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## **The Pomoná Kingdom and its Hinterland**



**Research Year:** 2001

**Culture:** Maya

**Chronology:** Late Classic

**Location:** Tabasco, México

**Sites:** Pomoná and Panhale

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## **Abstract**

The archaeological site of Pomoná is located in the Tabasco coastal plains in the vicinity of the Usumacinta River. Although at times shadowed by the mighty kingdoms of Palenque to the east and Piedras Negras to the south, Pomoná nevertheless constituted the centre of an independent kingdom that comprised a constellation of subsidiary sites distributed along its hinterland. It's vicinity to the Usumacinta River, near the point where the river abandons the last limestone ridges to enter the coastal plain, constitutes a strategic position to control access to and fro the Upper to the Middle Usumacinta regions. Perhaps it is precisely due to this geographic location that the Pomoná kingdom was highly contested by the above-mentioned hegemonic powers of the time. I argue that the location and control of Pomoná's secondary centres was driven by motivations of what we would consider nowadays as matters of "national security". In this context the site of Panhale (a secondary, subsidiary site of Pomoná) and the territory that it controlled, represents the ideal case study to evaluate the relationship between site location and territorial integrity. The 2001 field season was aimed towards the recovery of the initial information that will assist us in the territorial definition of the Pomoná kingdom and its hinterland.

## **Resumen**

El sitio arqueológico de Pomoná esta ubicado en las planicies costeras de Tabasco en la cercanía del río Usumacinta. Aunque en ocasiones ensombrecido por los reinos poderosos de Palenque al este y al sur de Piedras Negras, no obstante Pomoná constituyó un vigoroso centro de un reino independiente conformado por una constelación de sitios subsidiarios distribuidos a lo largo de su región interior. Su proximidad al río Usumacinta, en las cercanías donde el río abandona las escarpadas colinas calizas para entrar a la planicie costera, hace de su ubicación un punto estratégico para el control de acceso de un lado a otro de las regiones superiores a las regiones de Usumacinta Medio. Es quizás, debido a su zona geográfica que el reino de Pomoná fue intensamente disputado en aquel tiempo por las potencias hegemónicas regionales arriba mencionadas. Argumento que la ubicación y control de los centros subsidiarios de Pomoná se manejaron por motivaciones de lo que nosotros consideramos hoy como asuntos de "seguridad nacional". En este contexto el sitio de Panhale (un sitio secundario, subsidiario de Pomoná) y el territorio que controló, representa el caso de estudio ideal para evaluar la relación entre la ubicación del sitio y la integridad territorial. Los trabajos de la temporada de campo del 2001, se orientaron hacia la recuperación de la información inicial necesaria que nos asistiría en la definición territorial del reino de Pomoná y su región interior.

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## Introduction

The archaeological site of Pomoná is located on the coastal plains of eastern Tabasco in México, in what is part of the Middle Usumacinta Region. Pomoná, or *Pakbul*, as its hieroglyphic name is read, was during the Late Classic Maya Period (ca. A.D. 600-800) the political centre of an important kingdom, which occupied a pivotal place in the western Maya Lowlands. This strategically important placement was not only due to its physical location—in the vicinity of the point in where the Usumacinta River leaves the western mountain ranges to move across the broad coastal plain—but also because it was positioned half-way in between the sphere of influence of two antagonistic political powers of the Late Classic: Calakmul and Palenque (Figure 1).

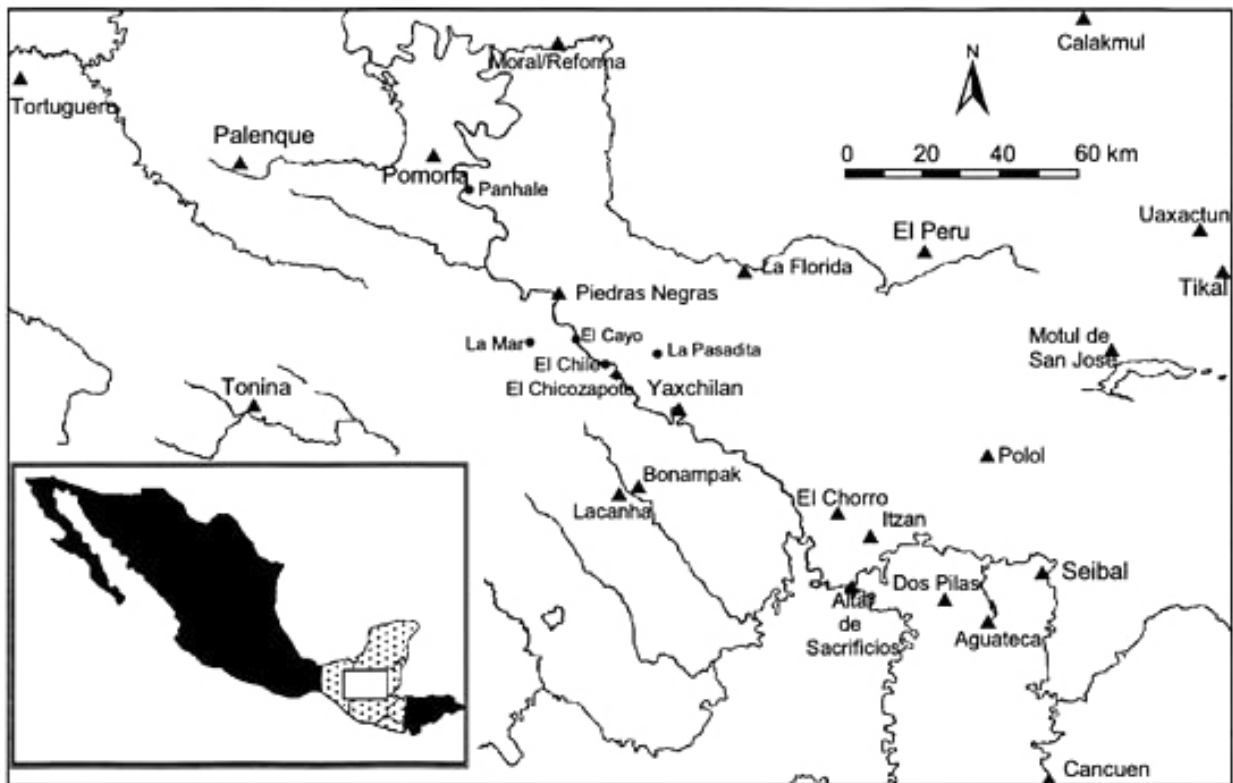


Figure 1. Map of the southern Maya lowlands.

In effect, the kingdom of Pomoná was situated at a crossroads: it could have potentially controlled movement across the coastal plain, and between the upper and lower stretches of the river. Thus the Pomoná region is an essential one to look at, in terms of communication routes up and down river and along the coastal plain. It is perhaps for this reason that this kingdom was so intensely contested by the Palenque kingdom situated to the west, and the Piedras Negras kingdom, located to the south. To the east, close to the San Pedro River we have the lesser-known kingdoms of Morales/Reforma, which judging by its inscribed monuments was part of the Calakmul hegemon, and

probably the still un-located centre known from the hieroglyphic inscriptions as the "Wah-Bird Site". For the latter, recent epigraphic interpretations suggest that the site of Santa Elena may have been the capital of this kingdom (David Stuart, Marc Zender, personal communication, 2001).

From the hieroglyphic inscriptions recorded in Palenque's Hieroglyphic Stairway we know that Palenque attacked Pomoná in A.D. 659 and in 663, and that the powerful influence from this centre was felt again in A.D. 751. Pomoná suffered another devastating defeat this time at the hands of Piedras Negras and its subsidiary site La Mar (Mathews, 1995). Piedras Negras Stela 12 and La Mar Stela 3 record the capture of several Pomoná lords in A.D. 792 and 794. The strife between Pomoná and Piedras Negras seem to date back to at least the mid sixth century. A recent reinterpretation of Piedras Negras Stela 12 by Stephen Houston suggests that sometime after A.D. 554, Piedras Negras was sacked by Pomoná and coerced into paying tribute (Houston, 2000:101-102). This in turn suggests that Pomoná must have exercised to a degree, control over the territory that was part of the Piedras Negras domain.

Based on the premise that site location and the definition of boundaries between socio-political systems were aspects intrinsically related to the physical landscape, and that tactical factors as defined by Hammond (Hammond, 1975:276-277), were instrumental for the location of the important subsidiary sites of the centre. I saw appropriate to approach the problem of the definition of the territorial extent of the Pomoná kingdom, by focusing on its subsidiary centres in relation to their location in the landscape.

In this context the archaeological site of Panhale acquires particular relevance. Panhale is located on a scarped hill, which lies on the right-hand bank of the Usumacinta River ([Figure 2](#)). This place is known as *Boca del Cerro*. It lies about 10 km south of Pomoná and some 8 km to the west of Tenosique, the political and economic centre of this municipality in the Mexican State of Tabasco. Boca del Cerro as its name suggests constitutes an opening in the scarped limestone hills characteristic of the Upper Usumacinta River Valley Region ([Figure 3](#)).

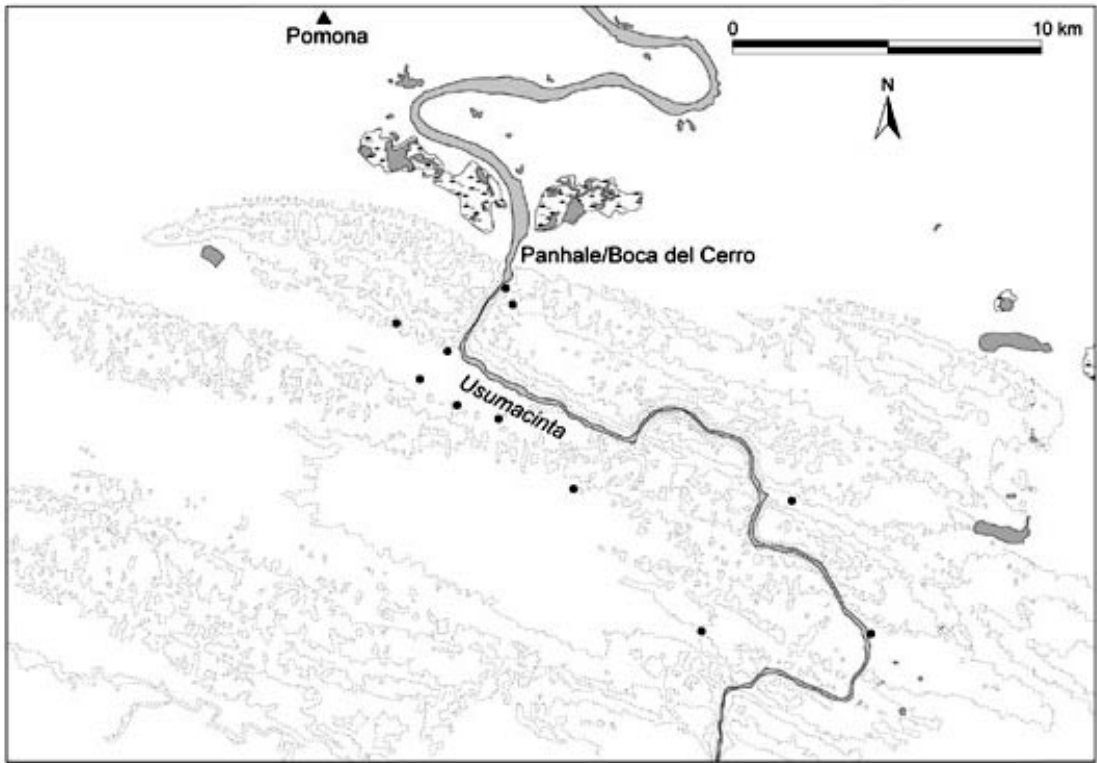


Figure 2. Panhale/Boca del Cerro.



Figure 3. View of Boca del Cerro/Panhale.

Descending down the Usumacinta and after sorting the treacherous rapids of San Joseito, one must pass by Panhale en-route to Pomoná. It is precisely at Boca del Cerro that the mighty Usumacinta begins a more sinuous and sluggish course into the Tabasco Coastal plain. Hence, Panhale's location must have been strategic for controlling access, and monitoring movement back and forth between the Upper Usumacinta and the coastal plain.

