Cave Investigations Surround the Ix Chel Archaeological Site in the Vaca Plateau, Belize, CA

A Report of the Minanhà Cave Project (MCP) Submitted to the Alphawood Foundation
by
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The goal of the Minanhà Cave Project (MCP) was to revisit cave sites in the Vaca Plateau surveyed by the Northern Vaca Plateau Geocarchaeological Project (NVPGAP) spearheaded by Philip Reeder. We aimed to assess their archaeological potential for future research and to collect charcoal samples for radiocarbon dating so that we could better refine the chronology of cave use in the area. Reeder, a geologist, was primarily interested in climate studies and was investigating cave sites for their potential in paleoclimate reconstruction using sediment testing and oxygen isotopes in speleothems. His team was multidisciplinary and Reeder brought in Pierre Robert Colas, an epigrapher and archaeologist from Vanderbuilt University and Ulrich Wölfel, a student from the University of Bohn, Germany, to conduct the archaeological arm of his project. The surface site of Ix Chel was discovered in 1993, and the archaeological team investigated looter’s pits in 2001 and mapped the site core in 2006.

Reeder reported finding over 150 caves (Brady et al. 1998) and ten years later Colas reports 200 in the area (Colas et al. 2008), but only seven were noted in reports as archaeological sites- Ch’en P’ix, Sak Chan, and Pottery Hill Cave (Colas et al. 2008), Metate Cave (Reeder and Blackwelder 2006; Figure 1), Macal Chasm and Cueva Miel (Reeder et al. 1998). Reeder and his colleagues noted that out of the 150 caves discovered by 1998, 80% were entered by vertical drops. Out of these, they did not say how many contained archaeological materials. Reeder mentions three caves, Macal Chasm (Figure 2), Ch’en P’ix (Figure 3), and Cueva Miel (Figure 4), but no specifics regarding the assemblages were offered. In a personal communication from Reeder (2/2013) he mentioned that the walk-in cave Big Mouth had archaeological potential.

Only one cave, Ch’en P’ix, was investigated archaeologically. Colas and his colleagues reported mapping and excavations in a site report (Colas et al. 2005) followed by an article in the journal Mexicon (Colas et al. 2008) and one in the Journal of Cave and Karst Studies (Colas et al. 2000). The cave map, created by caver Michael Futrell, illustrates the location of archaeological deposits but there are no accompanying area maps showing artifact distributions (See Figure 2). Colas also wrote a short piece about a vessel found in Pottery Hill cave in Wayeb (Colas et al 2003). Colas’ primary focus was on dating sites by ceramic analyses, but also wished to determine what kinds of rituals were being conducted. He argued that the iconography on painted vessels found at the sites described rituals that occurred in the caves.

A map was produced by the NVPGAP to show some cave locations (Figure 5), but none of the reported archaeological sites were included. They may have been omitted to discourage looting, which is prevalent in the area. GPS points were made available to us for the following sites but none were located for Sak Chan, Pottery Hill Cave, or Cueva Miel (Table 1)

The Minanhà Cave Project (MCP) aimed to visit all of the archaeological caves reported by Reeder. The team consisted of archaeologists Holley Moyes (PI) and Erin Ray, along with professional climbers Nancy Pistole and Matthew Oliphant, and local cave expert Gonzalo Pleitez, as well as the support team of Don Antonio and Javier Mai. Javier Mai had participated
in the NVPGAP and had visited a few of the caves previously, so his expertise was welcomed in helping to locate the sites. We chose to conduct the short project in the dry season due to the area’s remote location and poor road conditions. In fact, it is probably only practical to conduct field research in this area during the dry months. Our short 2013 season lasted from March 22-30 when we were able to drive to and from the location, camping for 3-4 days at a time.

Relocating caves, even those for which we had GPS points, proved more difficult than we anticipated and much of our time was spent on pedestrian survey. We were able to relocate Macal Chasm, Ch’en P’ix, Metate Cave, and Big Mouth Cave but were unable to locate Sak Chan, Pottery Hill Cave, or Cueva Miel. In our survey we discovered or rediscovered a number of other caves in the area containing archaeological materials- Hun Ol Cave, Tinamou, Tuyull, Actun Xchuu, and Actun Xaibe increasing the number of artifact bearing caves in the area by 70%. The following are our observations of each of the caves (See Table 2 for GPS points).

