Plants of the Underworld: Ritual Plant Use in Ancient Maya Cave Ceremonies

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Sites: Actun Nak Beh, Barton Creek, Actun Chapat and Actun Chechem Ha

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Introduction

For the ancient Maya, caves were sacred areas of the natural landscape. Caves were perceived as points of access to the underworld (Awe 1998; Bassie-Sweet 1991; Brady 1989; Brady and Stone 1986; Pohl 1983). Post-Conquest sources, such as the Popol Vuh, refer to the underworld as Xibalba (Tedlock 1985). Xibalba was the home of many powerful gods in the Maya pantheon. Thus, caves were an apt stage for ceremonial activities that were heavily laden with cosmological import. Researchers have proposed a number of interpretations for the kinds of rituals that were conducted in caves. The majority of these ideas focus either on fertility rites, emphasizing the relationship between the underworld and deities associated with rain and agriculture (Awe 1998; Brady 1988, 1989), or on political rituals, examining the role of caves in the transference and negotiation of social, economic, and political power (Brady and Ashmore 1999; Halperin 2001; Halperin et al. 2001; Helmke 1998; Pohl 1983).

Most theories of Maya cave utilization have been based predominantly on observations of durable artifactual assemblages to the virtual exclusion of botanical remains (Brady 1989; Gibbs 1997; Halperin 2000; Helmke 1998; Helmke and Awe 1998; Ishihara 2000; Pohl 1983; Stone 1995). In addition, there have been few investigations of ancient ritual practices at surface sites using archaeobotanical databases (see, for exception, Guderjan 2000; McNeil 2000). In response to the paucity of studies of plant remains recovered from ritual contexts, this paper presents some preliminary results and interpretations of paleoethnobotanical research undertaken in four caves located in western Belize: Actun Nak Beh, in the Roaring Creek River Valley, Barton Creek Cave, in the Barton Creek River Valley, and Actun Chapat and Actun Chechem Ha, in the Macal River Valley (Figure 1) (see Morehart 2001; Morehart in prep.). I argue that the degree of proximity of the cave sites to ceremonial centers resulted in differential patterns in the archaeobotanical record that reflect distinct ritual activities. Unlike other paleoethnobotanical studies, that have examined only the economic potential of archaeobotanical remains, the present work emphasizes the symbolic nature of plant utilization. Ethnographic data justify this perspective. Among the contemporary Maya plants and foodstuffs used in rituals, many are selected due to specific symbolic elements that are associated with them (Flores and Balam 1997; Kintz 1990; Redfield and Villa Rojas 1934:128-147; Roys 1931; Steinberg 1999; Vogt 1976:89-90). Thus, each has its place not simply due to its economic utility, but, rather, due to its cosmological and mythological salience and history.

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Paleoethnobotanical Investigations

Archaeobotanical sampling yielded a number of well preserved food remains including domesticated crops and the fruits of economically useful trees. Numerous species of wood charcoal were recovered as well.

Actun Nak Beh was the only cave that yielded carbonized remains of edible tree fruits. The pits of nancé (Byrsonima crassifolia) (Figure 2) and the endocarps of the cohune palm (Attalea cohune) (Figure 3) were retrieved from a Late Classic burial located at the cave’s entrance.
Figure 2. Nancé (*Byrsonima crassifolia*) pit from Actun Nak Beh.
Archaeobotanical specimens from domesticated cultigens were found at Actun Chapat, Actun Chechem Ha, and Barton Creek Cave. Evidence of domesticated crops from Actun Chapat consist of maize fragments (Zea mays) (Figure 4), beans (Phaseolus sp.),
and squash rinds (Cucurbita sp.). Maize cobs and kernel fragments were retrieved from Actun Che chem Ha as well (Figure 5). Also at Chechem Ha, microfloral analysis conducted on soil from complete vessels and residues from ceramic sherds yielded maize starch grains (Figure 6). The best-preserved domesticated food remains were found at Barton Creek Cave. Maize and beans were found in hearth features and burials distributed throughout the cave. A single, large hearth feature at Barton Creek Cave yielded an amazing assemblage of domesticates, including squash rinds and the seeds of two species of squash, Cucurbita moschata and Cucurbita pepo (Figure 7). The assemblage also included 41 chile pepper (Capsicum annum) seeds (Figure 8) and the fruit bases (calyxes) of chile peppers and maize remains (Figure 9). The maize remains consist of complete and fragmented cobs and kernels. Some cobs have the husks still intact, while others are small, underdeveloped basal cobs. Also, maize stem fragments were found in abundance (Figure 10). The numerous maize stems, in conjunction with the entirely unprocessed ears and basal cobs, suggest that entire maize plants were deposited. The same observation can be made of the squash and chile peppers because the seeds of each were found in association with fragments of their fruits. A carbonized textile fragment was recovered from the same feature (Figure 11). The cloth is composed of Z-spun, S-plied warp and weft elements, woven into a 2 X 2 twill pattern (Figure 12). Electron microscopy revealed that cotton fibers were used to manufacture the textile.