### **Previous Archaeological Research in the Region**

The region has been subject of several archaeological surveys, from which we have partial knowledge of the settlement pattern and the chronology of sites in the area. Teobert Maler in (1903) was the first to mention the existence of sites in the vicinity of Pomoná and Panhale, although he never actually knew of the existence of either site. E. Wyllys Andrews IV (1943) and Heinrich Berlin (1953a; 1953b; 1955; 1956; 1960) carried out surveys and some limited test pitting of sites in the region in the 1940s and 1950s respectively. Robert Rands (1967) and colleagues made extensive investigations of small sites around Palenque, his main objective being to identify ceramic affiliations in the area. Perhaps the most ambitious archaeological reconnaissance was the one directed by Lorenzo Ochoa (1978), in a project that attempted to develop a socio-economic model of the area with particular reference to the settlement patterns in relation to sources of raw materials and trade routes.

INAH archaeologists Roberto García Moll and Daniel Juárez Cossío, between 1986 and 1988 García Moll & Juárez Cossío 1987, have investigated Pomoná itself. The project focussed on the excavation of one of the architectural groups of the ceremonial heart of the site, and uncovered various monuments with hieroglyphic texts that have been crucial for our understanding of our changing politics of the region during Classic times.

Archaeologically speaking Panhale is still quite an unknown site. Formal accounts of Panhale are scanty, being limited to brief unpublished reports. Until last year, Panhale had not been the subject of a more systematic archaeological investigation. García Moll briefly inspected the site in the early 1970s to assess the damages caused to it by a local lime-producing plant. The site was inspected again between 1985 and 1987, by members of the Atlas Arqueológico project, who officially recorded it as site 081 in the archaeological site register of Tabasco. Between 1990-1991 Panhale was the subject to a brief survey by México's Federal Electric Commission (CFE), which has plans of constructing a hydroelectric plant at Boca del Cerro. In Delgado's map Panhale appears as a site of "macro-regional importance,...measuring more than 5 sq. km" (Delgado, n.d.). To date, a single monument is known to have come from Panhale, a stela now in México National Museum of Anthropology. The stela includes a date of A.D. 770 and a reference to the then reigning king of Pomoná, thus suggesting Panhale's political affiliation to Pomoná at the time.

## **Research Problem and General Objectives**

Although the epigraphic and archaeological data available indicates that Pomoná was an independent polity, and the repeated attacks it suffered supports placing it as a very important participant of the hegemonic struggle for the control of the western lowlands, no archaeological research addressing this particular issue has been done. In this sense, this project constitutes the initial step towards that end. One of our initial aims: the comprehensive survey of the unexplored architectural groups of the ceremonial core at Pomoná was dropped due to two reasons. First, Roberto García Moll, co-director of the Proyecto Arqueológico Pomoná, informed me that the complete topographic survey of the core area of Pomoná had been concluded and would be published shortly, along with other information in a monograph. Second, after a detailed inspection of Panhale and surroundings, the complexity of the site became apparent, making it evident that it would require much more work than the originally estimated.

With this in mind the project proposed was geared towards the completion of the following objectives:

- To conduct a detailed survey at Pomoná's subsidiary centre Panhale. The map thus obtained would provide the information on the general disposition of the site, and possible function, and would constitute the necessary preamble to the exploration of their structures.
- To conduct an archaeological survey of the region around Pomoná and Panhale in order to approach the study of the settlement and ancient land use patterns.
- To excavate a series of test pits aimed towards the recovery of archaeological materials in stratigraphic context. The assemblages thus obtained will in turn assist us in the definition of a ceramic sequence and consequently the temporal location of the sites.
- To gather enough empirical observations for the design of a GIS-based spatial model on the territorial extent and boundary definition between Pomoná and Piedras Negras.

## **Results of Fieldwork**

Site identification was undertaken with the aid of maps and aerial photography, as well as the assistance of local informants and our own collective knowledge of sites in the region. When a site was located a variety of techniques, which included compass and tape, theodolite (total station), and Global Positioning System (GPS) were applied for the survey. The larger and more complex sites were mapped in greater detail, using the Total Station and the GPS.

Due to security concerns the survey was limited to the area extending 3 km to the northwest of Panhale extending east across the foothills sweeping the area in a 5 to 3-km radius from Panhale, up to the limits of the town of Tenosique. Nine sites of varying complexity, including the two sectors of Panhale, were identified and surveyed in this area; they are described below ([Figure 4](#)).

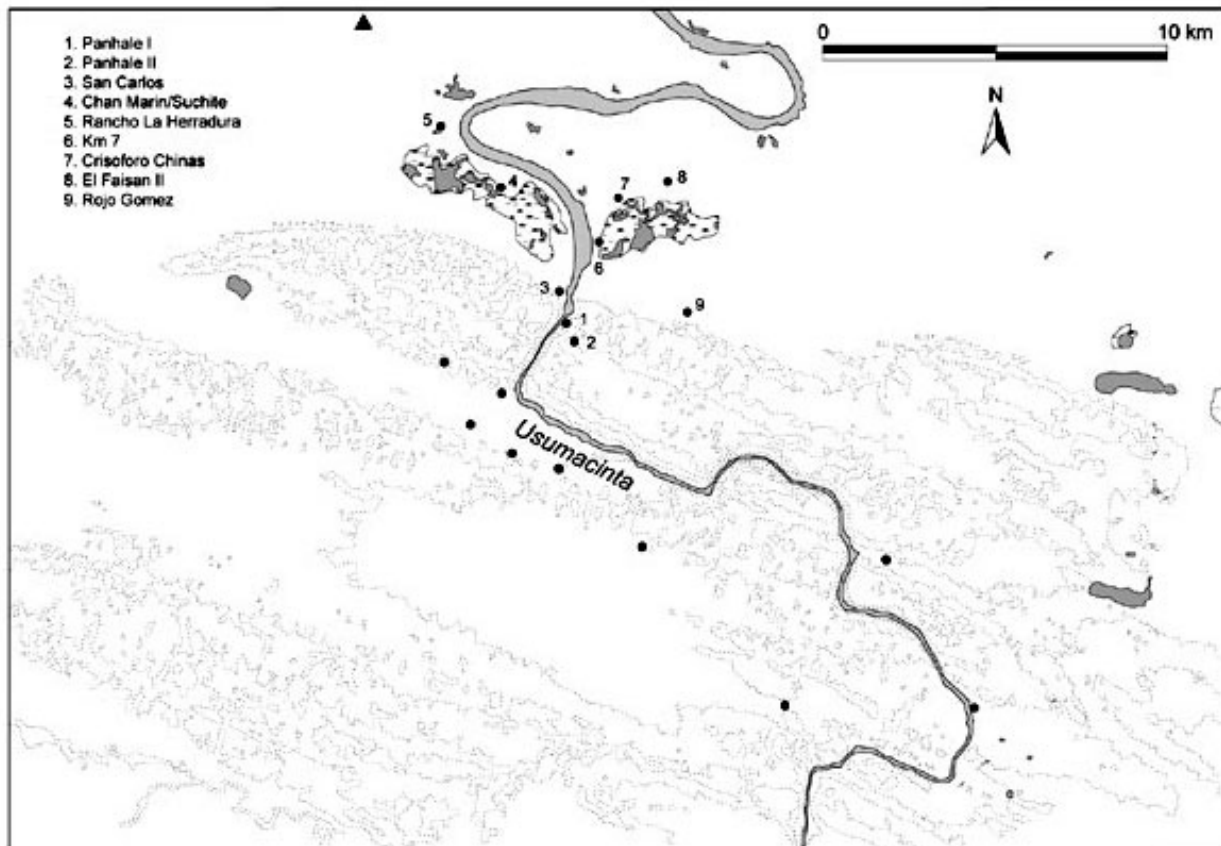


Figure 4. Surveyed sites.

### ***Panhale***

The initial survey of this site revealed that Panhale was much more complex than initially estimated. During this first field season, two sectors that may represent different occupations were identified. The first (Panhale I), located along a natural terrace at about 100 m above the Usumacinta River. The second (Panhale II), located some 300 m above the river. In both sectors though, the site was laid out taking advantage of the broken topography that characterises the last limestone ridges of the Upper Usumacinta. Here a series of massive terraces were constructed following the natural topography of this mountain system. Sadly, Panhale has been considerably affected by



the mining activities of the nearby lime plant, the exploration works of the Federal Commission of Electricity (CFE), and the ubiquitous actions of professional looters. Nevertheless, enough structural remains survive to give us a good idea of the importance that this site should have had within the realm of Pomoná. All together, Panhale is composed by at least four distinct architectural groups, all of which are located at commanding points along the rugged limestone hills ([Figure 5](#)).

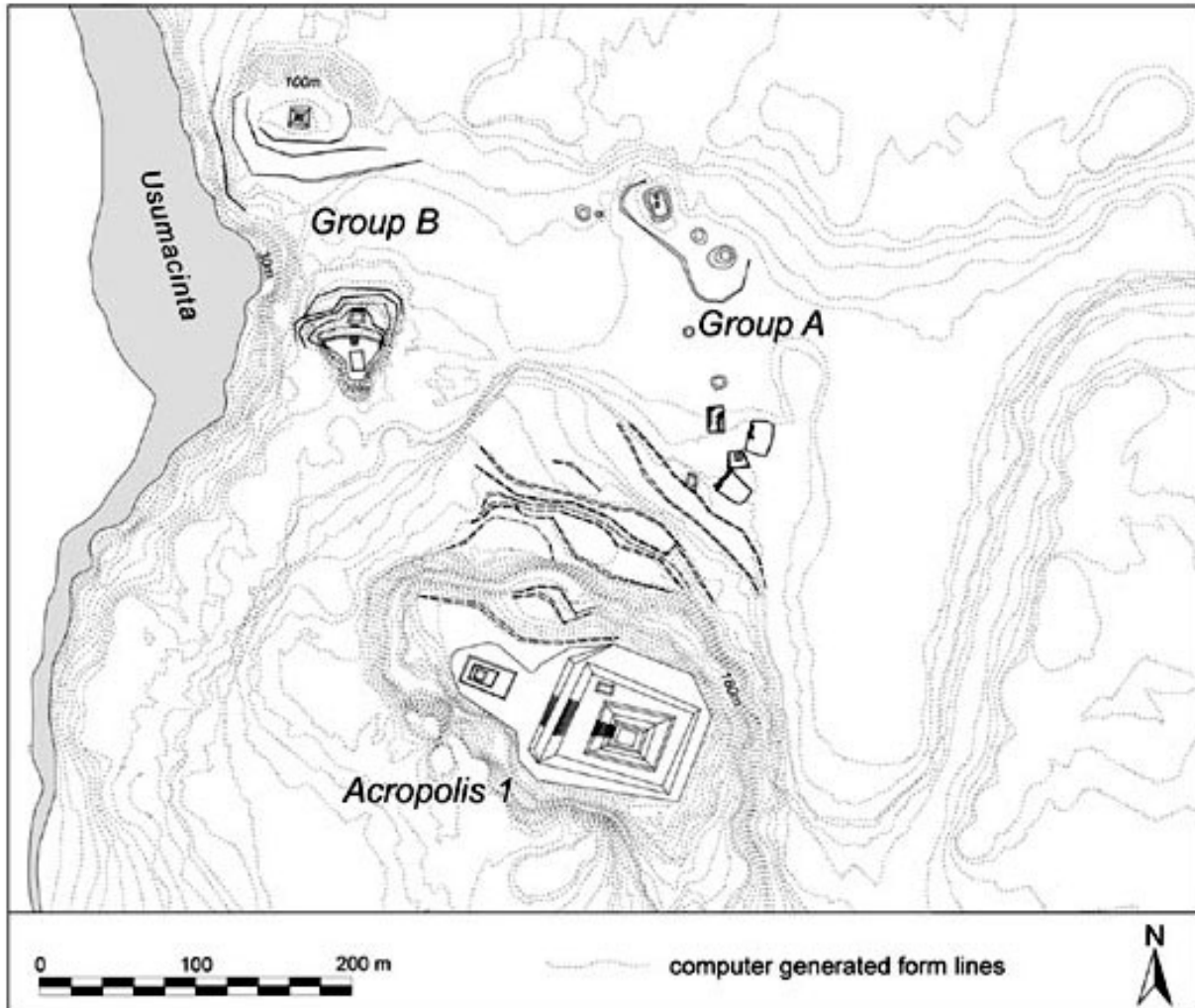


Figure 5. Panhale I, general view.

The survey on Panhale's first sector was partially facilitated by the fact that part of the terrace on which it's located has been under cultivation, thus most of the secondary vegetation growth has been cleared. At this section three distinct architectural groups were identified, Groups A, B, and C:

### *Group A*

Group A is located towards the eastern end of the terrace ([Figure 6](#)). Although patches of cultivated land, which we could not access, and secondary vegetation growth on fallow land limited our recognisance, we were able to map twelve structures at this group. The group consists of a series of small mounds (up to 1.5 m at the most) and platforms, some of which still preserve sections of their masonry base. Group A revealed the highest concentration of surface ceramics (constituting the 93% of the total from Panhale). The analysis of the ceramic assemblage is still in process, however, we did notice a relative abundance of fine orange paste, which would indicate a Late Classic occupation of this part of the site.