**Metate Cave:** This cave was located and mapped by the NVPGAP for the purpose of collecting soil samples. It was described by Reeder and Blackwelder in the following passage:

The small entrance leads to a steep, breakdown-covered slope that is approximately 10 meters long. This slope ends at a room that is approximately 8 meters by 8 meters in size with a 4-meter high ceiling. Along the northwest wall of this room a wall, constructed by the Maya, separates the room from the lower reaches of the cave. A constriction at the base of the wall leads to a flat-floored passage that diverges in two opposite directions. Both passages lead to lower level rooms that are 14 and 18 meters respectively, below the entrance. It appears that in the geologic past this cave was one large room that has now been divided into a series of downward sloping rooms and passages by breakdown and sediment deposition (2006:58). The MCP visited the site and observed all of the features described by Reeder but wish to add a few observations. First, the cave is more thoroughly constructed than Reeder and Blackwelder described. There is a second constructed wall on the north side of the large wall noted by the NVPGAP team. Also, there is a constructed platform at the base of the entrance slope that levels the floor (Figure 6). These constructions suggest that organized rituals were performed in the space, but that they were intended for a small audience. Additionally, there are very few artifacts found inside of the cave, though we did locate a few Late Classic Cayo Unslipped jar sherds and a few Late Classic bowl sherds. The lack of artifacts may be because the site was heavily looted. This would make sense because it is so easily accessed. Still, one would still expect to find more sherd scatters as looters are usually not interested in these artifacts. What is also curious is that the lower tunnels are convoluted and in total darkness. Because of the morphology and quality of light in the area, one would expect to find charcoal deposits from pine torches on the floors or along the walls. We searched for any possible evidence of torch use, but could find none. We did find a small number of sherds so we assume the lower tunnels were used by the ancient Maya, but the lack of charcoal flecks is a mystery.

**Macal Chasm:** This cave, reported by the (NVPGAP), was the site from which a speleothem was collected by James Webster for his paleoclimate study (Webster et al. 2007). The sinkhole entrance is located within the site core of Ix Chel positioned at the base of a hill. A 5km long sacbe runs along the hillside and a small structure is built into the hill above the cave. A set of terraces lead from the sacbe to the cave entrance, suggesting that this cave was used for large public ceremonies connecting it with the hillside structure. The cave was visited by the Nancy Pistole and Matt Oliphant. It is entered via a 53m vertical drop (Figure 7) to a large well-
decorated muddy chamber with a pile of debris below the entrance drop (Figure 8). Within the pile the cavers noted the presence of numerous disarticulated human remains including four human cranium and artifacts including ceramic sherds. These were covered in mud and clearly moved by water suggesting that the cave was infiltrated via runoff from the hill above. It is possible that the cave may fill with water during heavy rains. The cavers took photographs and collected a fragment of a jade axehead (celt) for curation, as well as two human femurs and two partial mandibles to be sent for radiocarbon dating and isotope analyses (Figure 9). Additionally, the cavers located a stack of broken speleothems near the cave wall that were clearly placed by humans (Figure 10).

**Ch’en P’ix (Cave of the Awakening):** The MCP had trouble relocating this site and it was found in the afternoon on the last day of our stay, therefore little could be undertaken other than to enter the cave, assess its condition in terms of looting and take photographs. According to Colas’ description the cave contained architectural constructions, large Late Classic jars, intact polychrome vessels, shoe-shaped vessels, lithic artifacts, shell, jade, turquoise jewelry and human remains. Pistole and Oliphant descended into the chamber and conducted a brief reconnaissance. They did not visit the lower levels but did visit the North and South Alcoves and Burial Chamber. In their opinion the site did not appear to be looted and many of the artifacts described by Colas were found. They did not find the “Ch’en P’ix tripod plate” described in Colas’ article of 2000, so it may have been collected, though that is unclear in the reports. They did find a similar vessel (Figure 11) that had been smashed and was pictured in the *Mexicon* article of 2008. They also noted the presence of skeletal material, numerous vessels, obsidian blades, and intact architectural platforms.