Finally, many wood charcoal remains were identified in the archaeobotanical assemblage. The most ubiquitous charcoal recovered was pine (Pinus sp.) (Figure 13). All caves yielded pine remains, although the distribution of pine varied among the cave sites. A wide variety of hardwoods were identified also, including avocado (Persea sp.), habín (Piscidia sp.), copal (Protium sp.), and cacao (Theobroma sp.).
Figure 5. Maize (*Zea mays*) cobs from Actun Chechem Ha.
Figure 6. Maize (Zea mays) starch grains from Actun Chechem Ha.

Figure 7. Squash seed (Cucurbita pepo) from Barton Creek Cave.
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Figure 12. Close-up of textile fragment from Barton Creek Cave.
Discussion

Domesticated crops were yielded only from the dark interiors of caves in the rural countryside. I suggest that these sites were the loci for rites conducted to appease gods associated with agricultural fecundity. Among many contemporary Maya groups, maize is believed to have had a subterranean origin (Thompson 1970:348-354), and iconography from the Classic period often depict the maize god emerging from a fissure in the earth’s surface (Figure 14). The Tzotzil of Chiapas, México, make pilgrimages to the caves and mountains surrounding Zacualpan during maize field ceremonies in order to communicate with the Earth Lord who resides there (Vogt 1969:457).
Examination of the archaeobotanical specimens themselves also supports the interpretation that the agricultural rites were conducted at the rural cave sites. With the exception of the maize starch grains from Actun Chechem Ha, that are probably the remnants of an ancient maize-based ceremonial beverage, there appears to be a clear preference for offerings of unprocessed, domesticated crops in the rural areas. This observation is especially salient with the Barton Creek maize in which maize stalks and cobs with intact husks were recovered (Figure 15). Other caves in the Maya

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1 The types of ceramic vessels that yielded maize starch grains can largely be classified as utilitarian wares. Thus, if the vessels had previously been used in a domestic sphere then the recovery of maize starch may actually reflect their prior use as utilitarian tools.
lowlands where corncobs have been recovered include Cueva de las Pinturas (Brady et al. 1997) and Naj Tunich (Brady 1989; Brady and Stone 1986) in Petén, Guatemala, and Gordon’s Cave #3, located near Copán, Honduras (Brady 1995).

Most ethnographic accounts of the ritual use of unprocessed maize are associated with agricultural rituals. For instance, Quiché priest-shamans of Momostenango, Guatemala, collect armloads of corn stalks, and arrange them around shrines to ask deities for agricultural productivity (Tedlock 1982:80). The Yucatec Maya of Chan Kom use unprocessed maize during first fruit ceremonies, known as hol-che (Redfield and Villa Rojas 1934). Finally, the Tzotzil Maya hang unhusked maize ears from wooden crosses to protect the stored, harvested maize (Vogt 1976:56).

![Unhusked maize cob from Barton Creek Cave.](image)

In contrast to the rural cave sites where ceremonies associated with agricultural products were common, qualitatively different ritual practices are evident at Actun Nak Beh. A causeway connects the entrance of Actun Nak Beh to the medium-sized, ceremonial center Cahal Witz Na’ (Figure 16). The direct association of the cave with the surface site suggests that the ideological potency of caves was crucial to the
legitimation and maintenance of political authority for the rulers of Cahal Witz Na’ (Halperin 2001; Halperin et al. 2001). The only food items recovered from Actun Nak Beh consist of nancé and cohune fruits from a burial in the cave’s entrance. Among the post-Conquest Maya, elites maintained orchards of economically useful trees that were an inheritable source of both wealth and prestige (Tozzer 1941). If this ethnohistoric analogy is applicable to Actun Nak Beh’s archaeobotanical assemblage, then it appears that socially and ideologically dominant groups at Cahal Witz Na’ utilized the open space of the cave’s entrance for more public rituals that involved material displays of wealth in order to secure their right to rule. By public, I simply mean a social realm where collective social opinions can be formed (see Habermas 1991).