The abundance of ceramics, along with the presence of human skeletal remains around Structure 10, supports the idea that Group A may have corresponded to a domestic sector of Panhale. However, we have also to bear in mind that this area has been subject to cultivation for the past few years, and that the material remains could have been washed down from the higher slopes. Where concentration of archaeological materials was observed, all of the artefacts within a 50-cm radius were collected and bagged. This group yielded a total of 67 bags that constitutes 93% of the total from Panhale, and almost 86% of the total surface collection. A 2 x 2 m test pit was set a few meters to the west of Mound 3. Ceramics shards and fragments of chipped stone became more abundant at Level IV, approximately at 30 cm below the surface. Underneath this layer there was an increase in the size and abundance of amorphous limestone blocks, until we reached a depth of 50 to 70 cm.

### *Group B*

Group B occupies the western half of this terrace ([Figure 7](#)). Unfortunately most of the massive platform on which this group lies has been severely damaged by a trench excavated with heavy machinery used by the lime plant to extract rock, and by the CFE. At certain points, the terrace was bulldozed to a depth of 2 m following an east-west direction for over 200 m, until it reached the edge of a cliff overlooking the Usumacinta River, where CFE constructed a concrete base to set a datum. Following this trench it is still possible to observe a series of retaining walls of up to 5 m long and the remains of various destroyed structures. The structures were constructed with well-dressed limestone blocks. Two major structures are still relatively well preserved at Group B. The first one is Structure 13, dubbed as the watchtower on the basis of its commanding view of the coastal plain and the excellent acoustics ([Figure 8](#)). This structure is located atop a series of terraces that were constructed following the natural contour of the hill. The watchtower consists of a mound that rises almost 10 m from the terrace floor, which sets it at an elevation of about 90 m from the river surface. On its summit the remains of a masonry structure with at least two separate rooms are still visible. The amount of debris at the base of the mound does not indicate that the top structure may have been vaulted. Some 100 m to the south of the watchtower lies Structure 14. This structure consists of six overlaying platforms facing north that rise 110 m from the river. The

remains of a central staircase can still be seen on the fourth, fifth and sixth terraces. The summit is crowned by a low platform, again with a commanding view that extends towards the south stretch of the Usumacinta River. However, although a course of well-dressed limestone blocks could still be seen, no evidence that would suggest the existence of a vaulted structure was apparent.

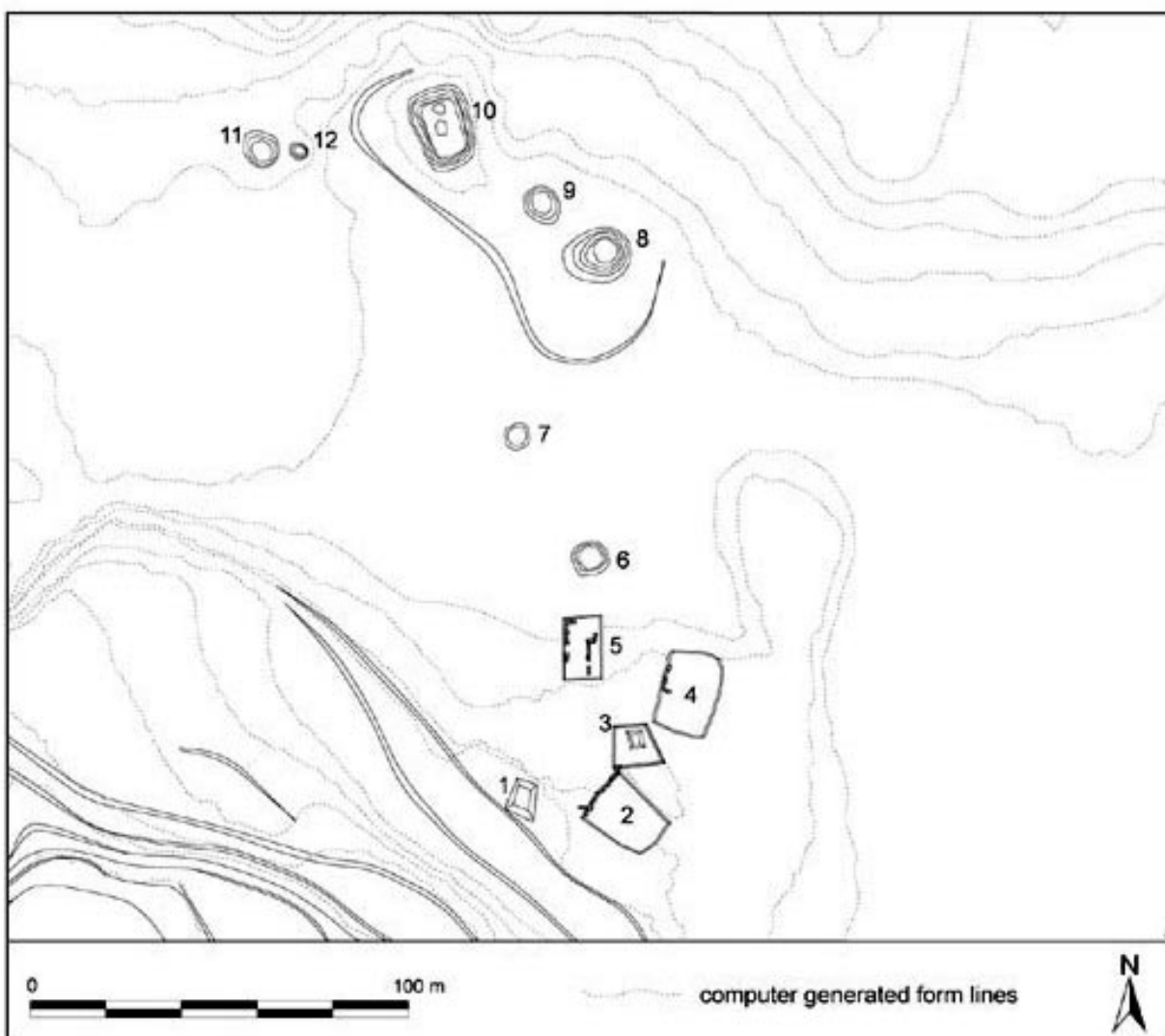


Figure 6. Panhale, Group A.

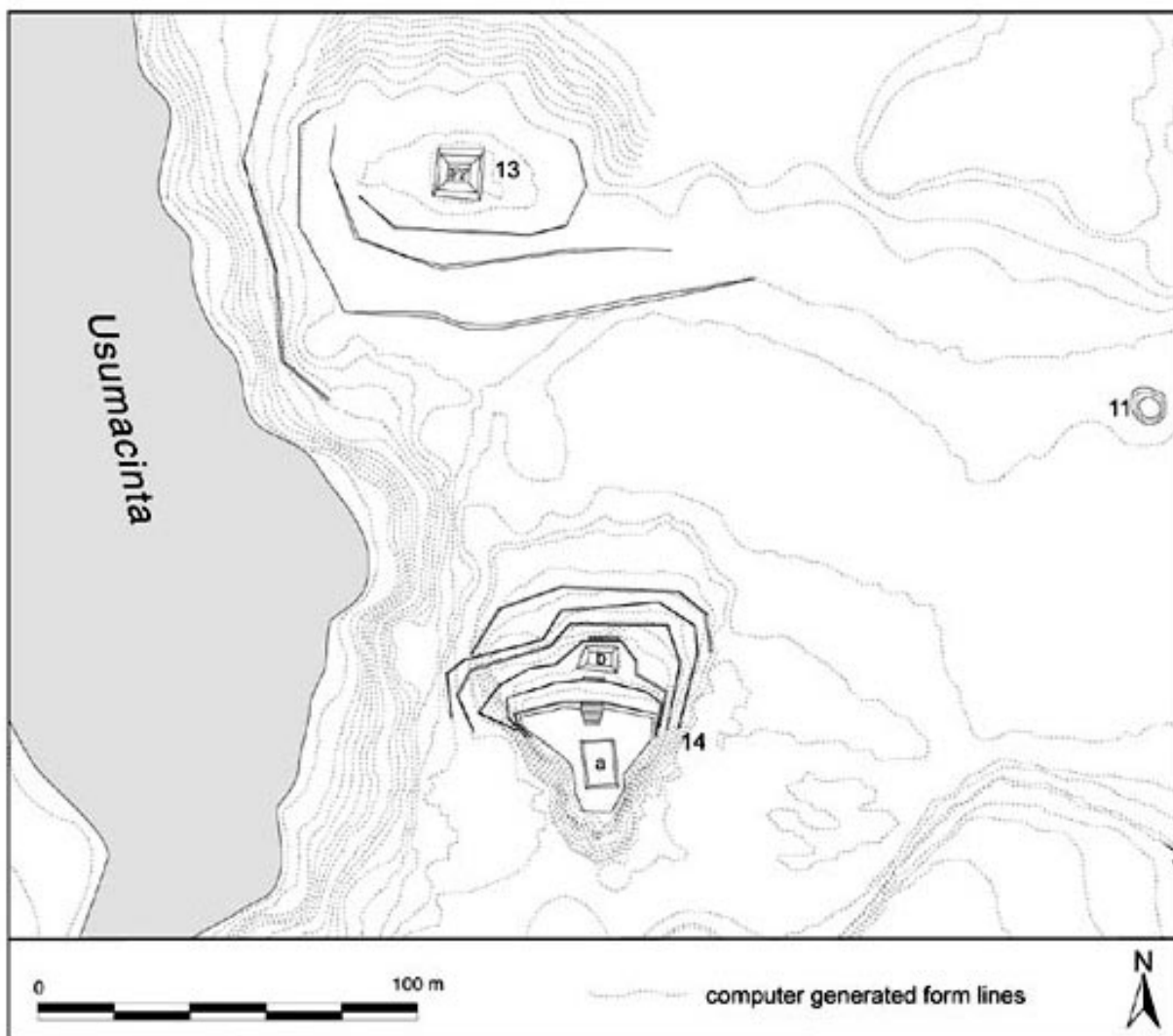


Figure 7. Panhale, Group B.



**Figure 8. View of the Usumacinta coastal plain from Group B's Structure 13.**

### *Group C, Acropolis 1*

Group C lies at the summit of a series of terraces that run along the northern slope of the hill. On the basis of its location, its layout, and size of one of its structures (Structure 16) we dubbed this group as Acropolis 1. Acropolis 1 lies on a massive platform, approximately 180 m long by 90 m at its widest section ([Figure 9](#)). Apart from its vantage point ([Figure 10](#)), the acropolis is surrounded in all its sides by very steep slopes, making it hard to access and thus, an easily defensible location. However, it is worth noting that the northeast section of the uppermost platform looks extremely damaged, with over 200 m of undressed rocks. Our local informants (some of whom worked for the lime plant or CFE) claim that the heavy machinery never reached this part, and indeed, a very steep slope hinders access to the terrace. Thus posing the possibility that the terrace was never finished.

