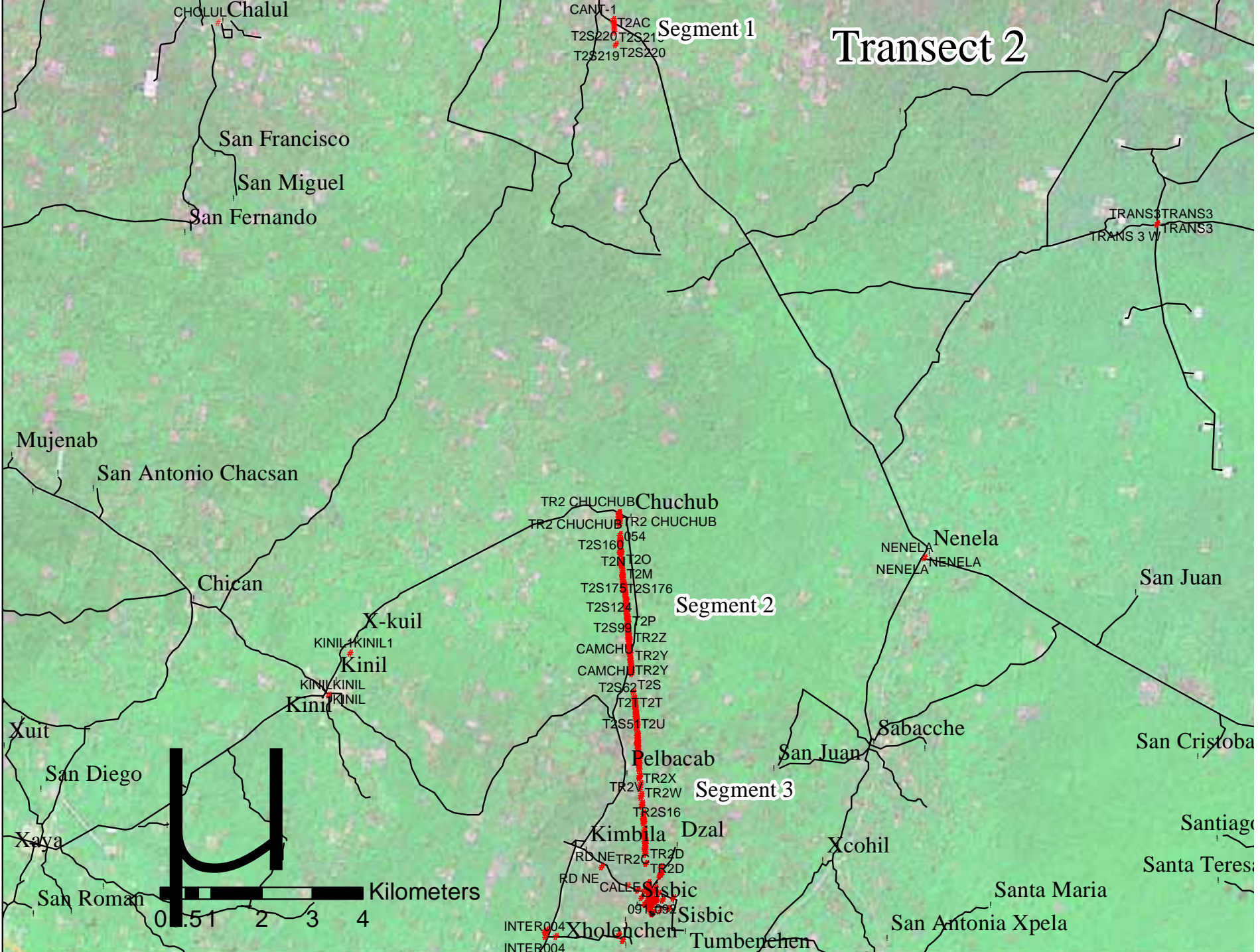
13 km and 26 km buffers





Overview of results

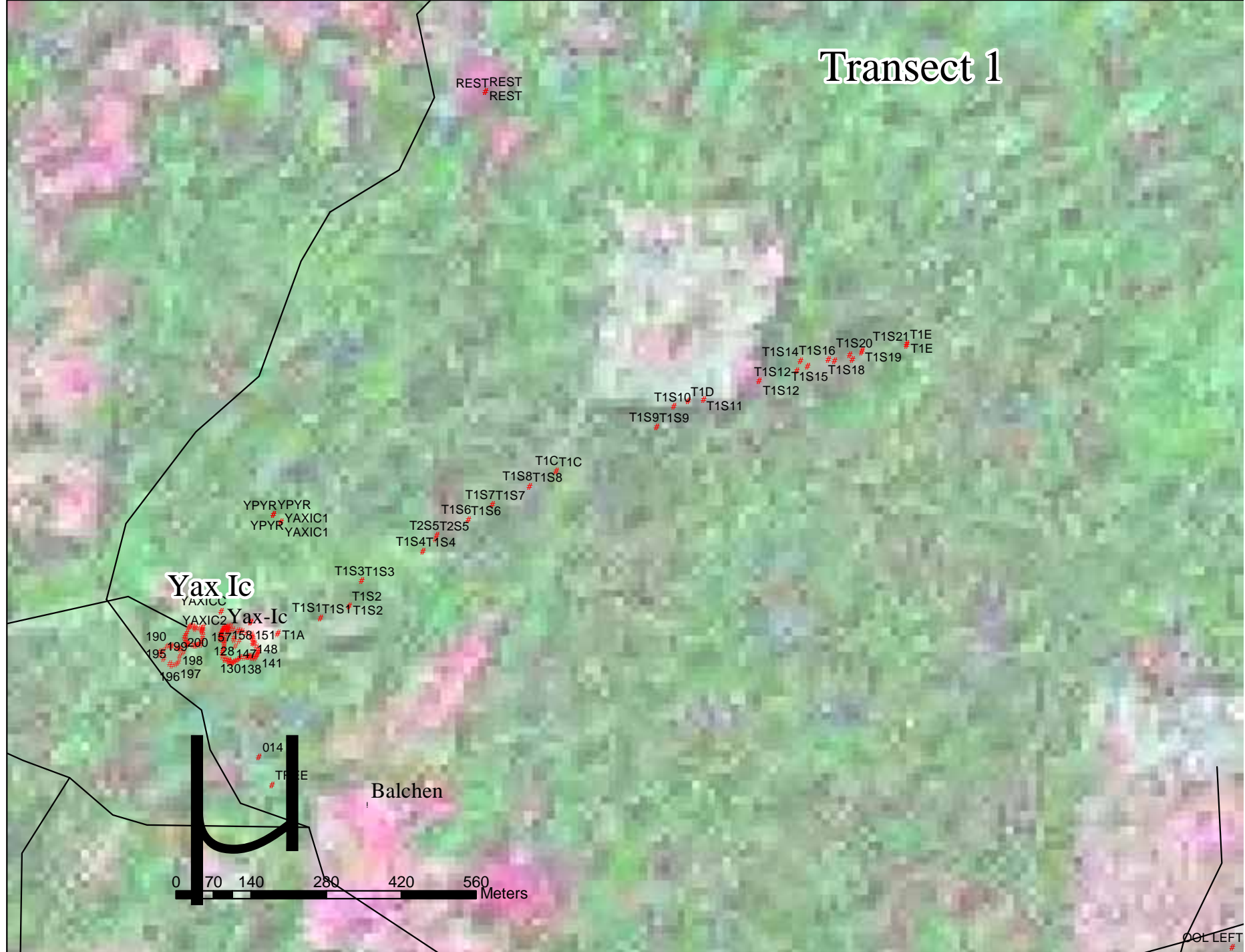
- We found a couple of dozen sites
- We also worked at about 12 known sites
- We made sketch maps (with GPS and tape-and-compass) and made surface collections
- We located Formative, Classic, and Postclassic sites
- We also systematically surveyed two transects
 - Rural settlement density seems pretty high
 - It's *Classic* period



