



# The Use of Pine by the Ancient Maya of Tikal

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## Abstract

Previous research on the ancient Maya has suggested that Pine (*Pinus* spp.) was traded as a commodity for utilitarian and ceremonial purposes (Lentz et al. 2003; Morehart et al. 2003). The objective of this project was to expand our understanding of Maya pine use by examining wood remains recovered during archaeological excavations at the site of Tikal, Guatemala. Areas examined for pine occurrence include caches, burials, and monuments to examine ritual use of pine; lintels, beams, structural collapse, and burned floors to examine pine's use as construction material; and hearths to examine pine's use as a fuel source. One hundred-ninety samples were examined. Only fourteen samples contained pine, while one hundred-fifty contained angiosperm wood (hardwood). The sparse evidence of pine use at Tikal undoubtedly reflects the lack of pine in the region, which today is vegetated with tropical semi-deciduous forest. Because pine is not found in tropical forest, the pine remains that were identified in the archaeobotanical samples likely were obtained from outside the immediate vicinity of Tikal, possibly via trade. Although we find pine in a wide range of contexts at Tikal, the use of tropical forest hardwoods at the site is far more common.



## Introduction

This summer I had the opportunity to analyze plant remains from one of the most important sites of the ancient Maya civilization, Tikal (Martin and Grube 2000). It is located in northern Guatemala, about 50 miles northwest of its border with Belize. Originating in the Yucatan around 2600 B.C., the Maya rose to prominence around A.D. 250 in present-day southern Mexico, Guatemala and northern Belize and western Honduras. The Maya culture is fascinating and is probably the best known of the classical civilizations of Mesoamerica. The principle of this project is to expand the understanding of plant usage by the occupants of Tikal, the leading polity of the Maya civilization. Scholars have found archaeological pine in sites of the lowland Maya in places where pine would not normally grow for these areas are covered by tropical deciduous forest, just as they are in present day Tikal. Also, ethnographic evidence shows that the modern Maya transport pine charcoal from the highlands and take it into low areas where the product is sold. Based on this evidence, we are looking for pine being used at ceremonial practices and being traded as a commodity.

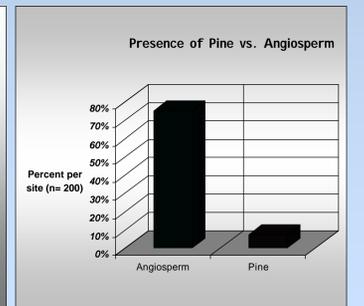
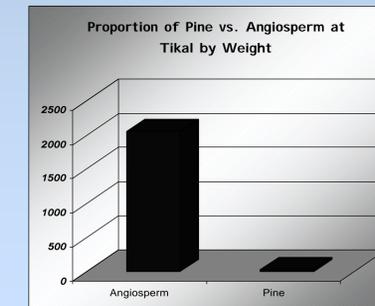
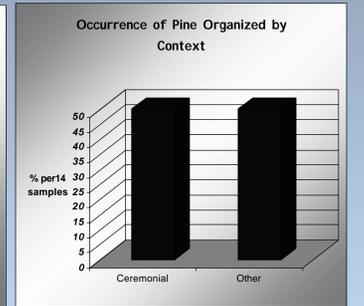
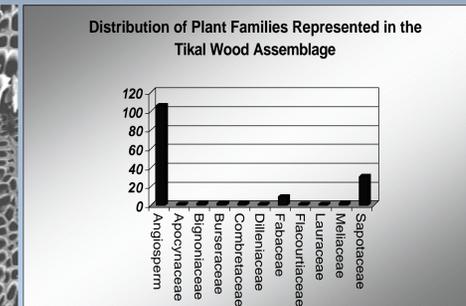
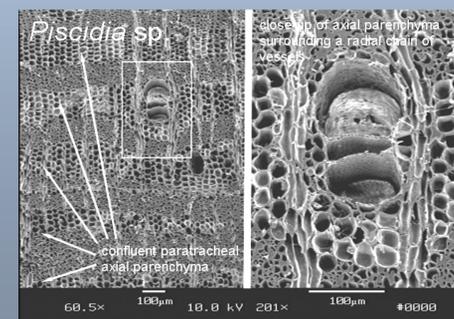
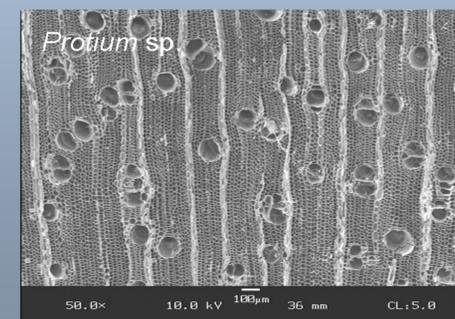
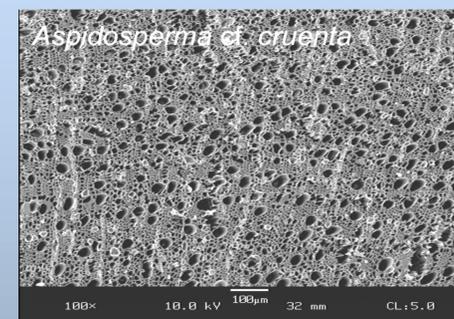
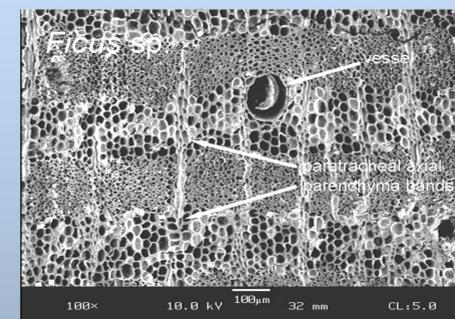
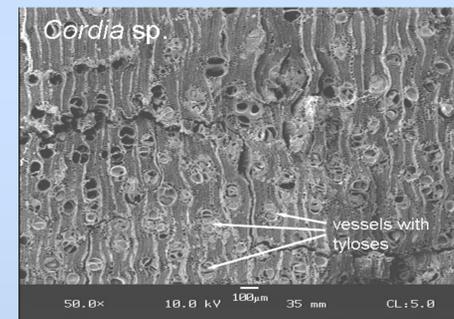
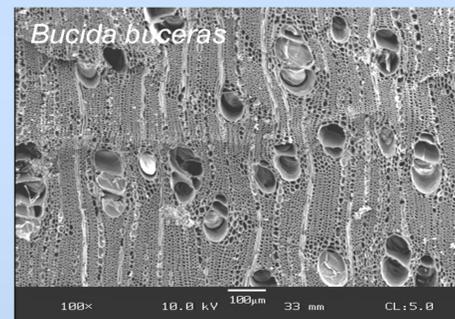
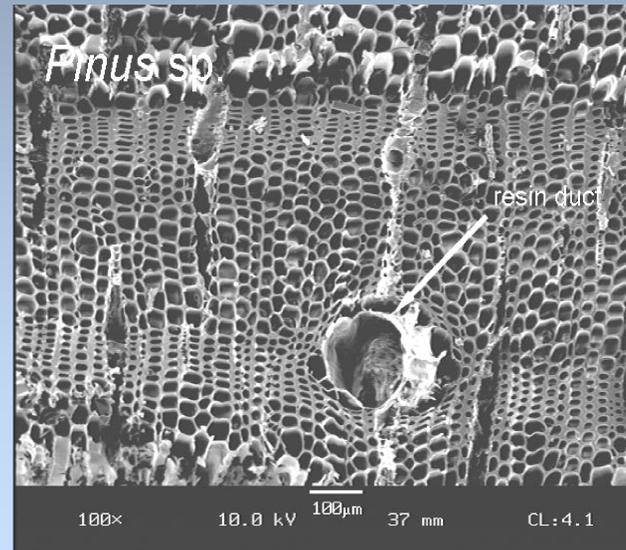
## Materials and Methods