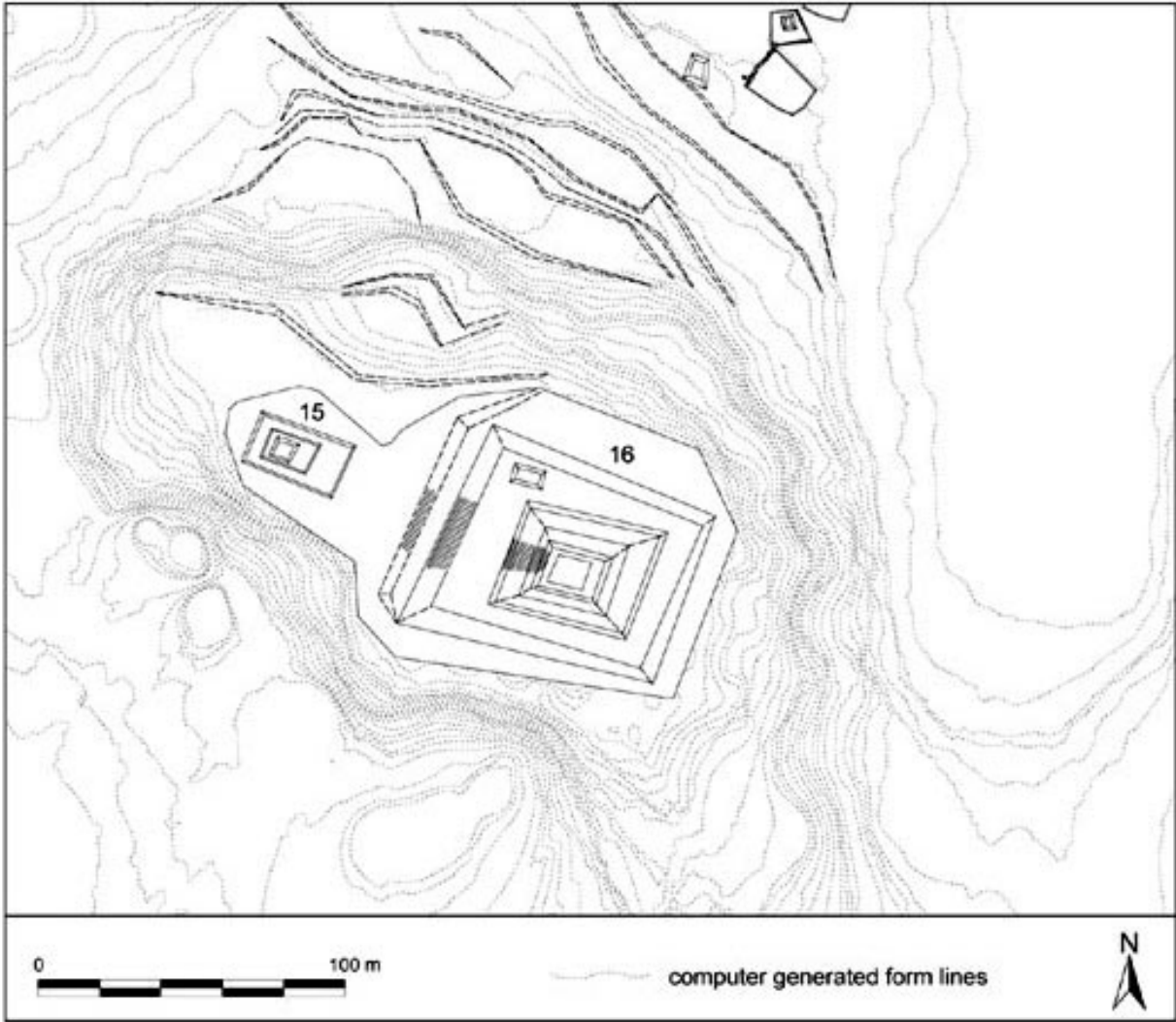


Figure 9. Panhale, Acropolis 1.



**Figure 10. View of the coastal plain from the Acropolis 1.**

Structure 16 lies at the eastern portion of the acropolis platform, facing to the Usumacinta River, due west. This was a stepped pyramid structure that still rises some 30 m above the Acropolis platform, and 180 m from the river surface. It was constructed with well-dressed blocks, that ranged from 30 to 20 cm to up to 30 by 60 cm, which covered a core of big amorphous rocks ([Figure 11a](#) and [Figure 11b](#)). Although this building has been heavily looted throughout time, a large section of the retaining walls are still fairly well preserved. Remains of a central staircase are still visible on the western façade. At the summit, the walls of a one-roomed temple still stand to a height of about 60 cm. Judging from the amount and type of debris observed it is possible that this may have been a vaulted temple.

The other visible structure at the acropolis is Structure 15. This is a low 30 by 18 m platform supporting a small mound that rises 2.5 m from the platform floor. This structure is much deteriorated, however, the sections that are still preserved suggest that the construction technique was different from that of Structure 16, with smaller limestone blocks dressed only on one side.

Although not as bountiful as in Group A, the surface materials recollected here were also abundant, this was in part due to the higher visibility provided by the cultivated field.



**Figure 11a. Acropolis 1, Structure 16.**



**Figure 11b. Structure 16 wall remains of north façade.**



### *Group D, The Acropolis 2*

At the highest point of the Boca del Cerro hills, at about 320 m above the river, a masonry structure that constitutes the second section of Panhale was surveyed. Group D, or Acropolis 2, is a completely distinct group and may represent a different occupation in the history of the site ([Figure 12](#)). Without any doubt, this group poses the most difficult access. It rises at least 10 m above the level of the present-day television station location (that was chosen precisely as the ideal location to set up the three microwave transmission towers). The precipitous and perilous ascent to the Acropolis 2 thwarted our ability to map it in greater detail with the total station. Thus, the only visible structure was mapped with compass and tape ([Figure 13](#)). Nevertheless we were able to tie the survey points to a GPS-based datum situated almost 300 m to the west, on the television station. Albeit the limited survey, enough was revealed to warrant our dubbing of this group the Acropolis 2. The structure was constructed using well-dressed limestone blocks ([Figure 14](#)), and was built upon a series of terraces adapted to the natural limestone ridge.

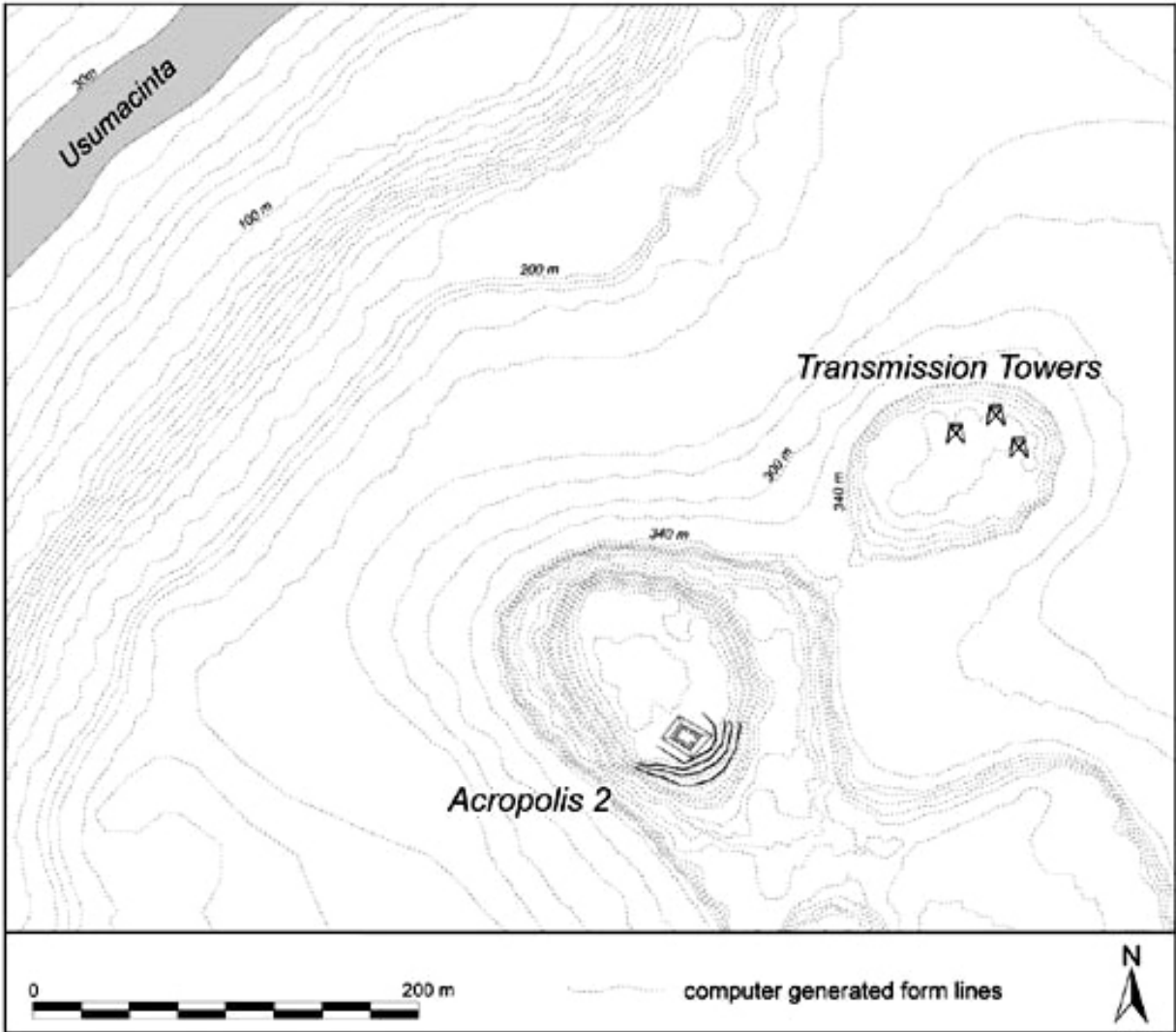


Figure 12. Panhale, Acropolis 2 location.

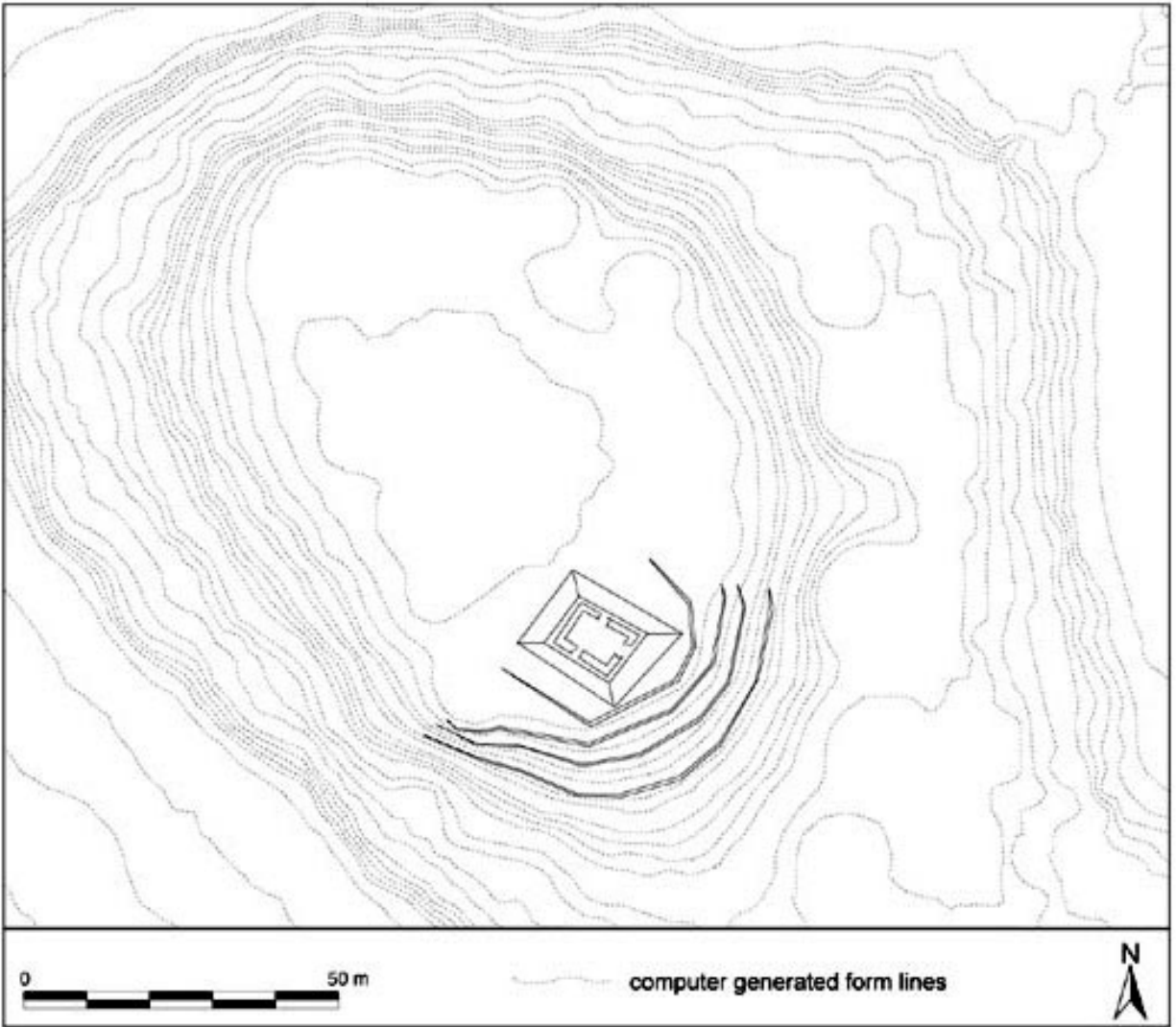


Figure 13. Panhale, Acropolis 2.



