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POSTGLACIAL ENVIRONMENTAL RECORD IN CENTRAL OHIO

At the height of the last Ice Age, more than 15,000 years ago, the Laurentide ice sheet covered Northern North America, including much of Ohio. The objective of my research is to create an accurate climate and environmental record of the time since the ice sheet melted, in a small, representative area. As the ice sheet retreated it left behind many small basins that recorded environmental and vegetational changes as they filled. I studied a 500 square meter tule bog north of the Union City moraine in Darke County, Ohio.

Two cores were taken a couple meters apart using a modified Livingston corer, in meter long sections until we could no longer push the coring device down. The ten-meter long core penetrates through peat and silt layers to the glacial diamict, which stopped the coring device. In the lab, we ran analyses of magnetic susceptibility (MS), percent composition by weight of total organic carbon (TOC) and carbonates, and the grain size distribution on the core at 4 cm intervals. I am currently analyzing fossil pollen preserved in the sediment to learn about vegetational changes. We also processed the cores to obtain samples of organic carbon, which were then sent to a lab for AMS dating.

Together these records show that after the ice had retreated organic production began slowly, with cold hardy conifers dominating the plant assemblage. As the climate warmed further, the basin received less fluvial input, and deciduous trees moved in. Organic productivity rapidly increased at stratigraphic depth 480 cm, to the point where organic carbon constituted nearly 100% of the sediments deposited. A temporary period of lowered productivity from 420 to 320 cm, interpreted as the Younger Dryas cooling, was followed by further warming.