**Big Mouth Cave:** This site, discovered by the NVPGAP was fairly easy to locate due to its large 3.3m west-facing entrance (Figure 12). The cave is about 35m in length running N/S and 5m in width with a variable ceiling height of 2.3-5m. From the entrance there is a 20°-30° 25m descent to the bottom of the cave modified by 11 terraces with a retaining wall at the base of the slope. An informal sketch was drawn by Nancy Pistole (Figure 13). The terraces were constructed by filling in natural rock outcrops with small limestone boulders and cobbles (Figure 14). A platform was informally constructed into a niche in the west wall of the cave using limestone cobbles and a chert core was part of the infilling materials. A muddy floor covered the base of the cave and the back of the site was decorated with small stalactites covering the ceiling. Many of the speleothems in the cave were broken and a stalacto-stalagmitic column at the entrance was broken in half and offset (Figure 15). This may have been caused earthquake activity in the distant past or settling of the floor. There were potsherds scattered on the terraces, and there may be artifacts under the thick layer of mud at the base of the terraces. We found no charcoal at all at the site.

Thirteen sherds were collected from the cave all dating to the Late Classic period, Tepeu 2/3. These include three (3) Cayo Unslipped jars rims, one (1) Dolphin Head Red bowl, one (1) Garbutt Creek Red bowl, one (1) Mt. Maloney bowl and two (2) jars, and one (1) Benque Viejo Polychrome dish rim and base. Among the unknown Classic types are two large, thick unslipped tecomates, one with punctuations around the shoulder that likely date to Tepeu 3.

**Actun Hun OI (One Jar Cave):** This cave was discovered near Big Mouth Cave by the MCP. It is about a 40min. walk from the site core of Ix Chel. The cave located is in a rock outcrop and
entered via a small 1m x 1m opening surrounded by medium-sized limestone boulders, suggesting the entrance was constructed and may have been blocked at one time (Figure 16). One drops 2.5m into a single room measuring 6m E/W and 2m N/S. Because the cave is so shallow there is no real dark zone. A good deal of litter was piled at the base of the drop and the floor beneath the debris was covered with small to medium-sized boulders that were potentially an architectural feature. The site was heavily looted but we located two diagnostic sherds- a Late Classic jar and a ring base dish. A sketch map was made by Nancy Pistole (Figure 17).

**Actun Tinamou:** Don Antonio named the site Tinamou because we found the carcass of a Tinamou bird (a type of partridge) in the cave. Tinamou is a shallow cave located inside a rock overhang (Figure 18). The entrance is east-facing and measures 2.92m across and .96m in height. The cave’s single chamber measures 7.24m on its E/W axis and 5.25 N/S (Figure 19). It is dark in the rear of the chamber, but there is no real dark zone. It is very dry and the floor is covered with a powdery light gray sediment that is likely to be diagenic bat guano. There is a cobble scatter at the rear of the cave but it is unclear if this is natural. Six sherds were collected, all dating to late part of the Late Classic period Tepeu 2/3. They included the following types: Dolphin Head Red (1), Vaca Falls Red (2), Garbutt Creek Red (1), as well as a Chiquibul Scored Incised Censer (1), and one unknown eroded Classic Period ring base. A monochrome red incised solid slab tripod foot has shallow incised lines that mimic Early Classic cutouts on tripod slab feet, but this may be a later copy. No charcoal or areas of burning were encountered in the cave.

**Actun Tuyull (Termite Cave):** This is a shallow cave located in the same rock patch as Actun Tinamou. The triangular-shaped east-facing entrance measures 1.32m in width with a height of 1.15m (Figure 20). The cave’s single chamber measured 7.57m NE/SE, 4.8m in width with a ceiling height of 4.82m (See sketch map Figure 21). The cave floor was covered with light gray powdery sediment similar to that found at Tinamou. On the east wall is an upper level alcove whose entrance is 2.26m above the chamber floor. It measured 2.2m in length and 1.46m in width and a ceiling height of 3.47m and contained potsherds. The site had been recently looted as evidenced by the presence of a large looter’s hole and a digging stick. There was no charcoal in the looters pit or in the cave itself.

