

# Classic period wood use at monumental centers in northwestern Mesoamerica

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**Summary:** For over 50 years, researchers have suggested that increased regional rainfall allowed for the colonization of the highland deserts of the northwestern frontier zone of Mesoamerica by farmers during the Classic period (200-900 AD). Drought is hypothesized to have later provoked abandonment of the region by 900 AD. However, very little research has been carried out in the zone to detect evidence of this proposed climate change. I present preliminary results from the first comparative study of wood charcoal from the northwestern frontier, focusing on three Classic sites that span the region’s north-south gradient of intensifying aridity. The results indicate that the strongest evidence of environmental degradation is found in the south (where average annual rainfall is the highest), while the sites located farther north demonstrate more stable use of wood resources.

**Key words:** Mesoamerica, anthracology, wood charcoal, resource management, human impact.

## INTRODUCTION

Scholars have proposed that increased precipitation and subsequent drought were key factors in the development and collapse of agricultural societies in the northwestern frontier of Mesoamerica (Palerm and Wolf, 1957; Armillas, 1964). The frontier zone was occupied during the Classic period (200-900 AD), with the peak of growth from 600-800 AD. After a regional collapse by 900 AD, the area did not see large-scale agricultural settlements again until after the Spanish Conquest in the early 1500’s. However, the few paleoenvironmental studies carried out in the region do not provide evidence of Late Classic drought (Brown, 1992; Frederick, 1995; Trombold and Israde-Alcantara, 2005; Elliott *et al.*, 2010).



■ Extent of Mesoamerica between AD 200 - 900  
 ■ Extent of Mesoamerica at AD 1519  
 ● archaeological site

FIGURE 1. Map of the northern frontier zone of Mesoamerica with the locations of archaeological sites discussed.

Questions that remain unanswered are 1) did the environment of the frontier zone change through time? 2) How spatially homogenous were these changes? and 3) does the occurrence and the pace of environmental

change correlate with cultural changes in the Classic period settlements?

## BACKGROUND AND ENVIRONMENT

The southern boundary of the northwestern frontier zone follows the course of the Río Lerma-Santiago (Fig. 1). Annual precipitation averages 700-800 mm along the southern margin of the region, characterized by grassland and forested patches (Armillas, 1964: 63). As one moves northwest toward the Sierra Madre Occidental, rainfall decreases to 450 mm annually, and the landscape transitions to semi-arid steppe and desert.

## DATA AND RESULTS

Samples were collected and analyzed from three Classic period monumental centers: Cerro Barajas, El Cópore, and La Quemada.

Cerro Barajas is a volcanic massif characterized by more than 20 prehispanic settlements (Pereira *et al.*, 2005). El Cópore consists of several complexes of domestic and ceremonial architecture located both on the valley floor and in hilltop positions (Torreblanca Padilla, 2007). La Quemada is a 50 ha site located atop a small mountain and consists of more than 50 artificial terraces (Nelson, 1997). Radiocarbon dating at all three sites shows the peak of settlement at 600-900 AD. All were abandoned by 900 AD.

Sediment samples were collected systematically from every excavation level of three stratified midden deposits (La Quemada) or stratified trash deposits used as fill in monumental architecture (Cerro Barajas and El Cópore). Samples at La Quemada and El Cópore were floated using a combination of manual and machine assisted techniques. Samples at Cerro Barajas were floated manually.

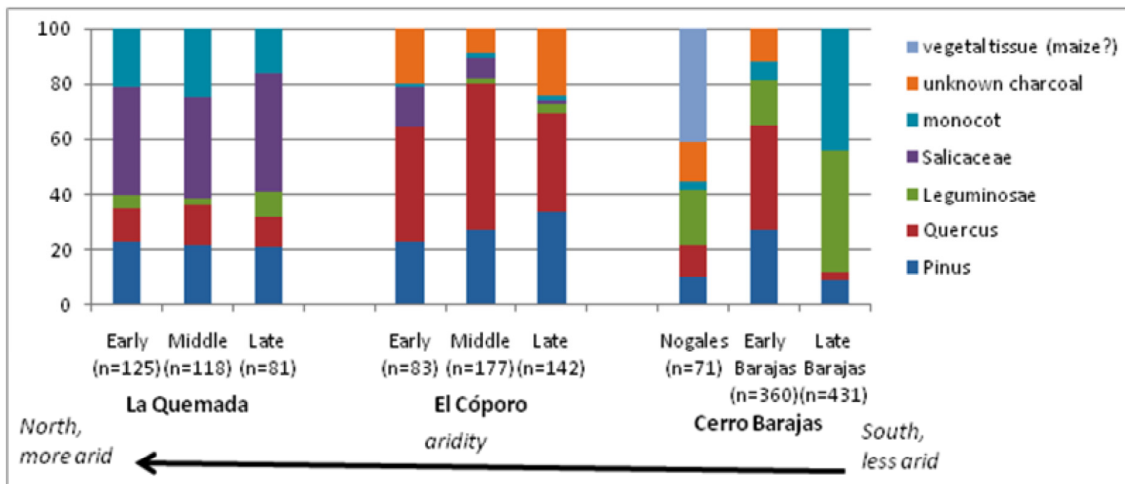


FIGURE 2. Results of charcoal analysis from the three Classic period monumental centers.

891 pieces of wood from 11 flotation samples were analyzed from the site of Los Nogales at Cerro Barajas. Fabaceae wood is present in all samples while pine and oak are both present in eight of the 11 samples. By counts, pine-oak and secondary forest zones are present in the assemblage almost equally (34% pine-oak, 30% Fabaceae). 520 pieces of wood from eight flotation samples were analyzed from the Gotas Complex at El Cópore. Pine and oak are present in all samples, while legumes are present in only two (Fig. 2). Pine-oak forest also dominates the assemblage in counts (74%). 381 pieces of wood from 50 flotation samples were analyzed from three middens at La Quemada. The results indicate that the inhabitants of the site had access to pine-oak forest, a riparian zone, and open areas that appear to have included agricultural fields (Fig. 2).

## CONCLUSIONS

The landscapes of all three archaeological zones have changed significantly since the Late Classic period, namely by the disappearance of pine-oak forest and the expansion of xeric plant communities. These changes are not uniform through time or space. While we see stability through time in La Quemada's assemblage, El Cópore's hints at some depletion of pine-oak forest during the late phase, and deforestation is overwhelmingly clear for the Late phase at Cerro Barajas, the period of the most intense demographic growth. Further research is necessary to understand the negative correlation of deforestation with the degree of local aridity.

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