Transect 2 Near P'elbacab



Transect 1



Transect 2, Structures 178-179



Transect 2, Structure 163



Transect 2, Structure 4—Squared Stone

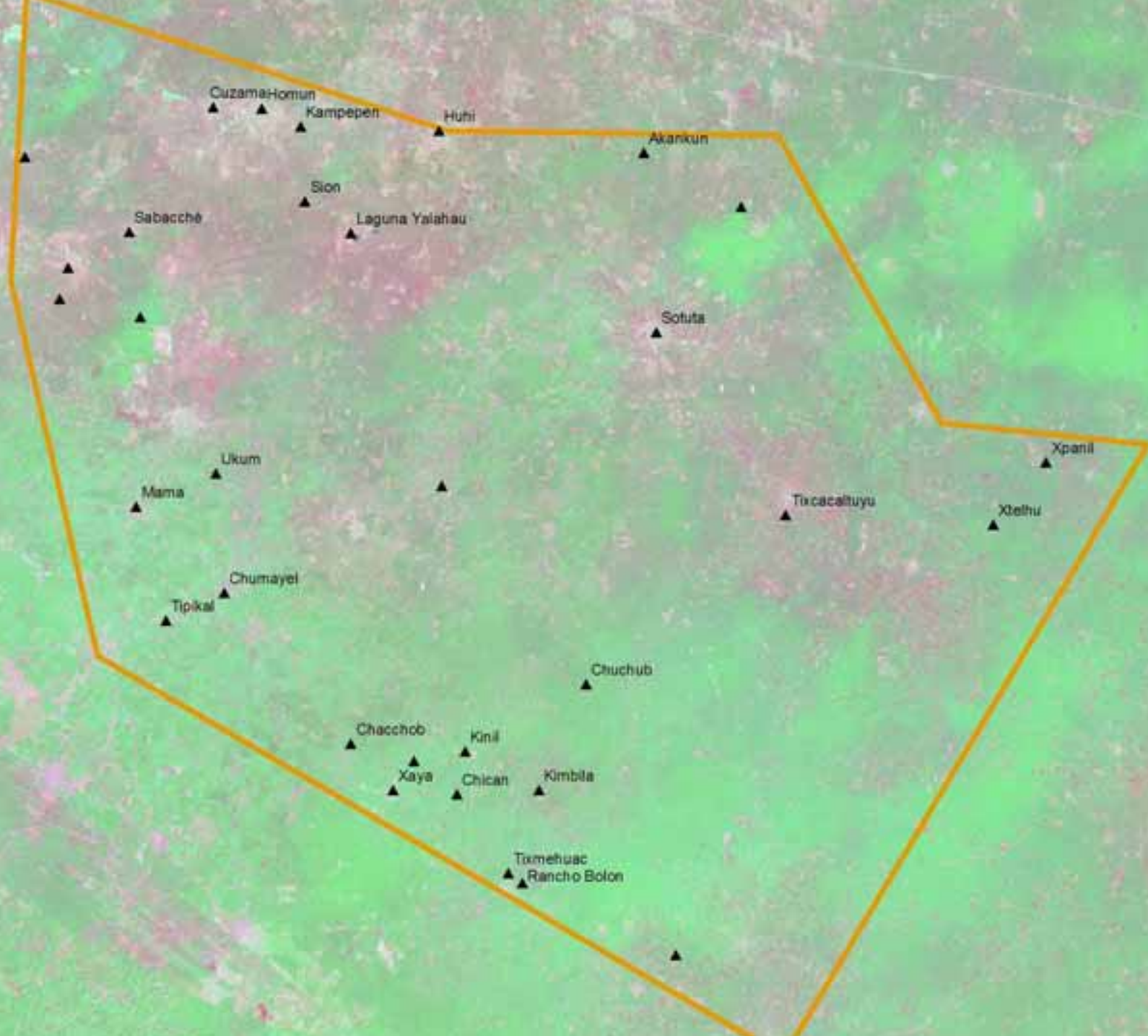


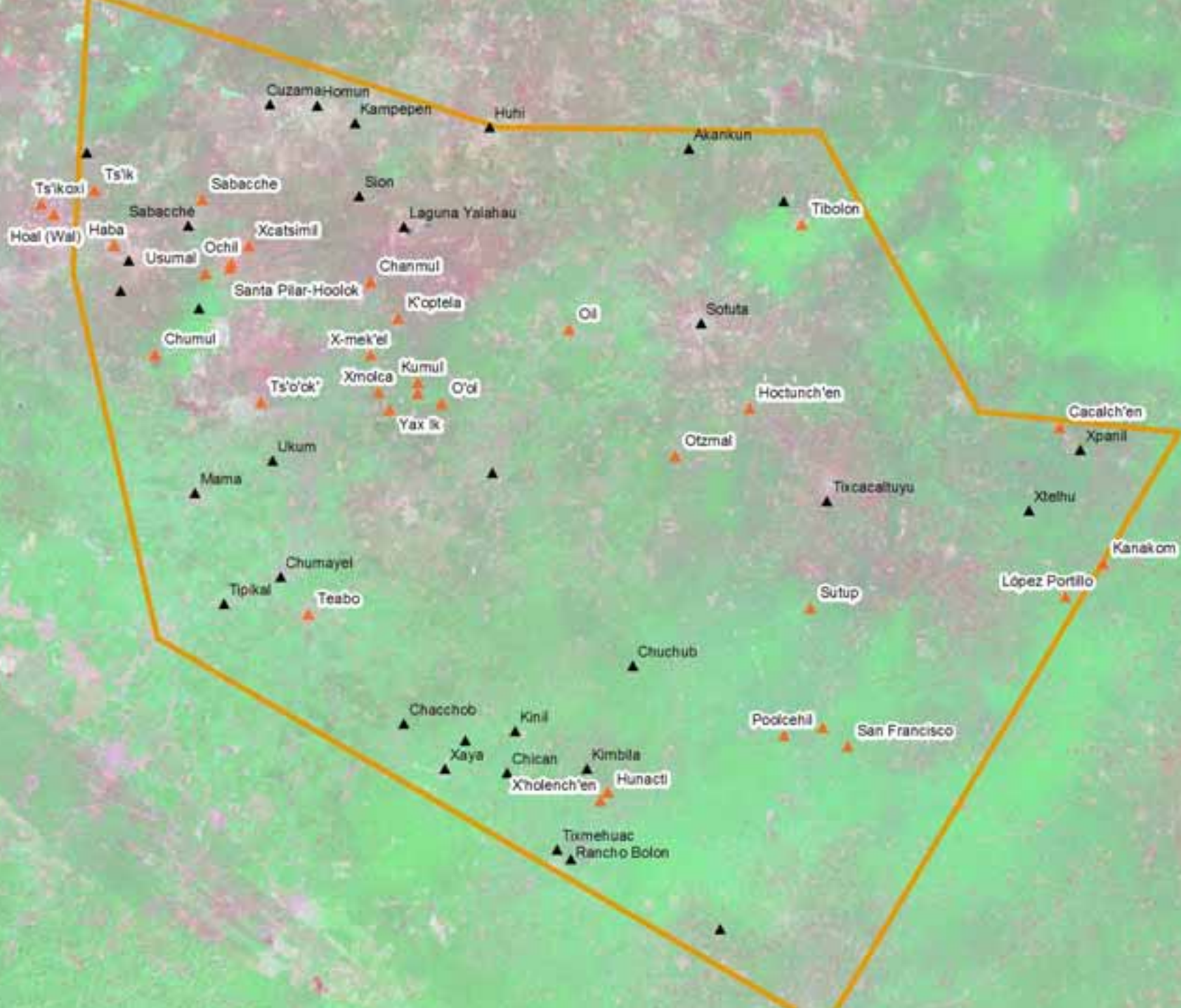
Transect 2, Structure 166-Round



Transect 2, Structure 166







Sites near Tekit, Yuc.

