Coring the Leatherleaf Bog

By Dave Mickelson

When you look toward the southwest from the top of Gibraltar Rock there is a peat bog directly below-- no corn or soybeans growing on it, but grasses and shrubs on the surface. A common shrub is leatherleaf, a mostly arctic species that was abundant here at the end of the ice age. And, what is below? Is it a record from the Ice Age? Researchers led by Eric Carson from the Wisconsin Geological and Natural History Survey, aimed to find out when in early March they sunk a coring tube deep below the surface. Taking advantage of the deep frost from the winter, the researchers were able to drive a self-propelled track-mounted Geoprobe onto the normally soft, wet marsh (fig. 1). Assisting and observing were John Attig, Dave Mickelson, both geologists, former land owner Ron Smith, Bill Welch, Charlie Luthin, all members of the Ice Age Trail Alliance, and the driller Tony Kapugi.

The Geoprobe drives a 2-inch diameter core into the ground with hydraulic hammering, which then retrieves 5-foot sediment cores in clear polycarbonate liners. Cores can often be collected to 75 feet or greater depth in the ground. The liners are later split in a lab to describe and sample the sediment to learn about past environmental conditions.

Near the surface, the fibrous peat, mostly partly decayed vegetation, yielded readily to the motorized drill. At a depth of nearly 20 feet more resistance in the borehole signaled a change in material. The next core tube to come up contained some fibrous peat, but then an abrupt transition to fine sediment (silt and clay particles) without obvious organic matter. This sediment was deposited in an open lake formed after a buried block of glacier ice had melted, not in a peat bog (fig.2). The sample at this transition was radiocarbon dated at between 13,440 and 13,260 calendar years before present. This does not date when the glacier left this spot--that was about 18,000 years ago. The date is similar to those on spruce wood at the Two Creeks Buried Forest in Manitowoc County and a few other places in eastern Wisconsin. It is also similar to buried spruce wood discovered near here in 1999. These dates may be recording a change in vegetation from grassland with scattered spruce trees to a closed spruce forest.

After sampling this abrupt transition in the core, the drilling continued another 40 feet through fine-grained lake sediment until it finally hit the glacially deposited till below. What was climate and vegetation like when this 40 feet of lake sediment was being deposited? The answer will require a careful search with a microscope through the fine sediment for pollen grains and perhaps stem and leaf fragments. In the coming months this will tell us more about the climate and vegetation cover in this area more than 13,000 years ago.

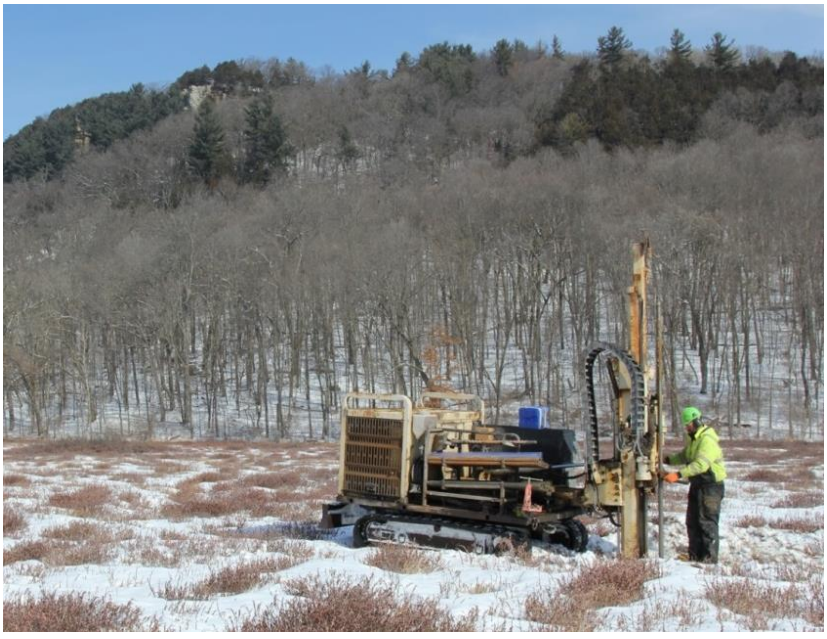

Fig.1. Drilling at Gibraltar Rock bog.

Fig. 2. Core showing transition from peat to lake sediment.