Ten sherds were collected from the cave. These span temporal periods from the Early Classic Tzakol, through Late Classic Tepeu 1 and late Late and Terminal Classic Tepeu 2-3. The inventory includes a Dos Arroyos Orange Polychrome bowl (1), a possible Santa Teresa Incised jar (1), and a Balanza Black jar body (1). There is one (1) Tepeu 1 Saxche Orange Polychrome bowl in four pieces (Figure 22a). One (1) Cayo Unslipped jar and four (4) Chiquibul Scored Incised censers (Figure 22b) date to Tepeu 2/3. The remaining sherds are unidentifiable to type but are likely Classic period.

**Actun Xaibe (Junction Cave):** Unlike the other sites the MCP encountered, this cave appears to be unlooted, though it had been entered as evidenced by a boot print in the muddy floor. The entry is a 1m x 1m opening that drops 10m into the cave below. The cave consists of two chambers and an upper level passage, and has an extensive dark zone. The well-decorated entrance chamber measures 30m x 8m and is oriented E/W (Figure 23). Formations on the south wall of the chamber have to be negotiated in order to enter the second chamber. A large Late Classic jar is positioned atop formations at the entrance to Chamber 2 (Figure 24). Calcite has
formed on the jar exterior from the dripping ceiling above giving it a striped appearance. A passage running west of Chamber 1 descends to a muddy pit at the bottom of the cave. A broken mano (grinding stone) was stuck into a niche on the wall of this passage.

An easy climb leads from Chamber 1 to an upper level passage that has no signs of human activity. The passage is 3m in width with a 15m ceiling height. It descends to a chamber that measures 6m in length, 3m in width and a ceiling height of 15m and then pinches out. The room has a level floor. It contains a shelf that was informally constructed using broken speleothems to fill in the natural rock. Two Late Classic jars, one of which is intact and the other smashed, sit atop the shelf (Figure 25). The cavers estimate that there are about 100 sherds overall in the cave including jar rims and an orange-red Late Classic dish. There almost no charcoal in the cave but a sample was collected from atop a stalagmite located along the Chamber 1 north wall for species identification and AMS dating.

**Actun Xchuu (Bromeliad Cave):** This looted site was named after the bromeliads growing around the entrance. What is most striking about this small cave is that there is a constructed platform adjacent to its entrance (Figure 26). Though not often, it is not without precedent to find constructed performance areas in front of caves. This fits a pattern that has been noted by the Belize Cave Research Project for sites in western and northern Belize such as Las Cuevas in the Chiquibul Forest Reserve, Ofrenda Cave near San Antonio village, and Rice Mill Cave #3 near Blue Creek.

The cave is entered via a hole, 2.3m at its widest point, that drops 3m into the cave. The cave consists of 2 chambers and a crawl space (Figure 27). Chamber 1, the entrance chamber, runs on a NE/SW axis and is 8.3m in length, 2.3m in width, with a ceiling height of 3.6m. A pile of litter lies at the base of the entry hole. The chamber descends on a 36° slope to a flat floor consisting of limestone cobbles and sediment. At the far end of the chamber the cave turns west and there is a constricted opening .4m in height that forces one to crawl into Chamber 2, a dark zone area. Chamber 2 is approximately 5m long and 5m at its widest point. The floor is covered by flowstone that flows downward from the end of the cave. There is natural shelf on the north wall edged with small limestone boulders. There are no artifacts on the shelf something may have been placed there and looted, or there may have been perishable material on it at one time. A hole in the wall in Chamber 2 lead to a 2m long crawl space that connects back to Chamber 1. We collected two sherds from the cave one Pucxe Brown from the Early Classic Tzakol Period, and the other, a Silver Creek Impressed, from the late part of the Late Classic Tepeu 2/3.

**Conclusions**

Data collected by the MCP contribute to our overall knowledge of the area surrounding the Ix Chel site in terms of the chronology of its settlement and ritual life. Our data also addresses the importance of small cave sites in understanding ritual behavior and ancient Maya society. The survey indicates that these small caves were often architecturally modified by enhancing natural features and still contain valuable information.

