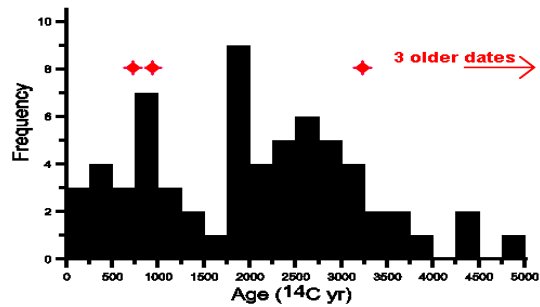


# Preliminary Paleoenvironmental Analysis of the Drexel Road Reach of the Santa Cruz River, Pima County, Arizona

Owen Davis  
David Dettman  
Chris Eastoe

November, 2001

Our radiocarbon, isotopic and microfossil analyses of Tucson Basin arroyos, supported by a UofAz Small Grant (acct. 210212), have demonstrated the potential success of this kind of collaborative research, and they have shown that some of the goals in our research proposal will be difficult to achieve. The large channel we studied at Drexel Road filled in less than 200 years (6 m from 890" 135 - 725" 85 <sup>14</sup>C years). Therefore, a



chronological sequence spanning the last few millenia in the Tucson Basin must be obtained by studying several dated alluvial profiles. Our research therefore shifted to establishing the age of (and obtaining samples from) several areas in the Tucson Basin. We were successful at finding older sedimentary packages that will become the focus of future studies. However, as with earlier investigations, only late-Holocene dates were found for the Santa Cruz.

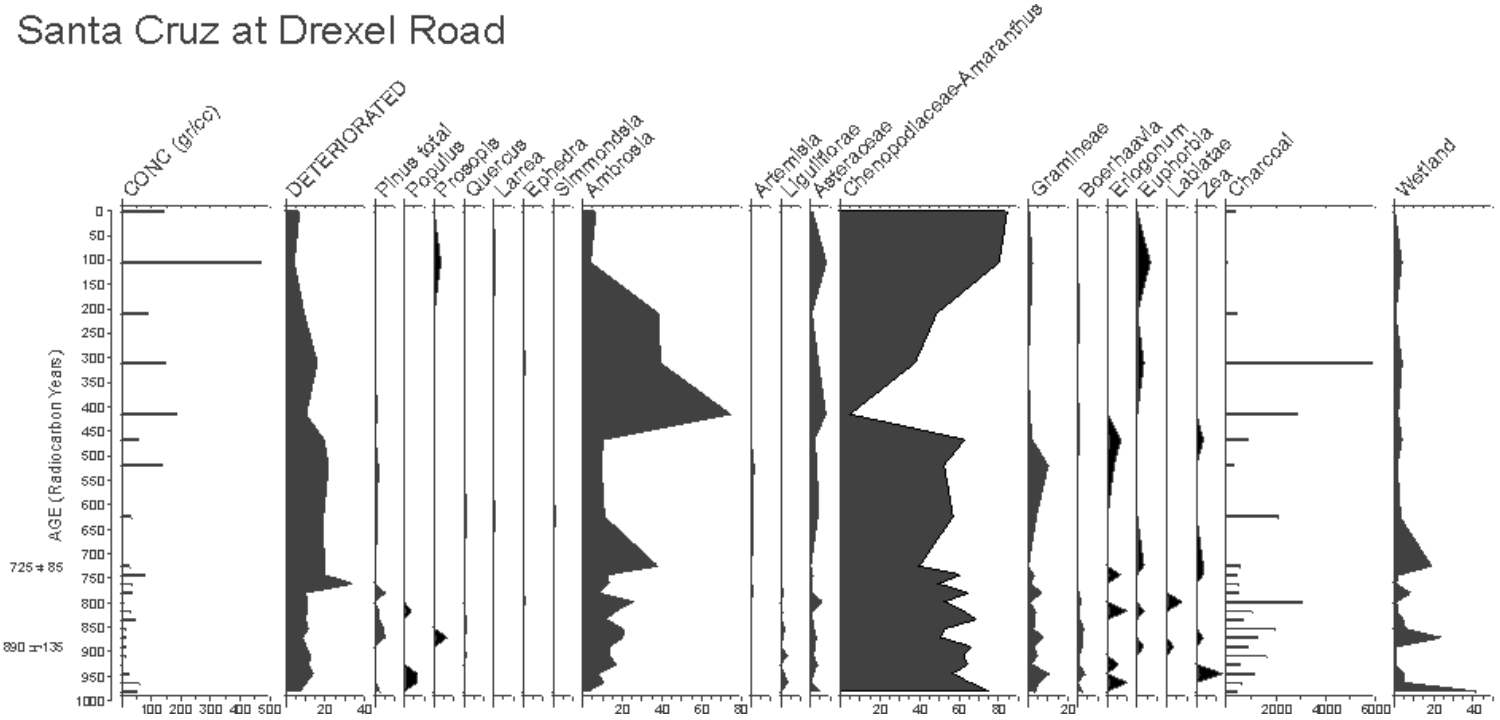
Our initial results indicate that samples from Drexel Road dating to the Medieval Warm Period have more positive  $\delta^{18}\text{O}$  values than modern (-6.8 ‰ vs. -7.2 ‰) possibly indicating greater summer rainfall.

Palynological study of the Drexel Road site indicates only minor change of the upland vegetation. However, these analyses have provided an important basis for evaluating palynological samples from archeological sites in the Tucson Basin. The percentages of streamside plants (> 40%) are many times greater than from archeological sites on floodplain of the Tucson Basin Rivers. Furthermore, corn (*Zea*) pollen is frequent in the filled channel, indicating either that corn was being growing around the infilling channel, or that corn was so abundant that its pollen cannot be use as an indication of local fields.

## Santa Cruz Channel

A-Number	Sample Description	<sup>14</sup> C Age	$\delta^{13}\text{C}_{\text{PDB}}(\text{‰})$
10257	Drexel Rd channel - 442 cm	890 " 135	-27.1
10500 (AA38096)	Santa Cruz SC2 - 213 cm	725 " 85	-25.8

# Santa Cruz at Drexel Road



Drexel Road pollen diagram, two columns combined by stratigraphic position in two channels.



Drexel Channel, facing west. Pollen-sample columns in red with location of radiocarbon dates marked by “+.”