#Ochil
#Santa Pilar-Hoolok

Chanmul
#

Sacpoconah (abandonado)

San Antonio Colonte

Sipchac

Susula

K'optela
#

Sulupil

Xkuchecan (abandonado)

Santa Cruz Kuchacan

ChenKax

Homola

Chacsuy

Yax-Ol

San Jose Camara

San Antono Tzekela

Cancabtzonot

Bekal

X-mek'el
#

Santa Teresa

Delores Ake

Kumul
#

Kumul

Xmolca
#

Chi Pat
#

Sacalum
#

Hool
#

San Felipe

Chacziniche

Ts'o'ok'
#

Santa Rosa

Yax-Ic

Yax Ic
#

Balchen

San Jose Kuk Ak

San Jose Aban

San Jose

Chaclum

Bolontunil

San Francisco

Ucum

Tekit

Kankanixche

Jerusalem

0 0.5 1 2 3 4 Kilometers

K'optela

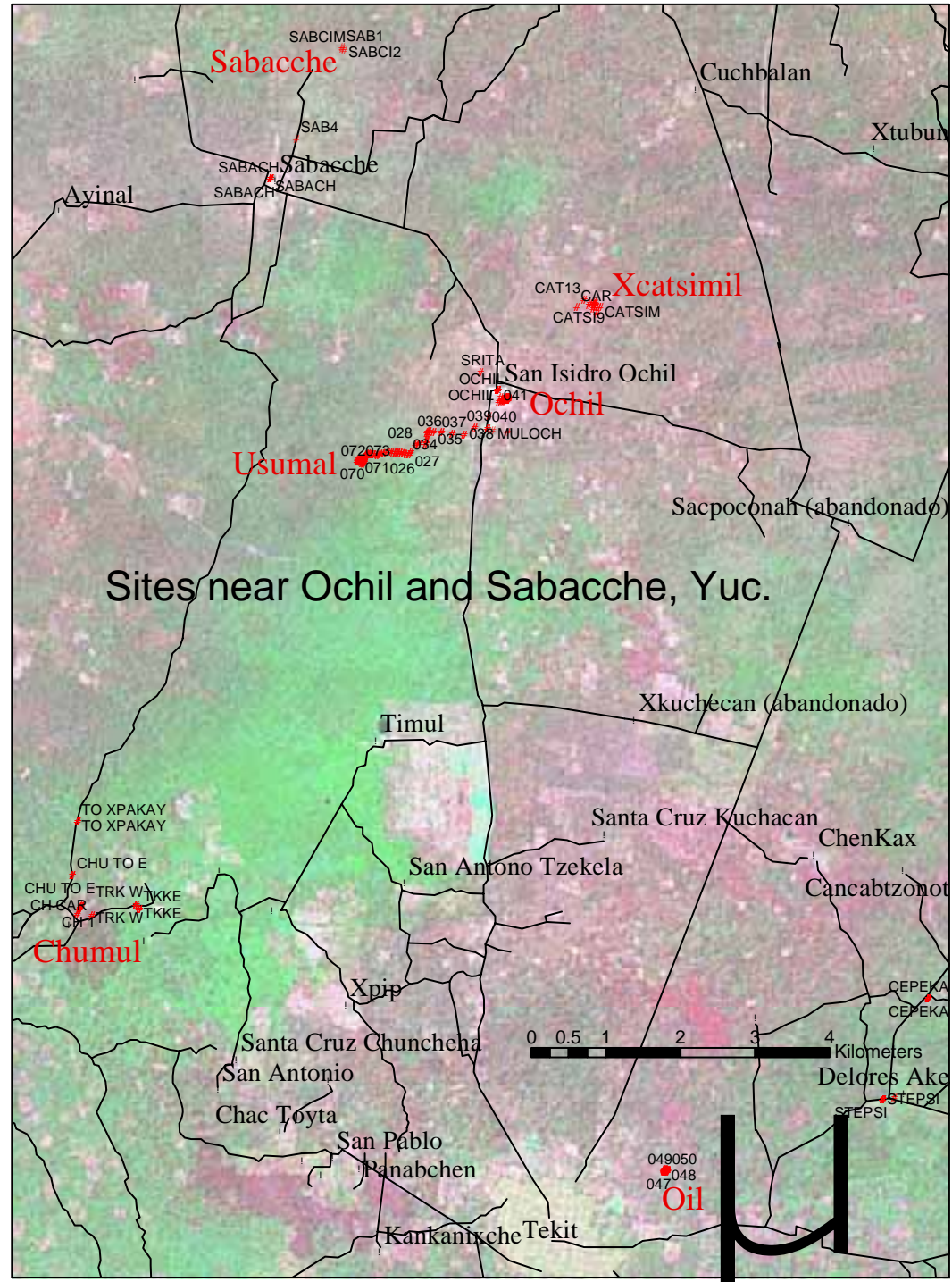
- Quite a large pyramid
 - Perhaps 20 m tall
 - Base measures ca. 36 x 47 m
 - Summit ca. 16 m wide
 - We didn't see other structures around but there must be something
- In the Cenote Zone
- Previously unreported
- Probably Classic period based upon masonry