In terms of the area’s chronology, based on chronologies based on surface collections, archaeologists have concluded that the area was used solely in the Late Classic period (600-900A.D.). Yet ceramic assemblages from Actun Tinamou, Actun Tuyull, and Actun Xchuu all contain Early Classic period sherds (250-600AD). While one might dismiss these data as sherds that had been curated by the ancient Maya and deposited in caves, there is no evidence to suggest that this is part of ancient ritual practice, though it is certainly possible. It is also possible that
people made pilgrimages to the area to use caves, though with the exception of Macal Chasm, none of the caves has any of the markers of organized pilgrimage such as large entrances or monumental architecture surrounding the site. Actun Xchuu shows evidence of architecture surrounding the cave entrance but the small informal wall could not be considered “monumental.” Additionally, the caves that contained Early Classic materials were very small in size, limiting the number of participants in rituals-- so these would have to have been small pilgrimage groups. Alternatively, what we may be witnessing is an artifact of the investigations themselves. Early Classic ceramic material is some of the most difficult to recognize and none of the projects that have worked in this area have included a Maya ceramicist, so it is likely that evidence may have been overlooked. To find three caves in a single survey that have Early Classic material suggests that more will come to light.

In terms of cave studies, the sites in this area are somewhat unique because there are so many that are entered via vertical drops. In cases of long entrance drops not easily negotiated by climbing or using a rudimentary ladder, it is not unusual to find piles of artifacts that have been tossed into the cave piled up at the base of the cave (See Reeder et al. 1998 for discussion). This suggests to Reeder and his colleagues that the ancient Maya had limited technical caving abilities. However, caves like Ch’en P’ix that have a difficult entrances and long drops belie this model. Ch’en P’ix contained large well-placed jars, small chambers with human remains, and architectural modifications that demonstrate the abilities of the ancients to not only enter, but modify these types of sites. Also, the stacked speleothems found in Macal Chasm suggest that ancients entered this site, though it cannot be ruled out that some modern caver placed them in their current position. What it does suggest is that site formation processes have to be well-considered before concluding that caves were not entered in ancient times.

Another curiosity about this area’s caves is the lack of charcoal present in dark zone. While some of the sites are shallow and at least dimly lit, others have convoluted dark zone areas such as Metate Cave. Where are charcoal flecks from torches? Pine is the most common wood recovered from all archaeological sites not only because it burns well, but because of its ritual significance (Morehart et al. 2005). Pine torches are the light source of choice in most Maya caves as evidenced by charcoal flecks powdering surfaces and use-floors (Moyes 2007). Could the ancient users be using alternative fuel sources such as hardwoods? Could other woods burn differently or more cleanly? Is there a change in fuel source in the Late Classic period? Were the people in this area not able to obtain pine? The question of pine acquisition could be of interest in modeling trade patterns or investigating ecological changes in the Late Classic period.

Aside from light sources, why is there so little ritual burning in these caves? Burning is a common practice in all Maya ritual and almost every cave investigated by the authors shows evidence of it in the use of formal or informal hearths. Caves also typically contain potsherds that functioned as incensarios and some caves suffered from outright torching. The negative evidence found in our survey suggests that we may be seeing regional variation in ritual practices. This variation may have temporal implications or may suggest regional differences in ethnicity.

This project also makes a considerable contribution to questions of modeling ancient ritual cave use. Small sites are often ignored and archaeological attention is most often paid to the biggest caves with the largest assemblages and the most features. To add to this bias, small sites are often heavily looted and therefore considered to be useless for data recovery. Our survey demonstrates that these spaces were architecturally modified as demonstrated by the terraces and retaining wall at Big Mouth Cave, the walls and platforms at Metate Cave, and the shelves at
Actun Xchuu, Xaibe and others. Exterior modifications are also of importance. It is clear that cave entrances were ritual venues in ancient Maya religious practice and could provide the staging areas for more esoteric and private rituals occurring within the caves themselves. While there has been little speculation regarding these smaller sites, they are likely to have been used by lesser elites, community leaders, or ritual specialists for smaller local ceremonies conducted for those residing outside of the immediate site core. Future studies in the area might entail the mapping and analyses of these sites noting their distribution across the landscape and proximities to settlement groups.