**Figure 14. Remains of the vaulted temple that crowned the Acropolis 2.**

Undoubtedly, this location must have offered both ample visibility and defensibility in ancient times. It is also the only structure where we have unequivocal evidence of vaulted chambers. Unfortunately, these peculiarities also made it more attractive to professional looters, who have viciously ravaged the building by cutting two deep trenches across it compromising its structural stability. The trenches, however, exposed an intriguing substructure. According to my appreciation, this substructure reveals a close architectonic similarity to the Early Classic architectonic style that consists of apron mouldings and rounded corners present at Piedras Negras, style that has not yet been identified at Pomoná ([Figure 15](#)). One of our workers informed us that there were other masonry structures in the vicinity of Acropolis 2, unfortunately due to the dense vegetation growth and the difficulties posed by the broken terrain we were unable to locate these structures.



Figure 15. Acropolis 2 substructure showing apron moulding and rounded corners.

### ***San Carlos Boca del Cerro***

This site lies at the base of the Boca del Cerro hills on the left margin of the Usumacinta River and must have been part of Panhale's sustaining area ([Figure 16](#)). The site is almost completely covered by the present-day town of San Carlos. Only four small mounds are still visible dispersed in an area of about 400 m<sup>2</sup>, the biggest of which is a semicircular mound, measuring some 30 m in diameter and 3 to 4 m high. The presence of a few scattered limestone blocks suggests that perhaps there might have been a masonry structure associated to this mound. The other mounds are almost 20 m of diameter with a height that does not exceed 1.5 m. These mounds were mainly built with river cobbles although some dressed limestone blocks were also noticed.

The only archaeological artefacts recovered came from a few ceramic shards from surface collections, and from a test pit that was excavated close to the river edge. As mentioned above, this site must have been part of the sustaining area for Panhale, which judging by the presence of surface ceramics may have extended over 4 km along the river edge.



Figure 16. View to Boca del Cerro/Panhale from San Carlos.

### ***Chan Marín/Súchite***

This site is also located on the left bank of the Usumacinta River at approximately 650 m from its left bank ([Figure 17](#)). It lies on a natural terrace that runs on a NW-SE direction for approximately 600 m. This natural elevation represents a virtual island amidst the surrounding bajos and the small Santa Cruz Lake. On this terrace only three low mounds between 25 to 30 m in diameter and 1 and 2 m high were observed. However, in comparison with the other sites, apart from Panhale, this site yielded a considerable amount of archaeological materials both from surface collection as well as from a 1 x 1 m test pit that was excavated between Mounds 1 and 2. The pit reached a

depth of over 70 cm below the surface. A clear cultural horizon was discernible beginning at a depth of 20 cm and extended to almost 40 cm below the surface.

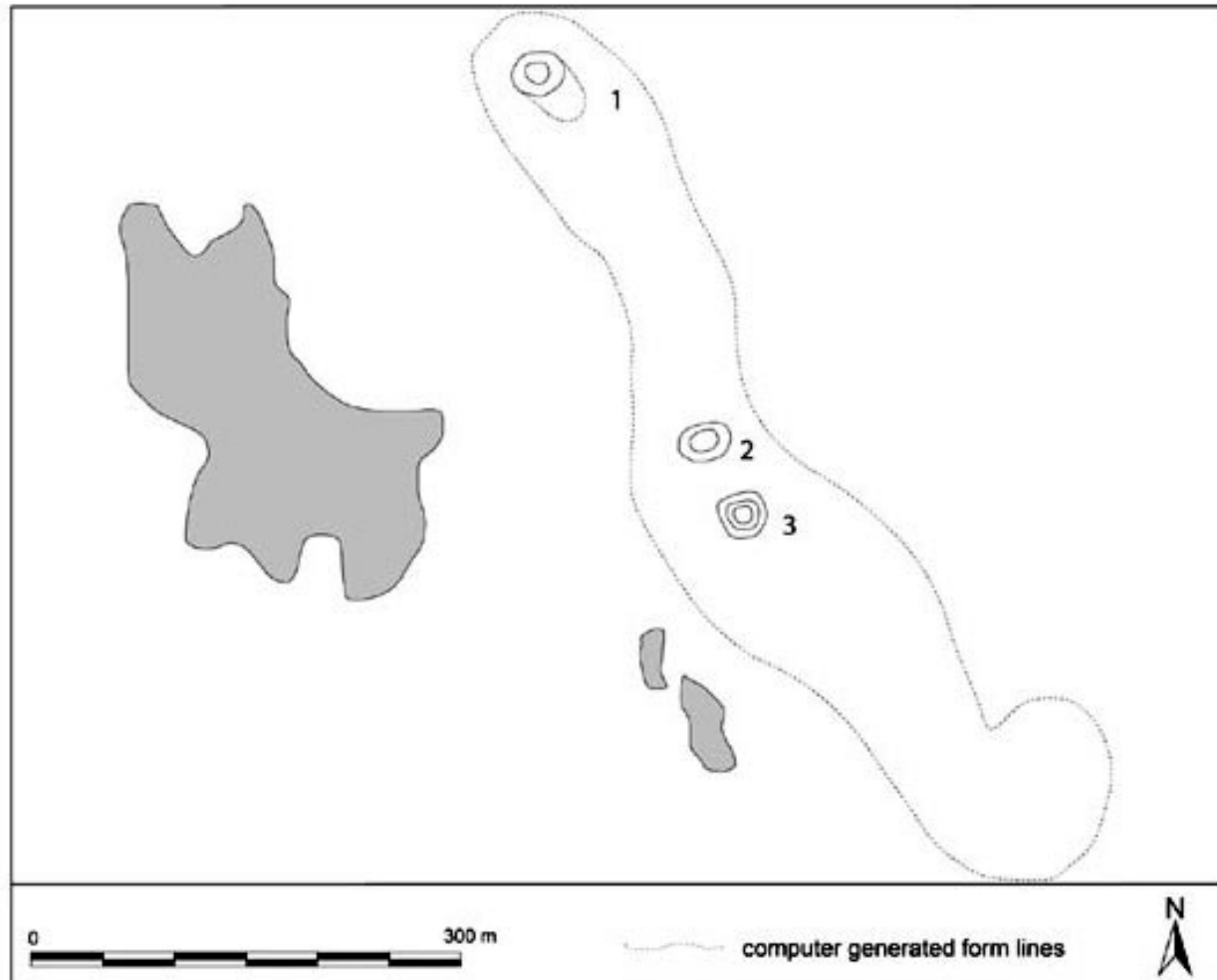


Figure 17. Chan Marín/Súchite.

### ***Rancho La Herradura***

Rancho La Herradura is located on a natural platform surrounded by seasonally inundated lowlands, 7 km downstream from Panhale and about 5.5 km southeast from Pomoná. The platform lies 20 m above the river level covering an extension of about 30 hectares. Three distinct groups were constructed on the top of the platform ([Figure 18](#)). The mounds were constructed out of river gravel and red clay, none of which exceed a 2-m height. Of the three groups, Group RH-A is the only one that has a distinct formal arrangement of a well-defined patio group limited on three of its sides by low platforms.

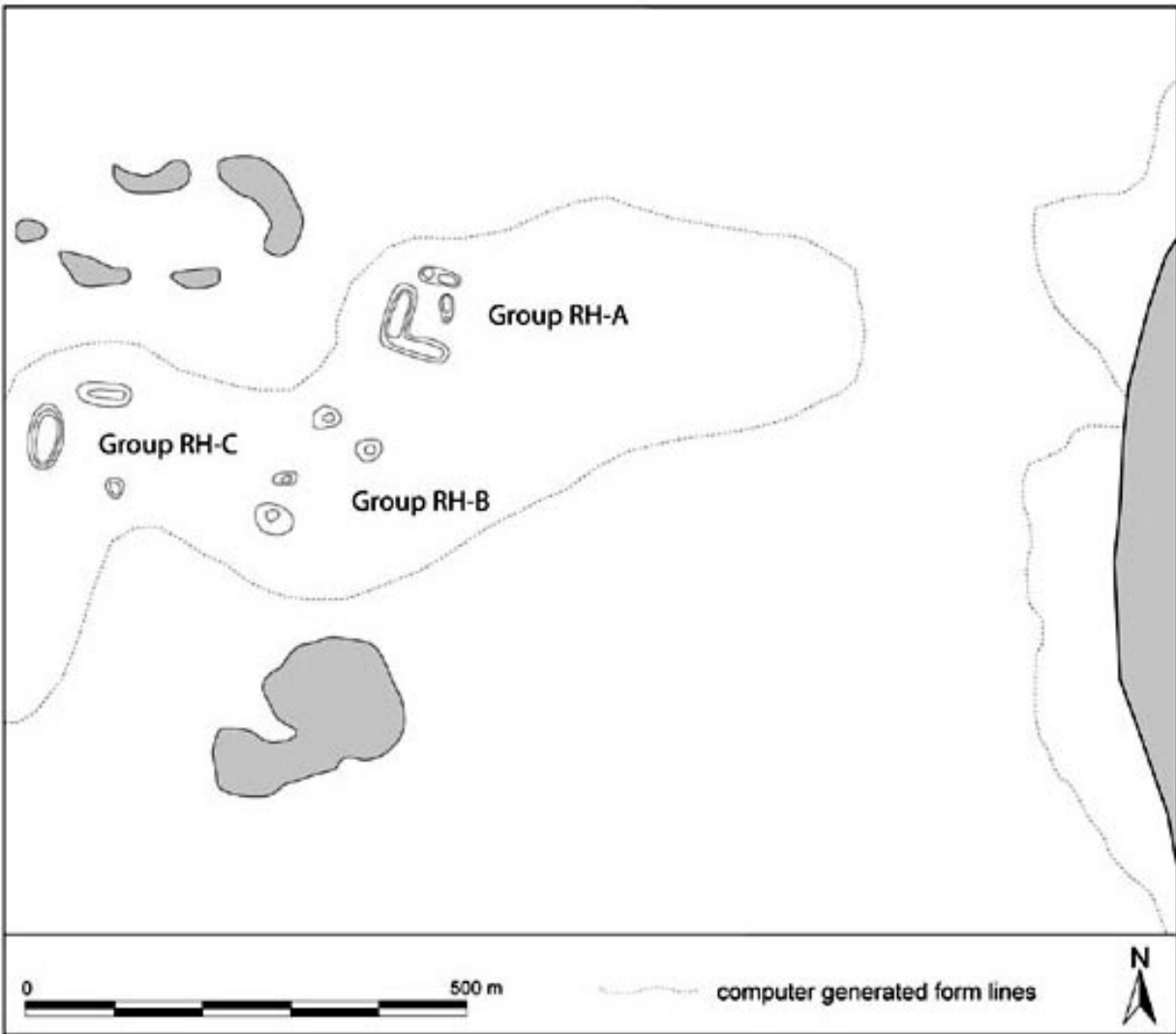


Figure 18. Rancho La Herradura.

From this site both Pomoná and Panhale are clearly visible. These topographic characteristic and its proximity to the Usumacinta River 200 m due east, would make the site the ideal setting for an outpost to control and/or monitor fluvial access to Pomoná. Along the north side of the long platform runs a perennial stream tributary of the Usumacinta: the Tacalate. This stream follows in a west to east course until it reaches the Usumacinta. The Tacalate could have been used by the ancient Maya to move goods from the river to Pomoná, as it runs only 1 km south of the latter.

The ranch owner reported the existence of remains of a gravelled causeway that goes from the river to Pomoná, however, he noted that this causeway was only visible during the dry season. Accompanied by a couple of the ranch hands, we surveyed the area on



horseback looking for traces of the causeway, however, the present-day land divisions and the extensive areas inundated hindered our recognisance of the terrain. Nevertheless, during our zigzagging transect from La Herradura to Pomoná we did note the presence of river gravel on the higher firmer land.

Although the visibility at the site was good, no surface materials were observed. A 1 × 1 m test pit was excavated following arbitrary 10-cm layers, until a depth of 60 cm, where the layer void of archaeological artefacts was reached. The highest concentration of artefacts was recovered from Layers 4 and 5 at a depth between 40 to 50 cm. Apart from ceramic shards; various lithic artefacts that included two projectile points were recovered.

### ***Km 7***

This site is located around Km 7 of the road that leads to Tenosique, on the right bank of the river. The road bisected the site, and its mounds were used as a source of fill material during its construction. Consequently only a few traces of what must have been low mounds of 1 to 1.5 m high made out of river gravel and packed clay are still visible. The site lies opposite to the San Carlos site; thus it is likely that it was part of the same settlement.