K'optela-Summit



Sites near Ochil and Sabacche

- Sabacche is a known site (in Atlas).
 - It's a substantial Classic site in former henequen fields
- Chumul also appears in Atlas
- We are reporting Xcatsimil, Ochil, Usumal, and Oil for the first time
 - Surprisingly, Ochil is not in the Atlas even though it consists of big structures in the middle of a town



Chumul

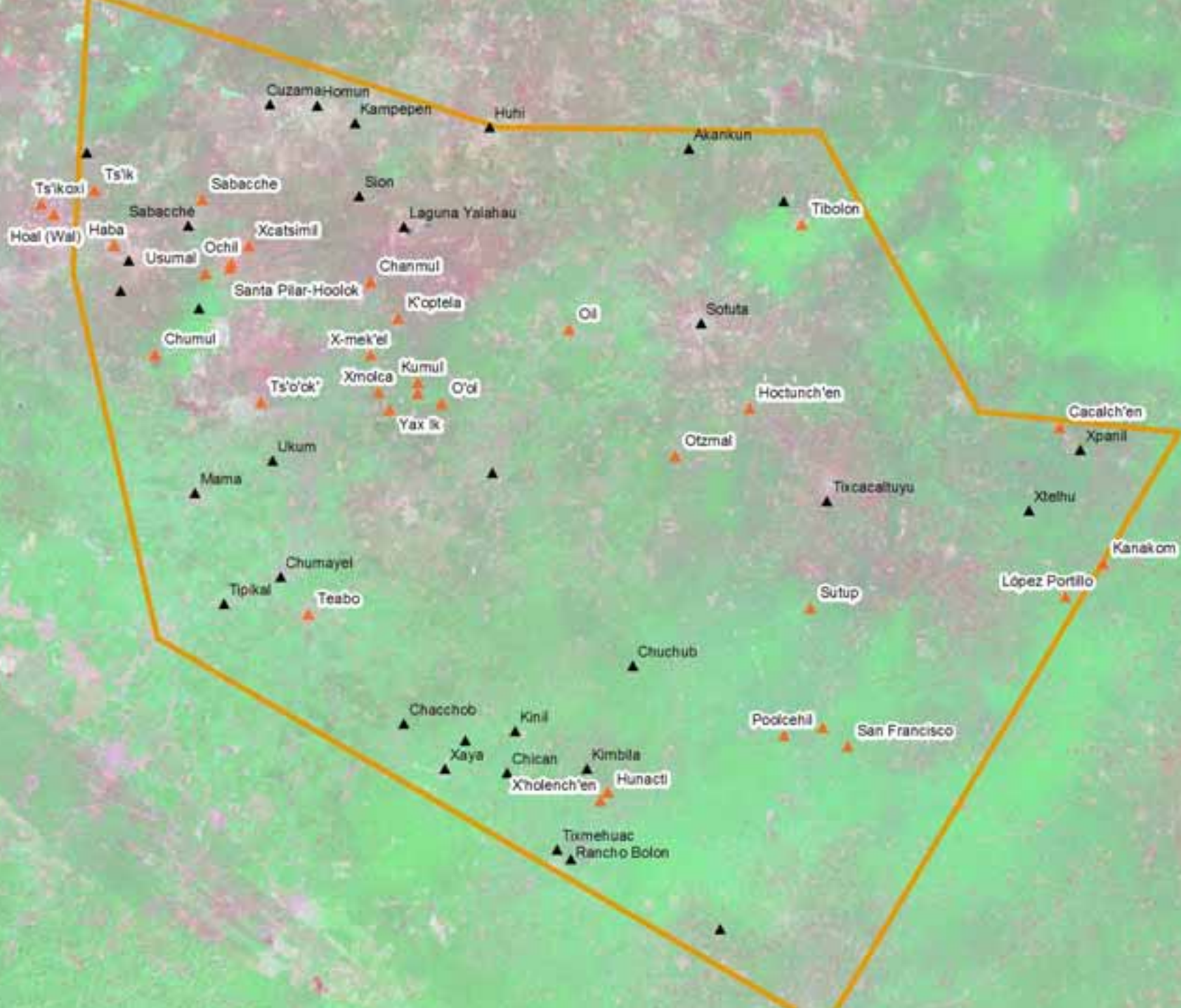
- Is apparently listed in the Atlas, but little is known about it
- Chumul has a large pyramid
 - Perhaps 20 m tall
 - Some Puuc style masonry and building stones
 - But, Chen Mul censer fragments on top of the pyramid
- Significance: One of the largest structures known in the Cenote Zone