Figure 16. Plan sketch of Cahal Witz Na’ (adapted from Awe et al. 1998).
A Classic period example of this practice is found in Pakal’s tomb at Palenque (Figure 17), where Pakal’s ancestors are depicted with economically useful fruit trees (Robertson 1983:68, figs. 181-186). Pakal’s father, Kan Bahlum Mo’, is associated with a nancé tree. According to Patricia McNally (1995:75), the association between Pakal’s ancestors and orchard species metaphorically links these trees to inheritable sources of social, political, and economic power. Archaeobotanical data from other Maya sites can be viewed in a similar manner. For example, at Cerros, located in northern Belize, the percentage of nancé and coyol palm recovered from the site’s center grew dramatically as Cerros became more socio-politically complex (Cliff and Crane 1989).

Figure 17. Kan Bahlum Mo’ with nancé tree (adapted from Robertson 1983)
A parallel contrast between the more urban area of Actun Nak Beh and the rural loci of the other cave sites is observable in the charcoal assemblages. Pine charcoal was the most ubiquitous wood charcoal recovered. In general, pine is commonly found in abundance at archaeological sites in the Maya region. Pine is an excellent source of fuel, and, at some sites, extensive forest clearing for pine fuelwood may have severely degraded the environment (Abrams and Rue 1988; Abrams et al. 1996). The species of pine that is represented in the archaeobotanical assemblages is likely *Pinus oocarpa*, which grows north of the Belize Valley in the Mountain Pine Ridge (Figure 18). David Lentz (2001, personal communications) has suggested that pinewood was probably a centrally controlled trade good during Classic period Maya society. The archaeobotanical data from the cave sites conform to Lentz’s hypothesis. At Actun Nak Beh, pine was by far the dominant wood charcoal both temporally and spatially (Figure 19). At the more rural cave sites, such as Actun Chapat, hardwoods greatly outweigh pine2 (Figure 20). This pattern indicates that the users of Actun Nak Beh had more access to pine resources than the users of the caves in the surrounding countryside.

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2 The distribution of hardwoods and pine at Actun Nak Beh is based upon the percentage of deposits containing each wood type, also called ubiquity. At Actun Chapat, the distribution is based on the weights of each wood type. The separate methods were undertaken because of differential preservation between the two sites. Ubiquity was used at Nak Beh because poor preservation affected the weights of woods more than their appearance in separate deposits. At Actun Chapat, preservation was good, and ubiquity analysis inflated the importance of certain woods, such as pine. Because wood charcoal weight was not as severely affected at Chapat, weights were used to evaluate the relative importance of pine and hardwoods.
The recovery of pine charcoal from ceremonial contexts is not surprising. The ritual use of pine has been observed among many contemporary Maya groups (Thompson 1970:182). Religious practitioners commonly stand on a carpet of pine needles during ceremonies (Breedlove and Laughlin 1993; Vogt 1969, 1976), and offerings of pine branches are placed in front of crosses erected in caves (Thompson 1970:268). Pine rosin is also utilized for incense, a practice of the Lacandón of Chiapas, México (McGee 1990).

Figure 19. Distribution of pine and hardwood charcoal at Actun Nak Beh.
Ethnographic analogies from the Maya highlands reveal a relationship between the prehistoric ceremonial burning of pine and the modern use of candles. Among the Tzotzil, the general term for pine is *toj* (Breedlove and Laughlin 1993, 2000), which corresponds to the Tzeltal name, *tah* (Berlin et al. 1974). During Tzotzil ritual speech, candles and pine torches are referred to as semantically parallel sets of things (Breedlove and Laughlin 2000:183; Vogt 1976). The similarity between pine and candles is likely because pine torches are an ancient analogue to the modern day use of candles, a position also proposed by Evon Vogt (1976:105). Indeed, the Classic Maya phonetic sign for *ta* is a bundle of pine faggots (Stuart 1987) (Figure 21). Candles are an integral component of the ritual assemblages among many modern Maya groups. For the Tzotzil, they are tortillas for the gods (Vogt 1976). If this analogy is correct, then the ancient burning of pine can be interpreted as food offerings—a feasible proposition given the many other food remains recovered from the cave sites.
Conclusion

In conclusion, the study of archaeobotanical remains from ceremonial contexts offers researchers an unexplored perspective to understand the ritual lives of the ancient Maya. An explanatory framework that emphasizes the symbolic nature of plant utilization adds substantially more depth to the interpretative process than is possible if one relies solely on the economic potential of botanical resources. This approach is strengthened by the combined application of archaeological, iconographic, epigraphic, ethnographic, and ethnohistoric data to the archaeobotanical assemblages. In addition, a regional analysis of paleoethnobotanical remains provides an opportunity to explore differential ritual practices and plant use strategies that reflect broader social, economic, and political conditions.

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