### ***Crisóforo Chiñas***

Crisóforo Chiñas is the name of the communal land on where most of this site lies. It is located about 4 km to the North East of Panhale, on the right side of the river. On the hierarchical settlement scheme of Pomoná, may have corresponded to a tertiary level site. Although the site was partially affected by the construction of a dirt road that leads to a private ranch and the community of Paso de la Sábana, fourteen mounds still stand arranged in four groups that extend for almost 50 hectares ([Figure 19](#)). Group CC-A consists of three isolated mounds, Mounds 1 and 2 measure about 50 and 40 m in diameter, respectively and reach a height of 5 m each, while Mound 3 is a mere 1.5 m high mound with 20 m in diameter. Group CC-B consists on two low, elongated platforms of about 1.5 m high, without any formal arrangement. Groups CC-C and CC-D present a more formal arrangement. The former consists of a small court-like group composed of a low platform enclosing its southern end: Structure 6. Structure 6 supports two twin mounds that rise 3 m from the patio floor. On its west and east sides the court is limited by two 2 m high mounds. Group CC-D is formed by two large platforms that run parallel on a northeasterly direction, Platforms I and II. Platform I is 300 m long and 55 m wide, and at its summit supports five mounds. Of these, Structure 10 is the biggest, it measures some 50 m in diameter reaching a height of 8 m. Mound 11, the second largest, is almost 6 m high and also about 50 m in diameter. The other three mounds are smaller with 2 m in height and between 30 to 20 m in diameter. At about 200 m to the east lies Platform II. Platform II constitutes a reconditioned natural

rise of the terrain. There were no discernible structures on its top, but this may be due to the poor visibility caused by the presence of high grass. With the exception of Platform II, all of the structures were constructed with packed clay and river gravel.

There were very few surface materials recovered at the site, due mainly to the poor visibility. A 1 × 1 m test pit was excavated between Mounds 1 and 2 but the soils proved to be thin and rocky with just a few ceramic shards recovered.

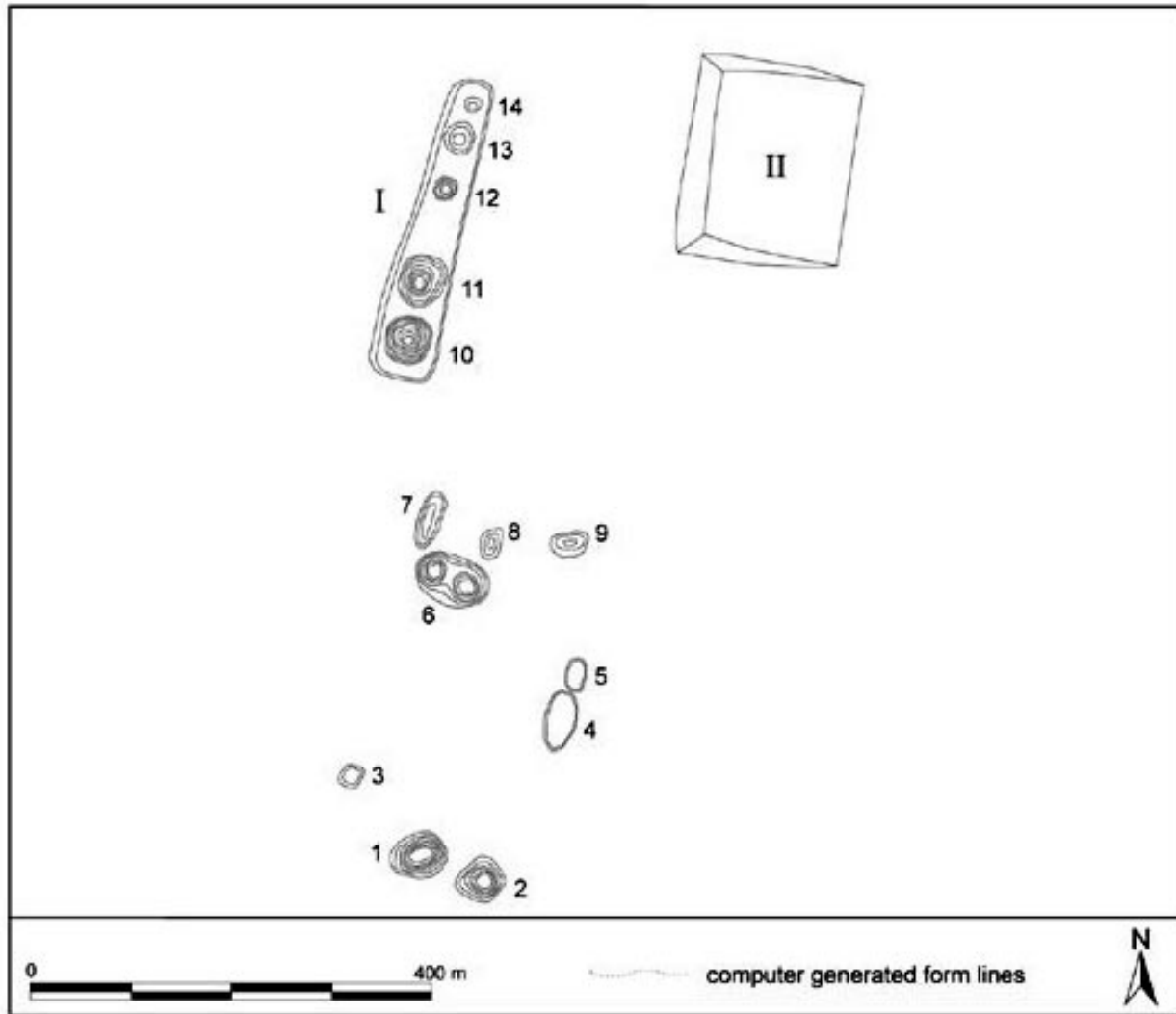


Figure 19. Crisóforo Chiñas.

## ***El Faisán 2a Sección***

Located 6 km to the northeast of Panhale along the road that leads to Tenosique 2.5 km away, El Faisán 2a Sección covers an area of approximately 30 hectares. This site is smaller in total area than the Crisóforo Chiñas site. Nevertheless, El Faisán II, judging by the size of its structures and building materials, which apart from the ubiquitous packed clay and river cobbles, contained dressed limestone blocks, would have corresponded to a tertiary level site on the overall Pomoná settlement hierarchy ([Figure 20](#)).

The Usumacinta River lies 3 km to the west, and almost 2 km directly to the south is an important tributary of the former, Arroyo Plevá. This is a perennial stream whose flow begins some 20 km to the east, in the vicinity of the San Pedro River. The Plevá, floods an area of bajos located 800 m to the south of the site forming a small shallow lake. It was perhaps this permanent source of water that determined the location of the site. Its proximity to the site of Crisóforo Chiñas, just 1.5 km to the west may be indicative that both sites may form part of a bigger settlement, or perhaps different occupational stages. The site was greatly affected by the construction of the road that leads to Tenosique, and that has cut it through the middle. It is likely that some of its structures may have provided the fill material for the road; nevertheless, three mound groups are still discernible. Group EF-A consists of a small plaza-like open space enclosed on its south and west sides by a low L-shaped platform approximately 1.5 m high. On this platform three large mounds still stand in relatively good state of preservation. Mound 1 measures 40 m in diameter and rises close to 5 m above the platform surface. Mound 2 is an elongated structure 50 m long and 6 m high. Mound 3, still preserves its rectangular plan, measuring 60 by 45 m, and 7.5 m high, constituting the highest mound of this group. The north and east sides of this plaza are limited by two low rectangular platforms, one of which, (Structure 5) has been modified by a modern dwelling. A cluster of low platforms without any clear formal arrangement form group EF-B, although Group EF-C was the most affected by the road construction; it contains the biggest structure of the site (Structure 12) in a still relatively good state of preservation. Structure 12 is 10 m high and 90 m long by 50 m wide mound ([Figure 21](#)). A 40 m long, 2 m high platform (Structure 15) abuts to its east façade, forming the northern enclosure of what must have been at least a 60 by 80 m plaza. This plaza was limited to the east by Structures 16 and 17, which are two long mounds that reached a height of 2 m and that are parallel to each other. Unfortunately these mounds were cut through the middle by the road.

The land on which the site lies has been used for several years for cattle grazing and is currently covered by dense tall grasses. This resulted in a very poor visibility; thus no surface materials were collected. In the hopes of recovering artefacts that may have been washed from the adjacent mound slopes, a test pit was excavated between Mounds 1 and 2. Although the pit reached a depth of approximately 45 cm, the presence of artefacts was at best scanty.

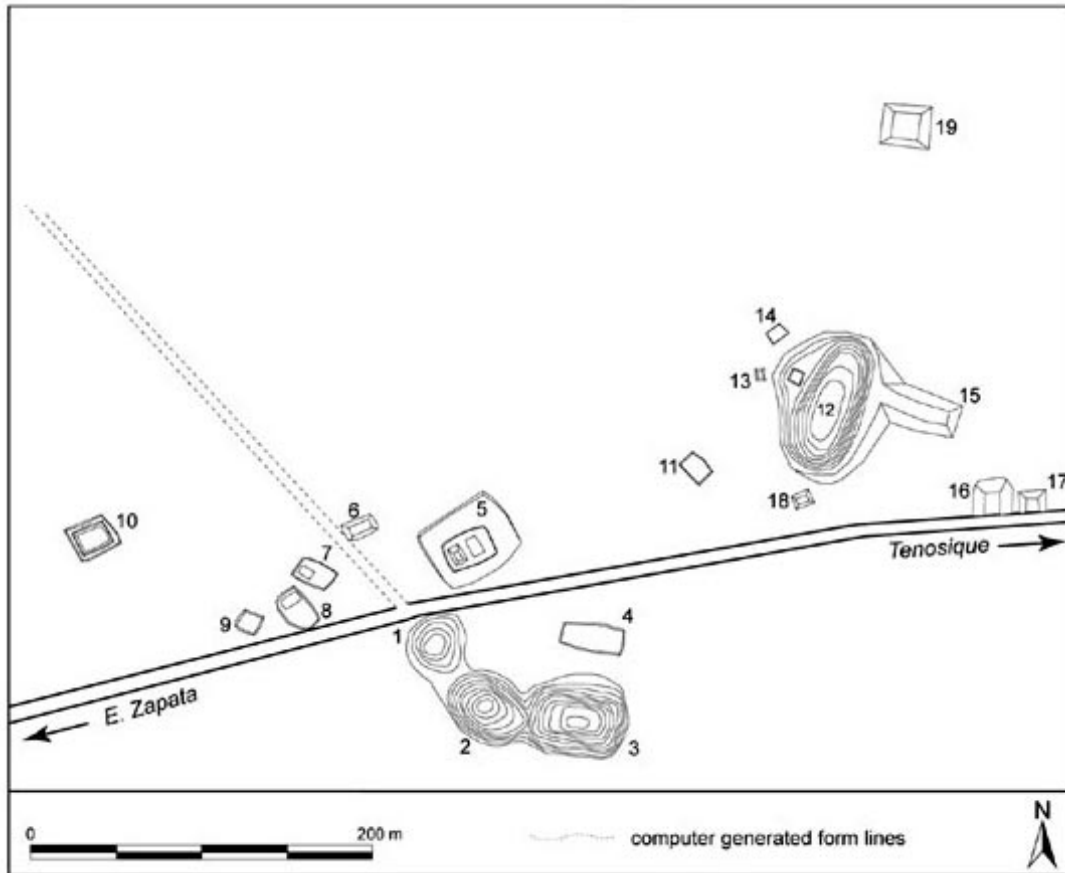


Figure 20. El Faisán II.



Figure 21. El Faisán II Sección, Structure 12.

## ***Javier Rojo Gómez***

Searching for a sizeable site that may have been located in higher land, we surveyed the lands belonging to the ejido of Javier Rojo Gómez that lie along the foothills located 4 km to the east of Panhale. Although most of the land here is currently used for cattle grazing, these foothills are characterised by well-drained fertile soils, where maize and sugar cane are also extensively cultivated. The presence of these well-drained soils suggests that the area could have also represented the favoured lands for agriculture in pre-Hispanic times. With the assistance of local informants we surveyed an area of approximately 200 hectares finding only two small mound groups that had no formal layout. The first group consisted of a small mound of about 3 m in diameter and about 2.5 m at its highest point. The mound was built out packed red clay and river gravel and it was partially destroyed when it was bulldozed to extract fill material for the nearby dirt road. The possibility then, that other mounds were completely destroyed by the heavy machinery should be considered, although judging by the surrounding remains there is little evidence that would suggest that the site might have been much bigger. At about 100 m to the northwest of the mound lies a natural elevation of about 70 m in diameter and 6 m high that was reconditioned as a habitation mound. From this, just a few ceramic shards were collected from the surface. The second mound group was located 500 m to the west; it consists of three low mounds that rise less than 1 m above the surface of a small flat top hill.

