



## AAG Annual Meeting

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*Macroscopic charcoal evidence of fire at the Pleistocene-Holocene transition in Cuatro Ciénegas, Mexico*

**is part of the Poster Session:**

**Topics in Physical Geography, Land Use and Remote Sensing**

scheduled on Saturday, 2/25/2012 at 12:40 PM.

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**Abstract:**

In 2011 the state of Texas experienced unprecedented fires that impacted over 3.8 million acres of land. Much of this activity was in the Chihuahuan Desert Grasslands of North America. Opportunities to understand the synergisms between fire and climate in the grasslands are exceptionally rare as fire-scarred trees are restricted to montane forests and depositional environments preserving charcoal are uncommon. Here we present a high-resolution macroscopic charcoal record spanning the Pleistocene-Holocene transition from a 12.4 meter sediment core collected from Poza Cortador in the Cuatro Ciénegas Valley of Mexico. Chronological control was established by AMS radiocarbon dating of charcoal fragments and terrestrial plant macrofossils. Samples of 2 cc were collected from the core in continuous 1 cm intervals, disaggregated in a hot 10% sodium hydroxide solution, and wet-sieved to retain particles larger than 125 µm. We then oven-dried the samples in petri dishes with 10 ml of 3% hydrogen peroxide to bleach non-charcoal organic matter. Macroscopic charcoal concentrations are highly variable over the Pleistocene-Holocene transition, ranging from 20 to over 2300 fragments/cc. The prevalence of macroscopic charcoal in these sediments indicates that fires occurred in this Chihuahuan Desert community in late-Glacial and early-Holocene times. Our analysis of the macroscopic charcoal from this core yields the first sedimentary charcoal record spanning the Pleistocene-Holocene transition from the Chihuahuan Desert region. Our fire history reconstruction from Poza Cortador sediments will be valuable to those managing fire regimes in the broader Chihuahuan Desert.

**Keywords:**

Arid Regions, Paleocology, Charcoal, Fire, Chihuahuan Desert, Pleistocene, Cuatro Ciénegas

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