Chumul-Main pyramid



Chumul-Puuc vault stone





San Francisco









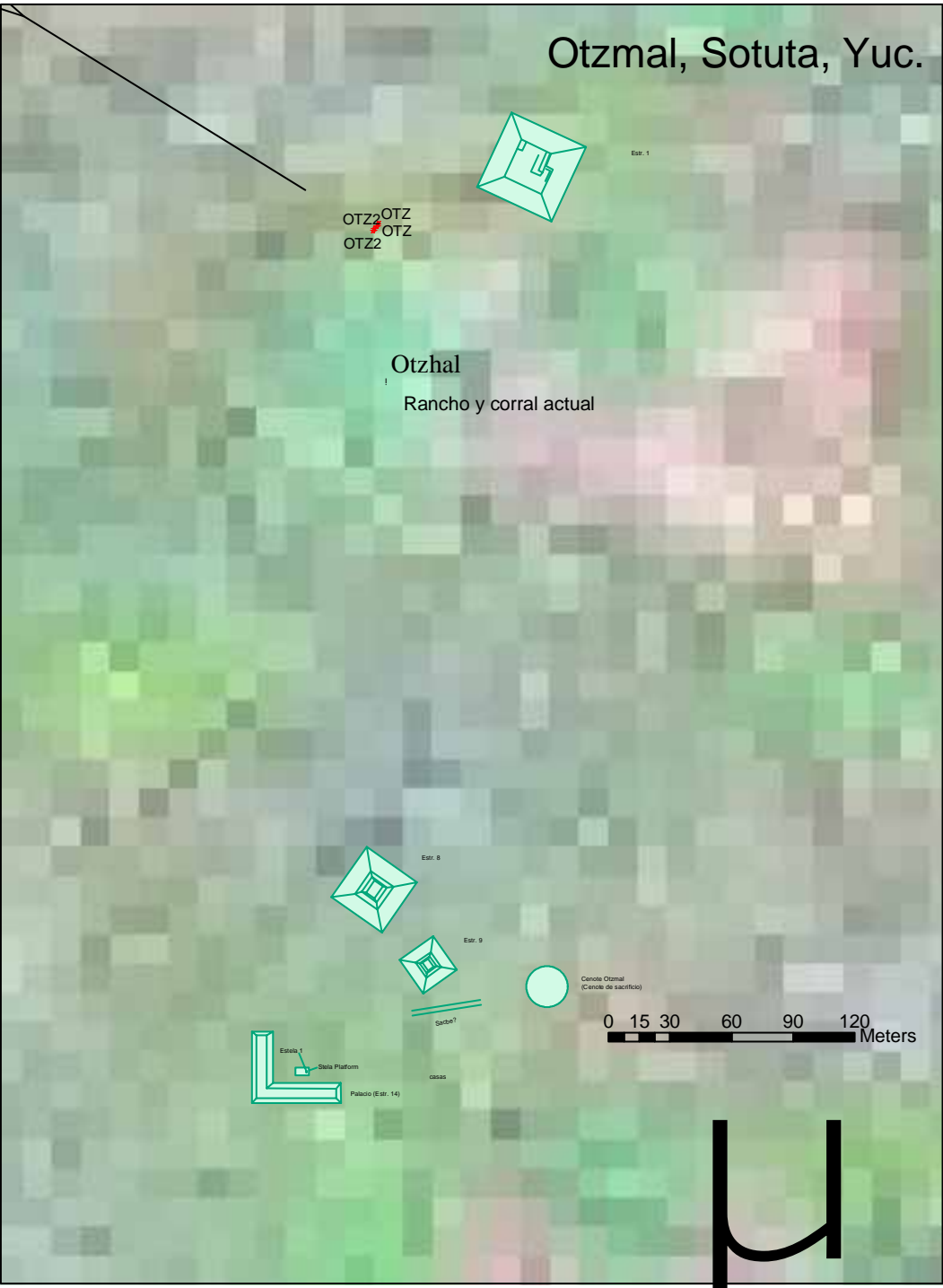
Otzmal

- Otzmal was the site where Nachi Cocom massacred the Xiu ambassadors in 1536
- The story is repeated by several Colonial period historians and seems to be referred to in the Maya Chronicles of the Books of Chilam Balam as well
 - There was a drought in Mani. The Xiu lords decided to make sacrifices at the Sacred cenote at Chichen Itza to try to break the drought, but they had to pass through the Cocom territory of Sotuta to get there.
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 - The Cocom offered safe passage and in addition invited the ambassadors to a celebration at Nachi Cocom's settlement at Otzmal, which is on the route between Mani and Chichen.
 - When the Xiu arrived at Otzmal, they were first lavishly entertained, and then they were all killed, including Napot Xiu, the halach-uinic of Mani.
- Otzmal is a site that has not been previously reported
 - The distinguished historian Rubio Mañe visited the site in 1936 but found nothing but an abandoned ranch.
- But there is a site there!
- The people of Sotuta consider it to be an important sacred site with its own cenote of sacrifice
 - They still hold their cha-chaak ceremony there

Otzmal

- It's a small site, but it seems to have many of the characteristics of a central place