Although in general terms the visibility was poor, we collected more surface materials at this site than at El Faisán. Interestingly enough amongst the surface materials collected, we also recovered some flint flakes and fragments of flint bi-facials. The proximity of the limestone cliffs, where various possible quarries can be seen along the faults of the hills, may indicate that apart from the agricultural activities the inhabitants of these mound groups may have been involved in the mining and production of stone tools.

### *Soil Analysis*

An important aspect of the 2001 field season was to begin the study of the paleo-environment of the Pomoná hinterland. On this basis, along with the archaeological survey of the area the basic landscape units were identified and an edaphological catena was surveyed. The catena is a soil sampling method useful to approach the different landscape units of the studied area considering the topographical, hydrological and geological characteristics. The catena consisted in the excavation of seven 1 × 1 m<sup>2</sup> pits aligned along a transect. Soil analysis are being carried out using standard procedures that consist of determining the characteristics of soils such as colour, texture, density, moisture and structure, pH, conductivity and content of organic matter. Seven pits were excavated and their profile was described and registered. A total of 25 sample bags were collected from the different soil horizons. The results of this analysis

will be complemented during our next field season with the excavation of more pits and the recovering of soil cores for pollen analysis.

The catena resulted in the identification of four different soil classes. (1) The mountain ranges and gullies that are characterised by Lithosols with less than 10 cm deep. In terms of agricultural productivity these soils are considered of poor quality. Nevertheless, as we observed, the yield of these soils is big enough to warrant the effort of cultivating the land. (2) Along the margins of the Usumacinta we found partially developed soils, or Cambisols. These soils can be of higher agricultural value, although the seasonal fluctuations of the river make them of limited availability. (3) Further from the river, along the coastal plain grey clayish soils or Gleysols, are more abundant. Of all the soils present in the survey area, these are the most productive agricultural soils. However except for the foothills, they are also subject to seasonal flooding. (4) The natural elevations along the plain are characterised by Regosols. These are shallow soils located atop unconsolidated river cobbles. These are also the soils where we found for most of our archaeological sites, thus seemingly representing the preferred choice for habitation purposes.

### **Preliminary Interpretation on the Settlement Pattern**

The initial archaeological survey in the Pomoná hinterland revealed a four-tier site hierarchy system where expectably Pomoná and Panhale occupy the first and second echelons. El Faisán, and Crisóforo Chiñas, and perhaps Rancho La Herradura would be tertiary centres, San Carlos, Km 7, and Chan Marín/Suchité, fourth level sites, and Rojo Gómez would pertain to a fifth tier. Although, this particular hierarchical scheme still needs to be corroborated by the results of the ceramic analysis.

At the outset I emphasised on how the strategic location of Panhale would have given it an advantage in terms of the control of the access to and fro the Tabasco coastal plain. Our survey of the site also shows that Panhale is a site that could have been easily defended and with its ready access to water and sufficiently productive agricultural land, it could have easily withstood a prolonged siege. These characteristics would have been of tremendous importance for Pomoná especially in the atmosphere of increasing warfare that characterised the Late Classic Period. Thus in this context, Panhale may have also offered safe haven to a besieged Pomoná nobility in times of adversity.

Up river from Panhale, at a distance ranging between 3 to 15 km from it, eight other sites are found: La Urania, Lindavista, Chinikiha, Camino a Las Delicias, Ojo de Agua, Las Delicias, San José de los Rieles, Sta. Margarita and Sto Tomás I ([Figure 22](#)). Unfortunately due to security reasons, we were unable to visit these sites. Nevertheless, Gerardo Delgado has included a general characterisation of these sites in his survey map. According to his 5-tiered site hierarchy, these sites would correspond to Classes II and III, with masonry structures and covering an area between 3 to 5 square km. In our site hierarchy scheme these would correspond to the same echelon as Panhale, that is, they would be considered secondary sites. On the basis of a GIS-based spatial model,

which I shall describe below, I propose that with the exception of Sto. Tomás I, these secondary sites belonged to Pomoná's political sphere, while the latter fell within the Piedras Negras domain.

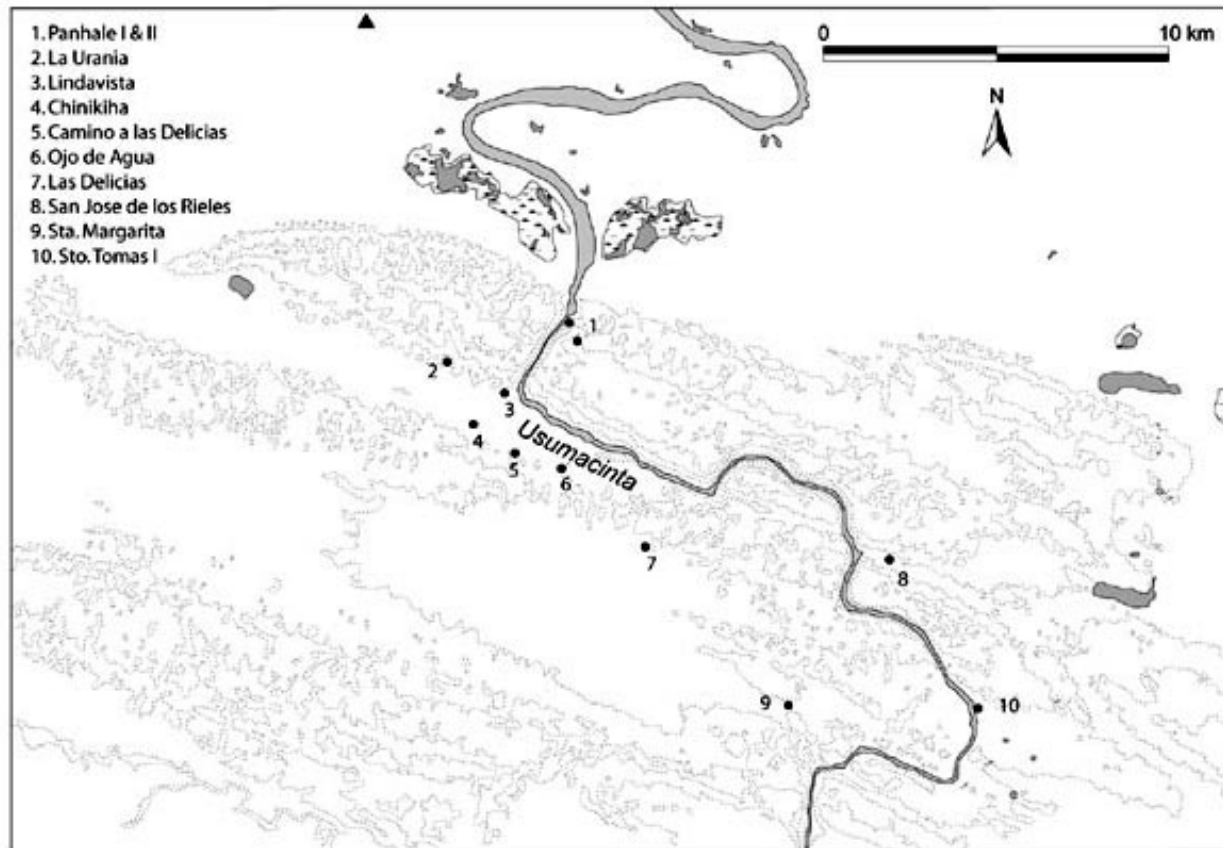


Figure 22. Location of secondary river sites.

All of these sites are strategically located either at those points where the presence of rapids force the river traveller to portage, or at the intermontane valley passes. The hieroglyphic inscriptions tell us that in the western lowlands, these subsidiary sites were the seats of a secondary yet important echelon of the Late Classic Maya nobility, the *sahal*. Perhaps the best-known example of these types of sites is La Pasadita. La Pasadita is located about 10 km inland from the eastern bank of the Usumacinta River on the Guatemalan side of the river. Mathews (1988) has dealt extensively with the hieroglyphic texts from La Pasadita and Yaxchilán, and the site has been the subject of a recent archaeological survey carried out by Golden and colleagues (1999, FAMSI Reports). On the basis of this information, Golden has argued that the relationships established between the Yaxchilán king and his *sahal*, helped develop a defendable frontier between Yaxchilán and Piedras Negras.

In this milieu Panhale's role in the political structure of Pomoná may have been similar to that of La Pasadita for Yaxchilán, that is: the maintenance of a defendable frontier between Pomoná and Piedras Negras. Given the physical constraints that the passage from the upper to the middle Usumacinta the environment poses, I argue that access to, and control of, the routes of communication represented a matter of "national security" in the ambience of endemic warfare that prevailed during the Late Classic. From this it follows that those sites located in the vicinity of critical points, such as a portage or a natural pass in the mountain ranges must have been deemed strategically important for the maintenance of the territorial integrity, and the accrument of the kingdom's domain.

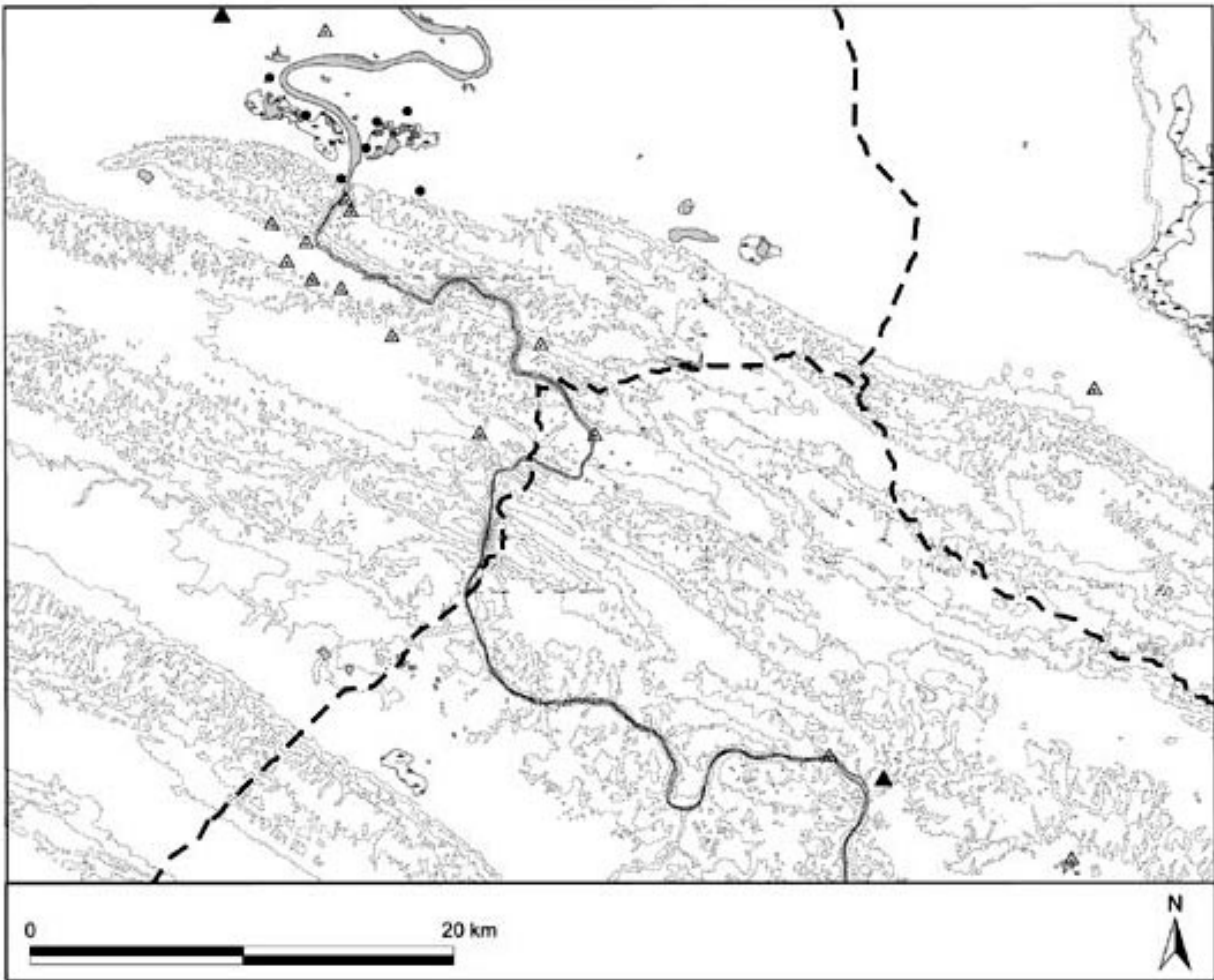
### *Estimating territorial extent*

With the above considerations in mind the task then, was to devise a way to estimate the extent of area that can be effectively covered by a given site. This in turn assisted me in the definition of the proposed boundary between Pomoná and Piedras Negras. In the definition of these areas I worked on the premise that the effort involved in moving across the natural terrain would determine the size of a territory controlled by a given centre.

