Late Glacial to Holocene Climate Shifts as Revealed by Vegetational Macrofossil Reconstruction, Maplecrest Bog, Catskill Mountains, New York

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Located in the Catskill Mountains in upstate New York at 632 meters in elevation, Maplecrest Bog contains information used to determine past climate trends. A 7.5-meter core containing 13,400 years of vegetational history was drilled in 2015, and while pollen analysis provided a regional perspective of the trends, macrofossil analysis presents a key piece of the puzzle in determining the specific species present in the bog and the timing of their shifts. Adding to the previously completed surface-to-1.5-meter macrofossil analysis, this project focuses on completing macrofossil identification and analysis of the core, charting trends from deglaciation up to 1,500 years ago and comparing it to pollen analysis from the same core. Macrofossils reveal that the bog first formed as a lake, full of brown mosses such as *Drepanocladus*. The earliest trees to appear were spruce (*Picea*) and larch (*Larix*), representing a boreal climate. The Younger Dryas cold interval is evidenced by an increase in spruce needles and seeds, larch needles, and paper birch (*Betula papyrifera*) seeds and scales. A zone of white pine (*Pinus strobus*) at the Holocene boundary follows this cold period, indicating a warming climate, and then the conifer scales that likely belong to the white pine decline as hemlock (*Tsuga canadensis*) begins to expand. 5,000 years BP, hemlock rapidly declines with no needles or seeds recorded for almost an entire meter of the core. When it returns, it is accompanied by white pine, large amounts of aquatic pondweed (*Potamageton*) seeds, and other aquatics such as water lily (*Nuphar*). These are also accompanied by sedges, but then replaced by *Sphagnum* and shrubs such as leatherleaf (*Chamaedaphne*), which indicate a bog environment for the most recent 2,000 years BP. The macrofossil analysis correlates strongly with the pollen analysis of this core as well as with another palynological study (Ibe 1985) done in the Catskills. Together, these conclusions work to build a blueprint for millennial vegetational trends throughout the Catskills region.