MCP investigations also highlight the need to thoroughly record and inventory caves with extensive assemblages such as Ch’en P’ix and Actun Xaibe. Both of these sites are virtually unlooted and require point plotting of artifacts, recording of features, artifact inventories, and detailed ceramic analyses. Excavations at these sites should be undertaken, but in the case of sites discovered in relatively pristine condition, it is important to record spatial information before more destructive data collection ensues. In the case of Ch’en P’ix and Macal Chasm, skeletal material needs to be recorded and analyzed. To preserve this record, these caves should be attended to immediately. As more people move into this area we can expect increased looting and these sites are at high risk.

References Cited


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Figure 1. Map of Metate Cave illustrating ancient Maya wall (Courtesy of NVPGAP).
Figure 2. Map of Macal Chasm (Courtesy of the NVPGAP project).

Figure 3. Map of Ch’en P’ix (Courtesy of the NVPGAP).

Figure 4. Profile of Cueva Miel (Reeder et al. 1998).
Figure 5. Map of cave locations produced by the NVPGAP (Courtesy of the NVPGAP).

Figure 6. Nancy Pistole pictured next to constructions in Metate Cave: a) Wall #1 construction noted by NVPGAP; b) Wall #2 construction, c) platform construction (Photos by Matt Oliphant).

Figure 7. Drop into Macal Chasm (Photo of Nancy Pistole by Matt Oliphant).
Figure 8. Nancy Pistole views mud deposit containing jumbled artifacts and human remains at the base of the drop in Macal Chasm (Photo by Matt Oliphant).

Figure 9. In situ photo of material collected from Macal Chasm: a) jade celt; b) femur #1; c) femur #2; d) partial mandible (Photos by Matt Oliphant).

Figure 10. Speleothem stack at the base of Macal Chasm (Photo by Matt Oliphant).
Figure 11. In situ photograph of polychrome vessel featured in *Mexicon* article (Colas et al. 2008). Note obsidian blade in jar sherd to right of vessel. (Photo by Matt Oliphant).

Figure 12. Entrance to Big Mouth Cave (Photo by Holley Moyes).

Figure 13. Sketches drawn by Nancy Pistole: a) plan view map of Big Mouth cave entrance slope; b) cave in profile.
Figure 14. Terraces are constructed by infilling natural rock outcrops with cobbles and small limestone boulders (Photo by Matt Oliphant).

Figure 15. Nancy Pistole looks through broken offset column in entrance of Big Mouth Cave

Figure 16. Possible blocked entrance to Actun Hun Ol (Photo by Matt Oliphant).
Figure 17. Sketch map of Actun Hun Ol drawn by Nancy Pistole.

Figure 18. Entrance to Actun Tinamou (Photo by Matt Oliphant).

Figure 19. Sketch map of Tinamou Cave showing profile at top and plan view at bottom (drawn by Nancy Pistole).
Figure 20. Entrance to Actun Tuyull (Photo by Matt Oliphant).

Figure 21. Sketch map of Actun Tuyull drawn by Nancy Pistole.

Figure 22. Sherds collected from Actun Tuyull: a) Saxche Orange Polychrome bowl; b) Chiquibul Scored Incised censers.
Figure 23. Sketch maps of Actun Xaibe by Nancy Pistole: a) plan view; b) profile.

Figure 24. Nancy Pistole views a large Late Classic jar positioned atop formations at the entrance to Chamber 2 in Actun Xaibe (Photo by Matt Oliphant).

Figure 25. Two Late Classic jars sit atop a constructed shelf in Actun Xaibe (Photo by Matt Oliphant).
Figure 26. Entrance to Actun Xchuu. Note the constructed platform at the top of the photo (Photo by Matt Oliphant).

Figure 27. Gonzalo Pleitez pictured inside of entrance to Actun Xchuu. Moyes and Ray look into the cave (Photo by Matt Oliphant).
Figure 28. Sketch map of Actun Xchuu drawn by Nancy Pistole.

Figure 29. Nancy Pistole pictured next to shelf lined with small boulders in Chamber 2, Actun Xchuu (Photo by Matt Oliphant).