A series of 1:50,000 INEGI maps containing the topography, hydrology and seasonal flooded lands of the region were digitised and a basic interpolation routine was performed to create the Digital Elevation Model (DEM) of this section of the Upper Usumacinta region. When considering the effort of moving over the natural terrain two types of frictions were considered: isotropic and anisotropic. Isotropic friction refers to the friction that is equal in all directions, while the latter considers frictions that have both direction and magnitude, e.g., walking up or down a slope. To account for the first form of frictions, digital maps for perennial and seasonal water bodies and the river network, which included the location of rapids and cascades, were digitised. Anisotropic friction was obtained by deriving the degree and direction of the slopes from the DEM. This resulted in a series of cost surfaces that reflect the effort of moving during the dry and rainy seasons, upstream and downstream, from each of the primary centres.

The cost surfaces were used to run a spatial allocation routine that estimated the areas that would be optimally covered from each primary centre, resulting in an initial territorial extent for these kingdoms. In these estimations I plotted Santa Elena as the possible centre of the "Wah-Bird Site", thus obtaining the eastern limit of Pomoná's territory. Next, the secondary sites of the region were plotted on this map in order to identify the primary centre on which they fell. Once again a cost surface was derived, and this time all of the sites (centres and subsidiary sites) were plotted, and the same spatial-allocation routine was run to obtain the area optimally covered by each individual site. Finally, the areas of each site were reclassified assigning it the identifier of the primary centre on which they had originally fallen, thus compiling in this way a final potential territorial extent, and in the process the possible boundaries between these kingdoms ([Figure 23](#)).





**Figure 23. Proposed boundary between Pomoná and Piedras Negras.**

*Defending the frontiers*

The map with the preliminary proposed boundary between Pomoná and Piedras Negras suggests that Pomoná may have been in control of all but one of the sites: Sto. Tomás I. Of all these sites, Panhale, due to its vantage position dominating the coastal plain and the last stretch of the Upper Usumacinta River may have been instrumental to Pomoná's territorial integrity.

The devastating attacks on Pomoná in 792 and 794 that resulted in the capturing of several important sahals imply the participation of a sizeable army of at least several hundred warriors coming from Piedras Negras and La Mar. The logistics required in mobilising an army this size involve not only securing supplies for the marching army,

but also a route that would conceal to certain extent the army's movements from military outposts, while providing relative ease of movement.

Hassig's work (1992) on Aztec warfare can help me illustrate this point. He estimated that the marching rate for the Aztec army unit varied between a low of 2.4 km per hour, to a high of 4 km per hour. These figures result in a day's march of 19 to 32 km. However, marching over mountainous terrain requires 20% more time (Hassig, 1992:66). The distance between Piedras Negras and Pomoná is 50 km in straight line. If we take into account the characteristics of the terrain, the marching rate would have been of about 2 km per hour. At this rate, a day's march would have covered around 16 km, thus it would have taken the Piedras Negras forces around three days to reach their objective following the easiest route.

Hassig's analysis also show that an army unit of 8,000 men marching in double columns would stretch between 12,000 and 6,000 meters. If the attack on Pomoná involved a combined force of about 2,000 men (at the very least) marching in double columns from Piedras Negras and La Mar, then the length of the column could have extended for about 2 km. An army this size would have been visible from Panhale or any of the other Pomoná's subsidiary centres located along the river or the mountain passes. A viewshed routine was ran on the DEM of the region, which yielded all the areas visible from Panhale in a 10 km radius ([Figure 24](#)).

Next, a route between Piedras Negras and Pomoná was obtained through a least-cost routine ([Figure 25](#)). Notice however, that in order to access the coastal plain en-route to Pomoná, the Piedras Negras forces must have crossed through the territory controlled by Panhale. Let us bear in mind however, that the hieroglyphic inscriptions record a successful Piedras Negras incursion. Thus in this context two courses of action are possible, the first one is, that Piedras Negras was able to subvert Pomoná's political structure by attaining the alliance of Panhale. The second one, that the combined forces of Piedras Negras and La Mar took alternative routes. If the latter was the case, the options are limited and we should be able to identify these.

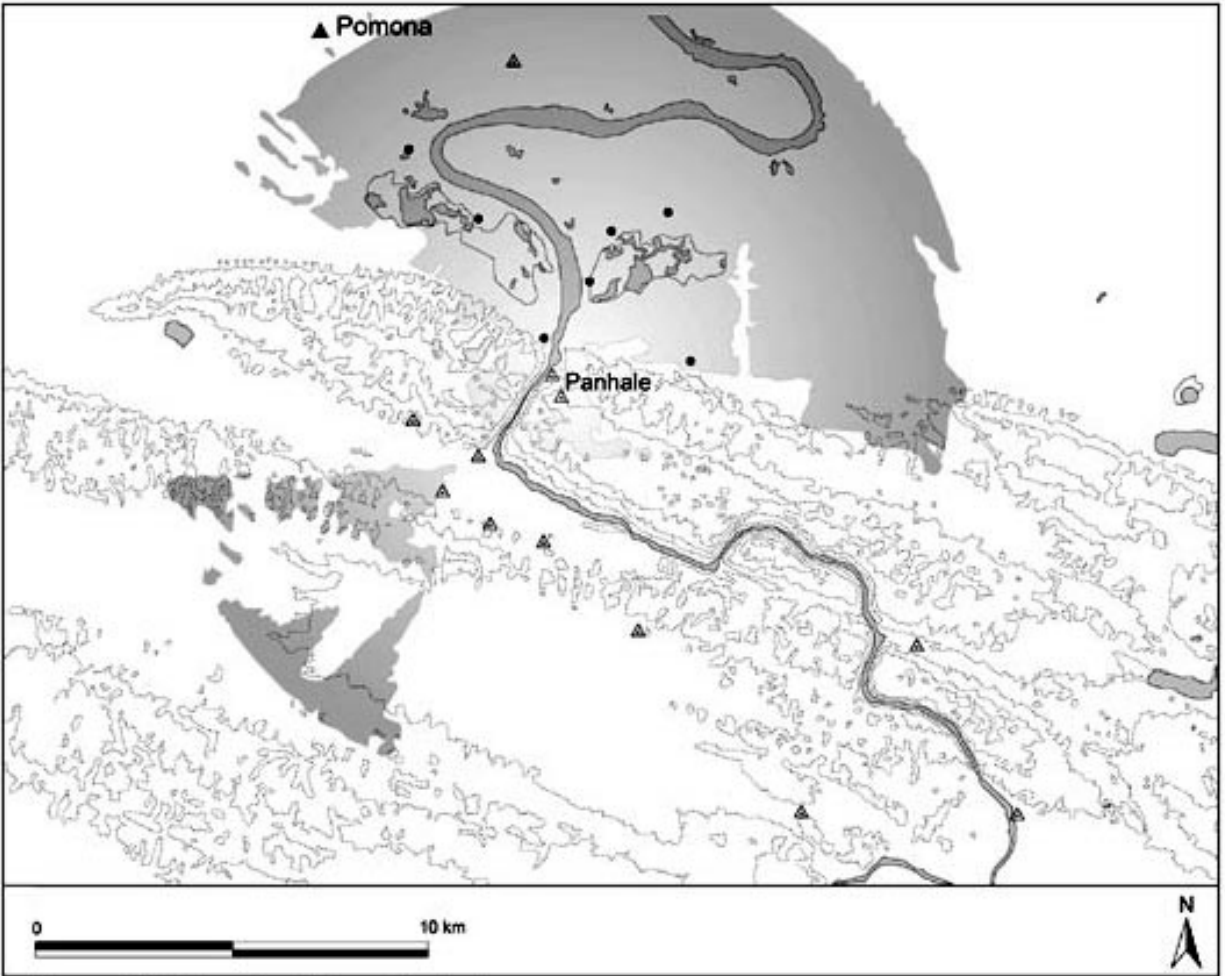
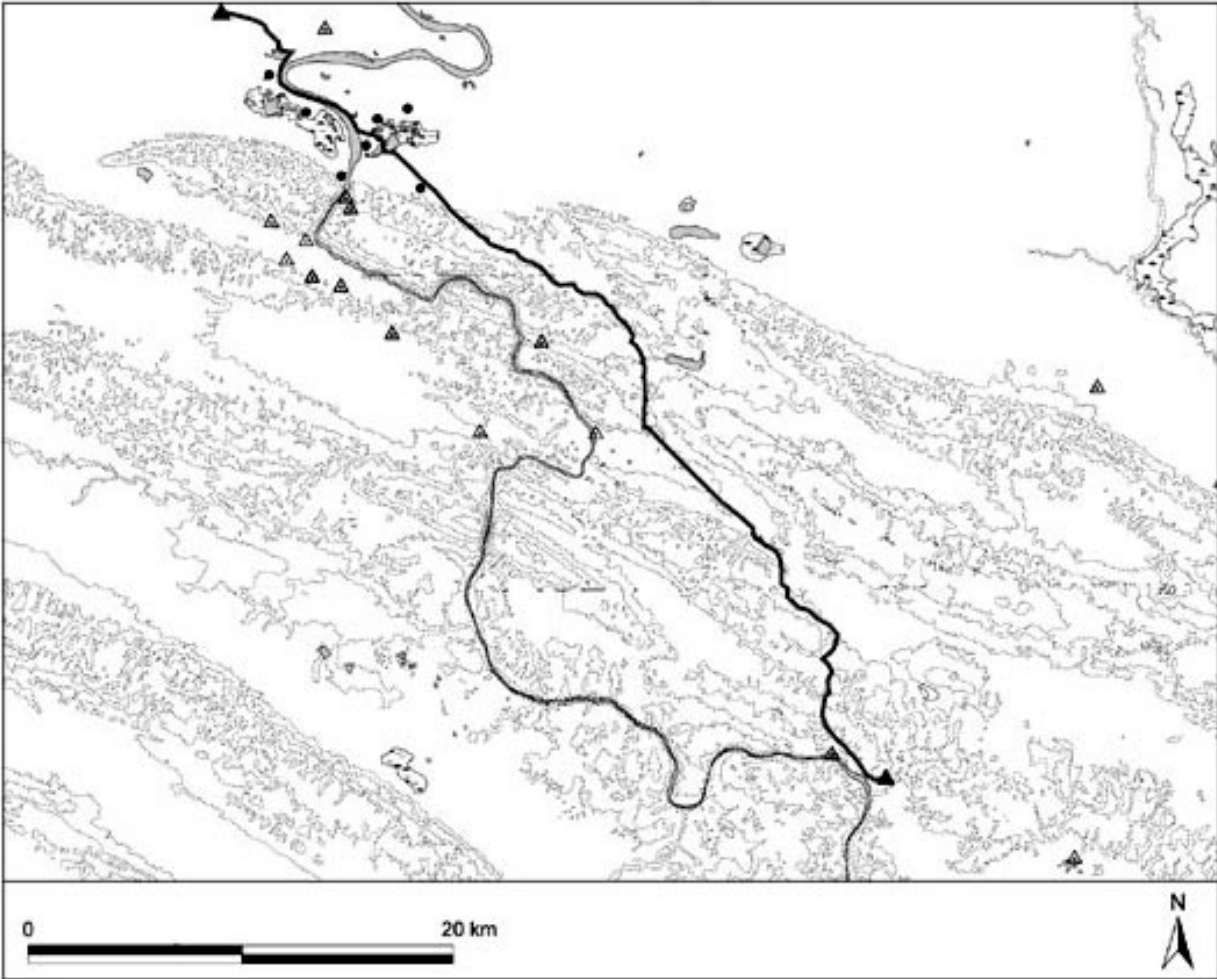


Figure 24. View shed from Panhale.



**Figure 25. Least-cost route between Piedras Negras and Pomoná.**

Towards the end of our 2001 field season, we received a report of the existence of a wooden box with hieroglyphic inscriptions located in a small community within the municipality of Tenosique ([Figure 26](#)). This community is located in a valley within the last limestone ridges of the Upper Usumacinta region; a fault in the ridges provides the only natural access to this valley. The box proved to be a remarkable find indeed, Peter Mathews and Stanley Guenter have deciphered the hieroglyphic text and the information that can be gleaned from it points towards a Piedras Negras affiliation of this valley. During our 2002 field season we will conduct an archaeological survey of this valley and the sites located along the last stretch of the Upper Usumacinta. We are convinced that this area holds the key to understand the dynamics of the interaction between Pomoná and Piedras Negras.



**Figure 26. The Chab' Ch'en box.**

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