- Samples were organized based on their contextual information, including site location and function (i.e., domestic, ritual, midden, etc.)
- Samples were rough sorted into taxonomically related groups using a Leica S6D stereomicroscope.
- Wood charcoal was separated as either Angiosperm (hardwood) or Gymnosperm (pine). Pinewood lacks vessels, has a uniform distribution of tracheids, and has resin ducts. Angiosperm wood anatomy is more complex and consists of vessels, ray cells, fibers and axial parenchyma.
- In preparation for scanning electron microscope examination, wood charcoal specimens were fractured for a fresh break to expose essential anatomical characteristics in a transverse section.
- A scanning electron microscope (SEM), Amray 1810, was used to facilitate identification of plant remains and to illustrate specimens.
- Data forms were recorded for each sample processed. Each sample was assigned a five digit unique number. Every taxonomically distinct group within a sample was numbered sequentially and appended to the unique number (e.g., 10081-001, 10081-002, etc.). Specimens were described and drawn.
- The data was stored in an Excel spreadsheet and reorganized to facilitate quantitative data summaries.

## Results

- Out of 190 samples, 14 (7.37%) contained pine, while 150 (78.95%) contained Angiosperm wood.
- The sum weight of pine is 31.07 g (1.50%), while the sum weight for angiosperm is 2047.84 (98.51%).
- Pine was found equally in ritual and non-ritual contexts: four burials, three caches, one midden, and six contexts of unknown function.
- The angiosperm wood examined reflected great species diversity; 106 samples are angiosperm, there is a dominance of Sapotaceae (30 samples) and Fabaceae (nine samples), while other Families consist of only one or two representatives (see graph below, wood distribution by Family).

## Scanning Electron Images



## Conclusion

Paleoethnobotany is significant to the study of Tikal because it examines human-plant interrelationships (Hastorf 1999; Pearsall 2000). The main focus of this research was to find pine (*Pinus* sp.) in contexts that would contribute to the understanding of its use by the Maya. Based on our results we are able to conclude that pine was used in ceremonial practices, as it was found in burials and caches, and for utilitarian purposes, as it was found in midden samples. The use of hardwoods was far more common, however. The current deciduous forest of Tikal lacks pine as well as the ecological conditions required for pine growth. This modern comparison enriches our interpretation of wood utilization at Tikal. Hardwoods are more common in the archaeobotanical assemblage because hardwoods were locally available. Pine is less common because it was not locally available and must have been obtained from outside areas, likely via trade. As a trade good, pine may have been more valuable to the Maya than other woods. The recovery of pine in ceremonial contexts reinforces this suggestion.

## Acknowledgments

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## References

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