

False Rings in Juniper Charcoal Samples
Zoe Workstel
Professor Paula Turkon

This poster presents the methodological obstacles and preliminary findings encountered in the dendrochronological analysis of nine juniper wood columns excavated from the prehispanic site of El Coporo in northwestern Mexico. In places and times from which calendar dates are not available, the method of dendrochronology can be used to provide precise dates that can address cultural changes within and between prehistoric sites. Dendrochronology is based on the assumption that a tree grows one ring every year, so that counting the rings gives an indication of the age of the tree. The width of each ring varies depending on environmental conditions affecting the tree, so that variability in tree ring measurement sequences should correlate among multiple trees from the same geographic regions and time periods.

Juniper tree growth presents particularly difficult methodological obstacles because they produce false rings under certain environmental conditions. The difficulty in distinguishing between false and real rings leads to tree ring measurement sequences that are difficult to correlate. This poster describes a new method to distinguish between false and real rings by creating a diagnostic key of morphological characteristics and a new methodology for processing samples and measuring. The new measuring method involves two steps, a preliminary measurement that identifies and measures the false rings, and a secondary measurement that combines the data to produce a true ring sequence. Already, this methodology has generated tree ring measurement sequences that have stronger correlations among columns (also known as cross-dating) than previous methodologies have been able to achieve. The chronology developed from the resulting cross-dated columns will provide the critical first step in building a master chronology in Mexico against which future dendrochronological studies can be compared.