 - Pyramids
 - Palace
 - Mayapan-style residential dwellings
 - Sacbe (?)
 - Stela (plain?)
 - Cenote of sacrifice
- Very well preserved
- Architecture is all Mayapan-style

Otzmal





Otzmal Str. 8



Otzmal Str. 8



Otzmal Str.

9



Otzmal, Roof of Str. 14, Palace



Otzmal, Stela 1



Significance of Otzmal

- It's a complete, single-component Mayapan style site
 - These are extremely rare
- It's also dates from a key but poorly known period: between the fall of Mayapan and the beginning of the Colonial period
 - We know historically that it was inhabited in 1536
- It also may represent an unusual type of site:
 - It has been described as Nachi Cocom's "lugar de recreo"
 - The local people seem to consider it "Nachi Cocom's estate"
 - We know it was not the political capital of Sotuta
 - The "capital" was, first, Tibolon and then, Sotuta
- So, what kind of site is this?
 - Primarily political?
 - Or religious? It seems to be mentioned as a cycle seat in the books of Chilam Balam

Conclusion

- Not surprisingly, there are lots of sites in this area, some large
- There are also some fairly large sites within the Cenote Zone
- We have so far seen no evidence that Mayapan is embedded in a “normal” central place lattice of settlements with a rank-size distribution of sites
- There are significant Chikinchel and Chauaca Phase sites