Temperature effects on the physiological traits of *Quercus rubra* in New York

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The effects of long-term temperature changes on the physiological traits of northern red oaks (*Quercus rubra*) are still uncertain. Therefore, we established a nighttime urban-to-rural gradient with four sampling sites in the state of New York and looked at the seasonal changes in temperature. Currently, nighttime temperatures decrease from Central Park to Ashokan. In order to better understand *Quercus rubra's* responses to their environment, a study was conducted during the summer months of May 2009-July 2009. Leaf carbohydrates and chlorophyll fluorescence were measured, and samples were collected for the analysis of the isotope discrimination of oxygen consumed in respiration. We found that northern red oaks have higher percent leaf starch values at cooler temperatures. We also found that mature red oaks exhibited higher chlorophyll fluorescence yield under increasing nighttime and average daytime temperatures.

Physiology of Northern Red Oaks (Quercus rubra) in New York

- Four sampling sites along an urban-to-rural gradient: Central Park, Lamont, Black Rock Forest and Ashokan
- Oxygen isotope discrimination (ratio of $^{18}O/^{16}O$), chlorophyll fluorescence and leaf carbohydrates are measured and compared for all sites.